Dr. Richard F. Hespos Interview

August 18 &19, 2008

Session 1, Tape 1, Side A

NORBERG: Some general information that we normally seek from interviewees has to do with their background—their education, their family interests, siblings, and so on. I didn't find any Who's Who entries for you and so on, so I don't know anything about birthplace; I don't know anything about siblings, which are sometimes indicated, and parents, which I wouldn't expect to find in there. So can you just give me a general run-down about your family?

HESPOS: I was born in North Bergen, New Jersey, in 1934, and nobody in my family—parents, grandparents, aunts, uncles, et cetera—ever graduated high school. I was the first in the family to graduate high school. We were definitely lower middle class, and that would probably be an overstatement. I was very good in school, and had great marks all the way through. I always did very well on tests – course exams, IQ tests, SATs, GMATs -- that sort of thing. I skipped half of the first grade and half of the third grade so that I graduated high school at 16 and graduated college at 20 -- which made me socially maladjusted through all those years, of course. I couldn't get a driver's license until I was in my freshman year of college. Anyway, that's probably not of great interest to anybody. I lived in a house with six adults (and one bathroom) until I was seven years old—my grandparents' house—which was rented, not owned. We were on the poor side, I guess, is what I'm saying. When I was seven years old we moved into our own house in Bergen County, New Jersey—Palisades Park, specifically—and lived there until I graduated college and went out on my own.

My parents were both quite intelligent, but, as I said, not at all educated. My father was a very handy man, worked for 40 years for the Pennsylvania Railroad as a skilled laborer, mostly a plumber. He eventually became a general foreman on the railroad. Incidentally, he was of an age where he could and should have been drafted into World War II, but somebody made a decision back then that the railroads were so important to the war effort that most of their employees should be deferred. So he worked long hours during the war, but he never was drafted, which might even have been a negative. Had he been drafted, he might have gone to college on the GI bill or something. Who knows? But until many years later, neither of my parents got a high school education. They both got their GED after they had retired and were in Florida.

My mother was raised as an Irish Catholic. Well, let me step back. All my grandparents were born in Manhattan. All of their parents—my great grandparents -- were immigrants into Manhattan, from either Germany or Ireland. I guess that makes me a third-generation American. My mother essentially was from a broken home. She had two sisters. She was the oldest. Her mother died when my mother was 11 years old. Her father remarried a year or so later to a woman my mother always described as a witch, and my mother actually ran away from home at age 14 or 15, and lived with various relatives and worked as a sales clerk at a five and dime, that sort of thing, until she met and married my father. My mother had just turned 19 when I was born, and my father was three years older. My mother was never again close to her father. I never even met that grandfather until I was in high school. My mother was close to the rest of

her family on her mother's side—a big, Irish Catholic tribe, the O'Hallorans. I've got 13 cousins on both sides of the family, of which I was the oldest.

I don't know if you're interested, but I have some information on the origin of the name "Hespos". Many people (but never a Greek) have asked me if the name is Greek, because of the OS ending. We always assumed the name was corrupted when the first Hespos entered this country in the 1870s, but about 15 years ago, we found out that wasn't so. There are about 15 or 20 Hesposes in Germany. One of these is a genealogical nut and traced the family tree back to the 1600s, all in Germany. So the "Hespos" name has been German for almost 400 years.

You asked about siblings. As I said, my mother had just turned 19 when I was born. She didn't have another child until 13.5 years later—same father. I have a brother who is literally 13.5 years younger than I. I left for Princeton two years before he left for kindergarten, so in a sense, we each were an only child. We've never been close friends. There was never any animosity between us, but we're not at all like two brothers. We're more like cousins just because of the age difference. He's a lawyer in New York, and we're quite friendly with each other. We've always been friendly, but we just never had that much in common, because the things he was doing involved Little League at the same time that things I was doing were, how do you handle a newborn?

NORBERG: Let me ask you to sort of talk about elementary school and whether it was a Catholic set of nuns, or...

HESPOS: No, I was not brought up Catholic. Neither of my parents was terribly religious. My mother was revolting against her devout stepmother and had cooled on catholicism, so my parents decided, "If the first child is a male, we'll raise them all as Protestants. If female, we'll raise them as Catholics." It turned out to be me, and I went to a Congregationalist church until I left for college. I went to public schools all the way, graduated Leonia High School in New Jersey. As I said, I always did well in school, was moderately athletic, played high school football without distinction, and played a lot of basketball, not on the high school team but various other venues.

NORBERG: What was the influence here in the elementary school? Did these public schools, do they have a decent program as you look back on it now?

HESPOS: Yes, I think so, especially as compared to today's schools. Discipline was never much of a problem in either elementary or high school. The high school I went to was in the next town, since Palisades Park did not have a high school. Leonia, New Jersey was kind of a bedroom community for a number of Columbia faculty members. It's right across the George Washington Bridge. In fact, it was claimed at one time that there were three Nobel Prize winners that either had lived or were living in Leonia. The only one I can remember is Harold Urey. It was a nice high-level town, and the high school was excellent. There was a class of 144, I remember, and I graduated third in the class. Two girls tied for valedictorian, because they didn't get anything but A's in all three years there, and I got a B in a history course my sophomore year, which doomed me to not being in first place. What was my point?

NORBERG: Influence of the schools.

HESPOS: Ah. As I said, none of my family had ever even graduated high school, much less gone to college, so I had two influences in school at that time. One was the high school football coach and math teacher, David Jones (whose daughter was one of the co-valedictorians). He had a great influence on me as a teacher, more than as a coach. As I said, I never particularly stood out in football, but I remember taking geometry as a sophomore from Dave Jones. The way he conducted the class, he made me realize that it was socially acceptable to be a smart kid, and I shone in the class. He encouraged me more in the classroom than on the football field.

The other influence was a man I hardly knew, who was a guidance counselor. I never had him as a teacher. In his counselor role, he got me in his office when I was a junior, and he said, “You know, I’ve been looking at your record here. I think you can get into any college you want, including the service academies, if you’re interested in that sort of thing.” I said, “Gee, I had been thinking maybe I’d go to Stevens in Hoboken,” which is a fairly respectable engineering school, and I could commute to there from where I lived. He said, “Open up. Consider the Ivies, consider the service academies, et cetera. I think you can get a scholarship to go anywhere.” That started me thinking. I had never really seriously thought about going anywhere other than close by. Maybe I could commute across the bridge to NYU or Columbia, but suddenly, he said, “Look at them all.” So I did, and I applied to Princeton, Rutgers, Cornell, and Stevens, and got admitted to all four. I was probably at that point leaning towards Rutgers because it was cheaper, but then I got a scholarship from the Pennsylvania Railroad—open to sons of employees—which was four years’ free tuition, which amounted to \$850 per year. That equalized the differences between Princeton and Rutgers, so I decided to go to Princeton.

NORBERG: When you got there, what did you find?

HESPOS: I always knew I wanted to major in engineering because I was much more oriented towards techie-type things than writing or reading poetry and such, although I did take four years of Latin in high school. I just seemed to enjoy the techie stuff more. When I got to Princeton, it perhaps is less obvious now, but at that time I was going into a world with which I was totally unfamiliar — preppie kids. I had no idea what a prep school was when I got there, but 55% of the entering class had gone to places like St. Paul’s or Exeter or Lawrenceville. St. Grotlex we used to call it, which was an acronym combining the names of all the prestigious prep schools. I was suddenly on my own in a strange new world. I wasn’t alone; 45% of us were from public schools. But I was in unfamiliar territory, which made socially adjusting a bit of a problem.

NORBERG: Especially at 16.

HESPOS: At 16, that’s true, too. I had just turned 17. My birthday is in the summer—next week, in fact. So I was one of the youngest in the class. Ralph Nader was a classmate. He was a few months older than I. As everybody does, I struggled in freshman year.

This might be of interest to you, being oriented towards mathematical-type folks. Somebody recommended me for an honors course in math and in physics as a freshman. In the math honors section, there were only about eight or ten of us in this section, and as I go over the list, about half of them became PhDs in math and on the faculty in places like MIT, Princeton, NYU, or Columbia. One of them was the son of the math department head at Princeton. He ended up on the MIT faculty in math. One of them turned out to be our class valedictorian. I was in deep water, over my head. The same thing was true in physics although it wasn’t as small a

section. So halfway through the freshman first semester, I dropped out of both of the advanced sections and got back in with the regular folks. I remember getting a bad mark on the first physics test and thinking, "I wonder if it's too late to transfer to Rutgers." And so on. I eventually graduated...I missed graduating with honors by some fraction of a percent. That always bugged me a little bit.

NORBERG: Who was teaching these math courses?

HESPOS: Tate. I can't remember his first name, but he was a very tall, strange-looking man who won some sort of honors in math later. But he intimidated me. I was easily intimidated back in those days. I was never one to go sit down with a professor and get special help. In fact I very seldom did that. I always felt that that was embarrassing, in a sense. I never did that in college or graduate schools, with one exception later on, but I'll get to that, I guess. So I graduated at 20, and I was pretty tired of school at that time. Oh, just to tie in one other thing, one of the things that greatly impressed me about my mother was that when she saw her son graduate from Princeton, she was 39 years old. When my daughters turned 39 I said, obnoxiously, "Do you realize what your grandmother had accomplished when she was your age?"

NORBERG: But the math department was a particularly stellar operation.

HESPOS: Yes, absolutely, and when I think of the opportunities I missed by not absorbing more of that ambience. I never even knew who Von Neumann was until two years after I graduated, but he was there. I saw Einstein walking around campus a couple of times, but obviously never had anything to do with him. Yes, it was a real honor roll of stars. The old physicist who just died, John Wheeler, was there. Several people on the faculty—I can't remember their names now—had worked on the Manhattan Project or out at Los Alamos. What's his name, *A Beautiful Mind*, John Nash had just left the year before I got there. But Harold Kuhn and Arthur Tucker were there. I didn't even meet them until years later. Yes, I missed a lot of opportunities there, perhaps by being a year too young or immature. Who knows? But I really look back and regret that I didn't sop up more of that stuff while I was there. I guess everybody does.

NORBERG: We can get into a long conversation about that, I think. One of the things that interests me is that your degree apparently was a dual degree in mechanical engineering and economics.

HESPOS: No, it wasn't a dual degree; it was pure mechanical engineering. But economics was the area, after engineering, in which I took the most courses. I had about four or five economics courses, I guess, just because I found it interesting, and had a couple of good professors.

NORBERG: Who were some of your classmates?

HESPOS: Classmates, I mentioned Nader. Famous classmates?

NORBERG: I don't know about famous.

HESPOS: Don Rumsfeld was a year ahead of me. I have a cute story about Rumsfeld. I wrestled a little bit in high school. That was the other varsity sport I tried out for in high school—without distinction, let me emphasize that. When I was a freshman, I guess I was in the gym for some reason. I saw a sign on the bulletin board saying, “Learn more about Princeton Wrestling. Come down at such and such an hour,” and so on. So I went just for curiosity, and in the gym, we’re in a big wrestling room, and we take turns doing takedowns and so on with various people, and suddenly a guy comes up to me about my size, and, you know, “Let’s do something.” Zap, I’m on my back. I get up again, and zap, I’m on my back. I limped off, and I said, “Who the hell is that guy?” “Oh, don’t you know? That’s Donny Rumsfeld. He was the captain of last year’s freshman team,” and he eventually went on to be the captain of the varsity. So that was the end of my wrestling career.

NORBERG: Sounds right about his ideas, though.

HESPOS: Other classmates. Bill Ruckleshouse, of the Nixon Saturday Night Massacre, he was a classmate, although he didn’t graduate on time. Peter Lewis, who is the largest single individual donor to Princeton, he gave \$101 million just so he could exceed the \$100 million that somebody else had given three years earlier. He is primary owner of an insurance company out in Cincinnati called Progressive Insurance. He’s famous. What other classmates? I don’t know, but I’m surprised at how many classmates I know well. Part of that is probably because of living in Savannah and coming up north every summer. We stop at our daughter’s house in Bucks County, Pennsylvania, which is literally 15 or 20 minutes from Princeton, so I’ve been to Princeton reunions every year for the last 13 or 14 years and have gotten to know better a lot of my classmates. We’ve gone on several mini-reunion vacations and such. Last year, about 60 of us went on a Danube cruise. Oh, and I guess my association over the years on Princeton’s Computer Advisory Council. I’ll get to that later. I have no other terribly noteworthy classmates.

NORBERG: What attracted you about mechanical engineering?

HESPOS: That’s a good question. I originally anticipated that I would get into electrical engineering. I remember as a kid being turned on by visits to Radio City Music Hall. I went on a tour of the place and saw the electronics controlling the radio station, and the visit (which we’ll get to) to IBM when I was a senior in high school. So I always figured I’d get into electrical engineering. And in sophomore year, the first elementary electrical engineering course that I had was probably the worst instructor I had in my four years of Princeton. He was really an incompetent instructor, and he turned me off so much that I said, “To hell with this. What’s another kind of engineering?” I was always fascinated by mechanics, so there I was. I originally figured I would go into electrical engineering, and in some ways I wish I had, but I think what you major in as an undergraduate is much less important than it seemed at the time. So that’s how I kind of backed into mechanical engineering.

NORBERG: What was the size of the mechanical engineering group in your year?

HESPOS: I think it was about 30. The most notable of those is a guy named Pete Milano, who’s a classmate, a club mate, fellow mechanical engineer, who became Senior Vice President of

AT&T before the breakup. He was also a varsity football player and was a big, tough-looking lineman—not the kind of guy you would think would end up in a high corporate position. And Pete's still a good friend.

NORBERG: Let's go back to that high school situation in which you went to IBM.

HESPOS: Yes, I think that's interesting and ties into the subject matter that we're discussing here. In senior year, we had what you would call today an AP course in math. There were about eight or nine of us in this special math section. It was our fourth year of high school math. The teacher was not the coach I mentioned before. It was another man named Arnold Peterson, and in that class was a girl named Suzy Eckert. I can't remember how it came about, but her father, Wallace J. Eckert—not Presper Eckert, but Wallace J. Eckert—was a professor at Columbia in the astronomy department, of all things. At that time he was also on leave of absence, or maybe a sabbatical, working for IBM, setting up and running their first significant computer center. Suzy arranged for a group of us to visit this computer center. This is fascinating, because this is fall of 1950, —my senior year. We made a class trip from Leonia, New Jersey, to what was then the IBM World Headquarters on 56th Street and Madison Avenue. Think how much things have changed. We went in two automobiles, one of which was driven by my best buddy and classmate who borrowed his father's car to go to school, probably never even told his father we were driving into midtown Manhattan. There were no permission slips to be signed by anybody, no special insurance, no school bus—none of that. We left school at lunchtime, and our teacher informed the other teachers these kids won't be here this afternoon, don't worry about it, they're with me. We took off in two cars, driving towards the George Washington Bridge, which was a mile away, down into midtown Manhattan, drove around until we found two parking spaces on the street, parked our cars, walked three or four blocks to what was then IBM's world headquarters, and were given a tour by Dr. Eckert. All I remember about the trip was, this computer center was on the ground floor with plate glass windows separating it from Madison Avenue pedestrians, and a lot of glowing, blue tubes in big racks. The machine was called SSEC: Sequential Semiautomatic Electronic Calculator. It was being run by Wallace J. Eckert, who had the additional title of Director of Pure Research for IBM at that time. He eventually returned to the academic world and is still in some of the history books for publishing a few things.

NORBERG: Some really great things, too.

HESPOS: Yes. Oh, and as I learned years later, one of the guys I did *not* meet that day was a gentleman named Herb Grosch, who was working for IBM under Dr. Eckert. He and I discovered that we had that connection years later when I was at ACM. But that whole trip made me aware of computers for the first time. I remember having previously seen a cover article in *Time* magazine with drawings on it by Artzybeshoff, a Russian artist. They showed punched card equipment with arms, legs, and faces. I saw the things, and said, "Gee, they're interesting beasts," and never thought about it anymore until a few years later, which I can then turn to.

During my years at Princeton, I remember in one of the engineering courses, the professors had a computer that he told us a little bit about, but it was an analog computer. I remember thinking, "What's the difference between an analog computer and the one I saw in IBM," which I found out sometime later.

But, something more important happened in my senior year. I had worked in the dining halls, as part of the scholarship arrangement, for three years as a waiter and waiter captain. At the start of my senior year, somebody made a decision to change my job, and I was made a night-shift operator one or two days a week on a computer out in Forrestal Research Center. It was called an IBM CPC—card-programmed calculator. My job was something as complicated as putting the blue cards behind the yellow cards and pressing a button and taking the output cards to a printer to print out the results. I had no idea what the hell it was doing. Well, there was one thing, I had to do some linear interpolation and punch up a card and put it back in for a new run, et cetera. I learned how to handle the machines, the cards, the printers, change boards, a few things like that. That's the extent of it. But, although I knew at the time I was working on something called Project Matterhorn, I found out later it was -- and still is -- the plasma research fusion project, which 50 years later still is really going to provide solutions to our energy problems and everything else, -- someday. But that made me a little more familiar with computers, too. So now I'm out of college.

NORBERG: You just said you didn't understand what the programs were, but it seems to me that if you considered at the time that the CPC was indeed a computer like the SSEC and the others that were around, what was the basic knowledge that was passed on to you and others about these machines?

HESPOS: Not very much, frankly. My supervisor, such as he was, was the guy I'd see at 11 p.m. when I'd get there and he was tired as hell, and he'd tell me what to do for the eight hours I was going to be there alone.

I think I did learn about the floating point notation at that time, because one of the things I had to do, as part of an interpolation-type thing, was after running two trials, I would take two points—one from the first run and one from the second run—interpolate between those and plug in the answer-- the input for a third try based upon the results for the first two tries, and I had to do that in floating point notation, so I had to figure it out. I used a piece of graph paper to do this, and then I would have to punch up a card with the new try at the root and plug it back in. So I learned floating point.

What else? I was pretty much learning just the mechanics of, how do you handle the machine. I learned something about the specs of the machine. That machine, as I recall, had something like 20 words of storage. All it could do was store a few intermediate results. But aside from that, it was controlled by the cards that you were reading into it—that's why they called it a card-programmed calculator, I guess. So the programming was represented by the holes in the cards.

NORBERG: This seems like a very high-level position for an undergraduate student to be called upon to do.

HESPOS: No, I was a grunt—kind of like a machine operator some years later. That's all.

NORBERG: Yes, but when I was working for Westinghouse and having access to the Philco Transact that I told you about, I couldn't even get near the machines, and I had some experience in programming up to that time—not very much.

HESPOS: That's a good point, yes. I guess it was unusual for an undergraduate to have that kind of experience. But I wasn't the only one. In fact, a good friend of mine, Billy Shafer, was also a night shift operator, and he was a total non-techie. He went on to become a broker for Merrill-Lynch or something. 50 years later, we'd joke about that occasionally. "I had the same start as you did, Hespos. How come I didn't get into...?" I said, "Bill, you probably made a lot more money than I did."

NORBERG: That may be true. What did you know about the Forrestal Research Center?

HESPOS: That it was named after James Forrestal, who was a prominent Princeton alum, the first (or second?) Secretary of Defense, who committed suicide, that it was out on the campus that the university had recently acquired from RCA and had named it after Forrestal shortly before I entered Princeton. It was a pretty, pristine meadow kind of place out there. It was run by the university under government grant, the PPL, Plasma Physics Lab. But that's about all I knew about it. I specifically did not know until years later that it was the hydrogen fusion project that I was working on.

NORBERG: Where does this leave us now with respect to evaluating your college years?

HESPOS: As I mentioned earlier, I started realizing then that I had screwed around an awful lot here. I didn't really pick up as much as I could have. I became more aware of Princeton as an institution afterward than I did while I was there. It was just an obstacle to be overcome while I was there—how do I get through this place? I did figure that now that I've got an engineering degree, I'm set for life. That wasn't really true, but I felt I was on top of the world, especially compared to my family background. Wow, look what I've done. I was also fed up with education at that point. I wanted to get out and make some money and be on my own for a while, instead of struggling to work as a waiter and night shift operator, and that sort of thing. So I was glad to get out into the real world, which I did.

NORBERG: I just want to see if there were a couple of more things in the discussion. What did you believe that you could do now as a result of getting this degree at age 20 and having this experience at the Forrestal? What did you think you were going to do?

HESPOS: Become an engineer, whatever that meant. I really think that, aside from the summers I spent working for the Pennsylvania Railroad, I had no damned idea what an engineer really did. I'm still surprised at how naïve I was at that time, and by implication, how naïve all kids are when they graduate at age 21 or something. They don't know beans about what is going to happen to them for the rest of their life; it's just totally a new world that they're really ill-prepared for.

NORBERG: That's interesting.

HESPOS: Okay, first job?

NORBERG: I was keeping quiet, because silence says more than anything about how we proceed here. Yes, how did you come to acquire this job? This is the one at Bethlehem Steel.

HESPOS: Yes. I interviewed, and Princeton obviously had a big, elaborate interviewing program. I remember interviewing half a dozen companies. Among them were Bethlehem Steel; Allis-Chalmers out in Milwaukee; Hamilton Standard, now part of United Aircraft up in Connecticut; AT&T I think in White Plains; and probably one or two others.

NORBERG: IBM?

HESPOS: Not IBM, no, because I remember one of my roommates interviewed IBM, and I had the impression at that time that the only job in IBM that one could get at our level of education was as a salesman, and I didn't want to be a salesman. That's what my roommate was interviewing for. Eventually he did go see them. I don't remember whether he got an offer or not. But that's all of IBM that I was aware of that was open to guys like us. In fact, I can't think offhand of any of my engineering classmates that went to work for IBM right from college. Interesting, I never thought about it. But no, I didn't seriously consider it. I wonder why I didn't, now that I look back.

NORBERG: The reason I asked the question the way I did was you had contacts with Wallace Eckert; you had contacts with at least some of the people in the Forrestal Research Center; you were using a computer on a regular basis; you had some math background and some mechanical engineering background. It seems to me it would at least push you in the direction of this new area of computing, and yet that didn't happen this time.

HESPOS: It didn't happen. I guess I can't answer that question. It seems, in retrospect, it would have been an obvious alternative to be explored, but I didn't.

NORBERG: Neither did I, but that's neither here or there. So you got to Bethlehem.

HESPOS: Yes. One of the reasons I chose Bethlehem, I think, was because it was the highest salary offered to me. I remember it well, it was \$390 a month. On day one, when we started there in July of 1955, they had just settled with the Steel Union, and before I started work I got a raise from \$390 to \$422 a month. Wow, hey! This is great! So Bethlehem at that time—and it's hard to believe how big the steel industry was in the mid-'50s, compared to the shell of its former self that it is now, and the late, lamented Bethlehem ceased to exist about ten years ago. But at that time, Bethlehem was the number-two steel company, and generally regarded as the best-managed, and they had a training program called the Loop Program, which was highly regarded, not just in the steel, but in industry in general. This was a management training program that was ranked in the same league as the one that GE had. So I went there, and I was a Looper, and I remember they hired about 120 engineers in the Loop Program that year. Basically this was an introduction to the steel industry and Bethlehem Steel. We toured every department in the company, mostly in Bethlehem, Pennsylvania. I remember I was lucky enough to be assigned to the Bethlehem plant for continuation of the Loop Program after the first three months of general orientation. So there I was, assigned to the world's largest machine shop in Bethlehem, Pennsylvania. It was huge, with big lathes and shapers and millers and things like this. Some of the machines were enormous, and I was supposed to learn how all these things

worked. And again, I just spent my time walking around, observing, and asking silly questions and such.

Frankly, it was getting a little boring. It was January or February of 1956, in the winter, and I was living in a place called the University Club in Bethlehem, Pennsylvania—a men's club. One of the guys who was living there, a gentleman named Bill Basset, was probably 15 or 20 years older than I, and a bachelor—he married while I was living there. He had two degrees from Cornell in engineering—he was in the engineering department, and was running a design activity. I can't remember the conversation we had, but I eventually went to work for him—transferred from the machine shop to a real job in the engineering department. He had designed, and the plant had built two reactors for Oak Ridge, the AEC at that time. These reactors were used in the refinement of uranium ore, and they involved extremely high-pressure steel vessels, made of forged steel. Three shells, one shrunk inside the other, which were kind of like cannons in that one end was closed, sealed, and the other end had a screw-off cap, if you will. It was much more sophisticated than that. It had interrupted threads about a foot long. Their purpose was to contain the axial force that would try to drive the top out.

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HESPOS: I think the length of the inside was something like five feet, and they unscrewed the cap, so to speak, lifted it out using a crane, and put in a rubber bag, full of uranium ore. I can't remember the isotope—235, 238, or whatever. They would fill it with mineral oil—or some inert liquid—and then pressurize the thing up to 30,000psi—very high pressure. The walls of the thing, the three shells, were about 18 inches thick. The charge was kept in there I don't remember for how long, but it had something to do with the refinement of the uranium ore. I suppose it's the kind of thing the Iranians are trying to do now with today's technology. But this was 1956, and Bill and his small crew had designed the thing. The first one was in operation in Oak Ridge, and they were down there installing the second one when the first one failed, metallically failed, and the thing rose maybe five or six feet off the ground, this huge steel vessel, and it was toast, obviously. We were in the process of designing the third one, and suddenly we had big problems.

So that may have been why he added me to the department. I can't remember whether the explosion happened just before or just after I joined the department, because I was not personally involved in it at all. But suddenly he had a new project. He's got to figure out why the first one failed, because we're building the third one, and we're kind of afraid to turn on the switch for the second one.

So it involved a very elaborate stress analysis. What are the stresses in this vessel, at what points when it's subjected to these 30,000 psi forces? He, not I, set up an elaborate set of simultaneous equations that would explain the stresses at the various points in the vessel. It involved solving four or eventually five simultaneous equations. My job was to sit at a desk with a Marchant or a Monromatic calculator and set up these equations with physical constants based upon the dimensions and such of the steel—the vessel itself—and then try and solve the equations and calculate what were the stresses at the critical points. Once I got it routinized, it would take me about two days with the Marchant calculator to solve these simultaneous equations and calculate the stresses. So I would go through that, and my boss would come over and say, “Oh, that's interesting. Tell you what. Let's change this from $\frac{1}{4}$ ” to $\frac{1}{8}$ ” radius here,

and we'll see what it does to the stresses." Back to the Marchant calculator, another two days of pounding away. After about the third time through this, somebody said to me, "You know, they've got one of those new, giant brains that thinks like a man out in the payroll department over there. Maybe you could figure out a way to do that arithmetic with the help of that thing." I said, "Boy, that sounds like a good idea to me."

So it turns out the giant brain that thinks like a man was an IBM 650 that they were using for payroll and sales accounting and a few things like that. It was a different department on the other side of town. I found a guy in the research department who had used the machine to do some scientific computations. I can't remember his name now, but he was a PhD physicist, I do remember that. What the heck was his name? I spent half a day or so with him, and he taught me how to use a language called the Bell Interpretive Routine, developed at Bell Labs, to do scientific computations on a 650. After that I was the second-best scientific programmer in the Bethlehem Steel Company [chuckles].

So I set this thing up to solve these simultaneous equations on the 650, which to refresh your memory or anybody who's listening to this thing, the 650's main memory was a rotating magnetic drum with 2,000 words of storage on the drum. To solve the binary-to-decimal problem, they had devised a system called a biquinary system, which essentially enabled the binary or digital machine to take in and put out decimal numbers. That was a klutzy system, to say the least, but it did work, and the user didn't have to deal with the binary to decimal problems. So I learned to use the system. It reduced the two days on a Marchant calculator down to about eight or nine minutes on the machine, but I had to add in the time it took to drive across to the other side of town, get access to the machine there in between payroll runs or whatever, get the cards out of the 650, take them over to the 403 printer, print them out, and then interpret the results. But it was an improvement, and it was my first exposure to programming.

NORBERG: So you must have had a car at this time, too.

HESPOS: I did have a car. That's right. But I've got to go back to something you said earlier. At this time, I also met a man (I can't remember his name; Sweeney I think) who worked in a totally different part of Bethlehem Steel in Fall River, Massachusetts, where they were building the Nautilus submarine at the time. This guy would come down to Bethlehem, frequently on a Friday, to get access to the IBM 650 down there over the weekend when nobody else was using it. What he was doing was calculating the radiation exposure that sailors on the Nautilus would get from being close to the reactor while they're doing their jobs while the sub was under way somewhere. It was essentially a three-dimensional geometry problem he was trying to solve, and the amount of shielding between the reactor and the various workstations in the submarine was what he was trying to calculate. The one thing I remember about it is, he'd come down on a Friday afternoon and he'd set up the machine over the weekend. He'd press the button and go away and come back Saturday afternoon to see if it had finished its calculations yet, or if it had failed somewhere in between. So the machine was working unattended doing these calculations. I never was personally involved in it, but I was fascinated that you could use a computer to do that kind of thing. Wow!

So I Went in the Army under a program that existed at that time where one was required to serve six months of active duty. I was not in ROTC; I was a pure enlisted man. Six months of active duty followed by 7.5 years in the reserves, if you were working in a critical, defense-

supporting industry, like the steel industry. So I went into that. While there, I took two months of basic training, like everybody does, in Ft. Knox in Kentucky in the middle of winter. And then somebody found out that I could spell computer, I guess, and my assignment for the last four months was at Aberdeen Proving Grounds. There I was working on a small, prehistoric computer called the Elecom-100, made by the Electronic Computer Corporation of America, which was located, I think, in Cambridge. This machine, which was old at that time, believe it or not—this is 1957 we're talking about—was like an earlier version of the IBM 650. Its memory was a rotating drum also, but it only had 512 words of storage. The only input and output to this machine at that time in Aberdeen was an IBM Selectric Typewriter, which was connected to the machine. When you had written your program on paper, you sat down in front of the machine, and the machine was not doing anything else except looking at you while you keyed in your program, and then you hit the "Go" button, and it whirled away, and then the answer, whatever the result, was typed out on the Selectric Typewriter.

NORBERG: Clever, when you think about it.

