Oral History of Charles (Chuck) Branscomb

Interviewed by:
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Robert Garner: We're going to start with your very earliest history, where you were born, and then some of your early influences and how you got into the data processing industry.

Charles (Chuck) Branscomb: Well, I was born in what we call the sticks, Carroll County, Virginia about halfway between Hillsville and Galax. The nearest house was about a half a mile away. And there were five of us and I was the middle. I have a brother and sister older, and a brother and sister younger. My older brother was 19 months older than I was, and so, of course, he and I were together all the time since there was no one else to play with. He started school on about regular time. Well, one room, seven grades in one room, and he went the first few days. And then he said he is absolutely not going to school anymore unless I had to go, and I was still four. But my mother talked to the teacher and she said "Well, send him on." So he and I went all the way through school together, and high school as well, and the first couple years at NC State. In the middle of the Depression, probably 1933, my dad had done various things and one of them was working at a sawmill and what have you, but he found himself with five children and out of a job, and he did something I figure I could never have done. He had apparently established his word well enough until he was able to borrow I think it was $125 to make a down payment on a truck. And he moved the family to Winston-Salem and started driving down to Florida, buy a load of fruits and vegetables and bringing them back and selling them to wholesale houses that then sold to retail stores. And that's how he started his business, Branscomb Produce Company. By the way, it's still operating today by my nephew -- so that's what, 67, 70-some years ago, and it's still going. Early on, I would say I was 10 years old, 12 years old, '38, '39, '40, and I was wondering how he got his business started and why he was able to get credit and stuff like that. And I got a chance to talk to one of the people in the business world. I knew that any new company or individual that was trying to buy stuff on credit and what have you, they said "Okay, look at Dunn and Bradstreet, the Blue Book. Check the Blue Book." I looked the Blue Book up in there, and he was rated like four-star. The five-star I guess is the tops. And I asked somebody about that and he said "Your dad is one of the most honest persons that I've ever met," and that's how he established his whole business. So that was a great influence on me, I assure you. I went to County High School outside of Winston-Salem, not very-- Well, I'll give you a good example. My Physics teacher was the coach of the football team, and I remember very vividly one time -- it was all boys in the class, no girls in physics class in those days -- him coming in, leaning his chair back, putting his feet up on the desk and say "All right boys. Everybody read the lesson for today?" "Yes, sir. Yes, sir." "All right. Who knows a good joke?" That was sort of my Physics experience. And so when I started at NC State in the fall of '43, I had a lot of trouble the first year, a lot of trouble. I don't know how much time you want to waste here on things like English. After you got assigned to your English class and find out the professor, everybody checked with the sophomores "How about this guy? How about that guy," and I had one they called Red Wynn. Red Wynn was his nickname, Red. They said do anything you can to get out of his class. Get sick. Anything you can do to get out of his class. Well, I couldn't. Everybody was trying to get out of his class. I had never written a theme. Here I am in college now. The first theme I wrote for Red Wynn , I got F-minus-minus-minus-minus, four minuses. "Well, I'll never make it through this," but fortunately, he graded on progress and improvement. And so I got through freshman English barely, but after that, I never had anymore trouble. The thing was, he was a great asset as it turned out, but I was not pleased with how things started out.

Garner: A real boot camp in the English language.

Branscomb: You bet. I studied mechanical engineering. My older brother was there with me. We both studied mechanical engineering. And my mother and dad had a seventh-grade education only. You'd have to go off to boarding school from where they lived, and they couldn't afford to do that, of course. But

I'll tell you, they had a PhD in life, how to live, how to interact with other people, how to care for other people, and so that had a tremendous influence on my life as well. At NC State, Dad and Mother took us down to NC State to get in our dormitory and what have you and went back home. And then we started getting our books and, of course, as ME students, we had to have drawing instruments and a T-square and a drawing board and all that. I think they had been gone back to Winston for three days and we were calling Dad and saying "Hey, we need some more money." He didn't know what to expect and what have you, and fortunately, his business did pretty well, so it didn't turn out to be a problem. Went through NC State for the first two and a half years, two and two-thirds -- they did a term system -- and Uncle Sam came calling. It was March of 1946, so World War II was over. I wasn't pleased with going in the Army at that-- being drafted. Here I am in my junior year and no wars going on, but that didn't matter. I went to take armored infantry basic training at Ft. Knox, Kentucky, got sent to Korea, and big ship going over. Sixteen hundred people I guess went to the replacement depot. Everybody but six of us got assigned out into places in Korea, and we're there in the replacement depot and wondering what's going on. We got to talking to each other and found all of us had had some college time, and we found out all of us had scored pretty well on the AGCT test. And so we thought "Well, maybe Army does know what they're doing sometimes." There was a regular Army platoon sergeant that we interacted some there, and he said "When we got our notice, we were going to the MRU." We didn't know what the MRU was. And we asked this old regular Army platoon sergeant, "What is this thing called MRU?" He said "Oh, that's something called Machine Wrecking Unit. They tear down old buildings and stuff down like that," R for 'recking. But fortunately, it turned out to be Machine Records Unit, IBM Installation, and I had never heard about this in '46. I had never heard about IBM growing up in North Carolina. But that was my exposure to IBM Equipment. And I got intrigued with it of course. I was there for 12 months. During the course of my time there, we had GIs trained to service the machines, and they did a pretty good job. But once a month, we had an IBM customer engineer from Tokyo come in and really get all our machines in perfect order, and he was an extremely impressive guy. I got a chance to talk with him quite a bit, and he told me a lot about this IBM company, and that got me further interested in IBM. And he had some influence on me getting to IBM as well. I don't know if I'm doing anything at all that you--

Garner: That's perfect.

Branscomb: So I spent that time in the Machine Records Unit. I might tell you one little example of how I saw the power of information handling. We had a captain that ran the machine room and he wasn't really regular Army at all. We had a colonel who was the top guy of the whole unit, but then, the Air Force had too many officers. This was '46, fall of '46 probably. They sent 30-some thousand officers from the Air Force into other branches of service. We got two of them in our unit. One of them was the nicest guy you would ever meet. The other guy was bitter at being moved out of the Air Force. He loved the glory of the Air Force and he, unfortunately, became our company commander. So we had basically been on an 8 to 5 job, class A pass when we were not working. He started calling inspection every morning at 7:30. He started drilling us out on the drill field every Saturday, so you might suspect he wasn't too popular. Within I would say three or four months-- Once a month, we had to ship a complete, accurate-- I mean, we checked and checked and checked -- a deck of over 36,000 cards -- one card for every guy in Korea to Tokyo, and it had to be a perfect deck. The plane left Kimpo Airfield, 25 miles away, at 8 o'clock in the morning, one plane a day. If you missed that, you're out of luck. So the night before that plane was to leave, the cards were all ready to go. The sergeant in the motor pool went to this commander and said: "Captain, does the motor pool have to stand in inspection every morning?" "Yes, sir!" He just barked at him. The sergeant said "Yes, sir. Yes, sir." Well, they stood inspection at 7:30. After the inspection was over, they raced as hard as they could with the cards to the airport, but they missed the plane. So we wondered "What's gonna happen?" It was probably three hours or so later 'til this captain was called in

the corner office where the colonel was, and we could all hear the colonel was walking him around the wall. "We got morning reports from every outfit in Korea." That's how our changes kept our database up to date. "We got a morning report from our unit to be handled and it said the captain has been transferred out to the 267th Engineer's Battalion way out in the boondocks of Korea. We were in Seoul. We had a great deal in Seoul. So Information Handling has some power.

Garner: Especially in the military. So what happened next? You were in Korea and you were having this kind of very regimented lifestyle there, that doesn't sound like you want to stay there very long. How did that change?

Branscomb: Well, Korea, at that time in '46 and '47, was a bad place. It was very backward. The sewage system for our-- We had a four-story building, nice building. The honeydew wagons, we called them, would come around, suck the vault content out from the building and go down the street, dripping along.

Garner: So when did this all end?

Branscomb: Well, I'd make one more comment about the unit. We kept an up-to-date database. Every morning, at least depending on the status of the morning reports we got in, we had an up-to-date database on the GIs in Korea. It would be processed overnight and done. And I became the -- basically what you'd call today -- the database manager or what have you, before I left. Most of the time in Korea, except for this problem with the company commander deal, was not the place you wanted to stay by any means, but really, it could've been a lot worse to have been in the service. I became a big fan of the USO club. They did a very nice job. And we had a few uprisings, nothing serious. The one that sticks most in my mind, every man in our unit had been assigned a carbine for three or four months, five months before because there had been a few uprisings. All of a sudden, there was an uprising and I got assigned at the landing of the first step. We were up on the third and fourth floor, managed to stop anybody coming in. They had banned the Koreans from coming in. This guy that we all knew very well, came to work that morning. He comes in and I say "No, no go." He said "I work here," and all that. I could tell that. I knew him very well. And he started coming up the steps and I said "Ga shi yo. No," and he started again. And it's the only time I've ever pointed a weapon. I don't know what I would've done if he kept coming, but fortunately, he stopped. The uprising wasn't really very serious.

I got out of the Army as a sergeant, back to school at NC State in the fall of '47, and finished my Bachelor's degree in '49. Actually, when I graduated, at the time, I really didn't plan to go directly into graduate school. I tried to get a job in the Southeast. That was not too easy to do in the spring of '49. I had one year left on my GI Bill time. I went and decided to go down to State, talking about going toward a Master's degree. And they suggested that I teach part time and go to school part time and take two years. But, of course, I only had one year left on my GI Bill so I went full time and wound up with a Master's degree in Mechanical Engineering in 1950. In those days, interviewing with IBM, they didn't bring an interviewer on campus. You interviewed at the local branch office first.

Garner: You already had an inkling you wanted to work there.

Branscomb: Yes, I had gotten interested in IBM, right. So I was down at the Raleigh branch office. I don't know why, but I remember the name of the manager. Mickey Johnson was manager of the office, and when I was sitting in his office being interviewed, all of a sudden, bells are ringing and bells, and it was really a loud-- And somebody came running into his office, and the guy said-- It's February now. The guy said "I just made my quota for the year." He was a typewriter salesman and had sold the Cherry Point Marine Base, typewriters for the whole base. And so I saw a little example of the marketing area. I think I ought to pause for a minute, see if I can get clear here. I don't know if I'm going into much more detail than you want, or what you want.

Garner: I think it's good. We've got all morning. We don't have all day, though.

Branscomb: I'll step forward a little bit here, do some fast forward. I think I should set the next point. During the summers, I worked for my dad's business and did fine down in Georgia, mostly in Georgia and South Carolina. And I was down in Pelham, Georgia buying truckloads of cantaloupes at the time. And I had a friend named John Collins down there. His dad had a huge ranch, a farm and sold a lot of stuff, and I got to know him. And he said "By the way, you want to double date with me tonight?" and I said "Sure." So he got me a date and we went out and double date, and it turned out I rather liked the girl he was dating. And subsequently, I saw her in a restaurant one time, asked the lady how I could contact her, and found out and called her and got a date with her. And we wound up, a year or so later, what have you, being married. And next month will be 60 years since we got married, December of '49. And she has been a wonderful companion, wife, mother, just super, a super wife.

Garner: So you've come to this place to interview and this salesperson-- Did you get the first job offer?

Branscomb: No, no. You got through the first stage and if you make it through the first stage, you get an invitation to one of the laboratories. So I went up to Endicott, New York for an interview. I don't remember exactly when that was, but I apparently did well in the interview and I got an offer from IBM. With a Master's degree, it was $75 a week.

Garner: What kind of position would it be?

Branscomb: It was just a junior engineer. Actually, you started in an engineering training program even after you'd had a Master's degree. They put you through the IBM Engineering Training Program. It normally lasted, I believe, eight months. But we were three or four months into the training thing and the management in the lab was needing people so badly that they terminated the training program and we went to work.

Garner: So the type of training was to learn how the unit record equipment operated?

Branscomb: Yes.

Garner: Did you have to assemble machines or did you just--

Branscomb: Yes. We actually troubleshot. Now, see, I had a great advantage in this engineering training program because I knew quite a bit about the machines. Most of the people knew nothing. And they just wanted to acquaint us with the innards, somewhat of an engineering standpoint of the machine. At times, we got chances to debug them and--

Garner: You never had to put one together though.

Branscomb: No, never assembled one.

Garner: Did you have a favorite machine?

Branscomb: No, I don't recall at that time having a favorite, no. I got a little bit exposed to IBM and some of the stories about IBM at that time because we had a bright young kid from University of Michigan there. He made the mistake of coming to the training program one morning with a blue shirt on, and he was told "At lunchtime, you might better go back home and get your white shirt on."

Garner: Did you sing the company songs on the weekends?

Branscomb: We did not, although I had-- We were in the education center, and they sang songs in the education center.

Garner: You heard them over there signing.

Branscomb: Yes, we heard and participated in some of the songs. And we also actually saw. We didn't talk to them or anything, but Tom Watson, Sr. was always at the sales graduation classes. He was really high on education. The Education Building in Endicott, New York at that time for IBM, was one of the better, nicer buildings in the area.

Garner: I saw the picture. It was a very beautiful building.

Branscomb: Steps going up to it said "There is no saturation point in education," and he was a great proponent. And IBM had a great evening--

Garner: Say those words again.

Branscomb: "There is no saturation point in education." And they had a great evening program. I'm an old mechanical engineer and you could see the electronics on the horizon, and so I took a lot of courses in the night school, and they were quite good.

Garner: In electronics?

Branscomb: Yes.

Garner: Even though you were a mechanical engineer, you were willing to learn about that electronics stuff.

Branscomb: Oh, yes.

Garner: I get the feeling was it was coming and people needed to get educated about it.

Branscomb: That's right. It's kind of interesting. I don't know how true it is, but after getting exposed to it and then later getting involved in managing the whole scope, I thought that mechanical engineers in some ways had an advantage. Because in mechanical engineering, when you're doing your design, you have to try to understand how is this going to be made. Is it going to be drilled or bored or broached? You have to specify a finish. You have to really focus on manufacturing. The electrical people I saw, they designed the circuits. They knew nothing really about how it was made or anything like that, and probably didn't care as long as they got it done. And so we were much more in tune to the manufacturing area than the electrical people, which I felt was an advantage. But pretty soon, well, I worked on punch card equipment. I did get assigned briefly to accounting machine development, but it got terminated. It was a heavily mechanical machine and trying to do 300 lines a minute. We got through a prototype and installed it in the customer's office in New York City just for some testing, but it was properly terminated.

Garner: For whatever reason, I learned that IBM was a little behind some of the other companies in lines per minute in their printers, not until the fact that the 1403--

Branscomb: Yes. Later on they were. There were five, six hundred, maybe even more lines per minute printers in the field.

Garner: Yes, from other companies.

Branscomb: Yes, oh, yes. Even a rather small company called Analex had a fairly high speed printer. Burroughs, as I recall, Sperry Rand may have. But they were all drum printers where the type was engraved on the face of a drum and it was moving vertical to the print line. Small variations in hammer time gave you a wavy print line, so IBM never really went down that path 'cause we didn't like the looks of the printing.

Garner: So you had these sticks that would go up and that somehow was better, so you would get a more horizontal line.

Branscomb: Well, you could get better quality but now you got more mechanisms. So that's the tradeoff.

Garner: It could not print very quickly was the tradeoff. It had better quality but not high print speed.

Branscomb: That's right. And so IBM, in terms of lines per minute, was clearly behind a lot of the industry, but still ahead in quality and what to do. The 407, the 150 lines a minute was a very high quality printer and a very good product. I worked on sorters, did design work on the selection unit on the 083 1000-card-a-minute sorter, working for Larry Wilson, who was, by the way, my mentor in a lot of ways. Great guy. Came to IBM from the Census Bureau, and he was a statistician. But he had a great feel for good design. As a matter of fact, I can still recall Larry saying "Look, when you get the right design, it's gonna be simple, it's gonna cost less to build, it's gonna be more reliable, and that's what you want." And his view was, if you put too many engineers on this project, you're going to get a very complex engineering deal that's very tough to do, but it won't be the right answer. And it was an interesting philosophy that I found was true in a lot of areas. After the thousand-card-a-minute, I worked for a brief time on something called a Kimball card reader for the little tags, goes on clothes and retail merchandise. I worked a few months, probably six months on a test scoring machine to use cards for test scoring, a very low-cost test scoring machine because it was built on the keypunch base.

Garner: This is not Ray Johnson's machine then?

Branscomb: No. No, he had a bigger test scoring thing, yes. This was a project where we had to read the marks on the cards as they came through the little 024 punch, and so we had a photo optic system there. And we had a problem with the reflectivity of cardstock. It was very inconsistent, so you would find you'd sometimes get cardstock in there that looked like marks to the photomultiplier but it, of course, wasn't. So we devised a simple scheme that said we're going to move the card to a place where we know there are no marks. We're going to take a scan, pre-scan level, and then use that as a base for scanning, and it worked very well. One of my patents, by the way, Robert. I wound up through the time with six issued patents and seven published inventions, most all of them in the punch card-related area.

Garner: That actually says something because there were a lot of people issuing a lot of patents in that area. I would have thought it was pretty played out, but it sounds like there were more things to invent.

Branscomb: There were a lot of patents in that area. These old-time senior engineers I mentioned to you, they all had quite a few patents. I guess the next step really is when I got assigned as the Area Manager Of Accounting Machines.

Garner: Was that your first management position?

Branscomb: No. I had become a manager pretty quickly, a project engineer probably in '54.

Garner: The year you joined IBM was?

Branscomb: ’50.

Garner: So by ’54, you became a project lead?

Branscomb: They called it project engineer, and some of them were managers and some of them were not, but I was in a manager job, yes.

Garner: You had that inkling then because you saw that you liked to work with people, and maybe better ways to get things designed? Was it the interaction with other departments within IBM?

Branscomb: Well, I viewed it as sort of a natural evolution. I had seen people who had moved through the ranks and what have you. And, of course, Larry Wilson, as I said, was my mentor, and I watched him a lot on how he operated, and I learned a lot about how to get things done, and I guess you would see who to listen to and who not to listen to. Staff people Larry called “bench warmers,” and he used to tell me “Now, you’re gonna get a lot of advice and some of it’s gonna be good. And take that advice. And a lot of it’s gonna be bad, and throw it away. Don’t listen to those bench warmers.” But I just felt like that I had learned a lot about getting things done and, of course, that’s what you do as a manager, through other people get things done. I actually progressed quite rapidly there from project engineer to development engineer to senior engineer. And I was a senior engineer already in mid-’57 when I was assigned to the--

Garner: Does senior engineer mean you had people reporting to you?

Branscomb: Not necessarily. There were two versions of senior engineer. They called it senior engineer staff. Now, what did they call it? I’ve forgotten exactly, but you could progress up the technical side or the management side.

Garner: You were going up which side at that point?

Branscomb: I was going up the management side, yes.

Garner: So you did have some people reporting to you.

Branscomb: Yes, I did.

Garner: Do you remember what product that was at that time?

Branscomb: The 083 Sorter. I’d already had some reporting to me.

Garner: And that became a product.

Branscomb: Oh, outstanding product.

Garner: We have one in here that's running.

Branscomb: Yes, you do. Outstanding product. Very successful product.

Garner: Our people say nothing but good things about it -- extremely reliable. You can shoot it to the moon and it would still work.

Branscomb: Well, it's a good machine, and Larry Wilson, of course, was the key thrust behind it.

Garner: So in '57, all of a sudden, somebody, Larry, appoints you to this new title?

Branscomb: Yes.

Garner: Accounting Machines Area Manager?

Branscomb: Area Manager, Accounting Machines.

Garner: A new thing that hadn't existed before.

Branscomb: Yes. That title later years became Systems Manager, but what it meant, the company intended that individual to be responsible for an area of the business, and saying responsible is not just developing a new machine. But it's the business aspects of it as well, make profitable any new machine that grew revenue. And so later on, as it became more formal as a systems manager, a systems manager would have a piece of the business and the inventory on the field, he looked at in his area, across his scope, and he was looking at new machines to displace the inventory in the field and, of course, looking at phasing out that revenue in the field and its profit, and phasing in new products with their profits. And it was a combined technical and business job.

Garner: So in '57, the accounting machines are like the 402, the 405 and the 407.

Branscomb: 407 was the big one.

Garner: And it was the big one at that point. So there were probably plans to do a follow-on to it in the works. But you weren't at that point thinking how are computers going to intersect you yet.

Branscomb: Not really.

Garner: It hasn't come to your mind yet.

Branscomb: Not really, although shortly that we came upon. But IBM had tried a couple of thrusts toward a new accounting machine in the first half of the '50s. The first one was the Transcriber, which was my initial assignment really, and the one that was very mechanical, heavy mechanical and was terminated. The other one was something called MAC, Modular Accounting Computer.

Garner: I'd like to understand more about that program.

Branscomb: Well, there's not a lot of information frankly, about it. But they did visualize five models. The low-end model was called accounting machine. Then there were calculator and then on up to the top one, was about 705 performance level. And so they visualized this as the Modular Accounting Computer. They never defined--

Garner: It was a conceptual thing.

Branscomb: It was a conceptual thing and, as a matter of fact, they never defined very much. They did have a statement in what I've seen, that said the accounting machine at the low end will probably be a control panel machine because we can't afford for it to be stored program. So, both of the thrusts that we looked at in the first half of the '50s were still control panel work.

Garner: Was that project MAC thing in Endicott?

Branscomb: No, it was in Poughkeepsie.

Garner: I can kind of tell by your face that maybe it wasn't a local, homegrown thing.

Branscomb: No, it was in Poughkeepsie. It was actually run by Max Paley, a guy who--

Garner: Yes, I know that name.

Branscomb: Oh, you've heard that name. Max was quite a--

Garner: He actually came to the Bay Area here many years ago. He's no longer with us.

Branscomb: Yes, he did. Yes, he did.

Garner: So that project then had kind of high-level goals, but no one was too sure about it. They never really defined something that you could kind of put your arms around and say "That's what we want to do."

Branscomb: That's right.

Garner: The follow-on 407, there was probably a follow-on in the works?

Branscomb: Not to my knowledge, other than those two efforts. Not to my knowledge.

Garner: Okay. So the 407 was it, but at that point, you weren't planning a successor. Even a mechanical successor you weren't planning.

Branscomb: Started shipping in 1950, and through the mid-'50s, it was still a very good product. It had a 150 line a minute printer -- some competitors had more -- but it was still a very popular product.

Garner: Then in '54, that accounting machine project starts in Europe.

Branscomb: Was it '54 or '55? I think it was '55.

Garner: The end of '54, I understand they had this competition to see which-- There was a general need expressed for some kind of thing, and they had US, French, and German teams compete.

Branscomb: I haven't gone back and looked at the actual dates, but I think that was '55. Because in about mid-'55, IBM got a wakeup call. Machines Bull, over in France, a French company, announced something called the Gamma-3, which was a calculator attached to their accounting machine. We'd had a calculator out there, the 604, but it was an offline machine not attached to the accounting machine. And IBM Europe had not been too satisfied that the domestic company had responded to their special needs. And so they came back to the corporation with a pretty strong pitch that said "We've got a competitive threat here, and the company needs to do something about it." And as a result of that, there was a big planning effort, at least Europe and the US combined. The result of that planning effort, World-Wide Accounting Machine was started, WWAM we called it.

Garner: But not in Endicott.