HESPOS: Yes, but my gosh, the machine is not doing anything except waiting for you to input and output. While I was there, they succeeded in interfacing a paper tape machine so that you could cut your paper tape offline and then read it in, et cetera. The only thing I accomplished in the four months I was there was-- well, that machine was not a biquinary machine; it was an octal machine. I think there were routines available to get from binary to octal, but the problem of getting from octal-to-decimal and back was still left to the user. So I guess I did two things. One, I helped finish the octal-to-decimal and decimal-to-octal drivers or handlers. I finished that. But then I created a mini version of the Bell Interpretive Routine from the 650 onto this machine so that we could do floating point arithmetic on this machine. This is within 512 words of memory. It didn't have any error protection devices or any of those things that you absolutely require, but it did convert numbers from decimal input to floating point and back. It worked, and I was so amazed that the thing I did worked. Shortly thereafter, they got rid of the machine and got something else, but that was probably the technically most difficult thing I've ever done using computers.

NORBERG: Who had the contract? You said that it was a result of your service in the Army that got you to Aberdeen.

HESPOS: No, I was *in* the Army at Aberdeen. I was a private. I never even reached PFC. I was working with four other, five other GIs. We did have a civilian boss, as I recall, but we were just a handful of guys working on this machine doing things for other parts of the Army at Aberdeen. We were not in the same group as the guys who were in the Ballistic Research Lab. This was Development and Proof Services, or something like that. Our company was D&PS, and BRL was in the next building both barracks-wise and work-wise in the industrial area.

NORBERG: But didn't they, by that time, have some significant machines?

HESPOS: Oh, yes. BRL, well, they originally had the EDVAC. The ENIAC never was moved there, but the EDVAC was, I think, a successor to the ENIAC. Let me branch right here. This should be of interest to everybody. I'm getting ahead of this story. You've heard of the ENIAC.

Are you aware of the fact that the people who worked on it and who developed the acronym always referred to it as the ENIAC? Their pronunciation was N-EE-ACK, and somewhere along the way, the rest of the world converted that to "EE-NEE-ACK". I know this because years later I was at the 40th anniversary celebration at the University of Pennsylvania, and Presper Eckert was there as well as eight or ten of the original team, including John Mauchly's wife, Kay Mauchly, and while there, they kept referring to the "N-EE-ACK" Project". Don Knuth was in the audience with me and a bunch of other people, and Knuth raised the question. He said, "I've noticed, after three or four hours of listening to you people, you all call it the N-EE-ACK, and the rest of the world seems to be calling it the EE-NEE-ACK ever since. Which is correct?" They all said, "Well, I don't know. We named it, and we always called it the ENIAC, but I never really thought about it." "No, I never thought about it, either." So the change took place invisibly, but the original pronunciation was N-EE-ACK.

Anyhow, I digressed. We're back in Aberdeen, and I was not part of the BRL group, which was working on the exotic and famous stuff. I was part of this back group over here working on the Elecom-100. But the four or five guys I worked with were very bright guys. I do remember being very impressed by them. But BRL had the successor to the ENIAC, which I think was called the EDVAC, followed by the ORDVAC, which was the successor to that, and which was custom-made for Aberdeen. I knew some of those guys, but not well.

One cute thing out of that was desk-checking, which of course is a fine art that has disappeared, because you use the machine to tell you whether you made any keying errors or typing errors or logical errors. Desk-checking was done with pencil and paper and so on, and we had a Monromatic machine, I think it was, to go through checking the arithmetic, but it was an *octal* Monromatic machine. It didn't have any eights or nines on it. One time I remember somebody from one of the offices down the hall came in and said, "Hey, can I use your calculator?" "Yes, sure, go ahead." He started keying away at it, and said, "Where the hell are the eights? Where are the nines?" [Laughter]

NORBERG: That left me with something I'm puzzling here. What was that machine that you just mentioned, the Monromatic.

HESPOS: That's a desk calculator.

NORBERG: And that's from the Monroe Calculator company?

HESPOS: Yes, Monroe and Marchant were the only two I can remember.

NORBERG: By that time, that's probably right. All the others had gone.

HESPOS: The old Comptometer, I guess, was earlier than that. That was really prehistoric. [Laughter]

NORBERG: You stayed with Bethlehem Steel for what, about five years, six years?

HESPOS: Oh no, a little less than two years from graduation until I went into the service, and literally, after I got out of the six months in the Army, I went back to Bethlehem Steel for a month or six weeks during the summer of '57 before I entered Harvard Business School.

NORBERG: I think it's on the-- I got this idea from your own CV. '55 to '61, intermingled with graduate schools and military service, employed by Bethlehem Steel and Union Carbide.

HESPOS: Right, I did return to Bethlehem Steel during the summer between my first and second years at Harvard, the Summer of '58. I did not return to Bethlehem Steel after finishing Harvard. I wanted to, but Bethlehem screwed up the interviewing process—never sent anybody to Harvard. I was interviewing other steel companies and Union Carbide and some schools at the same time. Bethlehem called me after it was too late, saying “Hey, are you going to come back here or not?” I said, “Well, I haven't heard from you people.” “Oh, we'd love to have...” et cetera. But the ship had sailed by that time.

NORBERG: We talked about the design engineering aspect of it and the computer programming. Operations research analyst.

HESPOS: Okay, that was at Union Carbide; not at Bethlehem Steel. But I've got to be fair—at Bethlehem Steel was where I first heard the term “operations research” from their chief economist, a fellow name Robert Woodward—not the one of Watergate fame, but a Harvard economist who was working for Bethlehem Steel and living at the University Club. He was also an old bachelor. At dinner one night he started talking about this wonderful thing called operations research that people were doing and he described it a bit. I said, “Gee, that sounds interesting.” I had him as an instructor. He was teaching a few night courses at Lehigh, and I signed up for a course or two under him in economics. I bought the book by Churchman, Ackoff, and Arnoff, *Introduction to Operations Research*, started reading a little about it, thought this was kind of neat stuff, and it seemed to me it tied together my technical interests and my economic interests in solving industrial kinds of problems—linear programming for scheduling refineries and all those kinds of things. Bob Woodward's the guy that first got me interested in that, although I had already planned on entering Harvard Business School.

NORBERG: Why?

HESPOS: Okay, that's a good question, too. My first six months at Bethlehem Steel, the training program in the machine shop made me ask myself “Do I really want to spend the rest of my time managing a machine shop here, if I get into management here, managing the drill press section or.... It's cold in here, and it's kind of dirty”. I guess I had heard about Harvard Business School while an undergraduate at Princeton. I remember two big men on campus, Dick Kazmaier, the famous football player, the last Ivy League Heisman Trophy winner, I think, and his teammate Dick Pivrotto both entered Harvard Business School. Pivrotto entered immediately. They were class of '52, both of them. Kaz first went in the Navy for three years. I also heard that George Sella, who was an All-American football player from Princeton before Kaz, and who had graduated high school in the town next to where I grew up, and who had been an engineer at Princeton, had also gone to Harvard Business School. He subsequently became CEO of Allied Chemical. He had been a role model a bit when I entered Princeton. I said, “Gosh, he played football at Cliffside High School; I played football at Leonia. He went into Princeton Engineering. I'm going to Princeton Engineering. I wonder how long I can track that?” He became All-American; I never played. But he was a bit of a role model for me. I met

him once or twice during the years. I met Kaz once or twice over the years, too. At Princeton I was a freshman, and he was a senior, so I obviously never met him on campus. He was one of those people who walked six feet off the ground. What was my point? Oh, how did I ever hear about Harvard Business School? I remember thinking, "Gee, a guy with an engineering degree from Princeton and an MBA from Harvard really ought to have the world right in the palm of his hands." I said, "Maybe I can do that someday." So after the first six months at Bethlehem Steel, I said, "I think I need more of a leg up if I'm going to... I don't want to spend my career managing the coke ovens at Bethlehem Steel and things like that. There must be something more interesting and enjoyable."

So I applied to Harvard Business School, for entry in the fall of 1956, but I was turned down. I remember I applied with a buddy of mine from Princeton, a classmate who had also been working for a year, and we both applied, and he got admitted and I got turned down. I was really pissed off at that. So I wrote a letter up there saying, "Hey, I was really interested." I incidentally applied to Columbia and Wharton, at Penn, at the same time and was admitted to both of those. I wrote a letter to Harvard saying, "I'm really disappointed. Can you tell me why I was turned down—what shortcomings?" I got a nice letter back saying, "No shortcomings at all. We think you need more working experience." They were getting away from admitting students directly from college. They've gone much further on that direction now. They typically want you to have five years of experience before you enter the MBA program, and I had only one at that time, and they said, "Come back next year, and you'll probably get favorable consideration." So I said, "Okay, maybe I'll go in the Army and get that out of the way," and so on. So I did that, went in the Army for six months, came back, returned for that summer at Bethlehem Steel, and then entered HBS in the fall of '57.

NORBERG: What was the program there? What did an MBA program constitute?

HESPOS: The first year was all the same for everybody. The class was divided into six or seven sections of about 80 men in each section sitting in a U-shaped room. These rooms had banked seats, like a small theater, with the instructor standing in the center, and wherever you sat you could see, eyeball to eyeball, everybody else in the room. I had three classes a day in five different subject areas. There was finance; production; administrative practices; which I guess you would call it HR or something these days; Business Responsibilities And Society, (it was called BRAS); and control, accounting, quantitative analysis, and so on, which was pretty rudimentary at that time. For that first year, three times a day for an hour and a half each time, you would sit around and discuss last night's cases. Harvard is based totally on the case system. The first year was a tremendously valuable experience. You were always overloaded, obviously. You had to read this case, analyze it, find out what you thought were either apparent or unapparent problems in this company or situation or whatever it was, and what you felt ought to be done about it. Then you go to class, and the instructor would call on somebody to do the kickoff, start the case: "What do you think is the problem, and what do you think ought to be done about it?" One, you had to be prepared, because you might get this cold call and have to talk. Two, if you weren't prepared, you had to really be good at bullshit. Three, after you did it—or if you weren't the one that was called on—you had to be prepared to challenge whatever the person had said, saying, "Oh, you missed the point. The problem was really over here." Then you had to be able to defend your original position if you were the person who was challenged, and then the discussion goes like this with the instructor moderating the whole thing

saying, “Well, Mr. So-and-So said...and you said this. They don’t agree. What do you think?” Et cetera. It’s a tremendous experience in forming your position, stating your position, and then defending your position. It’s one of the most valuable educational experiences I’ve ever gone through -- that first year at HBS. As I look at George Bush and his degree -- or lack thereof -- of articulateness, I cannot possibly imagine how he got through the first year at HBS. He would have been eaten alive. I still don’t understand it. Now admittedly, he is allegedly much better in small groups than he is in front of a TV camera, but 80 people is not really a small group, especially when 79 of them are trying to shoot you down. But that’s an aside. So that was the first year. The so-called Control course did have a few cases in there on what one might call prehistoric operations research—really trivial stuff where you had to figure out an analytical method of saying, “How can we get the most out of these two plants, one that makes trucks and one that makes cars,” and, “What’s the proper mix,” et cetera, which I did well on. Also, in the Production course, among the first cases was that of a big machine shop. [Laughs]

NORBERG: Talk about luck!

HESPOS: Think about guys that majored in English or History as undergraduates and suddenly got thrown into a machine shop. Here I am, a mechanical engineer who worked in the world’s largest machine shop for six months, and I was stellar. This is both amusing and does come back later on with the story. One of the guys in the class was a guy named John MacArthur, who was a Canadian, who had graduated from the University of British Columbia majoring in forestry. John’s idea of high tech was the chainsaw. He had no idea what a lathe was or a shaper or a milling machine, et cetera. We had to do things like calculating speeds and feeds in the machines and such, and John was just off in left field. And I knew what I was talking about. It turns out that John became our next-door neighbor when I got married between first and second years; John actually suggested the apartment that we moved into, right under his apartment. John subsequently became the Dean of Harvard Business School for 15 years, and was a friend of ours, and still is. He was very impressed by my intelligence in that first-year Production course because of that case, and that comes back later in the story.

Okay, that’s the first year. In the second year there were a couple of required courses: one in Business Policy, which everybody had to take, but another one which was pertinent in my career was a course in Probability and Statistics for Business Decisions. The professors were Bob Schlaifer and Howard Raiffa.

NORBERG: The man that became involved in risk assessment later on?

HESPOS: Yes. And Bob Schlaifer had been at Harvard for 100 years. He was a brilliant man who I think majored as an undergraduate in Art History or something, but gravitated toward statistics. He was a polymath, I guess you’d call him, and smart, articulate, arrogant. Howard Raiffa was, I think, a New York kid who had been teaching at NYU or City, I can’t remember which, and somehow he had just come to HBS, because he had written the book by then, *Games and Decisions*, Luce and Raiffa. He sat in the class that Schlaifer was teaching, and he would occasionally sub when Schlaifer was not there. It was, I think, Howard’s first exposure to the case method, too. But he and Schlaifer would occasionally get in arguments in class, about the legitimacy of subjectively estimated probabilities. Oh, it was great. But that was a heavy course. There weren’t very many Harvard MBA students who felt brave enough to sign up for that, but I

did. It was the techies, I guess, of the class. I enjoyed that one. That furthered my interest in operations research. We had Schlaifer's book in mimeograph form that he subsequently put into hardback, but we had it before it got that far, and we were encouraged to find and inform him of errors in the book, of which we found a few.

NORBERG: You received a degree, then, from the Harvard Business School in 1959.

HESPOS: The first year I was living in dormitories. Jill and I got married in the summer of '58. That was the summer I returned to Bethlehem Steel for the summer. We lived in Brighton, actually, for my second year, right under the MacArthurs, and graduated in June of '59.

NORBERG: With what expectations now?

HESPOS: Ah, I had mixed feelings at the time. One, I wanted to return to Bethlehem Steel because I thought that the steel industry was a good ground for operations research—lots of neat things that I could think of doing there. But that didn't come to pass, and they said it was their fault, not mine. "Is it too late? Are you sure? Maybe you'd like to," et cetera.

So I explored a few of the PhD programs in operations research. I investigated but didn't apply to any doctoral programs, but I kind of put that on my list of things to consider. Jill was pregnant at the time, and maybe I ought to get earning some money again. I remember I had job offers from Union Carbide and US Steel in Pittsburgh, and one or two other companies. I honestly can't remember. Jill and I flew out to Pittsburgh and decided maybe we don't want to live there, and the idea of living and working in New York appealed to me at that time. We're both from New Jersey.

So I accepted the position of working at Union Carbide as Operations Research Analyst, working for a man named Jim Townsend, who had recently been graduated from Case Institute, which was the hotbed of operations research in those days. Churchman and Ackoff and Arnoff were all there when they wrote their book. Churchman had left for California at that time. Arnoff was still there, but he eventually went to one of the accounting firms as a management consultant in operations research, and Ackoff left a few years later to go to Wharton, and I guess he finished his career there. Jim Townsend had been part of that clique out there. He got his masters, never did finish his PhD, and he was manager of operations research for Union Carbide, and I was third member of his department or something when I joined there. He sent me off to a two-week short course in operations research at Case in the winter of '59 and '60 just before or just after Christmas, I guess. So I met the high priests of operations research out there. And at that time I also got involved in the professional societies in that area, such as TIMS and ORSA.

Oh, I know what point I was going to make: why operations research? Why not computer science? At that time, because of my experience with computers, I had the impression that most of what you were going to do working with computers was to be a programmer. I looked around and saw these guys and said, "Being a programmer is like being a desk engineer. It's better than working in the machine shop, but it doesn't seem to tie in with the management approach I'd just been spending two years sopping up. There ought to be some way you could get to work on more interesting, significant, global problems than simply writing computer code found at that time that the first doctoral programs in operations research were coming into being at that time—the first one probably at Case, although maybe it was the guys in California that were first. I don't remember. Conversely, computer science had not yet been recognized as a

discipline worthy of its own department, as it is now. I thought the operations research field would be more interesting, so I gravitated towards that instead of computer science, which, in retrospect, may have been a mistake. I don't know.

NORBERG: I don't know about that.

HESPOS: Operations research I think peaked in its public appeal to the rest of the world probably in the early '70s, I think, and it's become kind of a quirky-type thing in my opinion since then.

NORBERG: How old were you at this time?

HESPOS: About 25. The summer I graduated HBS I turned 25, which I guess is pretty young as you look back.

NORBERG: Well, not for the equivalent of a Master's degree. You were going to stay in Union Carbide at least for a while.

HESPOS: Yes, but the first thing I did when I took that job was I signed up at Columbia to enter the-- I figured, maybe I can get a Master's in Operations Research in addition to my MBA from Harvard. So I started taking courses there at essentially the same time I started working for Union Carbide.

NORBERG: What kind of courses?

HESPOS: Operations research, in the Engineering Department. They had a fairly extensive night program, schedule of classes, so I was able...

NORBERG: That's not uncommon.

HESPOS: So I started going there probably two nights a week after work, and we were living at the time in Ft. Lee, New Jersey, which is the western end of the George Washington Bridge, not a mile or two from where both Jill and I grew up. So going to class was not that difficult. During the day I was working at Union Carbide; evenings two nights a week I would go to Columbia, just across the bridge. I did that for two years, maybe 2.5 years.

Suddenly I got a call from a headhunter. Oh, I became active in the Operations Research Society, (ORSA), and The Institute of Management Sciences, (TIMS). I became a member, went to meetings, and read their journals, and all this sort of thing. Somewhere along the way I met David Hertz. David Hertz over the years served as president of both TIMS and ORSA—not at the same time. David was a partner at Arthur Anderson in their consulting group, and their number-two guy was Kurt Schaeffer. I met both of them at various TIMS or ORSA meetings. David asked me if I'd be interested in joining Arthur Anderson. I said, "Yes, let's talk." The number two man was Kurt Schaeffer. Hertz lateraled me off to Kurt Schaeffer. I met and talked to him. If you don't know David Hertz, do you know Kurt Schaeffer?

NORBERG: No, I don't.

HESPOS: Okay, they were both active in the societies, and Schaeffer-- No, I did not get a job offer from Arthur Anderson, which surprised me because I thought they were really interested in me, and I wasn't actively looking for a job. It had just landed in my lap. But I was a little bit surprised and disappointed. Gee, I thought I was making a homerun there. About a month or two later I got a call from the recruiter for McKinsey. It turns out McKinsey was located in exactly the same building as Union Carbide. It was in the Carbide Building on 270 Park Avenue. So I hopped on the elevator, went down and talked to them. He said, "You may be aware that we're adding a partner in operations research to our staff. His name is David Hertz." Ah-ha. Click. They had not offered me a job at Arthur Anderson because David was leaving. David, I'm sure, had given my name to the recruiter at McKinsey. He's got to build up a staff. So a few months later, I left Carbide and joined McKinsey, changing elevator banks to do so.

NORBERG: Okay, but in the meantime, you received your PhD from Columbia.

HESPOS: No, I had not done it yet. I had taken courses from the fall of '59, but it was only two courses per semester, so I was close to, but had not yet reached being able to get a Master's degree. I was about two-thirds, three-quarters of the way to getting a Master's degree at Columbia. So I told McKinsey or David Hertz, I guess, that I wanted to finish that, and they said, "Oh, no problem." David had three degrees from Columbia, including a PhD, all in the engineering department. He said, "Fine, but you have to work it around your travel schedule and such. Feel free." So I continued taking courses, finishing up the course requirements while at McKinsey.

Session 1, Tape 2, Side A

NORBERG: You were talking about the Columbia program and how the Union Carbide people responded to that.

HESPOS: Well, it was the McKinsey people at that time. David was over at McKinsey, and he encouraged me to continue. So I went to work for McKinsey, and continued to take the remaining few courses at Columbia. I guess after a year and a half or so at McKinsey I finished all the course requirements for either the Master's or the PhD. Columbia gave me credit for two years of Master's stuff at Harvard. The PhD course requirements were larger than the course requirements for the Master's, but not a lot larger, but with the obvious dissertation requirement on top of that. So I finished up the course requirements for either the Master's or the PhD at Columbia—whichever I chose. Then I stopped taking courses because I was also traveling a bit for McKinsey and so on. I took the qualifying exams just to keep my options open. I took the six comprehensive exams in six different disciplines that were required for the PhD and the language exam, which is a little story all by itself. So I got those out of the way, and that took about another year of very part-time stuff. The exams were all given on Saturdays, I remember, so that was no problem.

But back to the language exam, briefly. I took four years of Latin in high school but never lived in a foreign country, never studied another language. The language exam at that time for the PhD was, as I found out, you were required to translate several pages from a foreign professional journal with the aid of a dictionary and essentially unlimited time. So I think I

could probably pass an exam like that -- with a little preparation -- in Arabic, or Chinese! So I took a self-study course in French of some kind, and I took it in French and translated half a dozen pages from a French operations research journal and passed. So I got that out of the way, but that was really ludicrous I thought.

I'd now finished all of the requirements for the PhD except one, namely, the dissertation. So about a year or two went by, I guess, when all I was doing was registering at Columbia each year just to keep my name there. In the middle of the year in 1964, I realized I'm going to have to fish or cut bait—either take a second Master's degree or get serious about a dissertation. I remember we had one child, and she was five years old at the time, and I figured we're never going to have any more kids. We had to buy a new car then, so we bought a nice sporty sedan and got rid of the old clunker station wagon that we had had. I also decided, okay, I'm going to go for the dissertation. Within a month Jill was pregnant, after a six-year lapse. I had already committed to taking a partial leave of absence from McKinsey, essentially two days a week or something, and the rest of the time I would have to work on my dissertation.

NORBERG: I'm a little confused there. Was the partial leave to do the dissertation?

HESPOS: Yes.

NORBERG: So that was the two days a week?

HESPOS: I can't remember whether I was *working* two days a week or *off* two days.

NORBERG: A 60% leave?

HESPOS: Something like that, but they didn't reduce my salary by that much. They were very nice about it. I have great admiration for McKinsey as a firm, and still do, very strongly. I can't remember the details on how many days it was, because it would depend on what assignments I had and all this sort of thing. I plunged into the dissertation. I guess the thing that made me decide to do it was I met a guy through an associate of mine at Union Carbide named Mike Tayyabkhan, who is still a friend, and one of the smartest men I ever knew. He introduced me to his friend, his graduate school roommate, named Murray Melbin, who was at that time on the faculty at Harvard in the Department of Social Relations. He was a sociologist, and he had a research project working with Mass General Hospital in which he was analyzing the effect of workforce scheduling on the turnover and morale of nurses and hospital employees. What's the effect of onerous schedule requirements on nurses? Let's just talk about nurses. In order to carry out this, he had to be able to schedule the work force, and the hospital agreed, "Okay, we'll work with you. We'll schedule half the hospital the way you tell us to, and we'll compare their turnover and morale, versus this control group over here, et cetera." He would try to reduce the amount of disruption in the schedules, shift changes, reassignments from one ward that they always worked to one they never worked before, and things like that. To do this he needed a scheduling system that would minimize those undesirable aspects of the schedule while still meeting the required staffing levels. He asked if I wanted to give it a try. So I said, "Here's my dissertation topic." As I look back over my entire career, I'm less proud about that damn dissertation than I am about most of the things I've done. I don't mean I plagiarized or anything like that, but it was simply not a major breakthrough. It was sufficient to get the damn degree.

MODERATOR: How about the hospital? How did they benefit from it?

HESPOS: I doubt they benefited from it at all, either from the workforce scheduling thing I came up with or the study of the impacts. It was just one of those things that was not a homerun on any of several measures.

MODERATOR: Was it ever a homerun, say, later on—20, 30 years ago?

HESPOS: No. It is still a well-written dissertation. I would say that. Even my daughter said that, when she read it decades later, when she was getting her PhD. (How's that for filial devotion?) McKinsey gave me secretarial support to do it, and Melbin's government grant gave me computer time. I was using the Harvard computer, the one in Aiken Lab, because he was doing his work at Mass General and had office space in part of Mass General and the mental hospital (McLean) out in Belmont—beautiful campus. Anyhow, I was using the computer up there. But I slogged through and turned out the dissertation. My advisor for the dissertation was a nice old gentleman named Sebastian B. Littauer. He was on the faculty at Columbia for many, many years. He had been the first doctoral student at MIT of Norbert Weiner. I was the last doctoral student of Sebastian B. Littauer, because he was very close to retirement at that time—nice gentleman; I really liked him. He had been a close friend of David Hertz over the years. He may have been David's professor at one point. What was my point anyhow?

NORBERG: I'm trying to get the chronology straight in terms of what came before what, and what came after.

HESPOS: I'm still at McKinsey all this time.

NORBERG: Yes, I realize that, but let's get back to the dissertation for a couple of moments. Did McKinsey have a contract to do the hospital study?

HESPOS: McKinsey, no, not at all—zero, no relation whatsoever. I was on a leave of absence from McKinsey working on this study at Mass General, which Murray Melbin on the Harvard faculty had the government money for this, and he had a staff of four or five people working out in the hospital in Belmont. So Murray had the only money in the project. Nobody was paying me any money. I was getting what computer time I needed from Harvard as part of Murray's program. McKinsey was paying me the part-time salary they agreed upon for the part-time work I was doing, and Columbia was where I was getting my doctorate from. But there's no flow of funds in this at all involving me.

NORBERG: Then let's turn to McKinsey and Company and let me ask you what sort of projects you were working on there as a management consultant.

HESPOS: Fair enough. I was there from beginning of '62 through 1968. During that time I was on a partial leave of absence for about a year and a half, I guess. Before that I was full time, and after that. The last two years I was there I was full time. The kinds of things I worked on were mostly involving managing computers, helping large corporations to get the most out of their

computers. These were back in the days when computers were foreign, extraterrestrial to most top management. I worked on probably four or five studies for McKinsey to look at the computer activities of an entire corporation and say, “What’s it doing for us? Where are we not exploiting the potential? How should we be organized in order to maximize the effectiveness of this thing that’s increasingly costing more money,” et cetera. I found those studies very interesting. I can’t name some of the companies. McKinsey has a confidentiality agreement, but the statute of limitations has probably expired. Most of the companies don’t exist anymore anyway. We did that for Celanese, General Foods. Neither of whom exist, come to think of it. But Bethlehem Steel and Union Carbide don’t exist either. Wow. Why am I drawing a blank on the clients? American Standard, Mobil, and Texaco—two big oil companies.

NORBERG: How about Visa?

HESPOS: Visa? No.

NORBERG: Was this being done during your time at McKinsey?

HESPOS: It may have been, but not by me.

NORBERG: Incidentally, did you know George Glaser?

HESPOS: Yes, very well. Do I understand he died?

NORBERG: Yes, he did. He was very ill, and was beginning to have dementia, but it wasn’t turning into Alzheimer’s. But yes, he did.

HESPOS: I used to be quite friendly with George.

NORBERG: George told me about the Visa contract.

HESPOS: Wasn’t that in California? Bank of America or something like that?

NORBERG: It could be.

HESPOS: George and I were very close friends, but I kind of lost contact with him probably a half dozen years ago.

NORBERG: That’s when he was becoming ill. .

HESPOS: In fact, I knew his first wife, too, Patty, and his son, John. I always admired George. Yes, George and I worked together on the Texaco study. I took it over from him. He may have been having marital problems at that time because of his travel across the country all the time, but I had to step in and take over the study from George. George was in the San Francisco office all the time I was in the New York office. While we’re on that interruption, has anybody mentioned Jim Adams to you from ACM?

NORBERG: Yes, many times, but I wasn't asked to interview him; somebody else is interviewing him.

HESPOS: Okay, somebody is doing him. He knows more about the history of ACM than anybody in the world, but he is seriously ill. In fact, the last time I saw him was about a year and a half to two years ago. He and Beverly visited us in Savannah, and he has Parkinson's, and it has affected him so painfully, it seemed to me. It's affected his speech, and without speech, Jim Adams is nothing. He's such a delightful guy. Not the most ambitious guy in the world, but just a smart, interesting, warm human being, and I'm glad somebody is going to interview him.

NORBERG: Now does he have a connection with any of these firms?

HESPOS: No, he spent his entire career at ACM. He spent 27 or 28 years at ACM, and retired from there shortly after I did, when DeBlassi took over. Jim was gone in a year. I went to his retirement party, I remember. But he's on the list though; that's good. It was just so painful seeing him. He tries to get a word out and can't.

NORBERG: We had professor of Minnesota like that. A wonderful man. He showed us one day—we were on an examining committee, he and I and three other people—and he was showing us how his writing changed as a result of the Parkinson's, and he'd start out with a very good cursive, and it would get smaller and smaller and smaller as you got to the end of the line. Frightening in one sense. But I didn't mean to interrupt there. I want to get back to McKinsey. Is it possible to talk about maybe only one of those projects or maybe two just to get the flavor of them?

HESPOS: Sure. Let me try and think of-- I'm having difficulty. It took me a while to get Mobil and Texaco. If I couldn't remember those two... What would be the most interesting? Mobil would probably be the most interesting. McKinsey and Mobil had very close relations. I was working on Mobil's 43rd study we had done for them or something like that, and Texaco was not far behind. I think Texaco was at 27. Both of them were long, continuing clients of McKinsey. For Mobil, the issue was, even in a technical company like a petroleum company, top management didn't know anything about computers at that time, and Mobil was a large, diverse company, with Mobil Chemical totally separate from Mobil Marketing, and the exploration and production company was separate from that, and so on. The issues were should we be organizing a computer-- this is back in the days when this was even feasible or plausible. Should we have a separate centralized computing organization to service the computing needs of the rest of the parts of the corporation? Back in those days, you remember Grosch's Law: bigger machines are much more economical, cheaper, and it makes a lot of sense to conserve that limited resource and parcel it out in an efficient manner. That was still a valid consideration, and one of the things that was under consideration. Without really knowing it, we made the right recommendation, saying, "No, you really shouldn't do that," not realizing the degree to which the cost of the hardware was going to plummet. You no longer had to conserve it. But we said, "In order for the computer to be used effectively either in record-keeping or the classical payroll application," (which is the catch-all term for anything, it's just number-crunching, accounting tasks), "or some of the more exotic kinds of things, like allocating your tankers shipments, or scheduling your refineries, the operations research kinds of things. It's much more important to

have the computer capability close to the people who are dealing with those problems than it is to try and conserve. So, go with a decentralized direction.” That was sold not only to Mobil but to several other companies at that time.