Branscomb: No. The processor was assigned to a French laboratory in Paris. The card reader punch and printer was assigned to the German laboratory right outside of Stuttgart.

Garner: Do you know who made those assignments?

Branscomb: I do not. I do not. And in respective, they're surprising to me. Those very young labs had never had product development programs. And when you reflect on it, this was the biggest revenue base for IBM, and to assign two young, inexperienced labs to protect that revenue base doesn't sound too good now. But I don't know how that happened.

Garner: I heard that Dick and Tom Watson, Jr. were brothers but were somewhat competitive.

Branscomb: Oh, I'm sure they were.

Garner: Could it have anything to do with Dick's desire to have a big chunk of development?

Branscomb: Oh, I'm sure that that was a factor. I just don't know, but yes, I'm sure that factored into it because Dick Watson, in running World Trade, was very, very proud of the World Trade Corporation. And any time he could enhance the view of the World Trade Corporation, he was very quick to do that.

Garner: After all, the French pointed out the problem.

Branscomb: Right, exactly. Exactly.

Garner: When did you first hear about the WWAM?

Branscomb: I really didn't know hardly anything about the WWAM until I was assigned to the Area Manager, Accounting Machines, and that was in mid-'57 to fall, early fall of '57.

Garner: By then, they were already coming along with the design.

Branscomb: Yes. And the first assignment as area manager was to assess the WWAM, products, schedule, cost, the whole works.

Garner: In some sense, it wasn't under you but you were just asked to assess it.

Branscomb: No. Well, it was not under me, no. It wasn't directly, but the theory was that the Area Manager of Accounting Machines would wind up being responsible for the development.

Garner: What was Ralph Mork doing at that point?

Branscomb: I think Ralph had just left. As a matter of fact, I think he had-- it wasn't called Area Manager of Accounting Machines, but he had the role of that job, overseeing the WWAM, and I forgot

where Ralph went. I think he actually went to World Trade and became the engineering director for all the World Trade labs. And so he was gone when I came into that assignment.

Garner: So now you have to evaluate it. You get on an airplane--

Branscomb: I go to Paris--

Garner: Did you go there by yourself?

Branscomb: I think I had two people with me. I'd forgotten the specifics now, but at the time, it was not Jim and Fran. I don't think it was. So that first meeting was in Paris, and the meeting was opened in a rather interesting way. The Product Planning Manger for IBM France was in the meeting and he opened the meeting and said "The Russians put up Sputnik yesterday and it goes around the world saying 'beep-beep-beep-beep' and it goes over the USA and says 'ha-ha-ha-ha'." And that was the beginning of my exposure to the US-France interplay. Jacques was a great guy by the way, wound up being Executive Vice President of IBM in New York.

Garner: Jacques Maison Rouge?

Branscomb: Maison Rouge, "Jack Red House," yes.

Garner: That's what they called him.

Branscomb: Yes. Jacque Maison Rouge, but that translates into Jack Red House. In reviewing the processor in the French lab in Paris, they had done some creative work. And Maurice Papo there particularly was very creative. Maurice was. But they still had a control panel machine, and it seemed pretty clear to us -- and of course, I had had a chance to talk a lot with Fran before I went, and so I had gotten intrigued with what Fran was doing. And so my conclusion at that time in reviewing the processors is it's probably not the right way to go. I went to German lab, Karl Ganzhorn --

Garner: Can I ask one question. I don't think Fran had yet seen the circuit diagrams for the WWAM when you talked to him before you left.

Branscomb: To my knowledge, he had not. He had really just been doing architectural work.

Garner: One of his discoveries later was, when he got a hold of the circuit diagrams, he's told us that he learned that a lot of the components were just talking to the control panel, and therefore, a lot of cost had been wasted there. But at this point, you didn't know that. They probably certainly didn't realize that.

Branscomb: I think that's right.

Garner: So it was just the power of a stored program computer, and maybe Fran or you realized it could be done cheaply enough. The cost was a big issue.

Branscomb: Well, at that time, I would guess, I would just have to say it was my hope because I had not gotten deep enough into it yet. But I had pretty well concluded that control panel was not the way of the future and we'd better get on a path that was the way of the future.

Garner: Why'd you feel that way?

Branscomb: Oh, it's simply because you could see the technology revolution coming. I mean, it was well underway in '56 and '57.

Garner: Were the 7000 series being--

Branscomb: The 650 had been out for a while. The 705 was in the field. The 305 was actually announced I think in '56. So you didn't have to be a rocket scientist to realize that a control panel you've had for maybe 40, 50, 60 years, something's gonna change. And you also saw the limitations of the control panel. And so I had not yet concluded -- I'm just saying that that didn't look like the way to go, to me, when I was in Paris for the review.

Garner: And you told them that, when you were there?

Garner: Okay, so my question was is when you were there evaluating it you had this intuition that plug boards were too expensive. Did you tell them that at that time?

Branscomb: No and it wasn't— I wasn't focusing on the too expensive. I was focusing on the limitations. It just seemed to me very clear that the flexibility that you needed for— we were already looking at unit record area. We weren't looking at just an accounting machine and it seemed very clear that you needed a lot more flexibility than you could get out of a control program. And so I knew they had cost troubles but I didn't heavily focus on the cost so much as what you could do and couldn't do with the control panel.

Garner: So you saw the control panel as even it being too limiting for where you wanted to go with the machine?

Branscomb: Yes, exactly. I went over to the German lab right outside of Stuttgart and again I ran into some very good technical people, very good engineers. The management, Dr. Karl Ganzhorn, I got to know very well through the years and very capable. Unfortunately there had not been a technology base for them to build on. They picked probably the best technology base available in IBM. It was one that Bud Beattie had done for slow speed printing and they tried to make a 300-line-a-minute printer out of it and had to put 15 print units across the front line.

Garner: These are the so-called stick.

Branscomb: The sticks with the rotating cylinder on the top. They had to put 15 of them across the print line each one printing eight columns every time you printed and if you looked at those plus the backup behind driving those it was just too complex mechanically for me. It had zero potential for faster performance and it had a lot of potential for problems in the field.

Garner: Did they have one working when you were there?

Branscomb: They had a part. They didn't have a full machine but they had, you know I don't remember how many positions but probably two or three positions working, and they were confident, very confident they could build a satisfactory 300-line-a-minute machine.

Garner: With your experience in engineering and what printers you had seen at Endicott you realized it was too much of a challenge.

Branscomb: Well—

Garner: The maintenance costs would be too high.

Branscomb: At that time, of course, I knew very little about the chain printer.

Garner: No, no. I meant your earlier experience.

Branscomb: Oh, yes, yes.

Garner: You had experience with printers and printing.

Branscomb: I had experience with a lot of card products, mechanisms and what have you and it was—well, you wouldn't put that product in the field unless you had no alternative I guess is the way I would look at it because you're just going to have a lot of field maintenance.

Garner: They're pushing the envelope too hard. Things had to move too quickly, millisecond type.

Branscomb: For that design which as I say that design was used in the 305 printer. It ran 40 lines a minute.

Garner: I see.

Branscomb: And it was pushed as far as you could push it.

Garner: If you get the 600 you would need to have ten times.

Branscomb: Yes.

Garner: You'd have ten times the maintenance, okay.

Branscomb: That was just a bad deal. Now, as I say, they didn't have many choices with the technical base and they actually were— when they picked that base they were supported by some of the people in Bud Beatie's shop as the right thing to do. So my conclusion at the time, which I didn't tell them any conclusion, but my reaction I guess I should say at the time was that we really don't want to do this unless we really must and have to and have no alternative. But as I came back and reflected more on it and talked to Larry Wilson – part of the meeting over there Larry may very well have been with me at least for the German meeting -- he was not pleased with the card reader work they were doing because they were not using his standardized card feed that we had developed. But I talked to Larry and I was very sensitive to the fact that IBM World Trade would not take kindly to a decision to terminate the WWAM program. And so, after talking to Larry quite a bit, Larry said, "Do what you think is right" and he told me that a lot of times in the past, and so I recommended it be stopped.

Garner: At this point, you're a relatively young manager.

Branscomb: You bet.

Garner: Probably losing sleep over it. These are newly established, new and up-and-coming labs in Europe in a well received world trade organization and you were going to recommend stopping the work.

Branscomb: Stopping their major program.

Garner: That must have kept you up at night.

Branscomb: Yes. Fortunately, of course a lot of support from Larry and Jim Troy, the lab director, and so Ralph Palmer, director of engineering for the division, was a key guy in that decision path. Now other people further up the line got involved. Vin Learson got involved. I know that. He was concerned.

Garner: Who was that again?

Branscomb: Vin Learson

Garner: I hadn't heard that name.

Branscomb: Oh, you haven't. Well, that's a name you should have heard in IBM. I don't remember his specific job at that time but he was in the upper management. He may have been executive vice president, certainly a group executive. And he had raised questions about the importance of this new machine and in those inexperienced labs in Europe. And so I am told, I never saw any evidence, but I am told that sometime in late '57 Tom Watson, Jr. got concerned about that and it may have been from Vin Learson's input. Nevertheless, we started working on what became the 1401 before it was formally accepted in the product plan, but I recommended terminating the WWAM and it was accepted. I would say that was probably close to the end of 1957. I knew that they continued to build a prototype and, apparently I didn't know at the time, but apparently I know now that Maurice said it was never terminated, but as far as a product plan was concerned, it was clearly terminated. I think it was March of '58 before what became the 1401, the SPACE [Stored Program Accounting and Calculating Equipment] machine, was accepted and committed in the division product plan.

Garner: By that fall of '57 when they decided to stop working on the WWAM as a product how many people were working on SPACE at that time?

Branscomb: Oh, boy. My recollection and I'm sure Jim [Ingram] and Fran [Underwood] would be more accurate, my recollection when I first joined the group and Ralph Mork had gone, there was only Jim Ingram, Fran Underwood, Russ Rowley. There may have been one or two, three other guys. I would say no more than a half a dozen people were there and I really don't remember what rate we buildd up. But we started the thrust for what became the 1401 toward the end of '57 and kept building from there but as I say—

Garner: I think the pressure must have been very intense because now you must feel maybe some competitor is going to come out with something.

Branscomb: Sure.

Garner: You knew that in some sense Machines Bull was ahead in some way. You probably didn't know they were doing a transistor machine but everyone was probably working on one.

Branscomb: Sure.

Garner: So there must have been a lot of pressure and now we need to catch up kind of. We're going to stop this program. So what was that like?

Branscomb: Well, I don't remember -- let's put it that way. I don't remember feeling a lot of pressure. I felt confident we could do something and that confidence was built up talking to Fran a lot and talking to Jim and Larry Wilson. And it just became pretty clear to me that we could really do something significant.

I knew, of course, that we were under time pressure. As I indicated earlier, technology was moving along and we were going to be under the gun if we didn't get something out on a good schedule.

Garner: Now sometime during that time it sounded like you started getting advice from other people, maybe from Poughkeepsie: "We think you should add this feature. We think you should do that." How did you shelter your— did you have to shelter your people from some of that advice?

Branscomb: Well, the main thing we did right up front, looking at the unit record installation as a whole, we sat down a set of objectives, and Fran and Jim and I and two or three more people probably worked hard to make sure we had a set of objectives. Meeting those objectives would be a big deal and would permit the unit record installations to really move to a new ball game. And so we agreed that we were going to be quite adamant about not changing those objectives unless there was some awfully good reason.

Garner: Do you remember some of them?

Branscomb: Oh, the objectives? One of them was cost. We decided that you take a unit record installation of a couple of 407s and a 604 about $2,500 a month. Now most of them didn't have a 604 actually.

Garner: That's the calculator.

Branscomb: Yes, the calculator, but most of them had two or three -- our installation for example was probably pretty typical - we had two accounting machines, two collators, two or three sorters, two interpreters, keypunch operators and so on. We concluded that $2,500 a month for a full function machine that would run most of the applications that were being run in unit record installations would be a very attractive deal. And so we also knew the rule of thumb that if you had a volume product in IBM, about 10-to-1 ratio between rental and cost and so we set an objective for the entire system, printer, card reader, punch, processor, $25,000. And yes we had people that wanted to add to that configuration, more memory.

Garner: Where did they come from? Were they at Endicott?

Branscomb: Some of them were in Endicott, people from the 650 world, sure, and some of the people came on the program from the 650 of course. Jim had been a manager over in the 650 area. And some of the people that he had over there came onboard.

Garner: Were the 650 people thinking about how they could reduce their cost because they were targeted also for the accounting market?

Branscomb: In a very different way, Robert. They were targeted as "Here's a great additional function called computing which you can use and pay a lot of money for."

Garner: I see.

Branscomb: Their printer was still the accounting machines'. They didn't bring forth the new printer. They didn't bring forth any new punch card handling equipment so, and they were very successful by the way in what they did.

Garner: They had tape attachments. They had all kinds of things.

Branscomb: Yes, right and it was a very successful product.

Garner: A little too expensive for what you were going after.

Branscomb: Well it was not only too expensive but it didn't have the system characteristic of permitting the unit record people to displace much of their equipment and go to a new world. They were still control panel accounting machines, control panel collators, and the whole works.

Garner: Couldn't you replace that though with a program in the 650?

Branscomb: How would you? The answer is I don't think so and they never did it as far as I knew. It's possible but I don't think you could have done that. It had a completely different objective. They were interested in building a very good computer to provide a lot of function. We were interested in building a system that would provide the function required for that unit record area and do all the stuff they did but with a stored program and the flexibility for future growth that gave them.

Garner: So a very narrow and focused objective?

Branscomb: In that sense it was narrow. It turned out of course—

Garner: The market was huge of course.

Branscomb: Well, yes, that's right. In our view it was broad because there were thousands of those installations out there but it was narrow in focus and we were very adamant. As a matter of fact, one example: stored program accounting calculating equipment, there were quite a few people who said "Calculating? Stored program accounting *computing* equipment!" We said, "No, no, no, no. We don't want to get involved in that. That will just add those people coming in wanting us to"—

Garner: In fact the 650 people even added the scientific building point to the 650 at one point.

Branscomb: I didn't know that.

Garner: Yes. That shows you that they were— maybe that's some of the tension. One of the problems is that people were trying to build more computers that were too capable therefore costing too much.

Branscomb: You know I have never talked to a lot. I knew people, Ernie Hughes, and Jim was on the 650, but I never really talked to them and how they viewed their objectives. But I'm suspecting that they did not view unit record machines and how we can take that whole installation to a new world. They viewed *computing* as a big deal. "We're going to build a good, hot computer and that's what we want to do and it will aid the unit record people, give them a nice computing capability." But I don't think they ever really focused on the customers and the users in the unit record world. I'd just say in general, Robert, a lot of the computing industry for a long time, including IBM, did not adequately focus on users, customers. The 1401 did because we knew that unit record area and we had a good understanding of it. But you move on up to the bigger machines -- 360 - it was difficult. You're going to build across the whole line scientific, business, small, large. How do you really bring the customer directly into that? And the user directly into that? Because it's almost impossible I guess? Now we think they could have done that.

Garner: That's a very good point. That's a very good point.

Branscomb: So it was a great advantage to us on the 1401 to have a target that was well know that we knew pretty well and we knew what kind of people were in those installations and how we had to keep the simplicity in the machine and so that was a great advantage for us.

Garner: All right, so here we are then early '58. You were holding off on adding a lot of features but there was the tape attachment. That finally you agreed to.

Branscomb: That came in the spring of '59 I would say.

Garner: Very late, because at that point you wanted to ship the system.

Branscomb: Very late. Oh it had been. We had talked about tape, Jonie Dayger and I. As you know, Jonie Dayger managed the 1403 which is a tape-to-print machine. He had his own control unit to do the tape to print.

Garner: This was a machine to offload printing from the mainframes.

Branscomb: Right, right, offline, tape-to-print offline for big mainframes. And Jonie and I talked I would say late-'57 at least or mid-'58, mid-'58 certainly, by then, about his control unit versus the model 1401. Jonie wanted to get out his own product and he had been trying to get out a new printer for a few years and I didn't blame him. I didn't want to commit to doing his control unit jobs because we had challenging cost objectives and I just felt like it was foolish at that point in time to commit to doing that job. He didn't want me to commit to doing it and he said, you know: "I'm not going to stop this thing for your lofty goals in the 1401 program." So we went on that basis and periodically Jonie and I would talk. I really had great respect for Jonie. But in '59, the spring of '59 I think it was, Bob Evans had come to Endicott because the

7070 program had gotten in some difficulty and he was brought up there as a manager to help straighten that thing out. And one of the things he looked at quite a bit was offline printing, the printing problem and the large installations. The more he looked at that he said, "Hey, the 1401 model would really look great in that area" because print editing was excellent on the 1401. And so Bob put a lot of pressure to do that and he's a pretty powerful guy, as you know.

Garner: Right.

Branscomb: I had progressed -- we had progressed -- to the point that I felt comfortable about our cost. That's the thing that had held me off on committing to anything more at the time because I didn't want to get off target. By the spring of '59, I was comfortable enough with the cost and had a lot of pressure from people like Bob and what have you that we agreed to include tape. We had agreed already to have tape later. That was not an issue.

Garner: It was going to come just later though.

Branscomb: That's right. But we agreed to incorporate it into the initial announcement and it turned out to be a good decision, of course, because it eliminated the tape control unit from the 1403 going out in the field and then being displaced. I got rather concerned about that I must admit by bringing tape later. Jonie would have put out a product in a tape control unit and it would have been out there for maybe a year and then get rid of it.

Garner: You'd have to compete with it. And you got the candy of the great printer, the 1403. Do you want to talk about that a little bit?

Branscomb: Well sure I do. . You can't talk about the 1403 without talking about Jonie but he was an old time engineer, but very good and very calm and never got excited and what have you and just a great guy, great sense of humor. But we made the decision to go with the 1403 and as I mentioned in my talk I guess tonight it was a very profound decision but we had no alternative. A guy named Fred Demer up in Advanced Technology had invented the chain and the horizontal movement of the type across the print line and when we looked at it, it clearly had the characteristics we were looking for. It had good quality. It had speed and obvious potential to go higher. It had relatively minimum use of mechanism and depended significantly on a good electronic driver to the printer. It had a very good carriage, paper handling carriage that started back earlier with the matrix printer IBM had tried to do.

Garner: I see.

Branscomb: And they improved it, enhanced it dramatically and it was an outstanding paper handling.

Garner: This was the hydraulic fluid handling unit.

Branscomb: It was a hydraulic-based system, right.

Garner: So that started with this thing called the matrix printer?

Branscomb: The initial work on it did but the 1403 group of course did a lot more work and made it really into a very sophisticated product.

Garner: It's almost like an automotive transmission.

Branscomb: Well I suppose. I never got in depth in it. I just looked at what it did and it was super. It not only would go very fast if you wanted to skip a significant distance, but if you had more typical applications like printing checks, you'd print three lines, skip, print up an invoice, print two or three lines, skip. A lot of printing applications are not 600 lines a minute on and on. They're a few lines and then you skip to the next page and the next document. And 1403 had excellent paper handling.

Garner: Did you select the 1403 kind of early on or did that happen only when basically Jonie's project was—

Branscomb: Early on.

Garner: It was early on.

Branscomb: Early on.

Garner: So Jonie kind of knew that. You had kind of taken his 1403.

Branscomb: Oh, yes. Yes, we had a lot of discussions with Jonie and, as I say, we really had no alternative and we wanted to define our system early in the game.

Garner: So you were lucky it was there basically.

Branscomb: Real lucky, yes. I mean well a lot of things, Robert, we were fortunate on our timing. In some ways you might say we could have not had a better timing: not only the printer, memory, electronics, the whole works.

Garner: It's all an example of how by being in kind of the home base for IBM's engineering at the time you could draw on multiple things whereas the folks let's say overseas didn't have that capability at their hands. They had to work with a blank piece of paper almost.

Branscomb: Much more difficult job for them to do that and coupled with the fact that they were a young, inexperienced lab. I mean they took costs from the U.S. and said, "Oh well the cost didn't give us

good enough cost." An experienced lab would never take that. They'd be heavily involved and so on. So it was a combination of being so far away and during that time the language problem was somewhat of a problem. Later on, everybody could communicate but in the early days of the lab that was also some problem.

Garner: So you've got the 1403 that came first. The punch reader unit, the card punch reader unit, the 1402, you took an 088 collator apparently and modified it?

Branscomb: No, we just took the universal card reader that Larry had built and that became our card reader side and then he had also built a punch and we used the other elements of the universal card reader for the card path. I'm sure we took some elements of the stackers in there, the five stackers across took some element of the collator, but that was not a challenge at all. Larry had built the base. There it was and we had to get what configuration we wanted and everything, but no big problem fortunately.

Garner: One thing that was interesting though is the 1402 also seems to have a lot of the power supplies for the system.

Branscomb: Yes.

Garner: It kind of packaged a lot of stuff in it.

Branscomb: Yes, yes. We took advantage of space there for the SPACE machine.

Garner: Okay, so now we're in '59. You decided to incorporate the tape unit. You've got to get through product tests before you can announce. Currently at IBM you'd have to get through product testing.

Branscomb: Oh, yes, we sure did.

Garner: What happens next? Did you make it through product testing? I think you were a month late on the product test.

Branscomb: Well, I think in output we were not late. I think we had target to announce in September or October and we announced on the 5th or something.

Garner: Yes, it's October.

Branscomb: Yes. So we may have had a target of announcing in September. But I don't remember the specifics of how we got through product tests with the tape unit. I'm guessing that we used a lot of the work that Jonie had done on his tape control unit because he had a complete operating tape control unit.

I think the product test doing a critical design review of the circuits and how we were going to put those in the 1401, my guess is that that would have gotten us through product tests, but Jim would know that.

Garner: Okay, I'll ask Jim. That reminded me of a question. Do you know if the tape unit, TAU unit, came from the 7070 or it came from Jonie's group, do you remember?

Branscomb: I think it came from Jonie Dayger's group. I understand that some indication it came from somewhere else may be part of it. Well, of course, the part of it that drove the chain printer clearly came from his group. The part that interfaced with the tape unit I'm not positive. I thought it was done by Jonie's group. He may have picked that up from somewhere else.

Garner: Now your responsibilities at this time were engineering, interface manufacturing. What all were your responsibilities in '59? What were you responsible for in the 1401 program?

Branscomb: Well, we had a lot of interaction with market planning, Shel Jacobs he had done a lot of work to confirm and to add to our knowledge of the unit record area and to get more information about the people skills in that arena so that we would know what we were going into and what we had to do to help that transition.

Garner: Some people must have thought you were crazy, right, because here you are going to take all these guys -- all they know how to do is plug wires and you're going to tell them to start writing little programs, something like that.

Branscomb: Well, people that were not close enough to it did not think that was going to work but those of us that were closer and saw the simplicity that was built into the 1401, the console we talk about and the A for add and this and that. We felt pretty confident. Now frankly it went even better than we thought, it did, but we felt pretty confident.

Garner: You had a bet about the cost, whether it would be $2,500 or not, and you apparently almost won that bet.

Branscomb: My boss during a good part of my time as area manager was actually in headquarters. Again I would have to say Ralph Palmer had been very smart. He brought in a guy from the field, marketing system engineering type guy into his headquarters and called him director of product line management.

Garner: And his name was?