NORBERG: Isn't that a little early for that?

HESPOS: Oh, yes, from a cost standpoint it was probably going to cost more in terms of hardware, but in terms of effectiveness, we judged that you've got to do it because trying to impose a new way of scheduling tankers from New York to these guys in Abu Dhabi or wherever the hell they are, they're not going to buy it. It's better to give them the tools to solve the problem themselves, provide them with expert advice, if they want it, but don't try and enforce it on them because it's not going to fly. It was too early from a hardware cost point of view, but not too early from an effectiveness point of view. There were a number of counterexamples of that, where people tried to impose a computer czar, many of whom went down in flames. General Foods is a classic case in point. That might have been a better example to discuss. You probably know Paul Strassman. In fact, I think he was one of the people interviewed.

NORBERG: For the Babbage, he was interviewed. He doesn't have any association with ACM, I believe. Paul's a nice fellow.

HESPOS: Yes, I haven't seen him in probably more than ten or 15 years.

NORBERG: He just published another book.

HESPOS: Jim Townsend introduced me to Paul Strassman back in 1959 when I first went to work for Carbide, and ultimately Paul and I co-wrote one or two papers for publication in *Management Science*. I used to see a lot of Paul. Paul was the...CIO was a term not yet invented at the time, but he was the CIO of General Foods in '60 I guess. Paul is a perfect case in point of a competent guy who was given corporate responsibility at GF by Tex Cooke, who was running the company at that time. Paul, whose personality can be a little bit prickly, was so resoundingly --not rejected, but just-- not welcomed by any of the decentralized divisions—Maxwell House, Jell-O division, et cetera—that Paul was dead in the water and didn't know it at the time.

NORBERG: He described the Jell-O project as a real wonder.

HESPOS: There were many interesting projects there at the time, but Paul was disliked by everybody there, and I really felt sorry for him. We were working directly for Tex Cooke at that time, and I was on the study, and I knew Paul, which made it kind of awkward for me, but Paul was no longer effective, and the best thing for him to do was, get out of General Foods and start with a clean slate somewhere else, because of the very thing I'm saying. He had corporate-wide central responsibility for computing and providing computing services to the great unwashed out there, and he had a couple of people in the organization in divisions who were competent and wanted to do their own thing, and didn't want this kind of hard-nosed guy with a funny accent telling them what to do. Paul did leave. I tried to get David Hertz interested in hiring him at

McKinsey, but that would not have been appropriate because of the client relationship and so on. Paul eventually went to Kraft and encountered some of the same problems there, and eventually went to Xerox where he was more successful, I think. But I've known Paul over the years. There was a classic example of McKinsey helping a client—General Foods—figure out what to do with the computing power and resources that it had at its disposal, and the organizational problems that were preventing them from doing that. Then General Foods no longer existed.

A slightly different kind of thing that I was involved in at McKinsey which has some significance is, we were working for Celanese, a long-time client who also no longer exists. It was not only how do we organize for computing, but the thing that made it different was they posed a question to us, "What should we be doing to secure a long-term supply of our petrochemical raw materials?" The alternatives involved such things as merge with or acquire a company that had lots of petrochemicals in the ground, namely an oil company or a gas company, or acquire a company somewhere on the Mississippi River, somewhere in New Orleans, that had processing capability for turning ethylene into-- I didn't know beans about any of these chemical compounds, so it was an interesting example of how do you find the people in the organization who do know the difference between phenols and phenobarbital, which I didn't know, and how do you take what they know and put it into an overall consideration. It was one of the, frankly, few times that McKinsey was deeply involved—I'm talking 40 years ago; I don't know what they're doing today—in a specific substantive problem for a company as opposed to, how do you manage the *process* for dealing with those problems. McKinsey tended then, at least, to be involved in, how do you change or manipulate or manage management *processes*, as opposed to deciding whether to take alternative A or alternative B. I learned a fair amount about those things. I've forgotten it all since. But I found it very interesting to be dealing with a real problem, like are we going to fish or cut bait, as opposed to which of the things you should be considering in the management processes and how do you motivate the people to make-- et cetera, all of it which is pure, pure management, as opposed to what are we going to *do*, fish or cut bait? I found it much more interesting to deal with the specific, substantive problems than with the management processes.

NORBERG: Interesting.

HESPOS: Yes, that's when I started saying, "Maybe I'm not cut out for management consulting for the rest of my life," because I like dealing with those kinds of challenges and really making the decisions as opposed to telling other people how to think through the decision-making process.

NORBERG: So we have two examples, then. We have Mobile and Celanese. Let me just clarify a couple of other things, here. You were in the New York office in McKinsey?

HESPOS: All the time, which was unusual, too. It may have been affected by the fact that I was going to school part of that time also, and so on. I traveled a lot, obviously, including London a number of times, but I was never assigned to another office, at least no more than temporarily.

NORBERG: How many people were in the New York office?

HESPOS: Let me think. The total professional staff at that time in the firm was 250. It is now about 2500. The New York office, I think, was close to 100 out of the 250. I also remember of the 250, 120 or so were Harvard MBAs. I remember telling some of the older guys, “We’re too parochial. We’ve got to broaden it. This is embarrassing, for goodness sakes.”

NORBERG: But where else could the people come from? There was Wharton, certainly, in Philadelphia, and Stanford had a program by that time, didn’t they?

HESPOS: Yes.

NORBERG: Carnegie-Mellon?

HESPOS: Yes, and we had one or two from Carnegie-Mellon, none from Case that I can think of. But hey, why do we have to have MBAs? How about getting a few lawyers in there? How about getting some pure economists in here? How about getting some pure scientists in here? All of which they’ve done in spades in the decades since then. McKinsey, I don’t know it personally any longer, but I still follow everything about them. I have great admiration for the firm. They were the best and still are, and they have diversified and broadened mightily, and still maintain their sterling reputation, with the exception of Enron and Skilling.

NORBERG: Can’t bet on them all.

HESPOS: Yes, right.

NORBERG: Was the nature or assortment of the staff driven by the kinds of problems that were brought to McKinsey at the time?

HESPOS: No, I think not, because the kinds of problems that McKinsey dealt with at the time—and I presume this is still the case—were often not really very responsive to the demands of the clients. Frequently McKinsey turned down requests from a client to help him do a particular kind of thing. Marvin Bower, who was the man who created McKinsey, essentially, and who died at 100 a few years ago, was such a great leader. He had an idea of what was appropriate for his firm to be doing, and what was not appropriate for his firm to be doing. The best example is in the early years, one of the things management consulting firms did was headhunting, recruiting. Marvin decided that we can no longer be doing that and still be detached and objective about the people in the client company, because what they perceive is that we’re trying to place people in their organization, they’re going to think that’s affecting our recommendations, and so we’re going to stop doing management recruiting, headhunting. McKinsey had at that time several very prominent headhunters on its staff, who after, I presume, great battles (this was long before I got there) left and formed their own headhunting firms, many of whom were the prominent ones in the field. But Marvin said, “We’re not going to do that anymore.” Ward Howell is one name that comes to mind. Canny Bowen is another firm that comes to mind. This is all aged and ancient information; they probably no longer exist. That’s an example of McKinsey under the leadership of Marvin, saying, “It’s not appropriate for us to do this. Yes, I know the clients want it done, but we’re not going to do it.” Existing clients would frequently come and say, “Hey, we would like you to do dida, dida, dida.” It might be

something that's more suited to an investment bank. We've got to get together with a firm that would mesh with et cetera, et cetera. Marvin would say, "We'll help you find the firm that will do it. We'll introduce you to our friends at Goldman-Sachs or something, but we're not going to do it." The firm has always been very, very restrictive on the kinds of things it will or won't do for a client, and that's very rare in any kind of business endeavor that I can think of. They've been religious about it.

NORBERG: Thinking about Diebold, all the things they would do just to handle a business...

HESPOS: Exactly. I knew John Diebold. I have great admiration for McKinsey. In fact, their most prominent leader after Marvin was Ron Daniel, who was my immediate boss while I was there, and he became managing director for about 10 or 12 years back in the '70s. One of his successors as managing director was Fred Gluck, who I interviewed in his hiring process. I remember my recommendation after interviewing him was, "This is the kind of guy that would be a real asset to the firm, but I'm not sure the firm is ready to deal with a guy like him." He was a techie. He was almost reticent at most things. He was not an outspoken, Marvin Bower-type leader. The firm has grown so much and has gotten so international that I barely recognize it anymore, but when I do read about it, I continue to be greatly impressed.

NORBERG: But now you were there during a decade or two in which the world was changing outside of the McKinsey people. You were there until '84, weren't you?

HESPOS: No, no, no. From '62 to '69.

NORBERG: Where did I get that from? I was listing three companies successfully that went to '84. Okay.

HESPOS: I left McKinsey in '69.

NORBERG: And you had your degree by that time.

HESPOS: Yes.

NORBERG: Is that one of the things that led to Dun and Bradstreet?

HESPOS: That's one of the things that led there, yes.

NORBERG: VP of Technology.

HESPOS: That was essentially CIO, but the term CIO had not been invented yet. How did I get there? Oh, a good buddy of mine at McKinsey, Dick Schmidt had joined Dun and Bradstreet or at least a division of Dun and Bradstreet named Reuben H. Donnelly, and he introduced me to his boss, Duke Drake, who was the President of Donnelly at that time, and we hit it off. He said, "You know, we could use you right here in Donnelly, but my buddy, Ham Mitchell, who recently moved from here to take over the parent company, Dun and Bradstreet, he needs help in

the area you're talking about. Go see him on my recommendation." I went down and saw Ham Mitchell, and we hit it off beautifully, and he hired me as essentially his CIO.

NORBERG: What did the job consist of at that time?

HESPOS: Okay, at that time, I was working directly for the chairman, and I had mostly staff responsibility to look over all the things we were doing in computers in this very diversified-- similar to a Paul Strassman-type thing. I knew technology, and also could speak to management, and Ham and I got along famously, and I could tell him what I saw as the problems here, problems there, and so on. I had very little direct management responsibility, only about 30 people in a corporate IT activity who reported to me. And Dun and Bradstreet, at that time, was much more dependent on computers than it realized it was. In essence, the computers were the factory of Dun and Bradstreet. It had no products other than information in one form or another. It turned out that they didn't realize it, but they were spending somewhere between five and 10% of their gross revenue on computers and related things. They had a book publishing and magazine publishing division. Donnelly was the largest direct mail operation in the country. Dun and Bradstreet had just started computerizing the credit reporting process, which was by far the biggest and most profitable part of the company. What else was in there? Oh, the official airline guide. Remember that?

NORBERG: I do. That was useful.

HESPOS: It was very computer-intensive. It was totally computerized, and it was a very profitable product. That thing always made money.

NORBERG: I carried one for years.

HESPOS: Yes, especially that little pocket flight guide. They had the big telephone book which you had in the office all the time, but the little pocket flight guide was pure profit, because they had to do nothing extra to gather the information. We already collected the information to produce the big directory. We produced this little thing which everybody loved. You could fit it in your jacket pocket, and when you're changing planes in O'Hare, you know where you can go from here.

NORBERG: Did you have responsibility for that, or was that done by somebody else in the company?

HESPOS: It was done by somebody else in the company. That was decentralized. The OAG division out in Chicago was the best-run part of the company, incidentally, not only from a business point of view but also from a computer point of view. It was a success story, and I used to go out there twice a year and just walk around and pontificate and say, "Keep up the good work, guys." But more to the point, I would have gotten tired of that pure staff type thing very quickly. But the biggest division, the Dun & Bradstreet Division of Business Information, it was called, the credit reporting business, was just starting on the process of automating the entire credit reporting process, and it was a big project in a division which couldn't spell "computer" successfully twice in a row, and they were going to have to spend more money and change more

things than they knew and than was likely to be possible. Guess who was thrown into the breach? Moi. Still reporting to the chairman, still on corporate staff. I was not yet a vice president, but put into this division to manage this project, which by the standard of the times, was a big project. I was making I think either slightly more or slightly less than the guy who was running the division, Gene Reichstetter. That division was really low-paying. Donnelly was high-paying, frankly, and they had merged within the past four years, and there were still problems reconciling those two entities. But I was put into this division to be responsible for running the project.

That was more fun than I have had in my entire career. I loved that. Most of the people were out in New Jersey, and during the three or four years that I was completing this project, I got to spend a lot of time in New Jersey, even though we were living in Westport, Connecticut at that time. It was exciting. I just enjoyed the hell out of that, and never had more than I think 50 people on the project, but we were definitely pushing the state of the art. We had to make some decisions to go with non-standard vendors, because what we were trying to do, IBM was still not capable of doing it, at least not without pouring tons of money into it. We were doing things like putting mini-computers into 80 offices across the country and tying them in with leased lines at 4800 bps, and creating a central computer to store credit report information on three million business entities in the country. This was all in the early '70s. It was a real, real push of the technology. I had a good staff working for me, most of whom I had inherited, frankly. It was a case of a good technically competent team that couldn't really interface with the rest of the company, and I helped to provide the interface, I guess.

But there were some smart guys, there, and we were doing things like tweaking and modifying our own operating system. The hardware choices we made were laughable, looking back at them, because of their audacity. IBM tried hard to sell us. Let me get to that in a while. We ended up going with Xerox XDS mainframes, Sigma Series, Sigma Sevens and Nines. We went with mini computers from Quotron, which were knockoffs of somebody else's. We picked non-Xerox disk drives, because the others were faster and cheaper and so on. I can't remember who they were—Intel maybe? The best example I can give of the audacity of that project and how we were pushing the state of the art was, we had all the information—the database credit reporting information and everything else—in one room in Berkeley Heights, New Jersey, on disk drives that were *each* the size of a washing machine, 200 of them in one room, 100-meg drives, each. We had Arthur D. Little in to advise us at one time, and they reported that, they weren't sure, but this was, in their judgment, probably the largest database in existence in the private sector, 15 billion bytes. Today you need a couple of those combination key chain/flash drives to hold that much information. We had this room full of 200 washing machines.

Session 1, Tape 2, Side B

NORBERG: The interfacing must have been an awful problem.

HESPOS: Yes, we had two Sigmas devoted to managing the disk drives. We had two Sigma Fives, for communications interfaces between the center and the rest of the world. We were among the first customers for the Sigma Nines. But wrestling with those technical problems was more fun than I ever had in the rest of my career. That was fun.

[Lunch Break]

NORBERG: We have talked about the VP of Technology and your CV contains the remark about data processing, communications, and acquisitions—three other activities that seem to be confined to staff activities.

HESPOS: Right. We acquired another company at that time, a string of television stations. The CEO of that did not stay with the company very long. He was very wealthy by that time. He was a very intelligent man, but he was very difficult to get along with. He was made Vice President of Strategic Planning among other things, and he was on the board, as part of the acquisition. My boss, Ham Mitchell, the chairman, a man I liked and admired very much, said to me, why don't you work with, what was his name, Peterson, and help him on this planning and acquisition type thing, in addition to all the other things I had to do. So I just tried to insulate him a bit, and keep him from recommending things that I knew wouldn't fly with the rest of the company. I did that and we got involved in several acquisitions, one of which I remember was a company called INS, a consumer products market research firm. They were big in Europe, wide spread in the world, but only sparsely in the United States. Another acquisition study I was involved with at Dun & Bradstreet was A. C. Nielsen. I investigated how well they would fit with what we were doing, not only as a business but also technically; they were finally acquired after I left the company.

Another thing I did involved all the things you just read about my duties as CIO. I got a call from *Datamation*. They wanted to interview me. They were interviewing people they thought probably fit the definition of the job of CIO, but before the term was invented. I can't remember the name of the interviewer. She asked me a bunch of questions and I just leaned back in my chair, put my feet up on the desk and began to pontificate. Frankly, I think I snowed her. A month or so later an article appeared in *Datamation* with a photograph of me and the headline says "Competence, Credentials, and Charisma." It read as though it were written by a doting aunt. This was blasted all across the country. About two days later, we were having a dinner party at home, unrelated to anything else, and this buddy of mine shows up and passes out to everybody in our house Xeroxed copies of this article. "Does this man have charisma?" It was embarrassing.

NORBERG: This is all in the 1970s so we might as well discuss your position at Continental Corporation, while we are on the track of these other positions of a similar vein, rather than considering it alone after our conversation about ACM.

HESPOS: Again, I was approached by a head-hunter. I was depressed at Dun & Bradstreet. The big project was getting close to the finish line and guys that I regarded as contemporaries were getting line assignments. One of the positions was head of Moody's. I would have liked to have that. Ham Mitchell was no longer the chairman due to a serious illness and had stepped aside as CEO. Ham still stayed on the board, but was no longer actively running the company. I did not have as close a relationship with the new guy as I had with Ham. I went to the new man and said, I've been running this project for three years now. When do I get a chance to run something like Moody's?" His response was, "What you are doing is too important to the company." He gave me a raise and made me a corporate vice president, but I was kind of miffed. So when a head-hunter called up and made an attractive description of a position at Continental Insurance, I was interested. It was more than an insurance company; the Continental described itself as a diversified financial company. It owned Diner's Club, for example. It owned a consumer finance company. It was very strong internationally. Here was a position reporting to the chairman as Senior Vice President, literally running all of the computer related activities. I had line

responsibility for it, which included a 1,200 person software company (INSCO) that was selling insurance processing software to insurance companies. A large computer center went with it, which was located in New Jersey near Asbury Park. It came with about a 50% increase in salary and the job sounded good so I took it. I was there about seven years. My office was in Manhattan, where the headquarters were. I was one of seven guys reporting to the Chairman, and was part of the management committee. So I was right in the swing of things. I enjoyed that; I was on the board of Diner's, which was operated as a wholly-owned subsidiary, totally separated from the rest of the company. Incidentally, that was a total disaster; it was a sick company. In three or four years, we sold it to CitiCorp. I was enjoying my job and felt that I was in a position of some clout. I inherited a few other things along the way: responsibility for the real estate operation. The man who had been hired to run it was not top management material. Rather than firing him, my boss said to me, "You know how to spell real estate, don't you?" I was put in charge, and had this weak guy as part of my responsibility. The chairman said, "Oh, incidentally, we are going to build company headquarters for the corporation. A million square feet at the end of Wall Street on the East River, and you're responsible for it." Frankly, this was interesting because it was the first time in my career I had direct responsibility for an activity for which I had no familiarity whatsoever. All the other things—managing computer activities, operations research, even strategic planning—I had had some familiarity with in one way or another. Real estate? No. This was a challenge. How can you manage and take responsibility for something about which you know nothing. That's a true test of management, I think.

I inherited a bunch of other stuff. One of them was 4,000 automobiles owned by the company, used by salesmen and claim agents all across the country. How do you increase the efficiency of buying 1,500 cars a year, and riding herd on them. As part of the real estate operation we also had 300 leases on office space, ranging from a two-man office to a regional office with 150 people. There were some other dogs and cats there that I cannot remember. I also picked up the strategic planning responsibility.

Things were going well, but after about seven years several things became apparent to me. The insurance industry was sick and dull. Running the computer part of it was fine; I enjoyed that, but the industry itself, especially the part of it that Continental was in, was sick and dull. It sold its product through independent agents, and that segment of the business had been losing market share for 30 years to the direct writers, such as State Farm, Allstate, and Geico, and its business kept dribbling away. We were in the dying part of the business.

In 1983 or '84, when I turned 50, a close personal friend of mine got cancer and died. Continental brought in a new CEO from the outside about two years younger than I, and I suddenly realized absolutely, that I was never going to be the chief honcho of this place. I hadn't really seriously faced up to whether I ever even *wanted* that, but suddenly the door was closed. A younger man came in and he's running the place. I got along famously with him; that was not a problem. I then said, "Do I really want to do this for the rest of my life?" The answer was I don't.

Something else was happening at this same time: I was serving on the advisory council for computing at Princeton. I was chairman for a number of years. The position was not as grandiose as it might sound. We met once a year or every two years and spent two or three days listening to reports from the faculty, students, administrators, and the folks in the computing activity as to what's new, what's different, what the problems are. We then wrote a report for the provost and or president. We presented this report orally and answered a bunch of questions and then went away for a year or two. At that time, the University was going through an internal crisis in computing as so frequently is the case. I'm sure you are familiar with those. The VP-Administration of the university was a friend of mine. He was a year ahead of me as an undergraduate, and we were in the same club. The computer activity pretty much reported to him. He kept asking me what he should do. First, I started to spend more than one day

every two years. I started going down there much more frequently, advising him on what to do. It was actually convenient for me to stop over at Princeton because I was going down to the Jersey shore to INSCO every week, generally over night. I would spend two days there and the other three days in Manhattan. I would be able to tack on a half day visit to Princeton, before or after I visited INSCO, on my way home sort of. Finally he said, "Why don't you come and join us?" Suddenly I stopped and thought, that might be more attractive than the insurance business. So I seriously thought about doing that, but our younger kids were still in their last two years of high school, and so on. So I decided that I didn't want to do that. I told Tony I don't want the job, but I will be happy to continue to work with you, and I'll help you find the person who should have the job. I did, and they hired Ira Fuchs. So I passed up the Princeton opportunity, but I had also emotionally decided that I did not want to spend the rest of my career at Continental Insurance; I'm going to find something else to do. At that time, I was sitting on a number of boards and I had invested in a venture capital partnership. I was one of the partners. I thought I could continue to find enough things like that to keep me busy. Also, I was going to continue to consult at Princeton.

It was at that point I told my new boss, the CEO of Continental, that I really wanted to get out. He was very accommodating; we worked out a phased-down arrangement over a year. I turned over various things to various people, started spending more time at Princeton, and started spending more time on venture capital activities.

To finish the Continental story, Continental as a company lasted about another five or six years, at which point their market share continued down; stock performance was always terrible. They were hit with a series of concentrated hurricanes and tornados, especially in Xenia, Ohio, as I remember. They went on the financial blocks and were acquired by CNA. After a 130-year history on the New York Stock Exchange, with the Minuteman symbol, this bold and prestigious company ceased to exist. They didn't go down nicely either. It was a messy ending.

NORBERG: Let me interrupt again and try to tie this together now in the following manner. You began at the Forrestal Research Center playing around with computers even though you claimed you didn't know much about them and you just did as you were told. I find this rather hard to accept, but we we'll let that pass. By the time you got to either Dun & Bradstreet or even Continental, how had that kind of work, that is, what you were doing at Forrestal, how had it changed? A corollary to this question is, what kind of people would be hired to do the work in the late 1970s?

HESPOS: Good question. The changes in that area were just phenomenal, as you know. Through all the '50s I was in college and so on. The people working with computers, as has been said, constituted a "priesthood." Generally they were trained mathematicians or engineers or whatever, and considered themselves a cut above the great unwashed out there. They had difficulty communicating with anybody else and didn't particularly care that they were having difficulty communicating. "You need the magic stuff that we uniquely have. You better learn how to understand us, because we do not have to worry about you." Mike Mahoney used to talk about that, I remember. How did that change? Some of the technical changes I think that affected that the most, besides the lowering cost of computing power, was the introduction of time-sharing during the early '60s, which suddenly changed the accessibility of the machine, making the things you could do with computers suddenly much more feasible to do. You didn't have to punch your cards and somebody would put them on a mainframe sometime during the night, and in the morning you find out you left out a comma. It changed things drastically and dramatically. Suddenly you found more people who were not high-priest computer scientists, people who were run-of-the-mill, if you will, MBAs, or smart people who were able to start doing things on

computers using time-sharing if necessary. Minicomputers were just starting to happen, and suddenly many more people were able to get their hands on these kinds of things. Not necessarily smarter people than those in earlier days, but many *more* of them who suddenly did not have the same barriers to entry that had existed previously. So that was the biggest change I saw—the kinds of people. There was obviously a change in the numbers of such people. Computers were becoming so much more widely used in so many places that there were a hell of a lot more such people. I think the development of higher level languages meant that many people who did not understand machine language at all were able to use COBOL or FORTRAN and do meaningful things on a computer without being high priests or terribly technical. They had to be logically smart but didn't have to have the technical depth of understanding. It was no longer necessary. Mike Mahoney told a story—I think he might have written a paper about it—the shortage of programming talent in the late '60s.

NORBERG: Yes, when the NATO conferences were held abroad.

HESPOS: Yes. He made a statement—I'm not sure it was original with him—but the statement was made that some time in the 1920s somebody looked at the telephone usage and the growth in it and concluded that if things continue as they are, in another forty or so years every young woman in the country will have to be a telephone operator (since it was only young women that did it). That's not going to happen we know, so something has to change. And indeed, forty years later, everybody in the country was a telephone operator, in the sense that they were doing exactly the same functions that the telephone operator was doing in 1920—with direct dialing and area codes and all those kinds of things; suddenly, *everyone* was a telephone operator. The same thing happened with computers. If you look at it, we were short of programmers in the 60s, and if you extrapolate from that, IBM is going to have more programmers than there are people in the United States. What happened? Well, indeed, everybody in the country in a sense—I'm exaggerating—became a computer programmer, i.e., they were doing the things that in the mid-1960s were only done by a “computer programmer”. Suddenly there were spread-sheet programs and people were able to do things that only the high priests could have done back in the old days. Suddenly there were personal computers, for goodness sakes, word processors, etc., etc. By this time, the priesthood had been decimated (or unfrocked?), which had some implications for ACM that we will get to. At cocktail parties, people were talking about using computers to do various things, whereas 20 or 30 years earlier if you found somebody at a party to talk about computers, it was because you were living in Poughkeepsie, New York, or some similar place. To summarize this last statement, the changes I observed in those years were the increased number of people that were in “computer work,” and the level of education of those people, which had gone down, because they all did not have to be Ph.D.s anymore. Some of the best people I had were high school graduates managing programming and things like that.

NORBERG: The other thing you didn't mention when you were talking about time-sharing is the projected trend to solve this problem was the use of utilities.

HESPOS: Packaged programs, subroutines?

NORBERG: It's a little different than that.

HESPOS: Do you mean a utility in the sense of a contract service? There were certainly service bureaus at that time. Remember the term “service bureau”?

NORBERG: Oh, yes. That is where I first met my machines. There was one not far from my house and I would go and watch the machines and be mesmerized. The utility I am thinking of is something like Multics as a way of hooking all these machines together to facilitate use just like you would hook the various electric grids into an electric utility. Was this talked about in any way?

HESPOS: Not in that time. The first time I heard of Multics was when I attended a two or three day seminar at MIT. I was at McKinsey at the time so that would have been about that time. 1964, something like that.

NORBERG: They were in the planning stage at that time.

HESPOS: Yes.

NORBERG: The real push came in 1969.

HESPOS: In the '60s that was not a factor I was aware of at all. Time-sharing was a magic box all by itself. I was making a client presentation at one time—I was in New York at the time—the client was in Wilmington, Delaware. I don't remember whether I took a train or drove down there with a huge suitcase that contained an IBM portable teletype terminal, I guess. I took that down to the client's office, took a phone handset and plugged it into the acoustic coupler on the back of the machine and dialed up the GE computer up at Dartmouth.

NORBERG: Was this computer at the New England Computer Consortium?

HESPOS: Yes, it may have been. Just accessing a remote computer from a client office and doing some trivial things on a machine and having the client standing there, seeing an answer to his question type out on this machine, he was dumbstruck. "You did that?"

NORBERG: Did that result in any additional contracts or any way of promoting it through Continental and to other insurance companies?

HESPOS: I don't think the time-sharing aspects of it did; the packaged program aspect of it did. We developed some programs proprietary to Continental that we sold to other companies. I remember the head of the division was very pissed off about that, saying "I don't want you selling our product to our competitors," a point that is not without merit. We were doing it openly and suddenly somebody realized "Hey, we're making money by selling something we developed for ourselves. Maybe as a corporate matter, we shouldn't be doing that kind of thing." That view prevailed; I certainly can't fault the CEO. We stopped doing it and that lost the competitive edge the software company had. Over the next three years it kind of dried up and finally I put the bullet to its head and said we are not going to do that anymore. We are losing money. As it turns out, Continental would have been better off going into the software business and out of the insurance business. The products—and I can't take any credit for this because they had been developed before I got there—were stand outs. Continental's subsidiary could have been like PMS (Policy Management Systems) located in Columbia, South Carolina. They for a while dominated the property and casualty software business. My subsidiary (INSCO) was ahead of them, but with the policy change we had to withdraw from the business, slowly and painfully. It was

unfortunate. This was a situation where the product was clearly superior, but it clashed with the overall goals of the corporation, so we had to withdraw from that business.

NORBERG: Before we turn to ACM, which I would like to reserve until tomorrow, what professional associations, if any, were you a member of during the years 1962 to say 1984?

HESPOS: Good question. To start back further, I was a member of the ASME (American Society of Mechanical Engineers) as an undergraduate and maintained membership in that for probably 25 years afterward. I just got the subscriptions to the magazines. That's about it. Occasionally, I would send in for a paper that sounded interesting. ORSA (Operations Research Society of America) and TIMS (The Institute for Management Science), both of which I was active in. I was chairman of the Metropolitan Chapter of TIMS; I met some well-known people through that, many of them from GE—George Feeney, Jack Grossman, and Don Heaney. George Feeney was my replacement when I left Dun & Bradstreet. I was really honored when he was hired for that job, because I had always looked up to him. George and I had many similarities. He was also a Ph.D. student under Littauer—received his Ph.D. from Columbia. He was a graduate of Harvard College. We both went to Harvard Business School. George had been the head of GE's contract service business. And I always thought he was a real heavyweight. So I was pleased to see him hired as my replacement, and he did a fine job at Dun & Bradstreet over the years, no question about it.

I made it a point of joining a lot of societies; just take a membership for a year to see what I think of it. Besides TIMS and ORSA, which I was moderately active in; I was in the Industrial Engineering Society (AIIE), because I was in the Department of Industrial Engineering at Columbia so I could find out a little bit more about that. It was kind of sterile. I joined ACM in the late '60s, I guess it was. I was in it some 5 years, and under some budget crunch or other reason my employers said, "You've got to cut back...etc." So I dropped membership in a couple of societies. I was never active in ACM as a member.

NORBERG: Let me ask about your knowledge of ACM. Did you follow the proceedings of their meetings?

HESPOS: No.