Branscomb: Don Spalding and the area manager or systems manager type people reported directly to him, did not report in the lab. I learned a lot from Don Spalding because he knew the field and he learned the 1401 and the development from me significantly and I gained a lot of respect for Don, although I had a little harrowing like experience with him one time. I had known that one time in our headquarters in

Harrison, he had come down there. He drove a Corvette at the time and he actually ran into a lamppost in that parking lot at Harrison and he wasn't drinking or anything like that. But later I was going down to 590 Madison from White Plains to a meeting with Don. He was driving. It was a little, I don't know, European car, MG or something like that and he was zooming in and out of lanes and what have you and I made some comment about it. I was anxious to see him slow down a little bit and he said, "Well, no" he said "I don't have any trouble." Oh he said, "Yeah, I did run up under the back of a tractor trailer one time." He said, "I don't see too well in the distance." So I didn't ride around with Don much anymore but he was a great asset and helped a lot.

Garner: So what was the bet now?

Branscomb: Well I told you we had set an objective of $25,000 total cost for the system and when we got the final estimate in I was very happy. He bet me I couldn't make it. He said, "There's no way you're going to make $25,000 for the whole works." So I was pretty happy. We were $50 over that and the next trip to White Plains—

Garner: So you mean $25,050?

Branscomb: Yes.

Garner: We're not talking about monthly rental being off by $50?

Branscomb: No, no, we're talking about the product cost.

Garner: Now you say the cost you mean the internal cost of manufacturing?

Branscomb: The manufacturing cost.

Garner: Manufacturing cost.

Branscomb: The manufacturing cost, 1403, 1402, 1401 processing unit.

Garner: Well that's almost nothing.

Branscomb: Well that's what I thought. That's what I thought, Robert, but when I got to Don Spalding he said, "Well, I see you lost the bet." And I said, "Wait a minute, $50 out of $25,000." He said, "You lost the bet, come on." Anyway he marched me to downtown White Plains and we went into a nice expensive store down there and I bought him a felt hat.

Garner: That was his way of maybe saying thank you for achieving your goal.

Branscomb: Yes, I suppose, but anyway he was a great guy. I had a lot of respect for Don. And later on, of course, he was involved in what became the 1410.

Garner: So did you have to also be the interface to manufacturing?

Branscomb: Oh, sure, sure.

Garner: How did you prep? Something was coming. You suspected there might be a lot of orders. Did you say, "Open some factories?"

Branscomb: No, the process there, Robert, is that quite a few people late in the stage for us, probably in mid-'59, quite a few people began to come over from manufacturing with our group to learn the 1401, fairly significant as we went on up toward announcement. Now, of course, we didn't get started to actual release until the end of the year. They came over early, probably even before announcement and some of them spent as much as six months over there in the development area. They were well trained. So when the actual release came in '60—

Garner: In '60, you mean the first shipment you mean?

Branscomb: The first shipment was actually—

Garner: Was in September.

Branscomb: But I'm talking about the release of the records and the stuff to manufacturing so they can now make the parts and get ready and what have you.

Garner: Do you remember when that was about?

Branscomb: I don't remember exactly but I'm sure it probably started, well we announced in October. I suspect release started in March, February or March, stuff like that and they had already been getting familiar with the system.

Garner: Do you remember by that time, by March, '60 whether there were already a lot of orders in for the 1401?

Branscomb: Oh, I don't remember the numbers. I'm sure Shel can tell you all that but there were a lot of orders.

Garner: You felt the pressure.

Branscomb: Oh, sure. By that time, let's see, or was it a little later, I don't believe by that time manufacturing had been told, asked strongly that they double the first year's production. They had planned on building 850 systems the first year, full year.

Garner: I see, okay.

Branscomb: And division headquarters, John Haanstra was the engineering side but he was demanding that they produce double that and so they wound up building 1,700 1401 systems the first full year of production.

Garner: Wow.

Branscomb: And I don't remember the time exactly when they were told they had to step up to that plate but since we were shipping in September of '60, I imagine it wasat least by the second quarter of '60 that they were told to plan on twice as many as you planned to have. And at that time they were facing a larger number of engineering changes from us than we had promised which is not too unusual but it was definitely an effect on them but they did a great job. They did a great job.

Garner: Well the 1401, even though we might think of it as a small system, there are almost 3,000 cards in the system and five miles of wiring right?

Branscomb: Yes.

Garner: There are definitely going to be ECs [Engineering Changes] late in the process.

Branscomb: That's right and, of course, IBM's whole thrust in automation of printed circuit cards was the crucial part of this and centralized effort on power supply development for different size systems and there were a lot of supporting areas that really helped. Well, we committed to ship in September of '60. I was there, 11:30 in the evening on September of '60. The first machine was buttoned up and moved to the shipping dock. They counted. They had shipped a machine when they moved it to the shipping dock, and so we made it by half an hour.

Garner: Wow and that was to Time Life in Chicago.

Branscomb: Time Life in Chicago, yes.

Garner: So you were a pretty proud person at that point.

Branscomb: Well it was a great moment, no question. It was a great moment for us and the manufacturing people. Could we just pause a minute?

Garner: Yes.

Branscomb: Look ahead nine years there's definitely something more I want to say about 1401. And I might add that a month or two after announcement in '59 I was asked to come as administrative assistant to the division president and I told him: "No way am I leaving until this thing is in production," because I knew it was not going to be easy and it wasn't. People had a lot of work to do but we got it in, got it on the road to production and then I went to headquarters in the division president's office. The 084 Sorter…

Garner: Before we get to that there was one, it reminded me of one other 1401 event that happened maybe a little later a few years later. At some point management said, "Gosh, the 1401 has been a success" and I think they sent five of you to an all paid vacation?

Branscomb: To Europe, yes.

Garner: What was that all about?

Branscomb: In those days, a trip to Europe was pretty significant, you know. Now it's go around the corner. But several of us got rewarded. We went to the division president for a luncheon. It was going to be a nice luncheon and say, "Good job, guys" and so when we got through Scotty said--Oren Scott was his name--Scotty said: "By the way, I want you people to take your wives and go review the laboratories in Europe, all of them." And he said, "Don't spend too much time in the lab." So we had a nice trip to Europe and it was very, very enjoyable, one of the things I remember most: They're great hosts. I realized my first trip over there what great hosts the Europeans are. My wife and I were going into Germany in Stuttgart lab and at that point in time the planes stayed out on the tarmac. The bus came out to the plane to take you into the terminal and we were sitting on the side of the plane where we could see what's going on. Down at the bottom of the steps are red carpets laid out and we said, "There's somebody, a celebrity on the plane" and we kept watching them going down the stairs. We were back a little bit, nothing, nothing. We went right up. We go down the stairs and this very pretty young lady from the German lab comes running over with a big bouquet of flowers and popped them in my wife's arm and said, "Welcome to Germany." It was a choice moment.

Garner: So my understanding is it was an all expenses paid and they took care of your house back here.

Branscomb: Oh, sure. I tell you it was super. To give you another example of that I met with the general manager of IBM Italy. By the way, Europe was delighted with the 1401 so that helped this. I met with the general manager of IBM Italy. It was a Friday about 11:30 in the morning. We finished our little meeting and he said, "What are you doing for the weekend?" I said, "Well we're going to do sightseeing in Rome." And he said, "My driver knows inside out of Rome and the surrounding area of Rome. He's yours until Monday morning." And Lusciano , it was a very great move by the way. He did know

everything. He took us every place. And so they were great hosts and we had a great trip. Now I don't know if you want to hit the 084 before. We're probably about out.

Garner: We're out of time? Okay, sure.

Branscomb: There was a new sorter under development at the same time in my department, a separate department that reported to me, a guy named Gil Baskin was running it. We had gone through announcement testing, had announced the product, and had gone through release to production testing, release to production. We were in what we call C test. This is test of the first production machines. We found some cardstock that caused jams in stacking and a jam at a 2,000 cards a minute is not too nice. So after some analysis I sent word to headquarters that I was going to delay shipment by 60 days. And at IBM, when you made a commitment to customers in those days it was sacred. You absolutely— the last thing you were going to do is change a commitment to a customer and I knew that but we had a reliability push going on at IBM at the same time and I didn't want to put a product out in the field that was going to get a black eye. So before the end of the day, I got a call from headquarters that said, "Vin Learson will be there tomorrow morning to talk about the 084." And so I had made a couple of presentations on the 1401 to him and I knew him a little bit, but he had a reputation of being a very tough guy. I met him at the airport. We had a nice chat down from the airport down to the lab. We got in a little conference room and the division vice president of engineering was there. Jim Troy the lab director was there. Gil Baskin the manager of the 084 was there and I was there and Vin Learson. And all of a sudden things became serious. He's big, about 6'6", tall, slender guy, an imposing figure and he said— look I was at one end of the table and he said, "I'm here today for you to tell me how we're going to ship machines in less than 60 days late, period!" I'm sort of waiting for the lab director to say something or the engineer or something. It seemed like a long time. It probably wasn't very long. I finally said, "The way we're going to ship less than 60 days late is for you to agree to ship at a lower reliability level than we think we should, period!" And, of course, it was quiet then. I know it was quite a while. I don't know how long but nobody said anything and then Learson said, "All right, let's work out the plan." And I think we shipped about 40 days late but I was very fortunate. It turned out I learned more about Learson later and he was a tough guy but he hated people that BS'd him. If you gave him cold, straight information he wasn't a tough guy at all. But if you tried to go around the horn with him, he would really come on strong. I had a great relationship with Vin Learson the rest of my time in IBM and matter of fact it's kind of interesting. A lot of the marketing people feared him. He was the headquarters hatchet man. Most of the technical people in IBM came to really like him and really respect him because, even though he was from the marketing world, he had a great feel for technology. I watched Vin in presentations and I knew the soft spots that guys had. They'd go along in their pitch and he's rolling right along and they get to the area that I knew was a soft spot and all of a sudden Vin is boring in, boring in. He was just a great guy. He and Watson had some competition. They were both boaters, sailboats. They had competition in the Bermuda race.

Branscomb: -I had an assignment for computer assisted instruction in IBM for a year and a half.

Garner: After the 1401?

Branscomb: Yes. Right before I became SDD president.

Garner: Okay.

Branscomb: And it was a, frankly, a complete change of pace. I established relationships with five or six universities--Stanford, Michigan, University of Illinois, Penn State, Texas and what have you--doing research in computer assisted instruction. At that time, the Federal government was looking very seriously about establishing 20 research centers across the country to focus on education technology. This is 1965. And one of the places that was going for a center, was CCNY, New York City. They asked-- Robert Kennedy was senator of New York--the university asked us if we would host Robert Kennedy's visit to our research center in Yorktown where we were doing some of the research. We said sure. So he came up; the university professor from CCNY came up, Warren Hume, from sort of the corporate office representing IBM, he was a big exec; and two or three people from the research work in Yorktown. We started the meeting, you know, nice introduction all around, nice meeting. We started the meeting and the CCNY guy, it was his meeting, we were just hosts, he started telling Senator Kennedy about what had been accomplished in CAI [Computer Assisted Instruction]. And he said, you know, "We've found that we can advance students four grades in reading with three or four months on this system and in math." And he went for about two minutes. Robert Kennedy said, "Just a minute. I want to know where that work was done. I want access to the reports describing that work. I want to know how you arrived at a control group and how you decided the people who would be in the control group and those who would be in your…" I mean, I guess he'd been briefed awfully well. He just bang, bang, bang, bang; I was really impressed. And none of that had happened. It was research work. And this professor just, you know, he couldn't even answer. It was rather quiet there for a minute and here I am -- I don't know quite what to do -- I've never dealt with the Senator before, but finally I just stood up and I said, "Senator Kennedy: I've never been in a meeting with a senator before and I apologize if I don't use the right protocol, but I would like to take 15 minutes and tell you the research work we're doing. We're not doing any production kind of stuff. We're doing research work." He said, "I'd love to hear that." So I spent 15 minutes and he listened very intently, asked a few questions and at the end he said, "I would like to-- you tell me you can have this thing remote from the computer." He said, "I would like to have my aide get to a station down in New York City sometime to learn a little more about this." And we said sure, "We can set that up." And so it's fine and he left. But it was an interesting meeting because he-- I don't know how he knew so much and what have you to pin that guy. He asked the best questions you could have asked that guy and he was doing a bunch of bull.