NORBERG: Read their journals?

HESPOS: Yes. I would skim them. Generally, I made it a point to find one article I was going to read in every journal I received. Ones I found most interesting—perhaps later when I was with ACM—were in the *Annals for the History of Computing*, which I always found fascinating. I have always been interested in history, especially history of computing, but I found that one particularly interesting.

NORBERG: Do you still get it?

HESPOS: No. I pretty much dropped all of those kinds of things when I retired.

NORBERG: So did I.

HESPOS: I never followed any of the proceedings or who runs ACM or things like that. The first president I became aware of was Herb Grosch; he was writing columns in various computer

publications—*Computer World*, etc. He claimed to be the only man fired twice by IBM, both by Tom Watson, one Sr. and one Jr. I don't know how much of that is true. He was not the kind of guy who would let a few facts get in the way of a good story.

NORBERG: You were at least knowledgeable of what Dan McCracken was doing?

HESPOS: No. I was aware that he was a guy who was in a position of some prominence in computing. Maybe I'm getting ahead of the story, but that was one of the problems I felt ACM was having when I was there, namely, we didn't have the heavyweights, the superstars in computing that existed in ACM ten years earlier. The people that were volunteers while I was there were kind of lightweights.

NORBERG: We will come back to this when we analyze the strengths and weakness of those in ACM. If it is true that you were not following ACM so carefully in those days, what would have encouraged you to think you might want to go there?

HESPOS: That's a good question. I was starting to have second thoughts, thinking maybe I'm too young to retire. I was on about four or five boards and I was still flying a lot to California. Things were starting to wind down here a little bit, maybe I need something more to fill my time. Maybe I should have taken that job at Princeton; maybe etc. I had enough money that that was not a serious problem. I wasn't wealthy beyond the wildest dreams of avarice, but I wasn't concerned about that. And I got a call from a headhunter—maybe this is the one unifying story of my career I guess—suddenly I would get a call from a headhunter and things would change drastically. But I was frankly dubious when I did get the call. "Yes, I used to be a member of ACM. I used to read their journals. Tell me more about it." He reviewed the job for me, and I became interested. So I asked him, "Who should I talk to?" [Adele] Goldberg, I guess, was the first one I talked to. I remember I spoke to her in California; I was out there for a board meeting or something and we arranged to meet and so on.

NORBERG: Had you known her before?

HESPOS: No. not at all. After that I talked to Walter Carlson, and I started getting more interested. I was impressed by Walter; I liked him. I didn't like Adele. The whole interviewing process there was absolutely fascinating.

NORBERG: What made you believe you had the qualifications for the job?

HESPOS: I don't remember having any particular doubts about that. I had been in computing for 25 years at that time. I always prided myself—prided is too strong a word—I always tried to maintain a passing level of competence and knowledge about the technology that I was managing. Even in the real estate business, although it was at first foreign to me. Whenever I was managing computer projects or a little software company, I tried to maintain enough real—what do they say now?—"feet on the ground running" knowledge of what was happening, especially when I was at Continental running the software company. This may be an interesting diversion, going back to George Glaser. George and I were at McKinsey. Somehow we got into a discussion about certification of computer professionals. We talked about that a little bit. There was a thing called a CDP (Certificate of Data Processing) that was sponsored by—what was the name of that outfit?—DPMA. DPMA along with some other societies created a thing called ICCP, which was an international consortium that George Glaser was involved

with. The United States version of that was AFIPS. They were a member of ICCP, which was a world wide association. Back to DPMA, they had put together a certification program for “computer professionals,” called CDP. Somehow it came up in the conversation and George and I were bad-mouthing it. Finally one of us said to the other, maybe we shouldn’t be knocking this thing until we’ve tried it. So George and I made a little bet. We would each sign up for the CDP exam and see if we passed. We both did and we both passed. In retrospect, it was really kind of a trivial exam. There were questions about punched cards. Somebody made a good try at certifying a level of competence. George and I both agreed: it’s laudable. Maybe they haven’t hit a home run, but it’s laudable that they did it, and George and I were both glad we passed the exam. When I was running INSCO, I found that there were several in the organization who had taken the exam and were CDPs. I said, “me, too”. I threw a dinner for all the CDP holders and I encouraged the rest of the staff, “Hey, these guys did something special. Maybe some of you people could consider doing that too.” The next year we had six or eight more. The year after that there was another increase. Finally, this thing got to be a dinner for forty people or something like that. The company was paying for it, of course. I made it a point of always speaking at this dinner, and with something to drink, it was a fun type thing. I think it established my technical credentials (street cred?) much more firmly with the staff. I was one of them. “I could have been doing what you’re doing. I am not one of these suits from management come down here. I’ve been there.” I always thought that was a very useful benefit of the CDP program. “Hey, this is good.” It causes people to concentrate. Of course it may cause them to concentrate on their profession more than on their employer, perhaps. But we didn’t reach that level of the problem. I’m sure that could have happened later on. I have no idea what CDP is doing now, whether it still exists or not. Never hear anything about DPMA either.

NORBERG: DPMA is still around. There is a chapter in the Twin Cities.

HESPOS: Of the three societies, ACM, IEEE Computer Society, and DPMA, DPMA was, in my judgment, a distant third. IEEE/CS and ACM were about the same size, very similar in very many ways. They should have become one organization, but never can because of the IEEE parent itself. It never could happen. I was quite close to the Executive Director of the IEEE Computer Society.

NORBERG: We entered this discussion when considering what you thought your qualifications were to be Executive Director of ACM.

HESPOS: I felt quite qualified because, one, I had been a member, two, I’d been in computing a long time, three, I had some of the credentials that were clearly pertinent—I thought the CDP was and that was how we got into the CDP digression--, and four, the people I met, like Walter Carlson, I hit it off well with Walter Carlson, if he could be president, I sure ought to be able to run it. It never occurred to me that I might not be qualified.

HESPOS: I never felt that I was not qualified for the job. First of all, the management task was 1/10th of what I had been doing. I had about 2000 employees at Continental and 100 at ACM. I had a budget of \$100 million at Continental. That seemed like a big number at the time; now it sure as hell doesn’t. That’s what they pay a shortstop.

NORBERG: That occurred to me when I was going through this organization before the interview, why leave the Continental Company—or any company, for that matter, where you

were very high up? Why would you do that to sidestep and not be the head of the organization, because point in fact you weren't?

HESPOS: I disagree with that. I felt I was the head of the organization—not Goldberg or Abrahams.

NORBERG: They certainly thought it was the other way around.

HESPOS: Especially Goldberg would think that. The function of a board is to hire and fire the CEO, *not* to run the organization.

Session 1, Tape 3, Side A (no Side B)

NORBERG: When you were interviewing and talking to these people, what was your impression of them as volunteers in an organization like ACM?

HESPOS: I was always very impressed with Denning. I remember reading his writings in either a journal or some other publications, but I was always impressed with his mind, his writing ability. I'm sure I did interview him. Yes, I do remember now.

NORBERG: He would not have left himself out.

HESPOS: That's probably true, because I remember being surprised that he had been a Princeton professor and had left there to go-- did he go directly to the defense activities out of California? * [Ed. Denning left Princeton for Purdue and then California.]

NORBERG: Yes he did, and then he came back to George Mason after that, and now he's back out there again.

HESPOS: Okay. So I was impressed by, I guess, all three of them [Adele Goldberg, Walter Carlson, and Peter Denning]. I was impressed by Goldberg, even though I didn't really like her personally. She was a competent, accomplished woman, and that impressed me. I liked, personally, Carlson and Denning. I do remember the interview with Denning now. I think it was at the Princeton Club, but I don't remember. That encouraged me to explore this thing further. Another attraction was, ACM was right in New York, right across the street from the Princeton Club, where I used to eat frequently, and as I started to say earlier, I think I started looking at the things I've got to do, spend my time, and I said, "Gee, there aren't as many as there used to be; maybe I do need something else." So I was saying, "Maybe I ought to get another job," which was not my intent when I left Continental. My intent was to get more involved in boards of directors, more venture capital activities, but they weren't falling into my lap. Then I got a call from the headhunter, and I said, "Okay, let's talk," and I talked, et cetera. The next step in the process was for me to go to the next meeting of the ACM, where all the directors would be there, and we would all have a chance to talk. I think it was in New Orleans or Texas.

NORBERG: Texas sounds more likely at the time, because they had a bigger facility to host the show.

HESPOS: It might have been, yes. So I went to that meeting. And somebody set up the format in the following way. I never found out that Michael Elliot was another candidate, and I'm sure there was a third one; I just can't remember who it was. I never saw anybody else as a candidate in this visit. But the way they set it up was that I would be interviewed by about ten people at a time. One-third of the directors and heads of boards and everything else would show up in a room. I would sit in the center, and they'd ask questions, and I'd answer them. It sounded kind of weird to me, and it was. I don't know anybody who ever had an interview like that.

NORBERG: Typical academia.

HESPOS: Yes, I guess, maybe. But it turned out it was an ideal situation from my point of view. The first shift came in and they started asking questions, and I started answering them and getting into a discussion. I'm not shy particularly, and I handled it beautifully, I thought. Then a few hours later the second shift comes in, and I realize that, hey, I've been through this fairly recently; none of them have. So I'm running the meeting. You were asking me about so-and-so, and I was essentially controlling the show, and I guess I made an impression. I can't remember the third one at all, but I'm sure it was more of the same. But it was a format that I found totally to my liking. Next thing I knew, they wanted me.

Sometime thereafter, I did meet Michael Eliot and got to like him very much. I've never seen him since ACM days. I always thought that he would end up in Washington in a government position. He had been Bill Clinton's campaign manager in one of his campaigns for governor of Arkansas, and he implied to me that he was pretty close with those people, and I thought sure he'd pop up in some position. Maybe he was in the bowels of the organization somewhere, but I always liked Michael, and we probably should save the discussion of ACM and the Computer Society until we get into them tomorrow.

NORBERG: Let me ask you another question which might help to tie this up. When you were approaching the ACM people and talking to them seriously now about this position, did you develop a sort of general program in your head as to what you would do if you were director? And did they then respond to that, or not?

HESPOS: No, not in the interview process, nothing that I remember, anyway. No, I don't remember that coming up, particularly. It was more general about the computing world, if you will. That old title that they used to have: "Computing Milieu." That was a title that recurred during the interview.

NORBERG: One of Walter Carlson's treats, I think.

HESPOS: Probably it would have been, yes.

NORBERG: From your point of view were the ACM people looking for a very strong manager who would come in and shape everything up so it could march on into the future?

HESPOS: Yes, I believe so. Sydney Weinstein was not highly regarded by any of the volunteers and such. I liked Sydney. He was a little bit too meek, a little bit too much of the Washington

mentality of understanding who has the clout and so on. He would suck up occasionally to people because he perceived them as having power. I, who didn't need the job, was far more willing to say "bullshit" to somebody, if I thought that was appropriate. I wasn't like Sydney in that regard. Because of my personality, that was probably clear in the interview process. I don't know. But I would certainly imagine that Michael Elliot would have come across the same way. So I think that Sydney was viewed as needing to be replaced, and I had enough attractive features about me, apparently, that without getting specific about what program I was going to push and so on, they said, "Yes, okay, this is probably the best we're going to do." So that's how it came about. I wonder if Sydney's still alive. Do you know?

NORBERG: I can't answer that. I don't know.

HESPOS: I liked him, and he was quite helpful to me the first few months I was on the job. He was living in Manhattan, and he would offer to have lunch with me every month or so, and I would bounce things off him. I'm not saying he was maltreated at all, as he had been in the position for I think 11 years or so, and that's about the time you ought to change. So I didn't have any problems with that.

NORBERG: I agree.

END OF SESSION

Session 2, Tape 1, Side A

HESPOS: I skipped two big things in talking about my McKinsey experience. One of the things I was noted for at McKinsey was called Risk Analysis. Working with David Hertz, we developed the technique, which, essentially, was a simulation model of a large investment decision that a corporation might be considering. We took account of the uncertainties involved in the decision by gathering probability estimates (generally subjective) of all of the factors going into the decision, and then using a very simple simulation model (by today's standards), to come up with the range of possible outputs one could expect from that investment scenario, not just the most likely result. It would give you some idea of how bad it could be or how good it could be, with associated probabilities. I wrote the programs to do all that in FORTRAN, and we wrote a paper for the *Harvard Business Review*. I wrote the first draft of that paper. (One of the sore points in my memory is that somewhere along the way it stopped being *our* paper and became David's paper.) It was published in the *Harvard Business Review*, and it was --for a few years --the most heavily reprinted article in the *HBR*. After that I was the risk analysis guy in the firm. I probably worked on five or six studies applying that technique and teaching other people how to apply it to about a half dozen different clients and different investment decisions. The first one I remember was for Bethlehem Steel, coincidentally, and it turned out they were analyzing the decision to build the Burns Harbor Steel Plant right outside Chicago on the Indiana Dunes, and then we did it for a half dozen or so other studies.

NORBERG: Did they actually settle on a new plant?

HESPOS: Yes, it was built. Oh, another thing. I wrote the programs, as I said, and years later, I found segments of my programs that appeared in a commercial package titled "Risk Analysis". I don't know who wrote it. There was never anything copyrighted or patented or anything like that, but I could tell by the titles of the subroutines and such, by God, that's the thing I wrote 20 years ago!

NORBERG: Now did you sell this to any of your clients, or was this used for only internal...

HESPOS: We used it. We didn't give it away or sell it or anything, but I don't remember whether anybody took it or not. We used it to come up with our own recommendations for the clients. We certainly would have given it away, I guess. We were not in the business of selling software.

There was another thing, similarly at McKinsey, I was one of the two guys that developed a rather sophisticated scheduling model for Dominion Tar and Chemical (DOMTAR), a Canadian company that had a big corrugating machine taking paper board and corrugating it into cardboard as we know it. This was a very complicated process, which could produce large amounts of waste if done inefficiently. We tried to use integer programming, which I still don't think has ever gotten off the ground as a workable technique, but instead we ended up using a cut-and-try approach, using a computer just to do brute-force type things. And we were all, including the client, so amazed when the damn thing worked!

Those are two things that I failed to mention yesterday about McKinsey.

NORBERG: Can we turn our full attention to ACM?

HESPOS: Sure. Yes.

NORBERG: Yesterday afternoon, when we were sort of doing our last hour or so of yesterday's session, you spent some time talking about how you learned about the job as CEO of ACM; what some of the interview process was like; and also, I asked you what your thoughts were at the time about what ACM was about, and about being a general officer of such an association. With that in mind, I would like to continue with that thought—the last one about being CEO of such an organization. Starting from that point, what was the ambience, or maybe computer milieu? What was the ambience of the headquarters office when you joined the staff?

HESPOS: The staff was about a hundred strong. More than a third of those were in the Publications Department; almost a half, I guess. The prominent members of the staff were, and in some cases still are, the following: Mark Mandelbaum, who I think is a jewel. He was not recognized, I think, by my predecessor, Sydney, as being particularly talented. I think Sydney regarded him as more of a pain in the ass than anything else. I found Mark to be an extremely bright, hardworking, and easy to deal with, and I was very high on him.

NORBERG: And he's still there.

HESPOS: He's still there in the same position. He enjoys it. It's been 20, 25 years, and I think he's getting paid reasonably well now. I have no idea, but I was very high on him. I mentioned

Jim Adams yesterday. Jim had been with ACM longer than anybody except for the lady, Irene Hollister, who was the first employee of ACM. She's the one that hired Pat Ryan as her assistant. Pat is now essentially running the place, as we mentioned. Irene was over the hill, and I had to gently ease her out while I was there. Now Jim Adams, I would call him the conscience of ACM. He loved the organization, loved the people in it, was very close to Dave Brandin and several others in the organization—too close, perhaps. He was always socializing, partying with them, going on vacations with them and so on.

NORBERG: SIGBOOZE. [Laughter]

HESPOS: Oh, SIGBOOZE! Oh, my goodness. Jim was passionately devoted to the organization—indecently so. But Jim was a very interesting guy. He was charming, reasonably cultured. He and his wife were theater buffs extraordinaire, and they saved every damn playbill from every damn show they attended and they had a filing cabinet full of these things. His wife was theatrical. She taught French and Drama at Scarsdale High School for 30 years or something. Jim never had a great deal of self-confidence, though. He was always well-spoken, polite, but he never aspired toward becoming executive director, I don't think. I'm sure he didn't. And he never thought that he was really capable of doing anything bigger and better, and perhaps he wasn't interested in it, because he was enjoying life, so I certainly can't fault that.

I mentioned Pat Ryan yesterday. She had no technical background and no college education. She was just a tower of strength—a hard worker, good at dealing with people, and street smart, which I guess one would expect, having grown up in Staten Island and lived in New York her entire life. The financial organization was headed by guy named Mike Lichtenstein, who I think retired within the last couple of years, and he was adequate. He was not highly regarded by Adele Goldberg, for example, and some of the other volunteers, and they kept saying, "When are you going to get rid of Mike?" I always answered "Whenever he's not performing satisfactorily." I was not eager to get rid of him. Then there was the conferences department, which came under Jim Adams. That was an area that I never found personally very interesting. I never found it terribly interesting having to plan a big conference and get the hotel arrangement and getting the deals and everything else. I never got personally involved in that. Jim and Mike did, and shortly after I joined we hired a woman named Pegotty Cooper to run that. She was a professional conferences planner type person. She was also about 6'1" or so and very imposing looking. And that worked satisfactorily, as far as I can tell, but I'll come back to that when we talk about large computer shows and such. But I never got personally involved very much in that area.

The worst part of it, believe it or not, was the computer operation of the headquarters. It was a disaster. They had a real old machine...I can't remember what the machine was; something like a 360 model 30 or something like that. It was always broken. Not hardware wise; the systems just weren't working. The guy that was running it was named Israel Moscovitz, and he was an Orthodox Jew, I think. I'm not really sure what the terminology is, but he had a lot of outside commitments to his synagogue, and he just wasn't grabbing hold of things and making it happen. Finally I had to let him go. Then I made a mistake. The person I hired as a replacement, I had to let her go in a year, too. She was just the opposite of Israel, but she was not competent, and I blew it—a bad hiring decision. And then we got it straightened out, and incidentally I ended up putting it under Ryan, Pat Ryan. The person we hired reported to Ryan, and it improved greatly.

The membership activity was under Lillian Israel, who's still there. And Lillian is also so devoted to her job, and she's been doing it now for 20, 25 years. She's a character. She is a lavish, expensive dresser. She always is dressed up in something that's a little bit kinky and odd, but you can tell she really is paying attention to the way she dresses. She wears those big, beetle-type glasses, and she's very, very funny, and she works so hard on promoting membership and this sort of thing.

And that's something that I want to talk a little bit about, too. One of the things I wanted to accomplish and didn't accomplish was to beef up the membership—get it back growing again. It just didn't make any sense for a computer organization to be static at its membership level. The whole profession was growing like crazy; why weren't we growing more? We'd stabilized at that point at 75,000 members—about 50,000 full members and 25,000 students or something like that. I'm not sure I got the numbers right. The IEEE Computer Society was about 10,000 bigger than we were, and I tried working with Israel—Lillian Israel, I mean. (We had some confusion there. There's Lillian Israel and Israel Moscovitz—the computer guy I had to let go.) I supported her as best I could and tried to increase our membership. And we tried a lot of things and they all had very minor effects.

NORBERG: You say you tried things. What do you mean by that?

HESPOS: Membership booths at conferences with tricky promotional-type things—you know, get a free something or other, coffee mugs with ACM... Typical promotional stuff. But the problem, as I saw it, and I think I became slightly famous within ACM by saying that I thought the problem was that “the dogs don't like the dog food.” This is a term I'd picked up at McKinsey. It doesn't matter how you advertise the label on the can; when you open the can if the dogs don't like the dog food, it's not going to sell. And I kept saying we as an organization are not somehow meeting the desires or needs of this rapidly growing computer professional population out there, and that, I think, was -- and perhaps still is -- a problem, and I'm not sure that it's fixable. We were talking yesterday about how in the old days—the real old days—there was a high priesthood, that those people that spoke computerese were a breed apart, and they couldn't be bothered with the great unwashed out there. ACM was attuned to that high priesthood back in its founding days and through the first 30 years, I guess. And then gradually, when computerdom started meeting the needs of the great unwashed and you started getting people who weren't PhDs in math or even close to it getting deeply involved in computers, and coming up with Pong and the whole PC revolution, and the democratization of the whole thing. The people of ACM—especially the people in power at ACM—really were not interested in that. They were interested in the arcane, the sophisticated, the intellectually challenging and exciting parts of it—not the game playing and not the spreadsheets that would enable you to analyze a business problem of some kind. Okay, so you've got a spreadsheet that works. That's the end of it; I'm not longer interested. That was the mindset, I think, of most of the membership of ACM and the volunteers, and perhaps it still is, although I certainly can't say that from firsthand experience. So in a sense, the democratization of computing and the PC explosion kind of left ACM standing back in the old world—not that they weren't aware of what was going on; clearly they were. But that wasn't their main area of interest, and people like Apple and Steve Jobs, who's more of a showman than he is a computer scientist, they started calling the shots and running the profession and such. ACM, I think, did not choose the membership I'm talking about, did not choose to play in that game. We want to publish our academic articles so we get

tenure and the scholarly journals and all that sort of thing. To do something that's going to sell Macintoshes? Let somebody else do it.

Let's tie this back into the conferences that we were talking about. This was a very hot-button with Goldberg, for example, and so on. ACM had been very instrumental in creating the Fall Joint Computer Conference and the Spring Joint Computer Conference, and the National Computer, they combined the two. I'm talking back in the '60s, maybe the '70s, when those things were growing rapidly and really exciting, especially in the academic community, and they started bringing in some big bucks. AFIPS was involved in that and so on. Those shows were jointly sponsored and owned by IEEE, ACM, AFIPS, and somebody else. DPMA, I think, was in there. They started throwing off some big money. And the computer people—(by that I mean volunteers, members, and potential members)—they started going in two directions. Most of the members were saying, "Yes, those shows are great; I like going to them. But as far as managing them and selling booths that sort of thing, I don't do that sort of thing. We're a not-for-profit organization". The shows attracted the entrepreneurial folks in the rest of the industry, and they started saying, "Hey, this is a big money-maker." Thus there was a diversion between the scholarly, educational, academic ACM membership and the entrepreneurial, economically oriented Steve Jobses of the world.

We got this new conferences person I mentioned before, and she was more in favor of "Let's go gangbusters and make some money out of this thing," and the rest of the organization said, "Oh, yes, it would be nice to make some money—no question about it—but that's not really what we're in business for." I can't remember this specifically, but I would guess that a Peter Denning had no interest in growing that aspect of it. Certainly it's an honorable thing to do, but it's not what we do best as an organization. That reflects itself in the stagnant membership level. I think that the growth of computing professionals was in - I hate to call it -- the showbiz aspects of it -- the commercial, mass-market area —that sort of thing.

NORBERG: Would you call those people non-academic, or, more positively, to say that they were entrepreneurial?

HESPOS: I would say both of those. And I think that the people who were plunging into the computing profession at that time were more oriented towards the business aspects, the game playing aspects. There was a SIG for every purpose you can imagine. There were SIGs that covered all of those things, but with the exception of SIGGRAPH, they weren't the exciting SIGs. SIGPC, I think it was called, was almost invisible. SIGGRAPH did get close to the entertainment side of things, and those shows used to be great. The demonstrations that they would put on really got me interested, they were well-done, intellectually challenging, and they made money. I suspect that in the years since I was there, they probably also got affected by this commercialization and the Hollywood type thing and Star Wars and Pixar and special effects, which really didn't have a whole lot to do with science or academia. I don't know that for a fact, but I think that's a pretty good guess.

NORBERG: Were there any major changes in the structure of the organization while you were CEO?

HESPOS: Yes, the computer mess I told you about. I had to fire a couple of people, and I finally gave the responsibility to Pat Ryan, and we hired a person whose name I can't remember,

a young man. There was another big one. The number two guy under Sydney Weinstein was a guy named John McKegney, who had been briefly considered and passed over as a successor to Sydney. They wanted somebody new from the outside and so on. But McKegney was very hardworking, very nervous, uptight about things, cowed by many of the volunteers. They intimidated him a bit. That's why he really wasn't seriously considered, I guess. But the first week I was there, he resigned. Came in and said, "I hate to tell you this in your first week, but I'm leaving." He quit. He was a good guy, and I remained friendly with him even after he left. But that was a big change. Almost everything had reported directly to McKegney and then to Sydney. So I had not only Sydney's job, which was easy I think, but I had McKegney's job too—all these people I had suddenly reporting to me. But more structurally, I can't think of any major staff changes. I told you I eased out Irene Hollister.

NORBERG: When I said organizational changes, I was thinking of new structures in the organization to operate differently and so on.

HESPOS: I can't think of any, no. The structure of the staff organization was sort of dictated by the structure of the volunteer organization. SIGs were a big part of the operation, so they had a point of contact on staff for SIGs. That was Jim Adams. Chapters were a smaller part of the organization. Somebody had to be in headquarters who could tell you how to open a chapter, how to close a chapter, how to keep the books, and those sort of things, so that flowed through the organization. There was one person who did that, and he was under Jim Adams too. Publications was always changing within its general charter—you know, to add or subtract publications from time to time. That was always under Mark, and Mark always had a good relationship with Peter Denning, who was not factually the director, the publications point on the board. He was, if not *de jure*, he was *de facto* the volunteer who steered the publications. Frequently somebody else would take over, but Peter was always lurking in the background, and Peter was a tremendous guy. I always had a lot of respect for him. Conferences, I mentioned, we had hired Peggoty, and Peggoty reported in through Jim, so Jim had that as well. Financial reported directly to me; Mark reported directly to me; Pat reported directly to me. Who else was there? Pat Ryan was for me the person that handled the board, and the agenda for the various meetings and things like this, and she was so good.

NORBERG: With those comments, that there weren't any big structural changes, at least there were no programs that were not previously defined, what sort of a job description did you receive when you were hired?

HESPOS: Gee, I don't remember.

NORBERG: Was there one?

HESPOS: I don't recall. I'm sure they must have had a job description to give to the headhunter. You know, I don't remember.

NORBERG: When you assumed the CEO position, did you find the organization the same as it had been described to you?

HESPOS: Yes I did, with the exception that several in the volunteer community had negative opinions about a particular person in the staff—not a single person, but each of those volunteers had a negative opinion about someone. For example, I guess it was Adele who said, “When are you going to get rid of that accounting guy, Mike Lichtenstein?” Let me give him a try and see how he does. “He doesn’t understand the business!” Things like that. Somebody else said, “Oh, you’ve got to get rid of that conferences person. She doesn’t do...” She was bad in some way, and actually it turned out that we did get rid of the conferences person. I think she had some personal problems, and seriously offended a key volunteer – maybe Brandin. I can’t remember her name or anything, but okay, true, we did it, I didn’t consider it a big deal.

No, I guess I was not surprised. I was surprised at a few things. One, relevant to your question about “ambiance”, the offices were a rabbit warren. Oh, it was always terrible, really! A nice location, right on 42nd Street, right across from Bryant Park, and then out the back way across from the Princeton Club, where I frequently had lunch, held meetings there occasionally. But the offices were so small. Especially in the publications department, it was a real rabbit warren with little closet-sized offices. So I said we had to do something about this, and one, we took over a little more space on that floor. And two, I said we’ve got to move out of this place when our lease runs out, but it didn’t happen until just after I left that they moved over to Broadway, which I think is where they still are.

One of the things I tried to do was to encourage more direct interaction between volunteers and staff. I think the previous practice had been to come here only when you’re invited. It just didn’t make any sense at all. So I announced to the volunteers, “I want all you people to know you’re all always welcome at the headquarters.” Very few volunteers ever got to headquarters. I said, “Please, make it a point. When you’re in New York on any other business, please stop in and see the place, meet the people, and get to know us.” A lot more of that started happening.

NORBERG: But it could lead to particular problems in close association between a staff member and one of the volunteers who had some authority in the area that they were volunteering in, such as the treasurer of the organization Aaron Finerman. And there could be some side moves there where you’d be left out of the loop, and suddenly you find out that you have a big problem on your hands.

HESPOS: Yes. It never happened. Theoretically it could, but I think that I had a relationship with all the key members of the staff. Everyone was always telling me exactly what had just happened when such and such a volunteer was here. Maybe they wanted protective coloration or something. “He’s asked me to do something I don’t think we ought to do.” That may have been the reason, but I never had any problem with that. No, not at all.

NORBERG: The ACM, as I look at it, between roughly ’76 to 1990, seemed to believe (and this is a strong statement) that they were or should be the spokesgroup for the computing community in the United States, and maybe internationally. So there were associations with contact people in DPMA, IEEE that we talked about yesterday and so on, and some others, like AFIPS. As you came into position of CEO, were you aware of those organizations, the organizational planning, in their case? You were certainly aware; you mentioned those associations several times yesterday. But was there something there that you thought could be either made to grow, or you just assumed it was sterile?

HESPOS: I was told about all of those discussions that had been taking place about mergers and international type activities and so on. I didn't fully understand them when I was told them, but I found out about them quickly, after I got on board. I guess I would say I was strongly in favor of further integration and merger and those kinds of things. And I pushed it, but not too far before I realized it was impossible; it's not going to happen. Let me explain that, emphatically, because of our conversation yesterday. The IEEE Computer Society is the largest single part of the IEEE, but it is still less than half of the total membership in IEEE. I think the Computer Society had at that time a membership maybe 10,000 greater than ACM, but the parent organization, the IEEE, had in the neighborhood of 300,000 members at that time, including all of the electrical engineers, radio engineers, et cetera. I think they are the largest engineering society. In my judgment, it would make lots of sense if ACM and the Computer Society were one, but the only way that could happen would be if the parent organization, the IEEE, were to say, "Yes, we're the association of electrical engineers—everything involving electrical engineering, except for computers. They're someplace else in another organization." Or, going the other way, the ACM would have to fold itself into the organization called the IEEE, constituting the electrical and electronics engineers, or whatever the hell it does stand for. And neither of those is going to happen. The latter would be more likely to happen. I can't imagine the electrical engineering community saying, "Okay, we're electrical engineers for everything except for computers." That's just not going to happen.

NORBERG: The trend in the academic world is to have both of those in each of the separate disciplines, so electrical and computer engineering.

HESPOS: I think the trend has been to separate them all, isn't it?

NORBERG: Maybe so, but there's a trend backwards now. Electrical engineering groups still stand to a side and the computing groups still stand to a side, but both of them include engineering in each case.

HESPOS: Okay, but I know at Princeton, the computer department, if you will, came into being under the electrical engineering umbrella, but later they split engineering and computer science into totally separate entities, and I thought that was happening in most places. But in any case, I changed my mind gradually after I realized it's impossible, it's not going to happen. I started thinking that maybe it's not that important. I guess I rationalized it in my own mind, because (I may have been the one that discovered this, or perhaps Lillian Israel worked that out) there's a tremendous overlap in membership between the Computer Society and ACM. Approximately a third of the members of this organization are also members of that one. (Incidentally, I joined the Computer Society just so I could learn more about it.) Therefore, aside from organizational pride, what is it that an interested person can't get simply by being a member of both organizations?

The best case in point I can think of to prove this is when Paul Abrahams was president. He got the idea that ACM, in order to fulfill its role, really ought to be a much bigger player in the standards-setting activities than it is—the International Standards Organization. It was this officially, nationally recognized, government-sponsored standards setters, and the Computer Society of the IEEE is a very active member in that. Paul took the stand that we want to

participate in that, and so Paul and I-- Paul did a lot of work on that, and I was impressed by it. He and I went down to ISO in Washington, and visited with those people, and they said, "Hey, we're not the ones that decide who's going to participate in standards-setting activities. If you want to participate in it, send your people in." And we explored it a little bit and found out that the people at ACM who were interested in standards were working on it already! They happened to also be members IEEE/CS, and I couldn't see that there was a missing link there that wasn't being addressed. ACM didn't have on its logo that we set standards or something like that, but effectively the work was being done. And Paul, I think, recognized this finally and said, "Okay, you're right. Let's forget it. We can probably win, but it's not worth the battle. We could probably get organizational representation in ISO, but it's not worth it. What's it going to do for the world at large?" That effort, which took three months or something from beginning to end, really impressed on me, again, the importance of standards, which always struck me as a boring activity. Somebody's got to set standards. But I came to appreciate how important it really is, that every time something new happens, somebody—typically a corporation, typically Microsoft or IBM these days—tries to get in and say, "Okay, here's our product, and we're going to offer this as a standard for everybody to follow," because it gives them a dominant position. I don't know how many times IBM did that, and others would try to follow along, but they didn't quite know where all the I's were dotted and T's are crossed in the new standards, so IBM was always ahead of them. Without standards, it's just so difficult to make progress. Historically-- you're an historian. If you look up the creation of standards for screw threads...

NORBERG: I was thinking of that.

HESPOS: ...without that, nothing could have been done!

NORBERG: No interfacing without some elaborate mechanism. Let me play devil's advocate for a couple of minutes. This suggests to me that there probably wasn't a strong opinion among the members—or at least among the volunteers at the office—about whether or not ACM had a purpose to serve. So what was it?

HESPOS: In standards?

NORBERG: No, I'm talking in general now. Standards is one area; membership is another; interaction with the computer societies of different kinds and so on. ACM always seemed to be behind the others, and while it wanted to be a spokesgroup, it really never was ahead of the wave so as to be such a thing. Why is this so?

HESPOS: First of all, historically it was the first. It was founded in 1947, before the Computer Society of IEEE was created, so it is the oldest. Secondly, as far as being a spokesgroup and a public voice, I think that such things as the Turing Award, for example, are really an important symbol for not only the ACM but for the computing profession. I think that the award is highly regarded outside of ACM and outside of even computing. I'm glad that it goes on every year and recognizes a significant person and so on.

Similar to that, I was strongly in favor of establishing the "fellow" category of members. The IEEE had been doing that for some time. But that was an important thing to do, to establish a recognition for outstanding professionals in the field. That's been operating since I was there,

and that was just coming into being as I was leaving. But that's a valuable thing. One of the things we did while I was there, which I was surprised at the reaction to, PBS or WGBH in Boston came to us and said, "Hey, we would like to do a documentary on the history of computing." I tossed it out as an idea at one of the board meetings, and they said, "Okay, let's give it a try." Ask our members if they wanted to kick in an extra \$10 or whatever it was to contribute to-- we explained what it was. And the response was phenomenal. A large number of members checked off the box and followed up on it and said, "How's that thing coming?" and so on. And I think PBS did a pretty good job when it finally came out. But I was surprised and pleased at the membership's interest in assuming the public position and expanding the knowledge about this profession to the more general public—not to the computer game players, but to the people who watch PBS.

The obvious purposes of the organization, just to make sure we're not overlooking any, was, one, the publications—to create a vehicle for the academic computer scientist to publish and not perish. That's a very important function, and I think ACM does it better than anybody else does in computer science. We can talk more about that; that's maybe off the subject, how the changes in scholarly publications.

NORBERG: We'll come to that.

HESPOS: The other thing is the fact that a third or so of ACM members are college students, I think, is a very important function, and I found out more since I left ACM how important that is viewed in the academic community. I've been involved with the Armstrong State University in Savannah, and they have a very good computer science department, and they are really serious about the programming contest and those kinds of things that ACM sponsors. It means a lot to them. I presume that they are a typical college, and that this is true all across the country. ACM's role in the academic student community is a big one and is important. I think it helps the health of the computer science community.

NORBERG: Can you summarize for me, then, what purposes the organization served? You came in 1984.

HESPOS: Okay. Scholarly publications; I just mentioned that a few seconds ago. I think that's probably the number one. Number two I think is related to that, it augments the learning experience of the computer science student through the existence of scholarly publications, plus things like chapter meetings, speakers at chapter meetings...

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HESPOS: Conferences, I suppose. As I said, I'm not a big conference person, but I believe that they serve a useful purpose—several useful purposes. Papers are presented at these conferences, which provide the instant feedback that publications cannot do. But they also provide the cross-fertilization among people -- job-shopping and all those things that take place at conferences, which are valuable. You get to know the guys at the other schools or research labs. I was in favor of conferences for that reason. I have occasionally found the presentations of papers very eye-opening—not in computer science, per se, but thinking back to younger days in my previous

lives. The most outstanding one in my memory was the famous branch and bound algorithm of the traveling salesman problem. I attended a conference at MIT in '63, I guess it was, when John Little, (since retired) presented a solution using the branch and bound algorithm, and I was just dumb-founded. It's the kind of thing where you listen to it and say, "Damn, why didn't I think of that?" It was such a breakthrough—in my mind, anyway. Wow, that's really simple! Why didn't somebody think of that before? That's the kind of thing I think takes place at conferences often. Most of the papers are boring, but occasionally there's a real home run.

Okay, back to ACM.

NORBERG: Okay, I can pick it up from there. One of the things you mentioned was that there were several organizational attempts to other people to move in and out of these various SIG groups and so on, and some of them never really paid off, such as the PC—the one that was started by ...Portia Isaacson, I guess, was pushing that very hard. But was there ever a situation that you remember that you disagreed with the volunteers about a purpose, the purpose of ACM?

HESPOS: No, I've had disagreements with volunteers, but none like that that I can recall.

NORBERG: Can you remember any instances where you reacted to opinions, whether internally or externally, in such a way that you weren't really interested in what they were calling for? You mentioned this in terms of the conferences. You weren't interested in paying attention to conferences; you passed it on to somebody else. But yet most professional societies think that is one of the most important elements of what a society should be.

HESPOS: True, and I knew that going into the job. One of the big chunks of this was running conferences, and I'm not interested in being a meeting planner or arranging the best deal with a hotel and things like that. But even before I accepted the job, I think I satisfied myself in that area under Jim Adams. He was very interested, and enjoyed it. Maybe I'd just leave it that way; he just did it better and I didn't want to mess with that area. I just didn't find it very interesting at all.

NORBERG: In her final presidential letter, Adele Goldberg made some suggestions (this was in 1986) made some suggestions for the next president, not the CEO: "Devote more time to US government activities, better ways to tap the volunteer spirit in ACM, selecting a small number of new initiatives and volunteers to run them." The issues she thought were left from her administration were the same ones that Brandin felt that he left behind, too. You alluded to these by talking about the warren aspect of the ACM headquarters, and obviously there were things stuffed into boxes and put outside people's offices and so on to make it even more difficult. But the issues she thought were left from her administration of ACM were the same as Brandin's, Abrahams', and later Brian Kocher's, who hits them even harder. It was remarkable to go through these letters seriatem, because suddenly one of the biggest issues in the organization seems to be the computing capability of the office of the ACM. There were lots of complaints about that, and these people felt that something should be done. In Abrahams' first letter, to go back to that during your time as CEO, he indicated there were three major challenges facing the organization. So this is now 1986: "Defining our constituency and how best to serve it, enhancing our external activities, reshaping the way we manage our affairs." This strikes me in two ways. One, it suggests that the organization is still trying to find out what the major model

ought to be that they would follow as an organization and how they would motivate the members to carry on these issues. And secondly, that the organization, in spite of all these volunteers it had with seemingly good aims in view, the organization all stood at a standstill, more or less. Why would people keep calling for these for a decade?

HESPOS: My immediate response is you can get as much useful information out of those letters as you would from the president's letter in the annual report for any corporation. It's boilerplate. Much of it comes by taking last year's letter and saying, "Okay, how should we change it?" I'm sure that Abrahams didn't copy very much from Goldberg's letter, for personal reasons. But much of that is boilerplate. What's the mission of our organization? That's one of those platitudinous types of things.

NORBERG: Well, I don't know. You're right, I've done it a number of times. Yes, I'll pull out last year's letter and see how we did during the year, see how to promote the organization somewhat better. But I'm trying to remember whether it was something Abrahams said to me...

HESPOS: You're referring to the fact that it didn't change very much from this year to this year to this year, because it tends to be a stereotypical phrase.

NORBERG: I think it was that Abrahams and I had a disagreement about his expression of the outcomes of the organization and what it was looking for, and what he thought was the purpose of the organization. One of the things he added, which I did not point out here, is that the organization served a broad body of information about the nature of computing today; it serves as a 501(c)3 organization for the tax bureau, and that it was really devoted to the profession.

HESPOS: That point was regarded strongly by everybody in the organization—staff, volunteers—we are a 501(c)3, not one of those money-grubbing or self-serving 503(c)6s, like those other guys. I agree with that partly. It was not that huge a difference.

NORBERG: What I was objecting to, though, in the case of Abrahams was that he had added something to the mission as established in the constitution of the organization. And he disagreed. He disagreed. When he talked about it as an educational organization, I didn't see that in the purposes. It might be there somewhere.

HESPOS: I think that's the definition of a 501(c)3, isn't it? It's educational and scientific as opposed to being for the benefit of the members.

NORBERG: Yes, that's right, but I haven't seen anything that would suggest that the organization did anything but things to its members. I'm not saying it's right, but I found that they were more directed towards the members and the members' circumstances than they were to any general public. That is what 501(c)3 prescribes, I guess you would say.

HESPOS: Okay, I see what you're saying. Yes, that's a good point. I can't think of any significant efforts by ACM that were aimed at benefiting the members by saying, "Computers are important, and computer people deserve more money." Or like the nurses' organization might do, "We're underpaid." There was never a hint of that. To be fair, I never said anything

about 501(c)6s, either. But there are some things that the c6's could do that we couldn't do because of the c3 status. C3 is generally considered to be holier than the c6s.

NORBERG: I think that is rightly so, having come out of one myself! Let me see if I can try this again. I don't think I expressed my view quite carefully enough. Oh yes, I remember. It's right in Goldberg's letter. Spending more time in Washington trying to educate people about what computing is and why it's being supported in the way it is, and she, and Abrahams, indeed, after her, indicated there should be more government initiatives—not lobbying initiatives, but more educating members of congress, members of government agencies in terms of what they should be thinking about, as opposed to, “We're here to tell you what you should do.”

HESPOS: I remember some discussions about that, and also with Walter Carlson on that. He and I spent a couple of interesting days in Washington. He was going around to see all his old cronies and trying to... This may be a digression; I don't know. What Walter wanted to do was have ACM become a federally chartered corporation. He felt this was important because it distinguished us from many others. It was a loophole and maybe he thought he could figure out... I never was greatly impressed by the idea. I didn't think it would matter very much. But liking Walter, I said, “Okay, let's give it a try,” and we went down there and pounded on doors and so on, had a good time. I learned a lot in the two or three days we were there. But then we discovered that for some reason it was not feasible, period. It was a closed door—they don't do that anymore, or some such thing.

NORBERG: That could be. The last one I remember is the American Council of Learned Societies, which is a chartered organization, but I don't know of any after that, and that was in the late part of the 19th Century.

HESPOS: Okay, but the standards effort that I did describe was an attempt to get ACM more involved in governmental activities like that. I was an amateur in this field; I felt that the best we could do as an organization would be to volunteer names of witnesses, experts, whatever to the government in any area where computer expertise was needed. We ought to be a font of knowledge as to whom you could talk, as opposed to taking an organizational position at all.

NORBERG: There were some fights about that, particularly with respect to professional ethics, what we should do about the “refusniks.”

HESPOS: Okay, that's coming back to me now, especially Goldberg. In fact, that was one of the “clashes” I had with volunteers. We wanted to write a letter to-- who the hell were we writing to? Was it the Czar of Russia? -- protesting that Sharansky was not allowed to attend a computer conference somewhere (I think, in Israel), and that we should make our voice known about this, that we're protesting against this. Besides it being pissing into the wind. I said, “Now, wait a minute. Is that really one of the purposes of our organization?” “Yes, it is. We're supposed to provide for the free interchange of knowledge, and they won't let a computer scientist come and present his thoughts,” et cetera.” I said, “Okay, do we write a letter if a physicist is not allowed to come to the American Physical Society from Russia?” “Well...” “Isn't it exactly the same?” “Yes, but we're not physicists; that's not part of our mission.” “Where is it part of our mission that we do this for computer scientists but not for anybody else?”

It's a human rights protest. I raised this question: "Why just this guy and not these guys over here? Maybe you should find another vehicle for making this kind of protest. It's a valid protest—don't misunderstand me—but why should ACM be involved in what's essentially a political protest? I don't understand."

NORBERG: Well, did you have a view about what organization should do it, if it should be done at all, of course?

HESPOS: No, I didn't have any position on whether it should be done at all. Well, I could say "yes it's good to protest that sort of thing", just as you would protest against the slaughters in Darfur, because it's a bad thing, and you protest bad things. But what's that got to do with ACM and computer science and all those kinds of things? What organization should protest? I don't know, ACLU or a church maybe.

NORBERG: Wouldn't you think that ACM would have more clout if they wrote to the Academy of Sciences in the Soviet Union than the local minister and a dozen or so of his deacons?

HESPOS: Marginally better. [Laughter] A better example of using ACM as an inappropriate tool to accomplish something was the effort-- I can't remember who was involved in this, but it was more than ACM. People got together and said, "We want to talk to the Nobel foundation about establishing a Nobel prize for, I think they called it the mathematical sciences. And we got The American Mathematics Society, the IEEE—the usual suspects, really. We got together prestigious names and we drafted a letter to send to Nobel. We circulated it around and commented on it. I thought it was a masterful job. And all these organizations signed and sent it to Nobel. We got a letter back which was the most complete turn-down. It was almost, "Are you kidding?" In fact, in there he even hinted that-- I can't remember what he said, but he hinted that, "Jeez, I wish we hadn't done this for economics. Physics and chemistry, fine; medical science, okay. Yes, and then we get into economics. But no chance we are even going to consider that." It was a case of trying to use an inappropriate tool, I think, to accomplish what was a desirable end, a good thing, but the professional societies were not in a position to bring it about. It was cute—what a complete turn-down we received.

NORBERG: I wonder what convinced them they should do that for economics.

HESPOS: They're probably wondering that, too! Not to mention literature and the "Peace Prize!"

NORBERG: That could be. I shouldn't say, because I'm not sure, but what I think I know is right. When I was friendly with the Chairman of the Nobel Prize Committee for Economics when I was going back and forth to Norway, he wouldn't talk about it. He would talk about the issues that would be involved in selecting a winner for this particular year, but how they came to do their deliberations and so on, he wouldn't tell me that.

HESPOS: The ACM is that way about the Turing Award, incidentally. I never found out anything about how those deliberations took place. There was a group of volunteers who were a

self-perpetuating group who-- I think they were self-perpetuating, maybe not; but they got by themselves, and the rules that were followed or whatever were to themselves; it was never publicly known.

NORBERG: Did you object to that?

HESPOS: No, not at all. In fact, I was always impressed with the caliber of the selections they made. I think that's a well-done part of the operation. I can't even remember the names of the volunteers that were involved. I overstate self-perpetuating. There is a committee of the award that I'm sure was involved in the recommendations made by the old committee as to what changes we want to make in membership and so on. It was approved by somebody else. But it was never anything I got involved in, and it was never controversial, and I think they did a fine job in the years I was there.

NORBERG: Well, there was something about increasing the award because it ought to be more like the Templeton Prize, for example.

HESPOS: Templeton, that's a big one.

NORBERG: Yes, \$1 million.

HESPOS: Million and a half, I think. Just bigger than the Nobel. I was just reading about it recently. Templeton is the financier who lived in the Bahamas or something. He's the religious guy, and the Templeton award goes, loosely speaking, to who's the best creationist scientist.

NORBERG: Well, that may be so, but one of my acquaintances who received the prize was very good at articulating what the problems are for practicing scientists and engineers in a society that is hell-bent for election to do everything that they possibly can with any situation that arises, such as new techniques for stem cell research and so on. I never saw him as being particularly religious.

HESPOS: Templeton?

NORBERG: No, the winner. He was either the first or second winner. I think he was as much stunned that he received it as anybody else was from the outside. But yes, you're right. This is something that was not discussed within the ACM. They were talking about raising it by a factor of ten—\$25,000 to \$250,000. I don't know what it is now.

HESPOS: I remember the discussion about increasing it, yes. I didn't mention, but all of the time I was there, the big problem was money. I suppose this is true of every society, non-profit organization, but money was always the issue: we can't afford to do that. SIGGRAPH, was making so much money, they just were a magnet for money. Everybody in ACM was trying to figure out how do we propose our pet project in a way that would be appealing to SIGGRAPH as well. This may be off the subject, but one of the things I always had to battle about while I was there was attempts by the volunteer community to balkanize the flow of funds so that any money coming from this here can only be spent on that over there. This is kind of like colleges with

endowments. “Okay, you want this money to be spent on this? Fine, we’ll devote it to this, but it means the money we were going to take from this pot over here and put it over there, we will have that available for these other purposes.” You’re killing yourself to balkanize that way, because really, the function of the managing organization (the board, or whatever) is to allocate the money. Don’t freeze it in there, because whatever you decide now may be ludicrously inappropriate five or ten years from now. But if you balkanize it, you’re going to create a problem for yourself. That’s always the solution offered—let’s take this money and devote it to... It’s really all in one pocket.

NORBERG: Was it during your administration that there was discussion about the monies that some of the SIG groups were achieving in their conferences—large amounts that they then would store as a self-perpetuating organization? You used the phrase before.

HESPOS: Yup. That was a big issue when I was there.

NORBERG: I’m trying to remember how it arose, because Jean Sammet had been involved with that issue a couple of times, and I think the last time she was, it was in ’84.

HESPOS: Jean Sammet was never involved in anything of significance when I was there, except writing nasty letters to people.

NORBERG: Okay, but keeping with that thought, though, what sort of clashes occurred dealing with SIGs and the board of the organization?

HESPOS: There were two SIGs that made a lot of money: SIGGRAPH and the design automation conference. SIGDA, was that the name of it? They had big conferences that made big money, and there were a couple of others that were so-so. Most of them were small losers. While I was there, I felt that we made very nice progress on getting SIGGRAPH and SIGDA to cooperate with the rest of the organization and take their money—not keep it all for themselves—and deploy it elsewhere in the organization. They got to have some say on where it went, which is back, again, to the balkanization that I mentioned. The guys that were heading both of those SIGs—Kelly Boothe and Chuck Shaw—I got to know them both rather well and got along with them rather well, and they were very cooperative in making their money available for the more general purposes of ACM. I thought we made moderate improvements in that area while I was there.

NORBERG: I had the impression that there was a lot of disagreement about whether this should be done or not, taking SIG money and let it go for general purposes of the organization.

HESPOS: Yes, there was some disagreement on it, sure, but the disagreement lessened while I was there, and when John White became SIG board chair. It tended to be much friendlier and much more cooperative, I thought. There was reluctance to take, say, SIGGRAPH money and use it to pay headquarters’ salaries and things like this, but to take SIGGRAPH money and use it to fund worthy projects in other parts of the organization became acceptable. However, I’m drawing a blank on specific projects that were funded with that money.

NORBERG: Well, did you have any of these difficulties because of the lack of National Computer Conference money coming into the organization in the middle 1980s?

HESPOS: Yes, absolutely. That was going down. It had been very big in the years just before I got there. It was going over the cliff when I walked in the door, and it was wiped out by the computer conferences they have now, for example, the Consumer Electronics Conference. And you could just see those vultures coming into these conferences, and everybody knew they were going to take it over, and probably should.

NORBERG: So what sort of interactions did you have with the SIG board chair and with the SIGs themselves?

HESPOS: Okay, SIG board chair, well John White was SIG board chair when I left, and I got along famously with John White. I admired him; I think he admired me. We got along just great. Prior to that, the SIG board chair was Ron Gibbs, I think, from Carnegie. I got along fine with him, but I don't remember having any problems with--

NORBERG: I wasn't fishing for any problems but fishing for ways in which you interacted with one group as opposed to another. Was the attention to, say, SIGGRAPH more significant for the organization than toward, I don't know, DPMA? Data processing is what I meant.

HESPOS: Can you repeat the question?

NORBERG: Attention was what I was thinking of. Did you have interaction with all the SIGs in the same way, or was it necessary to partition your time so you could just go with one?

HESPOS: No, I didn't. Probably there must have been a half dozen SIGs that I never had any interaction with, at all. I'm sure there were. The time I spent with them interacting on problems was definitely related to the size and importance and that sort of thing, and the activity of their publication. SIGGRAPH's publications, for example, were significant by themselves. Mark handled those, although they had a lot of control over it themselves. But the of other SIGs, I think there were 30 SIGs when I was there, probably ten of them were barely active at all. In fact we did set up a procedure for how to abort a SIG that exists? How do you end its existence—euthanize, I guess is the word, --that hasn't had a meeting in so long, this sort of thing? Shouldn't we just pull the plug on it?

NORBERG: Was there some basic cost that would be involved in it? Would you save any money by euthanizing one of these groups?

HESPOS: No, they were essentially just a name on a letterhead, figuratively speaking. The small ones that were inactive that were sick were no drain whatever; just it didn't look neat. If they're not doing anything, why do you keep them around? It's hard to make an economic argument to do anything about it. But it could discourage new people from starting something new in that area, if they have to deal with some old baggage first.

NORBERG: I'm getting the impression from the way you're answering the questions that there was some attempt on your part to begin to rationalize things within the organization. So either your job became easier as a result of it, or the organization performed differently or better as a result of the changes. Is that a fair assessment of what you've been telling me?

HESPOS: Yes, which I think is part of any manager's job—how can you make these things so that you don't have to work so hard? I think the organization worked more smoothly. I think I mentioned yesterday, I thought one of the biggest things I accomplished was reducing the size of the boards. This was important for two reasons: one, it was costly; and two, it had created an attitude among the members such that they had an exalted idea of the function that they were performing. If we made the group smaller, we can get more work done effectively and more cheaply, but this business of the huge ceremonial trappings was silly.

NORBERG: Well, it's silly from your point of view, but what about the people who are in the organization as volunteers that you were talking about yesterday, saying that this was a way of pumping their own ego, having little or nothing to do with the organization?

HESPOS: Yes, but I think the purpose of the organization definitely did not include gratifying the ego of the mediocre representatives to the organization. The people were getting their kicks from this organization as opposed to getting their kicks from the way they work every day.

NORBERG: Was there some tension between SIG groups and the publications board as a result of both of them doing publications, both of them trying to oversee what was going on in terms of...?

HESPOS: There were some minor issues, but I was not aware of them. Between Mark and Peter Denning, those problems generally got resolved calmly. Mark was making a collection one time of letters he had gotten from Jean Sammet, they all started off by saying, "Dear Mark, I am shocked and appalled at the lack of professional something or other..." She was a piece of work.

NORBERG: Oh, yes. She's still around, too. I don't know how to ask the next question. Maybe you can help me a little bit. All of this sounds to me like it was a very smooth-running organization. Having been on the council or the boards or whatever of several professional organizations in the historical community, it's anything but calm when those meetings are going on, and often nothing got resolved, especially for financial reasons. I think that I hear in your voice that you were really able to keep that at a very low minimum, keep it in the noise so that people could not be objecting to things that were going on—not a self-serving number, and don't be a pain in the ass, is what I mean.

HESPOS: There were some high friction points, but overall I would say it was relatively smoothly working. High friction points involve, one, money issues. Every year we go through the budget-making process, and we'd come back to, "We've got to cut headquarters' expenses," and we go through that battle every year. We can, but we would have to cut services, and which services do you want to cut? We did cut some things, but that was always the hot button. I found it frictional because I felt that I knew more about how to manage an organization like that

more efficiently than any of the people out there. I had managed things much larger, and I never said this, but they generally didn't know what they were talking about!

NORBERG: Well, how about the office itself—your office. There was attention paid over and over again to the fact that the computing resources, the computing systems, were ineffective in attending to member interests.

HESPOS: Absolutely.

NORBERG: Again, it's a money issue, but how do you go about altering the computing activities within the organization?

HESPOS: Okay, let me deal with that. Several observations. One, the membership system was a bear. It was just a nightmare. Part of the cause of that was over the years, the volunteers had created more damned categories of membership than you could-- if you're over 65 and have been an academic it's one deal; and if you're foreign; and you've been a member for a number of years, then this is dropped off; and when you retire... It was just so complex. It's a lousy \$65 a year we're talking about, and we've got all these exceptions in here. Two, the system that we had—I can't remember the genesis now of it, where it came from, which might be important. And another point there, prior to my arriving, we had volunteers come in and say, "I'll fix it," and you know what that does. And there was a little bit of self-serving there by one of the consultants that I got rid of, who was a close personal friend and business associate of one of the volunteers. I won't mention any names. But it was just too close for my comfort, and we phased out of that.

But we're still left with this rat's nest of a system, and I and a couple of others (I can't remember the volunteers on that) we entertained proposals from various vendors, and we found out who the ASME was using, and what systems they were using, but the differences were so great that we couldn't use a package that somebody else had. Mainly we, I believe, solved the problem by finally getting the right guy in there—this young guy whose name I can't remember. It was not solved before I left, and we had to get rid of-- We just had a bad turnover situation. I made one mistake, as I mentioned. We had to get rid of almost all the people in that area that were there when I came in. I had one mistake of my own who lasted a year and I had to fire her. And both Pat and Mark were very helpful in finally solving that.

Another thing: the computerization of headquarters was, while I was there, terrible in all respects—not only in the membership system, which was almost the only thing we did on that little mainframe. But it was the biggest thing by far. We didn't have any word processing throughout the organization. Think about when it was—we're talking about the mid-'80s, and the extent of PCs in offices was just happening then. There was reluctance on the part of the volunteers. They were against my trying to do anything in that direction because of money. And also, let it settle down a little bit and so on, which I couldn't disagree with. So we did not make great progress in that for those reasons. When you think of an organization like that, it should be so completely computerized, and it was not when I was there, and we couldn't afford to do it. I'm sure, it has happened now. I remember the one time I went back there after I left and there were computers everywhere in their new and spacious headquarters. But I was not able to do that much there.

NORBERG: So is it also fair to conclude that there were no major issues during your stay there?

HESPOS: No, I don't think so. One we didn't mention was we made a new member effort at internationalizing, and didn't get very far while I was there, but we did give it a healthy try. Jim Adams and I made a trip to Europe—London and Brussels, I think it was, or Amsterdam or somewhere—and we explored sharing office space there for member services with a couple of other societies. The Computer Society, I think, was one of them I remember, the British Computer Society. We strengthened our relationship with several of the foreign societies, trading subscription rights and things like that. We got very favorable responses from foreign societies when we suggested that, but there was no big economic deal at all. We did get swapping memberships. We gave yet another special deal for membership. [Laughter] We said if you were a member of the New Zealand Computer Society, I specifically remember, you can get access to our subscriptions for a reduced price. I don't remember what it was, but there was some of that, actually. That didn't get very far, and it has gone further shortly after I got done. DeBlasi did do some things internationally that we had tried to get started.

I can't think of anything else. Ask me another question.

NORBERG: Do you think the character of ACM changed over the many years?

HESPOS: The years I was there?

NORBERG: That's too confining, I think, so I want to broaden it out a little bit more, but in the years in which you were interested in and associated with ACM—those few years before and the few years after, probably.

HESPOS: Yes, but not near as much as the world in which they lived had changed, and that's the problem with referring to the real world. Their world was so rapidly changing, not only because of technological advances but because of the sociological impact of the world of computing. But ACM did not change at anywhere near that rate, and maybe it-- I don't think it was absolutely necessary that it *should* have changed because of the changing nature of the computing world. ACM was good at what it was doing, and didn't necessarily have to start doing something totally different because of the success of the thing that they were dealing with.

NORBERG: It's very hard to convince people of that—they want to see progress all the time, and they define any change as progress.

HESPOS: Okay, let's think of some areas where that's singularly inappropriate, such as say, the Catholic Church.

NORBERG: That's a good one.

HESPOS: You don't have to change with the times just because the times change. If your mission is a certain thing, maybe you ought to stay with that mission and not try to become something you're not. The March of Dimes tried to change its mission after polio was licked, but never reached its earlier success.