Garner: And for you, it was an example of honesty really paying off again.

Branscomb: Absolutely. But anyway, that was in that same meeting. The other thing, while I was in that job, I reported to Vin Learson, he was president I believe at IBM at this time. The corporation was really focusing on education. They had bought Science Research Associates, a book publisher in Chicago, very-- reading, reading was their big deal. And anyway, Learson, when I saw him one time said, "By the way, so and so wants to see you talk about a program, wants you to go to." So I went to see whoever it was. They said “Vin wants you to go to Aspen Institute for Humanistic Studies.” I said, "What's that?" You know, I never heard of it. And he began to describe it to me. And it was outstanding. It was for your wife and you, two weeks in Aspen, Colorado and you basically focused on fundamental things in our society. You sit for hours I guess and talk about what is freedom, freedom of the individual or freedom of the group or freedom of the community or the county and rights. What are your rights? And you know--

Garner: These were all important questions in the '60s.

Branscomb: Well, one reason it was--

Garner: But they were happening around the country.

Branscomb: Yes. One reason it was so interesting though, one of our resource guests was a prior Ambassador to the Philippines who had been there through a lot of the Viet Nam stuff going on over there. I guess the French before the U.S. and what have you. Another one was the head of the Philosophy Department, University of Texas and was really a fascinating guy. I got to know him pretty well. I had never skied so I didn't spend much time on the slope. But he had lost an arm some time and you ought to see him skiing down the slopes with one ski or one pole. Anyway, that turned out to be-- they sent me books that I had never seen before where I did my education. They sent me books on Socrates, Plato, Machiavelli, Budd, Thomas Payne and just on and on; and said, you know, read these things before. And it was enlightening. It helped me in my job in SDD.

And then later we will talk about my volunteer time but I'll mention it right now, volunteer time at NC State University. But shortly after I got there and I'd had a lot of relationships. I knew the dean very well. He was telling me about a program that he and the dean of the College of Humanities had established called the Ben Franklin Scholars Program. It was a five year program. At the end of five years, you got a degree and your engineering discipline and you got a degree in the humanities. And I became very fascinated with that program because I felt it was going to turn out some of the best people the university would turn out. As a matter of fact my wife and I have a couple of scholarships in that program now and I spent a lot of time trying to move it along.

Garner: So that's work that you did more recently.

Branscomb: Yes, after I retired.

Garner: Yes, and I think you were actually-- were you teaching at North Carolina or ?

Branscomb: I had a couple of adjunct appointments. One of them was a visiting lecturer, but I didn't do the lecturing. Larry-- the dean wanted to give me some kind of title because I was spending too much time. I was actually spending time on the Ben Franklin Program and I was spending-- I don't know if you want me to go into this right now, but I spent a lot of time on getting a new research building for the university. It's a public university, so they had to get their money from the state. In spite of the technology revolution that had gone on, the state of North Carolina had not built a new facility for the College of Engineering at NC State since 1964, and it was now 1988. It had been 24 years. And Larry said, I haven't been able to get approval. They had built a new forestry building, a new textile building, had started a vet school at NC State and a lot of things. The state had supported the university very well but they had never-- supported the college of engineering that much. I had never fooled around with politics. But Larry said he'd really like for us to try to help him. So we got involved. I first went to see the retired president of the university system. North Carolina has 16 universities in the system. The guy

named Bill Friday, by the way an outstanding guy in North Carolina, well known in North Carolina. And we made a presentation that said, here are the universities that we ought to be at least as good as: Purdue, Illinois, Georgia Tech, certainly Virginia Tech we felt at the time. Here is the money they have spent just in the last three years or are spending on facilities for their College of Engineering. And it was from 20 some to $38 million or what have you. The last line said, NC State University, College of Engineering, zero for 24 years. And Bill Friday said-- he was president during this time -- so I was basically telling him he'd done a lousy job in that area. But he said, "Fellows, we got to do something about this." I said, "Well, we need your help." He said, "I'm going to see the Lieutenant Governor in the morning and I'll tell him he needs to see you." And sure enough, I called the Lieutenant Governor's office the next afternoon and he said, the secretary said, "Mr. Jordan will see you soon." So I go to see Bob Jordan. He said, he listened to the pitch for-- he was an NC State grad by the way, that helped. Very short time he said, "Go see these senators and these representatives," which I did. And the net of it is, we wound up, it took a little while but in three or four years we had a $40 some million research building at NC State. So that was a different experience for me completely and I enjoyed a lot of that.

Garner: That's fascinating. It's a great, challenging process to raise that sum of money. So I want- in the time we have I want to get back to-- so you were--

Branscomb: Corporate Technical Committee?

Garner: Well yes. Well you were on that for a little while and then how did you move into this role of being president of SDD. How did that happen?

Branscomb: Oh, that came before my Corporate Technical Committee. I did the Instructional Systems Development, CAI, Computer Assisted Instruction.

Garner: For how many years?

Branscomb: A year and a half.

Garner: Okay and then--

Branscomb: And then my next assignment was SDD.

Garner: So how did that happen? Did someone pluck you out of that or did you--

Branscomb: Well--

Garner: That's a big transition to go from--

Branscomb: Yes. I guess the largest group I had managed before that was 3 or 400 people. SDD with 8 labs in the U.S. and 6 in Europe had 14,000 people. The time at the Aspen Institute helped. But I think what, what caused me to get in that job was Vin Learson. I was reporting directly to him during this Instruction System stuff, and I'm sure it was his hand that picked me to go in that job.

Garner: So what type of responsibilities did you have?

Branscomb: All-- SDD had the responsibility for all new product development, for all elements of the computer system.

Garner: Okay.

Branscomb: Printers, disks, card IO, processors, small, large across the whole board.

Garner: So all--

Branscomb: The whole works--

Garner: -So all the hardware products related to computers.

Branscomb: And software.

Garner: So at this time this would have been the 360 hardware family?

Branscomb: Sure, and software family.

Garner: So what did that mean on an ongoing-- what was your typical day like <laughs> if that's even possible to describe.

Branscomb: I don't think I can describe that. You know, your calendar's full all the time. And I was telling my son as recent as this morning, my boss Frank Cary, who later became-- he was group executive -- later became president, several times I would be in my office, I already started my full day and had people stacked up for the rest of the day, and Frank would call me and say: “I got some important meetings going on today and I'd sure like to have you come over here and spend, sometimes a day, half a day with me and go through these meetings.” And of course you couldn't very well refuse. So I'd get bound up in that. I had people stacked up waiting to see me. It was a demanding job.

Garner: What were some of the big challenges you remember? Three sixty I know was not on time.

Branscomb: Software.

Garner: Software in particular.

Branscomb: Software was a big challenge, huge challenge. OS/360. Another huge challenge and software was the time sharing system. IBM announced something called the Mod 67 with dynamic relocating and had a time sharing system to handle a lot of people online. And that almost broke our back. We finally withdrew from that but we satisfied the needs of several customers.

Garner: So you delivered it just to a couple customers?

Branscomb: I don't know how many, but small number, a small number. Now OS/360 went on for some time. Probably it was six--

Garner: Well it was announced when the 360 was announced.

Branscomb: In '64.

Garner: Sixty-four, so some expectation for shipments would be in '65?

Branscomb: '65 and 6 and then some of it was staggered out, but--

Garner: What actually happened?

Branscomb: <Laughs> I would say that, maybe 3/4ths to maybe a little more of the commitments that were made in '64, were finally delivered in '68.

Garner: Okay.

Branscomb: Now they were committed to be shipped in '65/6 early '67 so they were a year, year and a half late on a lot of things. And--

Garner: So what were people doing? They've already ordered the hardware. Some hardware has been delivered, so were they using a DOS type operating system before OS/360 or what?

Branscomb: No they were running an emulation of the pre-360 syatems.

Garner: Were they running 1401 programs then?

Branscomb: Not yet, but they were running 7090, the Mod 65 at the high end of the line had a control store. They had an emulator for the 709 and I think the--

Garner: 7090.

Branscomb: 7090, 7050 and all the big machines. And then--

Garner: So the high-end guys were running their emulators for the high-end predecessors.

Branscomb: Yes..

Garner: But wasn't there the Model 30 as well?

Branscomb: Yes. Well Model 30 was the low end of the line and they had DOS/360, Disk Operating System. That came out more on time. So they had a system to work with. But they also got emulation and they ran a lot of 1401 emulation.

Garner: That's what I've heard.

Branscomb: For a long time.

Garner: Now, I also heard that even the Model 30 had reliability problems. Matter of fact I've heard some of the guys say that customers would say, "Hey, my 1401 would run without problems for months and this Model 30 only runs for a week without problems." Is that now fiction?

Branscomb: I did not hear that specific thing. We had various problems, certainly with the hardware and software early on- early on. That was, you cannot imagine how huge that effort was to put out the whole new product line, hardware and software. Well, I guess Tom Watson called it "You Bet Your Company."

Garner: Yes. So you basically had all of engineering, tens of thousands of people working on it.

Branscomb: Yes. .

Garner: Basically.

Branscomb: And we had a lot of trouble with disk files. We made some rather bold moves. The prior group executive had made some commitments and we got-- IBM got behind in the tape area.

Garner: In the tape area.

Branscomb: Yes, absolutely. You know, people in-- when disk products came out, a lot of people said, well you know, tapes, tapes are gone, type thing. I'll always remember Jim Troy. He went way back then to Endicott Lab, he said "Don't believe it." He said "They're going to be around for a long time." Well, they didn't put enough effort on it and they got behind on the tape. And they tried to move ahead too quick and too fast. And so when I came into SDD they had some real problems in the tape area that we had to get cleaned up. And the disk people had made some aggressive moves and had some problems there that had to get cleaned up, pretty much across the board. But OS/360 was a big problem and one experience I had in fact, is a little bit unusual. Fred Brooks had been the architect of the 360 line and had specifically focused on the software as well and directly under his command.

Garner: He was the program manager of the software, all those 360s built back then.

Branscomb: And very, very good man by the way. I don't remember just when, but I would say it was 1968 probably. I got a call from Tom Watson's office one day and said: "Mr. Watson is having lunch with Fred Brooks tomorrow and he would like for you to come and join him." So I said, "Sure." So we went to lunch and of course Tom knew Fred very well and it was a nice lunch. And we got through the lunch. Tom turned to Fred and said: "Fred, you promised faithfully that you would not leave and go back to the university until the software on the 360 was in good shape. Now look what happened. Watch what happened." And Fred-- I'm thinking- I'm sitting here thinking, that was fine when I left Tom.

Garner: "I'm going to get blamed."

Branscomb: But, you know, Fred surprised me and I'm not easily surprised. Fred is a really good guy. He said to Tom: "I had two groups of people that had a different view of what we should do. One group said; 'If you get the architects out of the way, we'll meet the schedule.' The other group said: 'Finish the architecture whatever you do, otherwise this thing is going to be a mess for a long time!' " He said "The schedule pressure was really hard on us, and so I picked the first group that said they can meet the schedule." And then he said: "Tom, so that decision probably cost you maybe $100 million?" And of course he's back at the university now but it was an interesting, interesting meeting.

Garner: Undoubtedly it probably cost even much more than that.

Branscomb: It probably did. I have no idea.

Garner: But he was very gracious to accept the responsibility for a decision that who knows whether he actually made.

Branscomb: Oh yes. He could have thrown us under the bus.

Garner: Yes, well and he--it was very complex and you always faced that trade off of good architecture or just get it done.