NORBERG: Well, I don't want to belabor that discussion because I would have to get a little personal about it. But one of the unfortunate things that happened while I was preparing for this interview was the records that I had access to—board minutes, board agendas, reports of sub-groups and so on—ended in '82. That's what we had at the Babbage Institute. We had most of the papers that we did have at that point from Dan McCracken. Those records were very good in developing these questions, as a matter of fact, and so I just wanted to push them on to an extra two terms of presidents. Now the Babbage has acquired the complete ACM files.

HESPOS: Pat Ryan, I'm sure. And they are good.

NORBERG: Yes, and they are very good, I was told, but they're not really useful yet, the way they are arranged. But I can't tell from the papers that I have seen that there were any strong discussions going on within the volunteer organization about what ACM should be doing and about dropping things; they rarely talked about dropping anything.

Session 2, Tape 2, Side A [No Side B]

HESPOS: As part of this mission question, I took it on myself to start asking prominent people I knew in the industry, "What's your impression of ACM? What do you think your organization gets from ACM, and what would you like to see it getting from ACM?" The most informative person I spoke to was Paul Rizzo, who had been the comptroller of IBM, when I was at McKinsey and did a study up there. He had advanced to become vice chairman of IBM and had retired and had become dean of the Graduate Business School at the University of North Carolina. I knew Paul reasonably well from the old McKinsey days, and we had a long conversation. He had a techie background, but he had been a financial guy in his career at IBM. He said his impression of ACM was that it was an extremely valuable thing to the research arm of IBM, but not beyond that. And he said, "Is the organization really interested in and capable of expanding beyond that function?" That's a very good question, and I concluded gradually that the answer is no, because of the nature of the membership and the changing nature of the field, that the field is becoming much more commercial, as I've said already. I also spoke to people I knew from Bell Labs and the academic community and people I knew at Princeton. I had several interesting conversations there. Who else was I speaking to? I had a very unsatisfying conversation with Steve Jobs, who is not one of my favorite people. Who else have I talked to on that question? Nobody else is coming to mind.

NORBERG: Let's see. We don't need more examples of people, but what I would like to ask you is was there an organization that would serve the commercial community with computing as ACM seems to have supported the research community?

HESPOS: I don't think so. I don't think it's necessary, because the perfect parallel I can give you is this: as I said, I was chairman of the Advisory Council on Computing at Princeton for 20 some years. I was chairman most of the time. "Chairman" means that's the guy that writes the report. You're familiar with that. But as I said, we used to meet first annually and then bi-annually for two or three days of presentations from faculty, students, administrators, and so on, as to what they're dealing with in computers and the problems they're having. Then we

pontificate and feed back to the president and provost our recommendations. We continually found over those years that there were tremendous opportunities out there that the university was not exploiting to the fullest. The biggest reason was that most of the faculty couldn't spell "computer". They're older. They're just never going to change and inculcate this into their teaching process the way it's necessary, and it's going to take a change in generation for this to happen. The students back in those days weren't very interested in it.

Incidentally, on that point, we had an honor roll of stars on our Advisory Council back in the early days. Fred Brooks, the father of the 360; Bob Fano, one of the MIT guys. The first time-sharing system they came up with was CTSS. Tom Kurtz from Dartmouth, of Kurtz and Kemeny fame. Who else? I was invited on this council as the token representative of the business world [chuckles]. But it was a very impressive group, and I felt honored to be there with those guys. Plus the heads of computing at Harvard and Yale, obviously. There was somebody else; I'm trying to think who. Oh, sure, the guy that headed Bell Labs, Bill Baker, he was there. And one of the faculty people that was always there was Lyman Spitzer. What's the name of the satellite? The astronomer, Hubble, he was the architect of that [NASA's The Hubble Telescope]. Delightful man. He's since died.

The parallel is this, I think. The kinds of things we were saying to the university back in those days were, "You need more computer awareness among the faculty, but it's going to take a generational change to bring it around because you can't teach an old dog new tricks very effectively," and so on. As each year went by, that message, still true, was getting less and less true. And finally about ten years ago, without any formal decision being made, we stopped having the meetings. They were no longer necessary—for the thing had achieved its own momentum. Enough faculty and enough students had become very conversant with computing and its potential and everything else that they didn't need any advice from anybody else. It was going by itself. We had outlived our usefulness, and we just stopped meeting. Everybody agreed that it was a good thing to happen. I think the same thing applies with this situation, that, as the PC revolution took place and everybody started using computers and word processing and all these other kinds of things and email and Internet and so on, we don't need all the high priests that we used to have anymore. They've outlived their usefulness. The thing is self-generating now; it's on its own. Therefore, I don't think that there was a vacuum there that couldn't be filled by either conventional tech support from vendors or courses in local colleges—that sort of thing. The computer was self-sufficient; it didn't need a high priesthood any longer. Now the high priesthood still exists for the academic world and the techies and that sort of thing, and that's the function ACM is still performing, I think. But the fact that the field changed and grew so much out here doesn't necessarily imply the need for some sort of professional or educational society or support group that would grow at the same speed or in the new direction.

NORBERG: What about the spin-offs, though? AI went in one direction, formed its own society. Graphics had several publications that appeal to a sort of general audience, the educated computer user, certainly.

HESPOS: They're still part of ACM.

NORBERG: They are, but some of the people who look at the organization of ACM feel that the reason that those groups spun off is because not enough was being done by ACM to keep them in the fold. They're taking their money away—some of it, anyway.

HESPOS: Okay, that's a good question. Should ACM have done something to meet that need? I don't know. I guess that what I'm saying is I think that would have required too much of a change in the structure. Maybe it's Schumpeter's "gales of creative destruction" again. Maybe in order to start meeting a very different kind of need you need a very different organization, and maybe that means you need a *new* organization to meet the new need. I don't know. I haven't thought about that.

NORBERG: That's certainly a justifiable answer given other societies and how they've spun off important groups within them, and they became sort of a discipline of their own. At the same time, Paul Abrahams was president and you were CEO when the death throes of AFIPS was under way. What were the consequences of AFIPS dying?

HESPOS: Very few, as I recall. The money source had disappeared before I got there, AFIPS and the computer show. NCC is what it was called, National Computer Conference, that had disappeared just before I got there. My first budget was reduced by an amount that we got last year from the show, and we didn't this year. Oh, God. Welcome aboard! But aside from that, there was very little impact in ACM circles from the demise of AFIPS. George Glaser had fewer travel opportunities.

NORBERG: Okay, I accept that as a potential answer here, but I also have another problem in mind, and that is wasn't AFIPS the relevant organization that was serving as the national group that would interact with government here in the United States and that the other similar groups like at IFIP in Europe would be doing the same thing for the EEC? Did that not arise?

HESPOS: I never saw it had much of an impact on anything other than the shows, frankly. What was the organization in Washington that Ollie Smoots was with? (CBMA?) It wasn't AFIPS; it was some other... This is probably even worth recording. I'll tell you this story. Ollie Smoot was an MIT student who graduated probably about the late '50s or 1960 perhaps—a few years younger than I. I met him when I was in Washington with Walter Carlson at that time, but I had heard this story before anyway. Ollie Smoot was about 5'5" or so tall, and while he was an undergraduate, his fraternity brothers decided that they were going to define a new unit, a standard measurement of length. It was called a Smoot, and they took Ollie and laid him down on the Longfellow Bridge from Cambridge to Boston, laid him down, put a mark, picked him up, moved him five feet, five inches, put another mark, and it turns out that the bridge is something like 372.5 Smoots long, and this was publicized and written up, and Ollie became famous for life. Anyhow, why did I bring it up? He was in Washington as head of some non-profit organization that was in the techie area. It wasn't AFIPS. I take it back.

NORBERG: There were so many of them I lost count and names. Since I left Washington 25, 30 years has passed and I haven't paid much attention to that.

Okay, let's turn to personalities again. I want to come back to some of these people that you were praising a little while ago and ask you who were the officers that you worked most closely with—and I'm speaking of the volunteers now.

HESPOS: John White. Not Peter Denning; I didn't see Peter all that often, but whenever I did, I always considered it time very well spent, but it wasn't that frequent. Whoever was the president was the person I was dealt with most in the volunteer organization, Goldberg or Abrahams or Kocher. Who else? Oh, a very impressive guy, he became less and less active at ACM, and I'm having difficulty coming up with his name. His first name was Stuart. He was on the publications board and dealt with overall financial issues. It will come to me, I think. Time spent with him was really time well spent. Stuart...it's a short name. He's a Brit, Cambridge graduate. He was the computer guy for Cornell University, last time I heard. Stuart Lynn! Yes. Who else? I'm having difficulty separating who I spent the most time with versus who was the most valuable person I talked to, but I never spent that much time with Vint Cerf, but I was always greatly impressed with the time I did spend.

NORBERG: He wasn't tremendously involved, either, as far as I could tell.

HESPOS: Yes, that's true. Oh, Sarah Bly. Was she SIG Board chair before John White? She was from the SIGGRAPH group, and she had some responsibility that involved my spending a lot of time with her in New York. (the strategic planning committee, which I helped create, and which involved Frailey) She was frequently in New York. She was from Xerox Parc. She was just a really competent person. Sarah Bly. Oh, I guess it was more social than anything, but Bob, the piano player from the University of Chicago, Bob Ashenhurst.

NORBERG: I didn't know he was a piano player.

HESPOS: Oh, he's a great piano player. At SIGBOOZE parties, he would get up there and play all sing-able songs, and I would be standing there singing my heart out along with half a dozen other people. I don't know; it's not a very good answer.

NORBERG: Where does the social part and the professional part separate with people like Ashenhurst and Lynn?

HESPOS: Social was not a big part of it at all. The only socializing time would be at conferences and the night of SIGBOOZE generally. I used to socialize with Jim Adams occasionally, but that was totally outside of the office. There wasn't that much social interaction.

NORBERG: One could even go so far as to say, from your description, that these were two horses on the same wagon rather than a troika or whatever you want to call it where everybody had to pull in the same direction or the cart didn't go anywhere. With an organization the size of the one you're describing, with 75,000 members, it seems to me that there has to be more interaction than just a couple here and a couple there on the part of the CEO now.

HESPOS: One of the things I initiated—I think it might have been Lillian Israel's suggestion—was we set up, she called it a focus group, I guess, but it really wasn't. We set up a program where we'd spend a certain amount of time calling up people who were members and asking them what more would you like from us and what problems have you had and so on. I was always surprised at the warmth of feelings that the members had to the organization—much more than I expected. But I was also really surprised at how surprised they were that they got a

call from the organization saying, “Hey, what do you think of us?” In fact one guy I remember specifically after I told him what we were calling about and everything else said, “What’s your position? Are you a telemarketer or something?” “No, I’m not a telemarketer.” “Really? What do you do with the organization?” I said, “I’m the executive director.” He says, “No, really, what do you do there?” That was in response to your saying what kind of interactions I had. The interactions I had with members in general were relatively few except for at a conference. At a conference you would meet people in the lunch line or whatever. But the interactions that I had with volunteers and such were sometimes argumentative—no question about it—but almost always it was resolvable. If you’ve got a problem, what’s the best way to handle this? If I don’t agree with your way of handling it, we have to resolve something. But social interactions were very few. As I say, interaction at the SIGBOOZE type of thing. The most arguments were almost always over money. The feelings that I had that if they felt that they could do it better than I did, maybe they ought to do it. That’s eventually when I decided to leave. I thought five years was enough of that. I was no longer having fun.

NORBERG: It’s funny. Dan McCracken said the same thing to me.

HESPOS: Really?

NORBERG: Yes, it struck me as being idiosyncratic with him, but maybe it’s not, because when he ended his term as past president, he walked away. He has not been back there since because it was no longer fun.

HESPOS: I met him only after I had been there three years. That was the first time I met him. I saw him maybe three times in total. So yes, he was very much a...

NORBERG: Finally, after Dan had said that to characterize certain activities—I think it was three times—I finally said I have to get him to define what he means by having fun. Otherwise the listener to this tape isn’t going to get anywhere. So I’m going to ask you the same question. What are the criteria for judging that having a job means having fun?

HESPOS: What are the criteria for the judgment that having a job means having fun?

NORBERG: No, no. The fact that when you’ve come to end of it. You’ve been having fun all along, it seems, but suddenly it’s no longer any fun. What does fun mean?

HESPOS: Every job I’ve ever been in, you’ve got irritations in it from time to time, clearly. Every marriage I’ve ever been in, which is one, has that problem, we know. I guess when it gets to the point where you’re having the same argument for the fourth time or something like that and it’s not going to be resolved, and especially if you have enough money where you don’t need this job, you think, “Do I want to go through this again? No, I don’t think I do.” That’s how I came to the decision to leave ACM. I was going through the budget type thing again, with Brian Kocher, who’s a nice enough guy, but really not all that competent. I’m sure I’m not the first one to tell you that.

NORBERG: I don’t know the man, so it doesn’t...

HESPOS: Hearing these same arguments coming from him, I said, “I don't think I want to do this anymore,” and I thought about it, and the next day, I told the executive committee, which was John White, and I can't remember who else. I said, “I've made a decision. I'm not going to leave tomorrow, but I'm telling you I'm going to leave. I'll stay around as long as you want. I'm not looking for another job, but I'm telling you I'm on my way out. I will help find a successor.” In fact, I did pick out a headhunter, did interviewing and all those kinds of things, and I did stay around for six months or something. But before those six months were up, I got that call from Harvard. So that's how the decision came to me. Do I want to go through this one more time? And Ryan was very upset when I told her because she had just gotten a good working relationship with me and more responsibility under me, and so on. Yes, that was enough of that.

NORBERG: Oh, I was just waiting to see what you were going to say next.

HESPOS: What was the point I was making? When does it stop becoming fun?

NORBERG: Yes, well, I guess you defined when it stops becoming fun, and you described it. That's not how McCracken had described it, but that's neither here nor there. But we were talking about the interactions between you and staff members and volunteers to get me to understand better exactly what the job entails, because I'm uneasy here with the answers that you're giving me. I'll try and be confrontational now, but I'm struggling with the answers you're giving me because it sounds like everything was hunky-dory.

HESPOS: It wasn't hunky-dory. There was always the money problem. There was always the computer problem. Every conference some problem would come up in the last minute, most of which got handled by somebody before they got to me, but I don't deal very well with irate people, and occasionally a phone call would get through to me from a volunteer who was absolutely irate over something. I would listen to him for a while and try to be polite, but if they got nasty, I was known to simply hang up. One of those was, we had misprinted something in the program, and I knew absolutely nothing about this, of course, until this guy called me up. I was also on my way out the door to catch an airplane, and this guy was ranting. How he got through to me on the phone, I don't remember. But he was ranting, and I said, “Look, I told you. Yes, it sounds like we made a mistake, and yes, we will investigate it.” “You've got to find out who's responsible for this!” I said, “I've got to go. Goodbye.” Click. That was the worst confrontational thing I had with a member—in that case, a volunteer.

NORBERG: We sort of waltzed around the question of finances here, and you indicated when it was a problem—especially after the AFIPS money disappeared, and then later on as the membership was not rising. What was the financial structure of ACM, both in terms of what the board expected to develop as an imaginary sum of money that they were going to have next year and that they could use to allocate money to various activities and operations in the organization? The other is, how did it really move through the system? Who developed the first draft of the budget? How did it get changed along the way? Did you have people from outside as auditors and so on?

HESPOS: We did have outside auditors, yes, once a year. The budget process was in place when I got there. It was complicated. I struggled to learn it, but I had Mike Lichtenstein there who knew it intimately. I found him a pleasure to work with. He always made a bad impression on the volunteer community because he was very...I think shy is probably the right word. He didn't dress as a shy person; he was kind of a flashy dresser—Rolex watch I remember. But he always seemed like an aw-shucks kind of presentation, very overly polite. What's the word I'm groping for, a Uriah Heep type.

NORBERG: A sycophant, it sounds like.

HESPOS: Yes, sycophant. But he was accurate all the time. Helpful to me. I never found him, as Goldberg and a few others did, I never found him shortcoming in any way. But he knew the process. He would be able to answer any questions that people would throw to us, but I would have to say, "What is that again, Mike? Oh, yes." So the process and the mechanics of it were totally under his control, and well done I thought. The issues which the volunteers or top management ought to be involved in, were generally, "Well, we're going to have less money than we did last year. What are we going to cut?" Those were the things that were always the issues. The easiest thing to say is, "You've got 100 people in headquarters. Can't you get rid of ten?" Okay, yes, and I'd come in with, "Here's the sequence in which we get rid of the ten, but we're going to have to stop this and this and this."

NORBERG: And it stops everything, at that point.

HESPOS: Yes. And we'd always cut back a little bit. I had played that game through my entire career. I knew how to save a little bit here when you can, that sort of thing. The part that I found most annoying about that was that the people who were asking those questions really didn't understand it as well as I did, or most of the people I dealt with in my prior life had. You know, they weren't as savvy dealing with budgetary issues and management issues, which I found annoying.

NORBERG: Didn't they become educated through the service they had to their volunteer community? On the board or whatever?

HESPOS: Not really. They always thought they knew more about it than they really did. Think about it. The volunteer spends what proportion of his time on the organization he's volunteering for? Maximum 10%? He has a full-time job! So he gets in and spends two days this year on the process, and then he doesn't think about it again for a year, and next year in the budget process again, "No. We've dealt with that in the past." Hey, two days a year ago?

NORBERG: What might be the instructions that came from the Council about how this year's proposed budget for next year is developed? Do they come in with three schemes: one if you have a 5% increase, one if you have a 10% increase, one if you have a 10% reduction, and so on? Who made up those choices?

HESPOS: I never saw such things. Mike would write up a draft budget that way, but no guidance ever came from the Council, except maybe "total salaries can't go up more than 3%".

NORBERG: But he did make it up that way as a starting point?

HESPOS: I think he came in with two alternatives. But you know, something like that, yes. It's usually 5% or 10% under the circumstances. And Mike and I, I do remember a couple of times, we'd decide what the starting number was going to be as a percentage change from the current year, but we never got that number from the board, though. We'd figure it out on our own, say, "Okay, let's go with this and see what it does." Some things can't be changed, our rent is going to go from this to this, and so on—what is controllable. In fact, we did lump things into various categories of controllability, I remember. We can't do anything about rent; we could do something about salaries—you know, what's the salary increase we're going to plan for? Oh, is it 3%? And so on. We would go through and pick those parameters. I don't remember getting any useful guidance on those from volunteers.

NORBERG: And then when you go to the next step? It went to the Executive Committee, I assume, the next...

HESPOS: We would prepare the draft budget and send it out to the Executive Committee. Well, first Mike and I would go over it, and then send it around to them.

NORBERG: Some of these subsets within your organization of ACM...

HESPOS: Like a SIGGRAPH or something?

NORBERG: Yes, actually had their own, not so much financial advisors, a phrase I heard, and I asked if that happened in the organization of ACM generally, and I didn't get a clear answer.

HESPOS: Generally we'd do that. First of all, most of the SIGs were so small that their budgeting and everything were done in headquarters by then. I do remember that SIGGRAPH finally had a couple of people working for them under Kelly Booth, and he was in Toronto, I think, at the time. He had a very small staff support like that, but their budget-- Well, their budget for the SIGGRAPH conference was a pretty big deal, and as I'm recalling now, they did have some outside contractors managing the conference for them, but those contracts had to be reviewed at headquarters.

NORBERG: Under what set of criteria?

HESPOS: There was a contract being signed. You know, SIGGRAPH was not a legal entity; the contract had to be signed by ACM. In fact, in all cases, all of that money legally belonged to ACM—not this thing called SIGGRAPH. ACM was the parent organization and the controlling legal entity, but that doesn't mean that ACM can take the money away from them, because they'd all leave; they'd walk. We'd get the money, but we wouldn't have the organization, so that was never an issue.

NORBERG: Was there ever discussion in the executive committee meetings or the general council meetings about how best to allocate resources?

HESPOS: All the time, yes.

NORBERG: How did that play out? Was it percentages for this or that?

HESPOS: Well, it was divided into a couple of pieces. The small discussions, like me with staff, or me with the president, or me with a Stuart Lynn or something, or me with Mike and Stuart Lynn, were always dealing with those kinds of things. With any larger group than that, the suggestions coming out were really useless. The people sitting around the big table with the microphone in front of them saying, "Well, why can't we...?" Just such silly things being tossed about, and they all think it's important.

NORBERG: Did they hold you responsible for when they didn't achieve some result, like getting more money allocated to, I don't know, PC developments?

HESPOS: No, I don't remember that. They held me responsible for lots of things, but never that kind of thing.

NORBERG: I assume most of the money was reserved for publications. How did allocation of resources within a publications area get decided? For example, if one of the journals wanted to add on 16 pages to their journal in a given year, who made the decisions to whether that was going to be allowed or not?

HESPOS: Gee, I don't remember. I can't remember cases like that within publications. I'm sure it was done primarily between Mark and Mike—Mark being the director and Mike being the numbers guy. But I can't remember those decisions coming to me, I think because generally, the change from one to the other was generally very small. I can't think of any major reallocation decisions within publications.

NORBERG: But there was some sort of standard budget, I would assume.

HESPOS: Sure.

NORBERG: There's publications, and you can't run out of the money, so if it gets tight, you have to shave pages from journals—maybe all the journals. And if there was more money available, could publications make a claim, or could they ask if they could have more? That seems to me for an organization the size of ACM as a very important discussion.

HESPOS: Yes. I don't remember any of those coming from publications. I do remember some such things coming from conferences. In general, I can't remember any of those being serious issues where I had to get involved. If they wanted to do something for a conference, conferences were pretty much on a do-it-yourself basis. You know, you've got to be self-supporting, and if you want to do more of this, you better find the money somewhere from the conference revenues. Whereas in the publications, the difference between spending money and-- there's a time difference between when you get the subscription and when you spend the money, but in

the conference, it's all going to happen in those three days, and you better figure it out, and you better cover it yourself. I can't remember any of those. But you know, it's been almost 20 years.

NORBERG: You told me that your memory was very good and that you would be able to discuss some of these things, and I took you at your word, certainly.

HESPOS: See, you can't believe a thing I say.

NORBERG: I don't think that's the case. Were there any activities during your term by either the special interest groups or the Council itself or maybe even some outside group that wanted support from ACM to do this or that? Were there ever any situations that you became involved with that you can describe for me what the process was? I'm not interested in whether they were successful or not, but what was the process for doing that? Would they go to the publication board or conference board or whatever that was?

HESPOS: In general, yes. I can't think of a specific off hand, but in general I'd be the guy that gets the request for whatever it is, and I and Mark or whoever was appropriate would take a first crack at how to handle this. And generally we would pass it by the volunteer in charge of that particular-- like Peter Denning in the publications board. Mark or Jim were generally very sensitized to what kind of reaction are we going to get from Peter Denning or whoever on this kind of issue—he's not interested, or oh just go ahead, or let him know so that he can... It certainly varied, but generally that was the procedure. Being headquarters, we'd decide is this important enough to get the director of the conference board or whatever involved, or should we just do it or write it up and present it as an agenda item at the next meeting... That was more frequent than I implied. But those boards met at the meetings where... There would generally be an additional meeting of those boards outside of the meeting cycle of the meetings and conferences, which was where everybody met. I guess one of the reasons I enjoyed being at SIGGRAPH conferences was that I was involved in fewer meetings while at SIGGRAPH conferences than I was at the conferences where the pubs board and the conference board and the finance board, and they were all meeting, and I would have to run around and spend my time around those. So I guess I enjoyed SIGGRAPH meetings more because I was less involved in those things.

But the meetings of the pub board were the best example. Those kinds of issues were all reviewed at least by the entire board. Those meetings were long and frequently boring. Poor Peter, who has a bad back, would be sitting there, standing, and talking, and trying not to... But they were long meetings, and the boards were always informed, at least, of all those kinds of issues that you mentioned at those. Our philosophy was always to try to minimize the necessity for them to have to make a decision, because they would go off into the wild blue yonder.

That's funny. I mentioned this organization CESSE yesterday, which I thought of last night. It stands for the Congress of Educational and Scientific Society Executives. The executive directors of all these societies—probably about 30 large ones—would get together, and I was always surprised at the similarity of problems from one to the other. Also, as I said yesterday, I found those meetings very helpful in my understanding of how to do my job at ACM, because of hearing other guys—peers—finding the same problem and how they solved it. In fact I remember very clearly some of the things I learned at those meetings.

Session 2, Tape 3, Side A

NORBERG: You were starting to say something about the...

HESPOS: Yes, the CESSE organization was very helpful to me as executive director of one of those societies. I remember one session of one meeting (no, it must have been more than one session), was how do you handle a public crisis? They had three panel discussants, each of whom described a situation, and then we had a discussion. The three were, get this: the guy that headed the AIChE, chemical engineers, spoke about the Bhopal disaster and how he handled the public relations part of it; the guy that was the head of the nuclear engineering society spoke about the Chernobyl disaster; and then the guy that headed the AAS, Aeronautics and Astronautics Society, talked about the Challenger disaster, and those were fascinating discussions. I thought it helpful because it was shortly after that that the kid at Cornell unleashed the virus, and it turns out that, I can't remember the kid's name now, but his father was an active member of ACM, and he was a computer science professor. Was he at Cornell, too?

NORBERG: I don't remember.

HESPOS: But I had to talk to him about something totally unrelated, and I'm thinking... but what was his name? I want to say Wilson, but that doesn't sound right. Robert Morris?

NORBERG: Could be. Don't know. Don't remember.

HESPOS: But anyhow, that organization was at least interesting. As I said, they were overdone with the perks and everything else because of all the vendors trying to exert their influence on us. All right. Where are we?

NORBERG: I wanted to ask just a few more things about the financial aspects of the organization. What was ACM's relationship to the computer manufacturers—any one or all?

HESPOS: Very limited. The sole exception to that was the design automation people—DAC—which was a wealthy SIG also. But aside from that, the relationship to the manufacturers was, to my knowledge, very, very low, with the exception of the IBM, DEC, and companies like that, where the research arm of the organization would have the same association as the academic world did. But aside from that, very small. I'm trying to think of any... In fact, if I stop and think about it, over the years, my dealing with vendors as a customer of computing, as CIO, those things, I almost never heard any mention of ACM in my conversation with computer hardware companies.

NORBERG: Did you hear the names of other organizations?

HESPOS: No, it just wasn't relevant to the kind of dealings I was having as a CIO with somebody who's either selling us hardware or servicing hardware or trying to develop software for us. ACM and other societies just weren't part of the ball game.

NORBERG: What about things like CBEMA.

HESPOS: CBEMA, I know who they are. I never had any-- I had less involvement with CBEMA than I did with DPMA, which was less than with the Computer Society. No, very little.

NORBERG: How about organizations like SHARE and USE?

HESPOS: That's a better question. The involvement between ACM and them, to my knowledge, was limited to the SIGs, but it was extensive in some cases between Jean Sammet's SIG, SIGPLAN I think it was, and some of those. The people who were active in ACM in a particular SIG would also be active advisors of something to SHARE and Common and all those other things. But it was at the SIG level, as far as I knew.

NORBERG: What about initiatives to or with federal government of the United States?

HESPOS: Not that I had any-- That was one of the things we talked about frequently, that we should have an officer, a representative in Washington, and I kept saying, "Well, yes, but what's it going to do?" They're costly, and you're talking about-- you're trying to shave a person or two from headquarters staff; what are you going to do with these people or two that you want to put in Washington? Well, maybe we can share a representative with other organizations. Well, okay, now you're talking about lobbyists and so on. I kept getting hung up. It sounds like a great thing to do. I kept hanging up because I've had limited experience with government in my career. I kept saying, "What's he going to do on a Monday morning?" I just couldn't think. "You've got to get to know people." How do you do that? I tried and failed to understand a rationale for doing it. I wanted to find one. It just seems like it's "the right thing to do"—not dissimilar to having an office in Amsterdam to handle membership problems over there. We should take care of our foreign members, but is that the best way to do it? I don't know. Maybe you should try it. Maybe we should have tried it. What I kept saying was, "Let's get a volunteer to go in there and start the ball rolling." We never found the right volunteer that was interested enough to do it. But rather than put a staff person there, I don't think that makes sense. Let's get somebody that's interested in this sort of thing. I might have said, "Put Herb Grosch down there." I don't think I said that.

NORBERG: I want to go back to something else that happened during your years with Dennis Frailey. Dennis Frailey wrote about the 1986 report of the Long Range Planning Committee.

HESPOS: Who's Dennis Frailey?

NORBERG: He was vice president under Goldberg.

HESPOS: Oh, okay, Texan, chubby guy? Yes, I remember him.

NORBERG: He wrote about the 1986 report of the Long Range Planning Committee and as far as I can see, the Long Range Planning Committee was *ad hoc*.

HESPOS: Yes.

NORBERG: One of the things that he thought should be done was to make the Long Range Planning Committee permanent. And to jump in before you say, “How are we going to do that?” Somehow this must be the focus of ACM management, that we’ve got to get this group to want to do something about it, as being more responsive to member needs, that they were going to borrow this Long-Range Planning Committee into the need for continually re-evaluating what the member groups were developing. He cited that “it would allow time for specific proposals to move through the process in an orderly manner.” He says that, “there is a process going on that proposals must meet two important criteria. One, they must be enthusiastically accepted within ACM.” That would cut off 95% of them, I would think. And “the proposal must be integrated into our planning and budgeting processes.” Did you ever pay any attention to this sort of thing?

HESPOS: No. Funny, I drew a blank on Dennis Frailey. I can picture him now. I was involved in all those meetings. I can't remember when that one was. '86 sounds too early. I think we had one in '88 down at the Jersey Shore, I remember. I remember specifically a date because of the car I had, which is that car down there. As you know, I had some experience in planning activities in my prior lives, and I really was enthusiastic about it, but I just never saw any understanding emerging from the group, the Fraileys and volunteers that were there as to... I think those are platitudinous statements, frankly. I confess, this is a personal failing. I was never able to get the right people in the room that could come up with what I felt were meaningful, meaty ideas about planning and changing the organization and modifying the organization's mission. I confess that's a weakness on my part.

NORBERG: Well, there were several attempts before you became CEO about these questions, where Jean Sammet had a committee brought under Bernie Galler—the love of her life, I think.