Branscomb: Sure. Sure.

Garner: Now Fred, as we know also -- and we're stepping back in time a little bit, right before the 360 announcement …

Branscomb: Yes.

Garner: … At that time, you were not head of SDD but they were about to announce the 360 in early April '64. But at the end of '63 Honeywell came out with H200--

Branscomb: Exactly.

Garner: What did that do to management? Were you aware of that at the time or--

Branscomb: Well Honeywell announced with their H200, something called Liberator program. And the net of it was, they'd go to the customer and say: "We're going to liberate you from that 1401 you're locked into. And we will run your 1401 programs as is." And since it was a later machine it had faster circuits and so on. Fortunately they did not have good I/O.

Garner: Yes, the peripherals weren't very good I had heard.

Branscomb: Yes, that's true. But it created a lot of action and the 1401 people in Endicott proposed a 1401 Super to combat this H200. The 360 people had not paid much attention to emulation of the 1401, which is a surprise in some ways. It should have been inherent in the system I think. But anyway, an all night thrust of some very good people, Fred Brooks and Gerry Blaauw and I don't remember who else, they found a rather straightforward way to emulate in hardware, not software, so it would get good performance-- emulate the 1401. And they were delighted because now, this 1401-S they could knock off and proceed with the 360 program. But John Haanstra, the division president who actually had both the Model 30 and the 1401 in his division, did his own analysis and said we got to do the 1401-S. So that was quite a battle. And--

Garner: Do you know why he thought that IBM should still do the 1401-S?

Branscomb: He felt, I think he felt that the 1401 had such momentum and the way--

Garner: It was the world's most popular computer at that time.

Branscomb: Well that's right.

Garner: <Laughs> After all.

Branscomb: -And the way you really knock-- if the thing is that serious a threat, the way you really knock it off, is to come out directly with a 1401 enhancement and beat the socks off them. And he went to the mat on that. John, one of the company's most competent-- he started in the San Jose Lab, he was running the division at that time. One of the most competent engineers I ever met. And like a lot of engineers, he formed strong convictions and he stood behind them when he formed them. And so he went to the mat and, predictably I think, he would lose against the 360 because here's a broad line and the 360 people said, “Look, we must have the volume for the low end. If we don't have that volume, we can't …“

Garner: That we need in other words, to be successful.

Branscomb: “… We needed to spread all the costs across.” And so they won. A few months later John left IBM and became the head of computing for General Electric Corporation. And I got a chance to talk with him briefly afterward, a month or two after he'd been there. And I asked him: "Is GE really going to be able to do something in this area?" I got a sort of an interesting answer. He said: "They have the talent and resources. If they'd put forth in this area, they could really do something." But he said: "I'm not very optimistic. I'll give you a good example: “I went and made a presentation to the head of the semiconductor division about my needs in the computer area. When I got through, he said ‘I agree with you. That's what we need to do. But I'm measured on commercial revenue growth and profit in the commercial semiconductor market. I'm not going to do any of that unless you get them to change my measurements.’ “ And he said: "I'm not optimistic that GE's going to change the measurements on the divisions." And so--

Garner: I see.

Branscomb: Unfortunately John died in a plane crash, his own plane. He was flying, he and his wife June and one or two of his children, a few months after that.

Garner: So now, did you have an opinion about the 1401-S as well?

Branscomb: Well-

Garner: Do you think it should have--

Branscomb: At the time. At the time. I knew the 360 was going. I knew it had to have a low end and so I did not take an adamant position at the time. I liked John Haanstra and I supported a lot of the things he did. But the company was so committed to the 360, that that was not going to change. And I agreed with

him that they had to have a low end of the line. So my view was to make the Mod 30 with emulation as good as we possibly could. Now in retrospect--

Garner: Looking back.

Branscomb: -Some information that I got from an outside group called Gardner Group I believe it was, some other outside group had looked at the industry. I am pretty sure their numbers were that in April '64 when 360 was announced, if you take the customers who were paying $2500 to $10,000 a month for their information handling equipment, IBM had 80 some percent of the business. Five years later, April 1969, they had 47 percent of that business. And of course the 360 was hugely successful above that low end area. And so, some version of the 1401-S could certainly have helped.

Garner: It could have kept-- so it was ironic because it would have kept IBM's market share higher. It would have taken away from the 360 and made it less successful.

Branscomb: Probably.

Garner: Maybe not, I mean if the revenue from the 1401-S could maybe help offset losses in the 360 program perhaps right?

Branscomb: That's hard to judge, but at that point in time it was just-- nobody was going to get in the way of the 360 going. You see it's the end of '63 and it's scheduled for announcement April '64 in a lot of the industry.

Garner: And the irony of the Model 30 is that it's entry cost was quite a bit higher because you needed to have a disk, right?

Branscomb: That's right.

Garner: You needed DOS.

Branscomb: Exactly.

Garner: And the disk added a lot of expense.

Branscomb: That's right.

Garner: Now did the 1401-S have a disk?

Branscomb: I don't know the answer to that.

Garner: I think it did.

Branscomb: My guess is, it had non disk versions and disk versions. I'm sure it did as a matter of fact. I'm sure.

Garner: And you can probably-- but it's entry cost could be non disk.

Branscomb: Oh absolutely, absolutely.

Garner: So during this time when the 360, the Model 30, maybe its reliability wasn't that great but it had DOS because the OS/360 wasn't there. 1401s are still being sold.

Branscomb: Sure.

Garner: In fact, the data that I have looked at, shows that it wasn't until about 1968 that the Model 30 and the Model 20 took over the 1401. Were people aware of that, that the 1401 was still the most popular machine as late as 1968?

Branscomb: I don't think that was common knowledge.

Garner: I don't think it was.

Branscomb: It wasn't even common knowledge with me. I didn't follow those numbers. By the way, you've mentioned a couple times that Mod 30 wasn't all that reliable. I never got information that there was a real reliability problem with the Mod 30.

Garner: Okay.

Branscomb: Some of the other areas, the Mod 75 -- see, upper end of the line did not have control store trying to get maximum performance and technology, not SLT [Solid Logic Technology] but ASLT [Advanced SLT] I guess we called it. We used by the way, five Mod 75s to support the first moon shot.

Garner: Oh really?

Branscomb: They were all idling and ready to take over and it took 80 hours for that shot and the first Mod 75 ran the full 80 hours and never hiccupped and they never had to back up. But they were ready. But we began to have an intermittent problem in the technology of the Mod 75 and it's very difficult to find

what was wrong. When the materials people finally found what was wrong, they called it the “crack stripe problem” because the current density was so high in some of the printed circuit lines, that well, the way they described it with me, is that current density and current flowed down, some atoms kept going- started to go with it, like moving in the wind.

Garner: Yes, like--

Branscomb: -First thing you know, they had a stripe there that wouldn't transmit. And it was a big problem for quite a while till they really found what was going on. We were--

Garner: So that was during your tenure as president of the SDD, you were--

Branscomb: Oh yes. I had the- Jim Hewitt, Jim Hewitt had that part of the system manager, that part of the line and Jim and I were in corporate management committee a few times with that problem. I can remember Jim's pitch very well, but--

Garner: Now the Model 91, was that during your reign as well or was that--

Branscomb: You know, we did the 85, 75 when I was there we did the 85, the--

Garner: Did the Model 85 go okay?

Branscomb: Yes, it did pretty good. One of the key things the Mod 85 had that a lot of things did not have, it had a cache store.

Garner: Did not have a cache store?

Branscomb: It had cache, yes. That's the way we got some increased performance from the processor and the memory. It had a very high speed cache memory, a pretty good size. And the Mod 91, that was a flat film memory machine in my recollection. We installed the first one of those at the NASA Langley, I believe it was, down in the Washington are. So that was done while I was still around in SDD.

Garner: So that-- I don't think they sold as many as they wanted to.

Branscomb: I think that's right.

Garner: That they were very expensive or--

Branscomb: Yes. Yes. And the flat film memory was a real challenge. But they finally got it working all right.

Garner: And then when CDC came out with their 6600, that was a big disruptive event. I was looking at some old memos inside IBM. Is that during your time as well? Do you remember? Did they have to try to come up with this faster machine, you know.

Branscomb: Yes. Some of it definitely was during my time and I have mentioned many times I guess that Tom Watson was very competitive. And he could not understand and would not accept that anybody out there could build a faster machine than IBM! And of course when you take Chippewa Falls group, he used to-- and IBM told their guys that you know, “You got 30 guys up in Chippewa Falls with a janitor and they beat IBM and the fastest computer!” And he was not pleased. So IBM had a lot of effort trying to get the high end machines in better position. And it was a struggle. Just before I went into SDD, they had established, I don't remember who did it, they had established a group in California, Menlo Park, away from Poughkeepsie, get away from those guys that can't build the fastest machine. Jack Bertram, Gene Amdahl, some of the very, very top talent that IBM had in that area. And their charge was: "We don't care about the compatibility and all that, build the fastest machine."

Garner: Do what you want..

Branscomb: So they did their work and every time they would get to a point to spec their machine and how fast it would run, within two months the Poughkeepsie people would show how they could make a 360 compatible run that fast. And that went on for quite a while until I had to go through the process of closing down that location, because it was-- we were spending a lot of money. And that was not exactly a pleasant closing. There was an executive conference going on in Buck Hills Falls in Pennsylvania. And I had put together a presentation that had John Gibson, the Semiconductor Technology president, and had reviewed it with all the right people including the chief scientist, Mannie Piore and everybody agreed. We went to the meeting to present that story to the executive conference. And I put my charts up on the easel stand to make the first presentation, John was coming later. And Tom Watson said "Just a minute. I just want to say that you have a lot of gall to come in here and make that presentation to stop something my brother started and knowing that he would not be here to defend himself."

Garner: Oh wow.

Branscomb: I said: “I'm sorry Tom. I didn’t know Dick was not going to be here. I'll come back.” And I started to remove the charts-- I was going to do it. He said, "No, no, no, just a minute. Just a minute." He said, "Go on through your presentation." Well, about I would say half way through, I noticed Ralph Palmer came in the room. He had been late getting there. Ralph Palmer came into the room and he had been one of the people who we reviewed it with obviously. And it turned out he came over and sat next to Tom. And I couldn't help but notice that he was talking a little bit with Tom you know, quietly to him. So I got through my presentation and John Gibson got through his presentation. And they said: "Well, thank you very much. Thank you very much." So we got our charts. It was raining like crazy and we had a limo waiting to take us home, all the way back in the White Plains area. As I went out the door, I noticed Tom Watson stood up as I got my charts and he came out the door with me. And he put his arm

up around my shoulder and said: "I just want you to know, it's tough to do a good job but you're doing a good job and keep it up." So that was the end of that, conversation.

Garner: So but then they did decide after that meeting to shut down Menlo Park?

Branscomb: Oh yes. Yes they did. They accepted and Menlo Park shut down.

Garner: Now the name of that project was ACS [Advanced Computing Systems] ?- Can you remember the name of the computer?

Branscomb: It was People--

Garner: No the name of the project. It was A--

Branscomb: Oh boy.

Garner: ACS or something?

Branscomb: I don't remember.

Garner: Okay, so Dick had actually been involved in that decision?

Branscomb: Dick had been Group Executive over the Product Divisions at one time, over the Product Divisions.

Garner: After he was done-- after World Trade in other words.

Branscomb: Yes and let's see now how that—yes, after World Trade, he was acting-- then he was up in Armonk as I think their contact-- they had a contact executive for certain group executives and of course one of his contacts was the World Trade people and I don't know what else. But that was after his time in World Trade. I don't know if I want that interchange recorded or not. It's already done I guess.

Garner: Well that's fine. I think it's absolutely fine.

Branscomb: Well, anyway, it was one of the times when Tom came on pretty strong to me. There were others but--

Garner: Okay. That you don't want to talk about or--

Branscomb: No. No. You mean the others?