HESPOS: I'm not even going to touch that line! [Laughter]

NORBERG: Yes. But she set up this committee to develop a reorganization plan for ACM, and this is where the discussions about where the money was being allocated and who owns the money and so on came up. Galler's group brought in what had to be a 16-page report with maps about how the new organization would be structured and so on. When this went to Council, I never found any evidence that it had been even seriously considered by them, and that made her angry, and she wanted to get that done. Grosch was doing some more needling on that one, too. But then there was another one during Denning's period, and then there were several, of course, associated with computer education, which it seems to me did some good things.

HESPOS: We can talk about education.

NORBERG: That's on my list, but since we get into a topic, I sort of move around so we don't have to discuss it twice. But thinking about all these activities, it would seem that a Long-Range Planning Committee might be useful. Did you ever contemplate such a thing?

HESPOS: I don't make a great distinction between the *ad hoc* committee and a permanent committee, frankly, and having gone through these kinds of things with the committee you just

quoted and the one subsequent to that, I just couldn't see the idea taking root in the host organization.

NORBERG: Why not?

HESPOS: Because of the results coming out, with things like that. Where's a specific idea that we can throw in here; they just weren't coming out. And I couldn't think of any either, again, a personal failing of mine. But that deal, the statement you quoted deals only with process—no substance in it about we should-- Well, you're talking about a process only, there, a strategic planning committee. But give me an example of the kind of thing that you think the strategic planning committee might really do—I mean specific. And I never really got an answer.

NORBERG: Answers here: A, researchers are an essential part of ACM, but are no longer dominant. What does this mean in terms of balancing the needs of the professional community, insofar as they are still around, and other communities like those, like SIGMICRO and SIGPC and those organizations. That's number one that was brought up.

HESPOS: That's not bad.

NORBERG: And growth of microcomputers and overseas members was also thrown into this equation here to decide what was going to be done for these people. B, activities directed at the general computing community and the public. People do not see ACM "as a spokesperson or a spokes organization for the general community, and it should become that." That's what I was asking you before about this.

HESPOS: I think I might be the author of that sentence.

NORBERG: It might be. Let me follow this one step further with a different document, and that is in January 1988, Abrahams published a State of ACM position. He noted that every indicator used by ACM to understand the membership distribution was down. And he thought three things were needed: the will to stop this trend, evaluate and make the product better, the need to expend the resources even if it meant deficit spending for a year or two.

HESPOS: Yes, and that idea was-- That may have been the time when Goldberg really unloaded on him. In theory I could subscribe to that, but the feeling was—and probably correctly—that we can't go into debt, because the signs were all down. NCC disappeared. SIGGRAPH was getting protective about its money, and so on. Deficit financing? The idea didn't get off the ground. It would have been a very risky thing to do. I would have been willing to give it a try, but it never took root at all, and perhaps properly. But Paul had some good ideas, there.

NORBERG: How effective was the staff, do you think, at ACM in helping the officers to meet their objectives within their particular bailiwick?

HESPOS: I think very effective. I think I told you, all of the negative feedback I got from volunteers about staff was concentrated in the computer area, which was totally justified, as we

discussed; and on Mike Lichtenstein, with whom I disagreed with the volunteers, I thought he was doing a fine job. Oh, and the other negative feedback was in the conferences area, the woman that left after a year or so. But aside from that...I'm thinking, who did she have that dispute with? Aside from that, I always got positive feedback from volunteers about their staff. I'm trying to think. Especially in publications. Mark had two people there. It was two direct reports who were really, really good people, and just got-- One of them worked heavily, closely with Jean Sammet, and she thought he was good. Now that's got to tell you something. Bernie Rouse was his name, and he's still there, I think. But in general, I thought ACM had a better staff than it deserved, considering the office space and the salary levels and so on. Although, in the whole publications field, outside of ACM, that's a perennially low-paying field, so we rationalize the salaries we were paying by that fact. But I think that the staff in general was very good.

NORBERG: Sounds idyllic to me.

HESPOS: Well, with the exceptions I mentioned, yes.

NORBERG: There are apt to be clashes between people or among people.

HESPOS: Oh, sure, even intra-staff type things. Jim Adams and Mark Mandelbaum never got along, and Jim could get along with-- I never understood why they couldn't. Well, Mark regarded Jim as a dilettante, and Jim disliked Mark's criticizing him, but he never was critical of Mark. Mark thought Jim was too close, too cozy with the volunteers, SIGBOOZE and things like that. You're not really interested in intra-staff squabbles. Most of those people probably, some of them are still there, but most of them are gone.

NORBERG: What was the process of recruitment of the staff? You mentioned that not many of them moved after you came in, so there's not a lot of examples to give, but what was the process?

HESPOS: We did not use headhunters except for me and my replacement. I don't remember any ads that we placed. I think it was mostly word of mouth or who do you know or make a few phone calls and that sort of thing. We weren't doing that much replacement. I don't think I used a headhunter for the bad choice I made.

NORBERG: The position was at too low a level, wasn't it?

HESPOS: It was a manager. Yes, it was too low a level. Agency, I guess, is what I mean—not a headhunter. I honestly don't remember. I personally was involved only in, yes, the one that failed. Plus, the search for my successor.

NORBERG: In thinking about the changes in staff that you encountered while you were there, can you cite anybody among the headquarters staff who made a really significant contribution to the running of ACM? In a comment above, you spread the glory around about evenly.

HESPOS: Mark and Pat were the two standouts, and they are both still there. They were head and shoulders above the rest.

NORBERG: When did they come to ACM? Do you know?

HESPOS: No. Both preceded me. Pat came in as secretary to Irene Hollister, who was the first employee of ACM. Pat was a high school graduate with secretarial training, and that was it. She just gradually improved and took over and just accreted responsibilities over the years to where she is now. Mark, I don't know where he came from. I have no idea. I'm sure I used to know.

NORBERG: A number of issues were confronted by ACM in the '80s and '90s, which I think were relatively important. You may not. ACM and the education of future computer scientists, every few years—I would like to say every five years, but I'm not sure if that's true—but every few years a committee was put together to look at a prevailing training program for undergraduates, and either make changes as a result of how the field had moved in the preceding ten years, maybe, and to sort of structure the program to fit not only the universities' capabilities but the outside need for these people, especially if they were in a research area. Did you participate in any of these?

HESPOS: Not as a computer science type person. I participated as executive director. I didn't participate in the substance of their curriculum outputs. I was aware of it. I fostered it. I encouraged it, and I was very impressed by the results. I think that years later I found evidence of that still popping up in my associations with the computer science department down in Savannah. They talked about the ACM curriculum. I don't know if that's the term they used. We did have an education guy on the ACM staff; Jerry Segal, I think it was. The support we provided them was relatively small, but the quality of the work I thought was very good. Two guys were heading it up while I was there. One was from Temple in Philadelphia, and the other was from one of the Carolinas, Bob and Joe something. I always thought they did fine work, with little support given or needed from headquarters. But I was always impressed.

NORBERG: How did the results get disseminated?

HESPOS: I don't remember. I remember it was published somehow and then sent around, I presume to all the heads of computer science departments. We probably had a mailing list with all the universities having a computer science department. I'm sure any respectable university with a computer science department has at least one representative member of ACM, and that person would be aware of what we were doing, and I'm sure they're on the mailing list for it. I honestly don't know the details of it. It did get around; I thought it was high-quality work, but I was not substantively involved, at all personally. And the headquarters staff under Jim Adams consisted of one and a half people—one professional, and one secretary—and they couldn't have done a lot of contributing to it.

NORBERG: We've mentioned AFIPS along the way here from time to time, and I don't recall any formal requirements of you to be some sort of a liaison with AFIPS. Was that all done by volunteers?

HESPOS: Yes, Jim Adams was aware of what was going on, and I sat in at an AFIPS meeting. It was in Chicago, and I can't remember anything about it. I knew more about AFIPS, I guess, from George Glaser than I did from any other ACM association.

NORBERG: All right. Thirdly, the relationship between ACM and the IEEE Computer Society.

HESPOS: Yes, we started on that a bit yesterday. I got along famously with Michael Elliot. I met most of the top volunteers in the Computer Society. I met a number of times with Michael Elliot's boss, the executive director of IEEE, Eric something. I met him at the CESSE meetings and we had lunch together once or twice. It was always a bone of contention with Michael Elliot that he was not allowed to go to those CESSE meetings, since he was just the head of a subordinate part of a member organization, which really pissed him off. But Eric made it even worse by telling Michael that he would give Michael "permission" to come to the next meeting, which pissed Michael off even worse. The relationship between them was awful. That's perhaps why Michael Elliot thought that a merger of the two societies would make so much sense. As I said, I agreed. It would get him out from under-- But he and I both agreed that it was never going to happen. Didn't I tell you Michael Elliot was one of the candidates for...?

NORBERG: Yes.

HESPOS: I told you that Elliot had been Bill Clinton's campaign manager when he had run for governor. Okay, the volunteers in the computer society were-- as a new kid on the block, I found this kind of amusing. They were virtually indistinguishable to my unpracticed eye from the volunteers of ACM, but they were at each other's throats frequently. You mentioned Sylvia Chorp and Adele, and the relationship between them was atrocious. You mentioned somebody else, Oscar Garcia. Actually, I thought him quite pleasant and reasonable, but Brandin, for example, didn't have anything good to say about him, as I recall.

NORBERG: Oh, that's a surprise. He wrote a piece in the *Communications of the ACM* about his association with Garcia.

HESPOS: Maybe I'm wrong.

NORBERG: I saw in the files some thank you notes from both sides about, "Nice to meet you yesterday at lunch," and blah, blah, blah.

HESPOS: You can probably find those kind of letters between Goldberg and what's-her-name, too. Maybe I'm wrong.

NORBERG: I'm just telling you what's in the publications.

HESPOS: But they were the same kind of people. As I said, the membership was 30% overlap. I was a member of the Computer Society for, I guess, all of the time I was at ACM, just to know what the other guys were doing. I found ACM's publications to be, in my humble opinion, superior to the Computer Society publications with one exception: the IEEE (the parent organization) put out a publication called *Spectrum*, which I thought was an excellent

publication. It was better than our *CACM*. But aside from that, I thought ACM's publications were generally superior, but I may be prejudiced. There's no objective measure for that, but that's my impression.

I attended, I think, one of the Computer Society meetings, and I didn't find it significantly different from a typical ACM meeting. I'm talking about a substantive meeting, not a volunteer meeting or things like that, not a board meeting. Michael Elliot and I cooperated on things. I'm trying to think of examples. But we got along famously, and I think we did bring the organizations closer together and recognized that in some areas it makes no sense for us to be competing with each other, like the specification of standards setting. I think that improved the situation generally, but we also mutually concluded that, unfortunately, we should not waste any effort trying to put them together, because you just can't get there from here. And you can probably get most of the benefits of a single organization by having dual membership anyway—end of discussion.

NORBERG: Two other issues that I found intriguing had to do first with privacy issues in use of computers, and the other was copyright matters. Do you know anything about these two?

HESPOS: No, especially privacy. Copyright, yes, I do remember there were some discussions about that, but privacy never was an issue. I can't remember any discussion about it. That's strange.

NORBERG: The discussion starts in Sammet's years as president and goes on for some time because of the privacy concerns developing among the public and users outside of the professional organization.

HESPOS: Sammet's?

NORBERG: She asked someone to write a brief statement about privacy concerns and what ACM can do about it. She needed this because there were several government agencies that were asking questions, like the Office of Technology Assessment. This was then built into a committee structure that this would get reviewed from time to time, certainly since 1976, and it has. It's become more important in the 2000s to be sure. By the 2000 period, it seems to be coupled with security as well—how to keep them secure, how to keep the stuff private. But you don't remember any such discussions?

HESPOS: Not at all. Now, there was a SIG associated with security, the name of which I can't remember, but it was one of those smaller, less active ones. I can't remember the name of it. I've been very sensitized to privacy, especially since I left ACM, but I remember no discussion or any involvement in it at all while I was there.

NORBERG: I remember one other thing that involved Sammet. AFIPS had set up a committee on electronic funds transfer in which they were going to help the Office of Technology Assessment to better define the problems and possibly to find solutions to these. Willis Ware was made the chairman.

HESPOS: Willis Ware, didn't he die?

NORBERG: No, last I've heard he's still around. He's getting very old, of course, but he's still around.

HESPOS: Met him through Glaser, also.

NORBERG: That's not surprising. But anyway, Willis Ware was a little slow getting the new committee going, anyway. He wasn't exactly dragging his feet, but he was bringing really definable issues before this *ad hoc* committee. ACM had members on this AFIPS committee. Well, Jean Sammet didn't think they were moving fast enough, so she sent a letter to Willis Ware about what he should be doing. If I were Willis Ware, I would have been angry about that situation. That's when she called on members of the ACM volunteer community to help with this process so ACM's position would be well known, and it would help get a leg up on the activities of AFIPS and maybe contribute something substantial. The copyright matters come up because of publications. The copyright laws were affecting who earned the money for republication in another venue as well as the big change in the copyright law that occurred in 1980. I read some requests to be able to use materials that were copyrighted by ACM—and in the process of that, something came from France, I think. Somebody wanted to reprint some portion of something that was in an ACM publication. The question arose as to what benefit the author derived from this. If ACM was going to get \$75 or \$150 or whatever the money was to give these people permission to print it, shouldn't the author get some of the money?

HESPOS: I think the answer is no, isn't it?

NORBERG: Well, for most societies, it's no. That's correct. They don't want to be in the business of making money.

HESPOS: When you submit a paper, you turn over the copyright.

NORBERG: Well, the question still arises as to what your rights are, even after you've turned over the copyright. So you don't remember any of those things?

HESPOS: Yes, I remember discussions on copyright, but I don't remember any issues on it. I remember Mark telling me this is the way it works. Why it came up at all had something to do with-- I don't know. We had a discussion about it. It was a minor issue that didn't involve very much at all, and I learned something in the process about how, yes, we do own the copyrights, and it is ours, and we can do whatever we want with it. That's right. If an author requested the right to use it in another publication in an anthology, Mark said, "We've got this request, and I handled it in the following way." I can't remember what that was. And this is the reason for that; we have this policy, et cetera. So I learned something. That's all.

NORBERG: That's rather interesting.

HESPOS: Privacy would have been a hot button. Maybe I just don't remember.

NORBERG: That could be.

HESPOS: A lot of that going around. I remember now! There was one man, Peter Neuman, from SRI, I think, who was very impressive. He wrote a regular column in “Software Engineering”, the publication of SIGSOFT. It was a long, well-written piece in each issue, in which he would discuss an issue almost always involving the impact of computing on society, mostly on privacy issues. He generally included a letter he had received from another computer professional, who was concerned about something. Then Peter would expand on that topic.

I met Peter only once or twice, but I spoke or wrote to him several times. I thought his columns were great, and should be reaching a larger audience. I spoke to Mark, and perhaps Denning, about it, and suggested that it be considered for a book in that series. I don’t know that anything was ever done.

NORBERG: I want to get to summarizing some of these issues by asking the following set of questions. How effective was ACM in the latter half of the 1980s in disseminating information about computers and computing to any audience at all?

HESPOS: Okay, I would say very effective in communicating to the audience of computer scientists, especially the academics; and very ineffective, totally ineffective in disseminating anything to the general public—it just didn’t do it; and for practitioners in between, like corporate computer types, forget the PC—it was totally ineffective there, and it wasn’t very big at that time anyway. For the great middle, I would say moderately effective, not super. But for computer scientists, the remains of the old high priests, they were the best game in town, I think.

NORBERG: And there was no thought as far as you know of changing this to appeal to a wider audience?

HESPOS: Yes there was, following Dennis Frailey’s comments. Following his comments, there was frequent discussion about can we come out with a general interest magazine? Can we make *CACM* more...

NORBERG: A journal for all members?

HESPOS: No, it *was* already a journal for all members.

NORBERG: That was a big discussion during McCracken’s time, where they wanted a journal that would appeal to all the possible constituencies that read these things like *Spectrum* rather than be interested in what’s in the *Communications* or the *Transactions* and so on.

HESPOS: *Communications* is separate.

NORBERG: I think that has been a benefit for all members. But that’s not what the discussion of a journal for all members was about.

HESPOS: The journal is, I guess, the original publication, which is a highly abstruse thing.

NORBERG: We're talking about two different things here. The *Journal of the ACM* is, indeed, the thing that goes back to 1947.

HESPOS: Most members don't read that at all.

NORBERG: No. And a lot of members don't read *CACM* either, because it's much too researchy.

HESPOS: A little too researchy.

NORBERG: There was a call for "a journal for all members". This would handle news and big discussions that might be going on in the community about computing. It might have some scholastic as opposed to research value in terms of contributing information to teachers who may be interested in computing and maybe get some feedback from them that might help the organization to serve them better. But no one was able to show, as far as the discussions I've seen, that when you break down *CACM* and shift some things into this new journal, that you would have a viable *CACM* left. So it never got off the ground, and as soon as Peter came in as president that discussion stopped.

HESPOS: But wasn't it under Peter that *CACM* received its facelift and moved in the direction of becoming a journal for all?

NORBERG: I think I can give an example of what you were talking about. I think that the *CACM* revitalization came as a result of this discussion about the journal for all members. When they decided they couldn't do that, that it wouldn't make any sense to do it.

HESPOS: They decided to sex up *CACM* and make it that.

NORBERG: Yes. And Peter was the editor.

HESPOS: I thought they did a fine job.

NORBERG: Oh, yes.

HESPOS: I had personal pride in *CACM*. Mark or Janet used to bring me the first copy they would get off the press and show me, and they'd tell me in advance what was going to be in the next few issues, and I was personally interested in it, and I kept encouraging them to-- I didn't change the direction at all, but I liked it, I guess, is what I'm saying. I do think it suffered in readability compared to *Spectrum*, and the model at least Mark used-- I don't know if Peter established this or not. The model that they kept saying, "We've got to make it more like *Scientific American*." That was their role model, if you will. "We're different, but that's what we're trying to do—make it appeal to the readers of a *Scientific American*-type magazine." *Spectrum*, I think, had achieved that well, and *CACM* was still too technical. But it did have nice artwork in it and there was a mix of articles in it. Some were too technical, and some were quite for the layman. They perhaps had too much inside baseball in it—you know, who got promoted

at headquarters, which I think is of zero interest to the members. But there was only about two or three pages of that at the back, as I recall.

NORBERG: Did you ever look at other societies' publications besides IEEE? I'm thinking of the American Physical Society which has a thing called *Physics Today*, which is the same thing as *Chemical Engineering News* from the American Chemical Society.

HESPOS: I've seen both of those maybe once, and I subscribed to the ASME journal for 25 years or something like that, but I was never really impressed with that after I left mechanical engineering. I've seen a couple of other society journals from time to time, but not on a regular basis at all.

Session 2, Tape 3, Side B

HESPOS: Maybe some 1% of the general public ever heard of ACM, much less learned anything about them. It was a cause for rejoicing every now and then when ACM would be mentioned in the *New York Times*. Everybody would be telling everybody else about it. "Hey, we were mentioned on Page 16!" because of the Turing Award or something like that. But the organization never even tried to communicate anything to the general public with the sole exception of the PBS thing from WGBH—that film, and all we did was pay money. Well, we did get a plug there.

NORBERG: There were two such film ventures: one by ACM directly back in the middle '70s in an attempt to bring to the public audience a description of what--

HESPOS: I never saw it.

NORBERG: Well, it was a bomb. It really never succeeded, and after a while the executive committee was disconcerted, and so they decided not to follow it up.

HESPOS: We do agree that I said ACM did nothing for the general public—never even tried.

NORBERG: We talked above about the role of ACM in computer education. I would like to ask if the computer education discussion had anything to do with technical manpower shortages, which from time to time show up in all professions. Were there any specific crises that you remember about the discussion of the technical personnel, i.e. computer scientists?

HESPOS: You mean in connection with the education activities?

NORBERG: Yes.

HESPOS: I think the answer is no. There was some-- it's not an official ACM activity. There was lots of rumbling about why can't we get more women into the field. It's the usual thing. I don't remember doing anything specific about that then.

NORBERG: It seems that the ACM did look at this question rather seriously, of technical manpower shortages, because there was always a crisis associated with having enough programmers and enough people who could do the specific kind of work that would be required in developing new software and so on. But it seemed to me that in ACM, there was at least a group of people—I don't know how many or what the percentage would be—but a group of people who made a distinction between the general thinker—I suppose we'll call it some John Von Neumann type—versus the programmers on the line. That is a technical crisis only in the minds of the people who run the businesses, which they require more of these. Fred Brooks was famous for making that kind of remark. The really important conceptual developments that take up a very few number of people to do, and we seem never to need more in that game, because it's much more an art than it is a science.

HESPOS: We need more of them. You just can't create them; they just happen.

NORBERG: And the ACM was not in the business of developing new programmers. That was not something that they did, which confirms what you said before.

HESPOS: On that topic, I had an interesting conversation. This is not directly related to ACM, - I was a member of ACM, but this was years before I became executive director. It took place in one of the early years when I was on the Advisory Council at Princeton. I remember having a conversation with the then-chairman of the Electrical Engineering/Computer Science Department at Princeton. He said, "You're in industry in the computer field and everything else. Tell me: do you think that we should be doing more here at Princeton or at a place like Princeton to train programmers?" I was aghast at the question, thinking did I misunderstand him or something? Finally I said, "No, I think that I can do that better in my company with less-trained people than you have here at Princeton. You should be aiming your people at something higher, frankly." He said, "Yes, you're probably right." But I was amazed that he would ask that question.

NORBERG: Well, there was a rash of programs developed to get a master's degree in programming.

HESPOS: That's fine, but not in a computer science department at Princeton. In the software company that I ran when I was at Continental, INSCO, we had our own computer training program, and we'd even have people pay us to go through this little school. We trained our own in our flavor of COBOL and this sort of thing. We turned out a dozen or 15 a year.. We did it ourselves, and we weren't getting Princeton computer science people to do this. My goodness. I was just astonished at the question.

Now, back to ACM, I think that the education group there, the curriculums that they prepared were also more for computer science departments—not for programming schools. I think that was appropriate.

NORBERG: That occurred in the second and third level of developing these programs, like I mentioned: getting a master's degree in programming, software development and such. The college near us does a lot of that sort of thing.

Let's talk about succession a little bit here. Two kinds of succession, one of them being the successive officers who came in from the volunteer group, and the second being your successor when you left ACM. What I'm interested in here is what did you believe was your most important legacy as CEO of ACM, when we think about these different kinds of communities?

HESPOS: To him? I never thought about that.

NORBERG: Well let me rephrase the question. Maybe it might be more understandable.

HESPOS: I did mention that I was instrumental in hiring him. I got a headhunter and told him what we were looking for, and probably had the first interview with DeBlasi. I did stay around for close to six months after. I stayed around until the date when Joe was able to come in, and came back two or three times after that, but that was just for very specific things.

NORBERG: How about the volunteers? How did you get along with successive officers within this community?

HESPOS: I was generally unhappy with the presidents that I had: Goldberg just because of our personality clash; Abrahams best, probably, because he's sort of a nerd, as I said, but he was effective, and easy to get along with, frankly. Bryan Kocher was a mistake, really. He was so ill-suited for the job.

NORBERG: How'd he get it?

HESPOS: He was elected.

NORBERG: Well, I realize that, but why was he elected?

HESPOS: He takes a good photograph. I'm serious. He was by far the best-looking candidate they had in a long time, but he was so ill-qualified. He wrote a rabble-rousing kind of letter in his statement, too, about, "We'll throw the rascals out and we'll change things"—nothing substantive at all, but just saying all the right things. You see parallels in the current campaigns going on. It was just empty rhetoric, and he didn't know the first thing to do. But he was the easiest to work with. I had to tell him what to do so frequently.

NORBERG: Isn't it true that in a volunteer organization, let's say a structured organization that's running some of the business, isn't it always true that the elected president or any other officer, for that matter, is relying on the government?

HESPOS: Yes. Sure, it's true. That's true. And Sydney Weinstein told me when I first came in, he said, "Always remember, the volunteers come and go. You're going to be here for much longer than they will." Those were important words to learn. But in the case of Brian Kocher-- In the case of Abrahams, that's the way it worked. Adele was trying to micro-manage from California through me, which I wasn't...you know, that's not why I came here. Paul was fine in that regard. He did the things that he should be doing, and didn't get in my way in running the

headquarters. But Kocher couldn't do either. He didn't have any talent, really. I felt sorry for him, but he took a swing at the brass ring, and damn, he got it. He didn't know what to do with it then.

NORBERG: That type of development I've seen in other organizations like the ACS. The commercial members were increasing in number, and they were disappointed that it was always academics being pushed forward as officers of the association. There was some sort of an uprising in '76 and this man from Berkeley went in by petition and he won against the academic. And we see a little bit of that in ACM for different reasons—not the commercial versus the academic, but, as I understand it, our friend Herb Grosch was a write-in member, a petition member, and that same year--

HESPOS: Well, he was well-known because of his columns.

NORBERG: That's true. I was thinking about Dan McCracken. Dan McCracken became a write-in petition candidate for vice president in that year, and they both won it in '76, to the amazement of others.

HESPOS: Which indicates a degree of dissatisfaction in the membership.

NORBERG: It sure does. And McCracken ran again as a petition candidate for president, so he had well established himself with the membership, it would seem to me. This habit kept going on, so I asked Dan and Peter Denning this question about, in the succession phase here, why is it that when I look at the successive administrations of the volunteers that what I see is a disconnect between the person serving as vice president and the person serving as president? Vice presidency is not an automatic step towards being president, because most of the time, it doesn't happen. I puzzled over that, and I asked Dan what he thought. He said he was well-known because of his various guidebooks on how to use particular programs like COBOL and others, and Grosch, as you said, was really known in this circumstance. Michael Harrison, who became vice president under Peter Denning ran later to be president, but was never elected. I'm sort of puzzled about this.

HESPOS: I think he lost to Kocher, didn't he?

NORBERG: I think that's right. Did the front office have any impact on these elections at all, or did they just print the stuff?

HESPOS: Not at all. We had our favorites and un-favorites and so on, but no impact—none at all, none. I'll go back to what I said about Kocher being good looking. Harrison is not a good-looking guy. He doesn't photograph well; he's got a funny walk; he's not a crowd-pleaser; Whereas, one's first impression of Kocher is, hey, he's a leader!

NORBERG: But you have to find that out on this sort of level before you push him to do something else.

HESPOS: How much time do you spend voting for the board of trustees at your college? I get that in the mail from Harvard and Princeton. I read them all because they're all impressive people. How many of these guys do I know? "Oh isn't that interesting," and so on. I spend probably more time on it for that reason—I'm interested in reading their dossiers—than most people do. I'm sure most people look at it and say, "He wasn't in my class. I'm not voting for a woman." I can't imagine. Same thing with ACM. You get this thing in the mail and see-- Peter once mentioned this to me, and I remember a lot of things that Peter said, one-liners. He said unless he's active in an organization, when he gets a ballot like that, he doesn't vote. He said he feels it's better to *not* vote and let the people who *are* involved and know more about it "have my vote" so to speak, and he'll pass it up. That's a point not without merit.

NORBERG: I agree. I would often throw away the AAAS ballots, because I didn't know any of the people.

HESPOS: I used to read those, too. I didn't mention that. I subscribed to *Science* magazine for 20, 25 years, I guess. We gave it up, because whoever my employer was said we had to cut back on our memberships. Okay.

NORBERG: All right. Have I neglected areas that you think are important in talking about your years as ACM's CEO?

HESPOS: I don't think so. I'm trying to figure out what else should go in here. I don't think so.

NORBERG: Well, if that's true, then, we've covered the financial aspects; we've covered the staffing; we've covered the publications and talked about their relevance to disseminating computing information, and we've talked about personalities among the staff and among the volunteers. There were a few times I brought in what I would consider to be a confrontational issue, that there were some people within ACM who did react to these, like the scientific freedom committee and several other things, and unless we were to go more deeply into the publications, I don't see that we've left anything out. Is that fair?

HESPOS: Yes. Want to go to lunch?

[Lunch Break]

NORBERG: You started to tell me yesterday about a call from the Harvard Business School.

HESPOS: Yes, that was key. I had announced my decision to leave ACM and retire, frankly. I was going to retire in '89, and I got a call from a headhunter, actually, Herb Halbrecht. You may know Herb Halbrecht. He's been in the business for a long time. I knew him personally. He lived in Westport while we were there. The conversation went something like this. Herb had his tongue firmly in his cheek when he called. He said, "I just got a call from Warren MacFarlane at Harvard Business School, and he tells me they're looking for a Chief Information Officer at Harvard Business School. What they're looking for is this: they would like somebody who has actually had experience as a CIO of a Fortune 500 Company. They would like somebody that has some academic credentials, and ideally, this is hard to get, but they would like somebody that

also has ties to Harvard Business School.” And he says, “Do you know anybody?” So I thought for a minute and said, “Well, I don’t qualify on the first. I was CIO of *two* Fortune 500 companies, whereas they want somebody who was CIO of *one*.” Secondly, I said, “I never really worked at a university, but I do have the union card—the doctorate.” He knew all this, of course. And then I said, “And thirdly, yes, I do have a degree from HBS, but I don’t know whether this would be a knockout or not. I was a classmate, section mate, and next-door neighbor of the current dean. Do you think that would be a plus or a minus?” He said, “I didn’t know the last part, but I’ll be back to you. I’ll have to call Warren MacFarlane back.” So he calls MacFarlane back 15 minutes after getting the first call, and so one thing led to another and I went up there. But I thought that was very cute on Herb’s part. MacFarlane said later to Herb something about, “I hope we pay you by the hour for the work you do” [Laughter]

So I went up there, and I was there four years, I think. I can’t remember which year I finally left. But it was not a totally enjoyable experience, and I’ll tell you why. I loved being at Harvard and the whole environment there. It’s really a great place to live. I’ve always liked the academic world, and that’s really a nice place there. We got married and lived our first year at Harvard under MacArthur when I was a graduate student, and we kind of went back there 30 years later. My wife is a packrat. She still had some old maps of the Boston area in the back seat of our car! They were missing a few things like the Massachusetts Turnpike!

NORBERG: Collectors’ items.

HESPOS: So I was Chief Information Officer, Director of Information Technology, and Assistant Dean. That barely fit on the business card.

NORBERG: Let me break in here for a minute. Was there any interview process at all?

HESPOS: Oh, yes, about six interviews.

NORBERG: And how did that go?

HESPOS: Fine. Very well. There was nothing to it.

NORBERG: But for most academic positions, a presentation has to be made to the faculty.

HESPOS: Well, this was not a faculty position; this was an administrative position, and my credentials could not have been better suited to what they were looking for. I did not know MacFarlane before; he was two years behind me at the school. Everybody knew before I met them that I was a personal buddy of the dean. I was interviewed by Jim McKenney, whom you knew, and Jim and I hit it off very well. Who else was there? I had about a half dozen interviews. It was a piece of cake. No contest, I guess you would say. So I got the job, and my responsibilities included three kinds of computing. One was the regular administrative computing for school purposes. The other was support of research computing that the faculty used—the big, number-crunching statistical analysis type things, the names of which are escaping me now, the packages. There were two competitors, and we used both of them, and I can’t think of either name now. Isn’t that terrible?

NORBERG: For what purpose? What were you using them for?

HESPOS: The faculty was using computers to do statistical analysis to do whatever research they were doing, and we had to provide hardware and technical support for them, and most of the statistical stuff, they used the packages...

NORBERG: SSPS.

HESPOS: That's right. One has three letters (SAS), and the other has four letters.

NORBERG: But I do know what you're talking about, so I can look them up.

HESPOS: But the biggest and most unusual part of my responsibility was support of student computing. Harvard, the Business School had started a few years before requiring every MBA student to have a computer, a portable computer. The first portable computers were pretty big; they were sewing machine size, you know. And lugging those things around... And the ones that they were using when I just got there were not IBMs. IBM gave them the great big sewing machine-sized ones, and then two or three years had gone by and they had gone with another vendor, and I can't remember who it was. (Zenith) But when I first got there, I'd barely unpacked when IBM came in and made their pitch: "We want the business next year!" The relations between IBM and the school were quite close, and we went through an evaluation process, as they had done every year before I got there. It was close. We actually would have recommended Data General Computers. They were a local company; the CEO was a graduate of the school, and they were giving us a deal you wouldn't believe. Everybody wanted the business because to supply all the computers to HBS? Wow! But IBM came in and pitched real hard for their first laptop computer, which we went with, and they made it very attractive, too. We said to them, "You've got a timetable you absolutely must meet. You know, students arrive on September 2nd (or whatever it was) and we must have 800 computers here working to give them. There is no alternative." "No problem."

NORBERG: Oh, I would worry at that point.

HESPOS: They did deliver. It was kind of like back to my D&B experience. It was really an exciting technical project, and I enjoyed the whole thing. I started there in September of '89, and this was planning what are we going to use next September? It's got to be here, et cetera. The incoming class at that moment had the Zenith. So that year was exciting from that point—just the excitement of getting something done on a timetable and so on.

But just as an example of how this was handled, it turned out that the battery life of these machines was not sufficient for the requirements, which were that the students had to use them in the three-hour exams, and the battery had to last three hours, and if it doesn't, there ain't enough plugs anywhere to plug them in and recharge them. We considered, or IBM considered supplying extra batteries, and we said, "Not at our cost; it's got to be your cost." Finally they ended up paying for us to put many more outlets into the classrooms, and it cost them a couple of hundred thousand dollars, but they did it, they swallowed it. But it was done and it worked, so that was exciting.

NORBERG: Why did the business school think this was an important step to take? In '87 or '88, there weren't that many good laptops around.

HESPOS: That's correct. They made the decision to go with the first ones, because computers are important-- this is part of my story. Computers are important, and we're the leading school, and we must do it; we must be there. As opposed to having a serious, real need for them in the educational process, and as opposed to having a faculty demanding that we must have computers for our kids. I must branch here and tell you a story I told you a little bit about yesterday. John McArthur, who I've known since the Fall of 1957, was and is a technophobe. He is not technically oriented. He is a tremendous people person, dealing with relationships. I do not mean he's a glad-hander, but he understands how to make people behave in the way he wants them to behave; he's a master at it. That was his strength, and he is generally regarded as having been a very successful dean of the school. He was dean for 15 years. But, technology was not his interest, his forte, or a motivating factor for him. I often wondered why he wanted to get me back in there or somebody like me, because he was not really in favor of doing very much at all moving into the technology, integrating computers into the unusual learning process they have there, which made it less than a satisfying experience over the four years that I was there. Because John's attitude permeated the whole place, and everybody could tell, oh, the dean's not really behind this, that sort of thing. The young Turk professors were behind it. By this time, as opposed to the problem I've cited at Princeton, that we were coping with a faculty that didn't understand and never cared about computing, we're at five or ten years later now, and the young faculty at HBS, and presumably a lot of other places, were really into the computer and going and doing their thing and so on. But the older faculty was not in the sense that--

NORBERG: I was not happy to have to go online for all my courses online to make all my assignments available online. I did it, but I didn't like it. I was only three years from retirement. What do I want to do this for?

HESPOS: Exactly. That's the attitude that prevailed. I was coming up with all-- I was collecting ideas from faculty, from my staff, from consultants and everybody else, all the great, wonderful things we could be doing there, and making proposals, and it was just clear that John was not really interested in doing anything serious in this direction.

Let me jump to the end of the story and I'll come back and fill in some more details. When I left after four years, somewhat disappointed that this was a nice place to be, but I really didn't have a good time here and didn't accomplish much. John retired a year later and was replaced by Kim Clark, who was one of the young techies on the faculty, and within his first two years, all the things that I had wanted to do were *done*, including-- Well, we had pretty much networked the entire campus, but now we were doing things over-- we had fiber optics connecting all the buildings and workstations and everything else. I had proposed that we provide a glorified terminal room, as they used to call it in the old days, in a particular space under the gym. They put in about 50 terminals or something, and it satisfied both the research needs of many of the professors who didn't have PCs yet if they'd learn this way. It was done two years after Clark took over. And some other significant thing; what was it? Oh. Virtually all of the case material that students got was provided to them on CDs within two years. Gee, why wasn't I there then? [Laughs]

NORBERG: Why do you think somebody like McArthur would have wanted you to be the person to come back?

HESPOS: Well, he had a great big computer thing going already. The guy that was running it, who had many of my qualifications—he had a doctorate in operations research too, as it turns out, and he had been at the school for I think 30 years. He’s a few years older than I. He had worn out his welcome, I guess you would say. Some of the things that he had been trying to do and some of the things that I had been trying to do afterwards, I was no more successful than he had been, except I was a new face with a new set of credentials, and outside experience, which they always respect at HBS. “Oh, you were in the real world doing these things.” So I had a better chance of accomplishing it than this other guy did, but it was not very successful. I ran what was there satisfactorily, and managed the new student computers and all those kinds of things, but I was not able to move the ball forward very much in those four years. And the only thing I fault John for, besides being a technophobe, was he used the excuse of, “We can’t afford to do this; we can’t afford to do that,” which was so obviously incorrect. The money was flowing into that place like you wouldn’t believe.

I skipped one part there. A big part of the activity of Harvard Business School, in addition to cranking out MBAs and a few doctoral students, is executive education. They have a number of executive programs for companies to send their top or middle management people to for as long as 13 weeks, an advanced management program and things like that. Those things are *very* remunerative to the school. They charge those guys through the nose, too. It’s very rewarding for the faculty in that the faculty gets exposed to all these guys, and they get opportunities to visit them and write cases on their companies, which is how you get brownie points. It’s kind of like publishing in the rest of the academic world. Three, these guys eventually-- they don’t get a *degree* from Harvard, but they get a certificate from Harvard, which makes them feel like Harvard alumni, and they give money and everything else. So it’s really a very attractive business segment for the school. We deluged them with computing power. Most of them were not computer literate, as you can imagine; some of them were. But we installed computers in all of the rooms of the dorms that we used for the executive programs. You arrive on campus, and you walk in there, and there’s a screen in your room that says, “Welcome, Mr. So-and-so, (with a picture of you there). Your roommates sharing the bathroom with you will be this guy from here and this guy from here. The first cocktail party will be 4:00 this afternoon.” It blows them away.

We also worked real hard on developing case material using the computers for them. A real battle took place there. One of the executive programs, I can’t remember which one and it’s not important, went with Macintosh, Apple Computers. The other one was pressured then to go with IBM. So we’ve got Apple and IBM trying to out-support the other guy on these things, and they’re falling all over themselves to do things for us. From a vendor point of view, you couldn’t be a better...

NORBERG: It’s a prestige account.

HESPOS: Yes, right? So that was interesting. And some of the things, we used consultants to develop case material working with faculty and some of our own people working on it as well. I had a staff of about 50 people, I think, in that neighborhood, and a lot of computer hardware support. Most of the stuff was done by vendors, and supporting the hardware wasn’t that big a

problem at that point in time. But some really creative case material was developed that involved using a computer and even collaboration. We were one of the first users of Lotus Notes to let team members in physically different locations work on the same document and things like that. We occasionally got to the point where we were having-- we didn't really get into this effectively until after I left. We get into the point where we have students prepare and make a mini-presentation of their analysis of the case material and present it on the screen, throw it up there, spreadsheet or graphs or whatever they had done, when they're talking to the group. We were just beginning that by the time I left. Now they're doing a lot of it.

Let me step back and describe something about the school. Maybe I did this yesterday when we were talking about George Bush.

NORBERG: The classrooms are on the side.

HESPOS: The classrooms are U-shaped with the banks of seats all around like a mini-stadium with one open end, and there's 80 people in a session. The executive programs are generally smaller than that, and they have their own separate classroom and so on. That's the cooperative and confrontational arrangement with a screen up at the front or blackboard as the case may be. Or both, actually. Now, and in the executive programs back then, we had terminals for each-- plug-ins for the network at each place, and now that's true of all the classrooms, so that the students bring their PCs in, plug them in, keep notes on it, have their presentation material if they're going to do something on it, and the case material comes in digital form, and there's even in there a small database of things that might or might not be pertinent to the case. You're familiar with the case system and how it works, aren't you?

NORBERG: Oh, yes. I've written some of those for Minnesota.

HESPOS: So you know all about that. You give them more material than they need, and part of the task is for them to figure out what's relevant and so on. Some professors developed really clever cases that used the computer and related things that the students could find their way through and use—little traps and everything else in there. That has happened to a much greater extent now. Well, it's been 10 years, or pushing 15 years now. But back in those days, those were the kinds of things we were just getting into, and I felt good about that. The big vendors that we dealt with were IBM and DEC. You remember DEC! I couldn't imagine that they were going to cease to exist that quickly. They were very helpful to us, too. We could talk about DEC, I guess, for a while. I have some theories about them.

NORBERG: How close were you to the executive program?

HESPOS: Very.

NORBERG: What did it consist of? What kind of programs did they do? Did they do the regular case studies?

HESPOS: Oh, yes. They did all the regular case studies—the same. I'm sure some cases were peculiar to the AMP and were peculiar to the foreign executives program and things like that, but I would say 90% were MBA cases, not modified any other way. I'm sure there were some that

were specialized, but the same cases; it's just that, one, they weren't getting marked on what they did. Two, they had a lighter load than MBAs did. They had maybe one or two classes a day as opposed to the three that the MBAs did every day. They had far more relevant experience since they were in the real world, but they were also under far less pressure to perform than the MBA students are. Pressure in the first year was pretty fierce, but not in the executive programs. There were probably, I'm guessing, a dozen executive programs ranging from what used to be called middle management programs, later changed to PMD—Program for Management Development, I think. That used to be the longest when I was there; the middle management program was six months long, as I remember.

Session 2, Tape 4, Side A [No Side B]

HESPOS: That program had been shortened down to something like three months, I think, and the executive was something like 12 or 13 weeks. But those were the same, I think. But those are the lengths. Two to four months was the longest, and then there were a number that were a week or two weeks—our labor management programs and so on, a big assortment of them. One was Owners, Proprietors, and Partnerships Management, and that was for small businesses. So they really had a smorgasbord of executive programs, all of which were run on the case method, most of which used most of the cases that had been developed for the MBA program. And incidentally, HBS cases used to comprise about 90% of the case material that was used in all the graduate business schools around the country. It was a business for the school to be writing cases and then selling them to other schools.

NORBERG: Oh, I didn't know they did that.

HESPOS: Oh, yes. I remember the statistic from Stanford's school was, I think, 90%. Harvard definitely dominated the case-writing business.

NORBERG: I'm not surprised at that, but I didn't know they passed them around.

HESPOS: None of the other schools were, at that time, as totally case-oriented as Harvard was, which always bugged me, even when I was a student back there. I still think it doesn't make any sense whatsoever to try to teach accounting using the case method. You know, the debits are going to be on the left side, no matter what you discuss about it. But Harvard's philosophy is, one, the student ought to be able to learn that level of detail on his own or know it before he gets here or something like that; and two, the inculcation of wisdom, I think you might call it, is so much more effective in the case method and the discussion in the confrontational approaches, as I recall. Forget the teaching stuff; we'll have an extra session after hours if you want to learn that debits are toward the window, but that's not part of why you're here.

That's a point that I've never totally accepted, although some of the professors using the case method were world-class superstars. The champion of the case method was Chris Christianson, who taught Business Policy, and I always felt like I was going to church when I went into his class. It was like, wow. He was an amazing man. He was still there when I went back the second time, and I got to know him in a different way than I did the first time around. So I had mixed feelings. I think the school is too oriented towards the case method, but I still

strongly believe they're right; it is a really good way to teach judgment, if you will. I recognize that's an oxymoron, but...

NORBERG: Can you assess the differences between your CIO posts as they were defined back in Continental Insurance, for example, and maybe Union Carbide, if it goes back that far, and what the Business School thought a CIO was in 1989?

HESPOS: When did the term come back into existence? The first I remember is Duane Peterson at Merrill-Lynch being referred to as CIO.

NORBERG: When it came to Minnesota, I knew a couple of candidates at the time, and it has to be before I stepped out of the role of director. I think that's right. So that has to be '91, '92 when Minnesota was trying to get someone not for the entire business school, but the entire university.

HESPOS: I'm sure it was before that.

NORBERG: I would think so.

HESPOS: I would guess maybe around 1980 or something, the term started to become... But I really don't know. But how it changed, oh, it changed greatly in my period of time observing that function—greatly. First of all, if you go all the way back to Paul Strassman's General Foods days it was a computer czar for the whole organization. That faltered badly for the reasons we were discussing yesterday. Divisions or subordinate units didn't like to turn over a part of their responsibility to somebody else that they didn't control. They were still being held responsible for their results, whatever they were, and had to depend on somebody else in the organization for a vital part of that. That wasn't palatable, so the czar model started breaking down. It was only later on that the value of information per se began to be recognized as very important: one of the most important things in the business as we transitioned from a manufacturing or product-oriented economy to a service-oriented economy or to 'soft' things that we were making and selling. So it gradually grew that, gosh, information is really the business we're in. As I mentioned yesterday, that was a surprise to me and to Dun & Bradstreet when I pointed out that the computer was our manufacturing arm. It produces the magazines, the mailing labels, the credit reports, the whatever, that we make and sell, and that's our factory. Looking after that factory is as important as it would have been in a manufacturing company. I think that's probably when the concept of chief information officer started coming into being, that, gosh, information is perhaps one of the most, perhaps the most important thing that we're making and selling. That, I think, is what brought it about. I'm not current on this, because I'm really retired and have been for over ten years, and I find myself shockingly technologically obsolete, frankly. You know the feeling I'm talking about. But I think that the CIO concept may now be diminishing, because similar to what we were saying about telephone operators, and programmers, the recognition of the importance of information to an organization's performance is now so widespread that maybe you don't need this chief information officer as badly as you might have 10 or 15 years ago.

NORBERG: But do you still need somebody who's running the operational part of computing? Whatever size the organization is, somebody has to be up on the various new programs that are available, the capabilities of the machines, the tradeoff between using a mini-computer and what used to be called big iron or mainframes versus a world in which laptops and Wiis and WiFi setups are everywhere in this country.

HESPOS: I think I would have to say that even the centralized control of that sort of thing has probably diminished quite a bit, I think. But again, I'm not as current as I used to be on matters like that. Clearly some things are centralized by definition. You know, you've got to communicate. You've got a phone company that will do it for you and maybe get fiber optics strung out everywhere, and somebody's got to be in charge of that, but that's become pretty much a commodity-type thing as well. If you want to communicate between your offices and your headquarters, AOL or MSN can probably do it as well as you can do it yourself, and cheaper. Maybe you don't need your own central communications staff. Yes, you need somebody that's going to make repairs and change your phone numbers when you move and things like that, but that's a different level of complexity and importance than it used to be 20 years ago. It's more analogous to-- I think I mentioned yesterday I had responsibility for 4,000 automobiles, but I didn't have to do a heck of a lot with that. I just had to have somebody who was going to check and turn the cars in and get new ones before the mileage gets up to whatever it is that you want. It was a super-clerical operation. I suspect that many of the things that used to be done by the high priests are now being done by super-clerks, or even outside vendors who are providing a very standardized service, such as the phone company.

NORBERG: We see another phenomenon in the academic world, not necessarily at Harvard but certainly at many other schools, where what used to be handled by secretaries or some professional assistant or something like that is now passed down to all the members of the institution. All faculty must do their own correspondence and all that sort of stuff, right down to posting it—doing it themselves. I've seen a lot more of that now than I used to see in 1990, and when the students come in, they're really pretty savvy about how to use those machines, and they can really run rings around me, to be sure. So that seems to be a function of the spread of the laptop, and it reminds me of something that--

HESPOS: Not only the laptop, but the ability to *drive* a laptop.

NORBERG: Something that Ferdinand Corbato from MIT told me one time when I was asking him about the development of Multics, and why did he think why Multics was not a success in the market that they had defined, and he said it's because of the laptop and mini-computers, where you can have time-sharing in them and all sorts of other things in them through software, and you don't need this big utility anymore. And he said it with a great amount of antipathy. He really did not believe that that should have happened.

HESPOS: Not too different from what I was saying about ACM being old school in the expertise in complex operating systems, and the great unwashed out there were now doing all those things for themselves with ease.

NORBERG: So we've got three activities going on here. We've got the computer agency or whatever you want to call it inside Harvard Business School. You have the use of the machinery—getting men and women and so on to use them more effectively. The third idea has something to do with Assistant Dean.

HESPOS: Yes.

NORBERG: What did you do as Assistant Dean?

HESPOS: Well, that was just my title. It's the number of stripes on the sleeve.

NORBERG: That would set it up, all right.

HESPOS: There were probably half a dozen assistant deans.

NORBERG: There usually are now.

HESPOS: Yes. Well, I was not *the* Assistant Dean. I was one of the...

NORBERG: Yes, there must have been associate deans as well, I assume—people who do the academic side of the dean's office.

Okay, now, I had another thought that was running through my mind when I was trying to get that sentence out having to do with the changes within the business school during that time in terms of faculty. Did they bring in a number of younger faculty at that time?

HESPOS: Yes.

NORBERG: There's always sort of a turnover for whatever reasons?

HESPOS: I think the school has close to 200 faculty members. There is the usual rate of turnover, the usual tenure process that you know more about than I do. It was very clear that the younger faculty were the most interested in computers, but they were responding to the signals that they perceived, that the *establishment* of the school doesn't seem really interested in it, but, gee, I really need it to do my thing. So those two pressures were against each other, but the young Turks took over eventually, as they always do. But John McArthur, at the time, was a pressure against that, and it permeated through the organization, somewhat to my chagrin.

NORBERG: Were there connections between you and other similar chief information officers, if you would like, in the various schools throughout the university?

HESPOS: Yes there were, and that was fairly active. We met twice a year with the top person from each school, and one of the meetings was generally an executive session just with head person from each school. I'll tell you who the schools were in a moment. Another was a bigger meeting where three or four people from each school would get together and break out into separate groups and talk about their specific areas of interest. The schools were MIT right down the river, the Sloan school there; Cornell, the Johnson School there; Wharton; Columbia; Emory

was in there. They had a graduate business school. UVA, NYU, Chicago, and Northwestern. And from the West Coast who was there?

NORBERG: The Haas School at Berkeley maybe?

HESPOS: I don't remember them. Maybe they were there.

NORBERG: Stanford?

HESPOS: Yes, Stanford was. There was no formal membership or that sort of thing.

NORBERG: Interesting. That was not involved in the question I asked, but I could see how it flows directly from my question. I was thinking of the other colleges on campus. How much interaction with-- what you said was just fine; I mean, that fits, but it fits a different set of specifications.

HESPOS: The answer to that is more interesting than the answer to the first one, I think. Back in those days, Harvard had the philosophy of "every tub on its own bottom", and the central administration of the entire university was not very powerful, even though presidents of Harvard were towering figures. They didn't have very much financial control at all, especially over the heavy hitters—the business school, the law school, and the med school—who had their own large sources of funds. I used to be amused at the degree to which the business school's John McArthur would cover things up and use euphemisms. It was just decoy. It was funny, actually. And I saw that change slightly while I was there, and much more since then. While I was there, Derek Bok retired for the first time, and he was replaced by, of all people, Neil Rudenstine, who had been the provost at Princeton. He was a year behind me at Princeton; I knew him for forty years, and also from the Advisory Council. Neil was the one we would report our results to. Neil and/or Bill Bowen, Princeton's president. So Neil was selected. Neil had a great ability to deal with people. He is almost egoless. They used to say about Neil that he would get warring factions into a room at Princeton, and they would spend an hour or so in a meeting, and they would come out all in agreement and each would think that he had won. Neil was a master; he should have been in the State Department. At Harvard, he made great progress towards bringing the warring parties together, and more progress has been made since then, until, of course, Larry Summers came in, and then Bok came back. But the walls were coming down I could see, when I was still there. I give a lot of credit for that to Neil.

The other part of your question was how my computer activity at the school related with the rest of the computer activities elsewhere in the University? This had been the subject of the same sort of defensiveness before I got there, I'm told. The top computer guy for the entire university was a fellow named Steve Hall, whom I got along with famously. I would cooperate with him and the rest of the groups to any extent, really. I wasn't giving away any secret information that McArthur had known, but I was most cooperative, because that's just the way I am, and I got along well with Steve Hall and the guy from the Med School, whose name escapes me at the moment. Who else was in...Lou Law was the Arts and Science College guy, undergraduates, essentially, and I got along famously with him and we cooperated on a whole variety of things. I had met him and a couple of the others previously in my role at Princeton because we occasionally got together with other schools to talk about things. And while I was

there, we bought into a new communication scheme and system that Steve Hall was trying to set up for the entire university, and that wedded Steve and me together pretty well on that. So we got along just fine. But that meant that we were communicating, sharing lines and disciplines and so on with the rest of the University.

NORBERG: Wouldn't that suggest, then, that your accomplishments in the business school versus your accomplishments with the University were really rather good when you look over the four years?

HESPOS: Well, they weren't too bad. I did not advance the ball anywhere near the way I hoped I could, given the opportunities and the money and all those kinds of things, but we undid some bad things that had been done in the past, I think. The walls were built up and things of that sort. We did make progress in that department, and we sure made progress in hardware for the students. Getting the vendors falling all over themselves to support us like that was enjoyable.

I know something that we did forget, and I can't do a very good job of this. I mentioned I was going to bring in the horror story of "my great moments in computing" and so on that I used in a couple speeches. I thought I brought that note with me, but I couldn't find it last night. So if you wish, I'll try to remember some of the things, but I can't give quite the justice to it that I hoped I could. You mentioned yesterday where I gave this speech, at that New England Consortium something or other. The schools were getting together trying to do time-sharing together or something?

NORBERG: Yes, and also get money from the National Science Foundation, which was willing to support a multi-state organization, as opposed to giving grants to each one of those—each one to buy the same machine and so on, to have the machines in a coordinated fashion.

HESPOS: And what was the guy's name? Bowles? I don't know.

NORBERG: And Corbato was involved in that, I guess even Licklider for a long while.

HESPOS: You remind me of something else that I must point out. We're jumping around drastically here, but I do want to make sure you get this. One of the high points of my time at ACM was a conference that Adele Goldberg organized and held at PARC, in California, on the history of workstations.

NORBERG: Yes, I remember that.

HESPOS: A book came out of that, and they had an array of speakers at that thing that was just great, and I was there for the whole thing—not as executive director of ACM, but as an interested computer person. That was a really stellar performance, I thought. They had Licklider there, they had Doug Engelbart, Bob House, Gordon Bell (and Gwen). They had not Ivan Sutherland who won a Turing Award, but his brother Burt Sutherland from PARC. Alan Kaye was a speaker. She really got the best people in that field together; they all presented good papers, and I was very, very impressed. I've still got the book, and I occasionally dig it out and read it. In fact, I would have to give Goldberg the credit for the series of books; that was the first of them which started coming out. Peter was involved in that, also. They came out with some

pretty damn good books, I thought. And subsequent to my being there, they still had a few good ones come out, too, that won awards—*The Future of Computing*, *Looking Ahead 50 Years*, and such. I thought that was a superb job. Peter, I think, edited that. That was one of the more impressive things I think ACM did.

NORBERG: So how does this relate to the Steve story?

HESPOS: Only because it was in connection with the New England Consortium. No, it wasn't connected; I said it was something I meant to bring up when we were talking earlier.

Okay, let me get back to the speech. I'm giving you a rough approximation of what it was. I stood up and said, "I want to talk about the history of computing, and I want you to know something. Why do I speak about this? What are my credentials? What's my right to talk about this? Well, I was there, and I'm going to tell you," in my best Stephen Colbert imitation, "The high points in my career in computing were as follows: One, there was a time in 1956 when I was working on an IBM 650 and I found out that IBM was going to attach a magnetic tape unit to this machine, and I said, 'Why in the world would you want to put your data on a magnetic tape? You can't hold it up to the light and look through it to see what the numbers are; you've got to take it on faith! Who would want to do that?'" The best was in about 1960, I guess, when I was working at Union Carbide and Columbia. We were sitting around having lunch, and somebody said, "Well, the new IBM 7090 is going to be delivered in a couple of weeks here, and they're going to get rid of the 650." Five of us were sitting around a table, and one guy says, "I wonder what they're going to do with that 650." Somebody said, "Well, IBM will take it back. You know, they don't sell machines; they only lease them." (Remember those days?) He said, "What are they going to do with it? Maybe I could take it home with me." The rest of us said, "What are you going to do that for? What in the world would you do with a computer in your own house? First of all, you would dim the lights in your whole neighborhood every time you turned the thing on; secondly, you would have to add a room to your house so you could have an IBM guy there to fix it every few hours, when it goes down. And what are you going to do with it anyway? Are you going to teach the machine to play checkers against you, or Tic Tac Toe? They've got a chicken down in Chinatown that does that already; what do you want a machine to do that for? Or maybe you could even balance your checkbook on the machine! Ho-ho-ho! Silly thing!" That's literally a true-- that's what that discussion was about. It was such a ridiculous idea.

NORBERG: They might take it to home. Why couldn't they set up a leasing company or something like that?

HESPOS: We didn't even talk about computer leasing, did we? That's a different topic. But then I said-- Oh, yes. This is also true. I made up the dialogue, as I think back on it, but we used to have arguments over whether it made sense to use a higher-level language, like FORTRAN or one of those things. Why don't you just write the instructions in machine code? You end up with much more efficient code! You use that COBOL thing they're talking about now you're going to have such inefficient code, it's just going to take forever to run. The machine costs a lot of money—you can't be squandering it like that! There were legitimate arguments made on both sides, but it's just such a silly argument if you say the hardware doesn't

cost anything. But we used to have those discussions. And I said in the speech I was against progress every step of the way.

NORBERG: Did I understand there were three high points there: one was the 650 for you, and the second was the 7090?

HESPOS: No, the 650 being replaced by the 7090. What are you going to do with the 650? That was the issue.

NORBERG: What was the third one?

HESPOS: The first one was that silly one about punched cards, magnetic tape and seeing the holes. I had about six or eight points like that, and I can't remember what they were. Oh yes, one was bubble memory. I said it was pretty clear that the future of the industry is based on these magnetic bubbles that are going to fly around here; I wonder how soon they'll get out of this silly core business and things like that. Something similar about-- Oh, I told you yesterday about-- oh yes, there were two involving Paul Strassman, where I said, "Paul, why do you want to transmit information from your warehouses out there into your central place over telephone wires? Why don't you just mail the damn data? It can't be that important!" And the other one with Paul, when he first showed me the STAR computer with a mouse, I said, "Who the hell wants to move a mouse around on your desk? If you want to do something on your computer, type in the command and hit go! What's the big deal?"

NORBERG: How did you ever end up as a CIO? [Laughter]

HESPOS: I don't know. I don't know. That was my initial reaction to many of those things.

NORBERG: I asked Paul when I interviewed him questions about the advantage of the computer in the inventorying and daily processing of goods and so on and where they have to be shipped and all that sort of stuff and keeping up with the balance of inventory, that the stuff would go off the shelves reasonably fast. He said that what happened is that they could, on a weekly basis, determine what needs they were going to have on lime Jell-O, strawberry Jell-O, and so on, whereas before, a whole pile of the strawberry stuff could end up in one place and a whole pile of lime could end up in another place, and we would then have to ship them separately again back across the boundary. I thought to myself, "That was pretty sharp. They're very clever."

HESPOS: Yes, I did a similar thing maybe because I knew what Paul had done there, when I was at Carbide. We worked on a similar inventory control system for plastic resins and plastics of different colors. That's what triggered it my memory. Seriously, I changed my opinion pretty quickly on those things.

NORBERG: We all had to.

HESPOS: But those were initially, "What do you want to do a stupid thing like that for?" I remember one: "What do you mean 'word processing'? How do you process a word? What

does that expression mean? You're going to use a computer to move letters around on a piece of paper or a printer? Computers are to compute! You've got to push numbers and do things like that! What do you mean "word processing"?" I had the same reaction to personal computing. The first time I heard IBM throw that out at some seminar: "Personal computing? You mean just for me?"

NORBERG: I just went with the trend. I didn't bother trying to understand what they were going to do or what they were not going to do, but it has been a remarkable period.

Well, thank you very much for participating in this interview.

HESPOS: You're welcome.

END OF THE INTERVIEW