Garner: Tom, yes, with Tom.

Branscomb: I could. I guess the strongest he ever came on to me- I was Assistant Group Executive after SDD and one of the things the the assistant group executives on that slot had was responsibility for real estate.

Garner: I see.

Branscomb: And we were going through a tough time, 19--

Garner: This is what year?

Branscomb: 1970 wasn't it? Wait a minute now. This was-- I believe this was right after I got out of SDD and I left in '69. So this would have been '70.

Garner: Okay.

Branscomb: And real estate construction was under way at several locations and some of- at some point it was going to have to be stopped. So I got a little team together from Canada. Some of it was in Canada, Canada and U.S. and my directions to them was: "Look, this is not a country versus country or anything. We're going to all use the same criteria and whatever comes out to that we should stop, we should stop." Well it came out we should stop the Canadian thing. And I made what I consider later-- well it was later -- I should have gone to the general manager, the President of IBM Canada and presented this. But his people told me they had presented it and you know, things were okay. Anyway in the CMC presentation, he came in the presentation--

Garner: What does CMC mean?

Branscomb: Corporate Management Committee.

Garner: Okay.

Branscomb: Yes. And he came in and made a presentation which basically said, this analysis was biased and that the U.S. was going to win and so on and I was sitting right next to Tom as a matter of fact. And Tom said: "I'm really upset!" I said, "I think we got the right answer." "I'm really mad!" And I didn't say-- I knew not to say anything more. At that point in time you don't you know, pursue it. But he was- he was mad. He was red in the face and he was mad. Unfortunately, the presentation that was made was very misleading and had inaccuracies in it. But I was not about to try to tell that when you got

the President of IBM Canada up there. And in that meeting, there was no way I was going to get on that. So that was one of the things I guess, that bothered me afterward. I was working for Spike Bitzel at the time and he was a group executive. And right after we got out of the meeting, I said "Spike, I'm going to see Tom and get this thing straightened out." He said, "No, no, no." He said "I'll handle that. You just--" I don't know what he did. I don't think he handled it because Spike was-- he would never disagree with the top management. So that was pretty rocky time.

Garner: So after that appointment--

Branscomb: Corporate Technical Committee.

Garner: How long did that last? or--

Branscomb: A year and a half as I recall.

Garner: And then from there?

Branscomb: Director of Engineering Programming and Technology for the corporation, IBM director.

Garner: So what does that mean, the responsibilities?

Branscomb: Let me talk about Corporate Technical Committee for just a minute because it was a tremendous change of pace. You know, you'd been on the run, on the run, on the run all the time.

Garner: Give you a chance to breathe now.

Branscomb: Here, you could relax, the responsibility of the Corporate Technical Committee was to look at the future and assure that IBM had the right technical work going on to keep leading edge, be on a leading edge as technology company. So it was- it was a great period in my time. I'll only relate one experience however. I became involved in a task group in 1971, magnetic recording. We had our best research people in magnetic recording--the best product people and advanced technology people from San Jose. The charge was: “Tell us how far magnetic recording can go before it runs out of gas.” And they did a lot of work. We probably were working on that for a couple months. And they concluded that magnetic recording was going to run out of gas in about 12 to 13 years. So I would say before the mid '80s. That the laws of physics were just come into play and it could not go any further. And I think it's gone quite a bit further. <laughs>

Garner: Yes, you always find new ways.

Branscomb: So it was an interesting experience on the Corporate Technology Committee.

Garner: Were you involved at all-- doesn't sound like it, but in semiconductor technology?

Branscomb: Some but not a lot.

Garner: Because IBM didn't get into integrated circuits for some time.

Branscomb: I was not involved in that. I'm trying to remember the most involvement I had. I wouldn't say I was deeply involved. But obviously related to some of the work that went on--saw the presentations and so on--and all the deposition techniques and the ion implant techniques and so on.

Garner: They were- IBM had taken this path of doing modules and continued that path and it's like CMOS integrated circuits or even bipolar integrated circuits were a little slower to come on up to speed in IBM. I think a lot of those are after your time. So this was only, I think you said two years you were on this?

Branscomb: About a year and a half at Corporate Technology Committee. That's '71 and part of '72 I guess.

Garner: And your next, then from there you--

Branscomb: IBM Director of Engineering Programming and Technology.

Branscomb: During my time in computer assisted instruction, we built a small ten student station system based upon the 1130 processor and a disk along with the processor so that we could provide very rapid response time to those connected hardware, connected terminal.

Garner: Because the 360s were too slow?

Branscomb: Three-sixty on long teleprocessing lines was not adequate response time in our opinion for this particular application.

Garner: One of the more interesting users of that system was a Dean Mitzel at Penn State University. He was Dean of Continuing Education or something like that. He wound up after analyzing the system and doing some course work -- we had, by the way, we had a language called Course Writer for the educators to use to develop their courses -- He had decided to buy four of the IBM 1500s, install them in trailers and did the course development that was required and he would take a trailer around to remote areas of Pennsylvania. The trailers were designed so that you could slide the side out and have inside that trailer and 10 student station level system. And with his course material, he would provide for the teachers in that local area to keep their certificates and everything up to grade without going away and going back to the University. And it apparently was very successful. He was an interesting guy, but very

successful because after I had left the program I had heard that he came back in a year or two and wanted to get some 1500s. Of course we had withdrawn it by that time.

Garner: So you called it a 1500, it was not based on the 1130, or?

Branscomb: It had an 1130 processor.

Garner: I see.

Branscomb: Yeah, it had an 1130 processor and a disk file but I don't know why we called it…

Garner: Yeah. So was it officially an IBM product?

Branscomb: It was an IBM product for computer assisted instruction research. We made it very clear this was-- and none other-- not very many of them were used by some of the people used them.

Garner: That's interesting. All right, well, I thought we'd go back then to this next role. What was it?

Branscomb: IBM Director of Engineering Programming Technology?

Garner: Yes.

Branscomb: Well, fundamentally, that role involved reviewing the division's plans to get satisfied that they were adequately aggressive technically, keeping us on the leading edge and reviewing plans to see that they weren't any significant problems that needed to be brought to their attention. We tried, when we found things like that, we didn't run to the corporate office, we went through the division president of the divisions and worked heavily with them. Although some IBM directors they found a problem, that's not effective in the technical world.

Garner: So these were are all kinds of problems, implementation, real estate, anything? I mean, it didn't have to be…

Branscomb: Well, it could be, but mostly technical problems, mostly hardware, software, technology.

Garner: From customer?, Or how did you find out there was a problem?

Branscomb: When you reviewed the division product plan…

Garner: It was up to you to find the problems.

Branscomb: As a matter of fact each year we had to approve the division product plan. So we had to be familiar enough with it to approve or non-concur with their product plan. That was the role of the IBM corporate staff.

Garner: Did you ever reject some?

Branscomb: Oh, well, let's put it that, as a result of interaction with the divisions we usually got things resolved. I'm trying-- I don't recall ever taking into the corporate office, a turn down of a plan. But we turned down plans until we got issues resolved.

Garner: Do you remember any one in particular that catches your fancy?

Branscomb: No, I really don't. It's across such a broad spectrum. I really don't. Now from that job, I was in there, well '72 and part of '73-- a year and a half again maybe. While I was there-- my wife's a native Georgian, South Georgian. And I didn't tell you that when we first went to Endicott to work with IBM, my wife and I agreed that we were going to get a couple of years experience and go back to the southland where we really want to live. Thirty-three years later we got back. But I went to Frank Cary while I was in that job and said: "Frank, GSD is doing some interesting things headquartered down in Atlanta. And I don't know if they're interested in me getting involved, but I would be receptive to going down to Atlanta and working in the General Systems Division." And a short time later, I don't know-- I knew the guy who ran the division very well, Jack Rogers [ph?], he had come out of marketing. And a short time later, I don't know if it was the same day or very shortly Frank got a hold of me and said: "Go see Jack Rogers." So the end result of that is I went down to Atlanta and became the Vice President for Manufacturing and Development. And GSD had two locations for a long time, Rochester, Minnesota and Boca Raton, Florida. Later on, probably the last-- I was there from '74 to '81, the last two years or so of that time, I also had Austin, Texas site.

Garner: So the main manufacturing sites and also engineering were in Rochester and Boca Raton.

Branscomb: I was in Atlanta.

Garner: Oh, Atlanta. But still, why weren't you in one of those two places.

Branscomb: See, what IBM did when they set up General Systems Division -- wanted to reestablish their self in the low end -- they made the only integrated computer-oriented division at IBM. We had our own marketing, service, manufacturing and development and were headquartered out of White Plains, Atlanta, Georgia. And that was sort of intentional to say: "You guys go at the low end and you got your own capability to do it and you don't have to worry about getting agreement from all these other people and things like that." So Atlanta was a good location from Rochester to Boca.

Garner: Oh, they didn't want to put you either in Rochester or in New York anywhere, so they found like a neutral country.

Branscomb: No. Well, but the other part of that is that Jack Rogers wanted to be in Atlanta.

Garner: Oh I see, okay. There's always some…

Branscomb: And actually Atlanta was a great place. It was 800 miles to Rochester. I don't know how far it was to Boca, but it was all right.

Garner: So at that point-- this is the System 32.

Branscomb: The 32-- let's see, System 3 was already out and I don't exactly, I don't know the details of that. But System 32 was probably the first one.

Garner: And it was designed in Rochester?

Branscomb: In Rochester. And it was a small business system. It did not have work station attachments or anything like that, it was a small business system for small businesses. The next major move there was System 34 which concentrated on hardwired terminals although you could go remote teleprocessing. But a low-end, business-oriented multi-station system. I've mentioned to my son before, if we had really been smart and broader in our thinking about what we were doing and had built a low-end multi-workstation scientific system at that point in time, we could have probably competed very well with an outfit called DEC [Digitial Computer Corporation].

Garner: With the mini computers.

Branscomb: Yes, but we didn't do that. System 34 was very successful, very easy to use.

Garner: What technology was it based on? Do you recall?

Branscomb: Oh, just one of the…

Garner: Programming language and…

Branscomb: One of the IBM-- oh, RPG was the big programming. Yeah, RPG kept evolving and evolving. System 38…

Garner: It started with the 1401, I think, RPG.

Branscomb: It did, yes it did. But, it was still-- well System 38 used RPG, that version of it, very heavily even in the late '70s.

Garner: So in some sense, was it the virtual follow on to the 1401 for that type of market? I mean, were you taking that niche?

Branscomb: That's exactly what it was. As a matter of fact, it was sort of a-- I always loved the lower end of the line better than the Mod 91 and all that stuff, you know. It didn't turn me on so much. I couldn't get my arms around the thing and the customers, you know, like I could the low end. So I viewed it as another great opportunity for low end. A lot of them were first time users and not unlike the 1401 in that sense.

Garner: What percentage of that low end business market did it penetrate do you think?

Branscomb: GSD? I don't have the numbers but they were very successful, very successful. And one reason was the integrated division and I got to know the marketing people very well, the custom engineering people and, of course, I had the manufacturing and development. But I can give you one example of what the integrated division could do. IBM had a lot of push on user friendly systems. And I don't know how much meat there was to that but they had a big push on it. Well in our division, our Division President, Jack Rogers told me, he said: "Look, I'm going to put Development, your group responsible for ease of use. And when I say ease of use, let me tell you what I mean. I mean ease of selling, ease of servicing, everything to do with the customer, ease of use with the customer, the whole works." And I said: "Jack, how can I do that with the marketing guys and all that? That doesn't sound…" He said, "Well, the only people who could do it would be the development people." He said, "I know, none of the others could do it." So I guess as the System 34, we got a small group together from development and custom engineering and marketing and so on, systems engineering and market field and we said: "All right, go through every step a salesman has to through to sell the System 34. Estimate the time required for each step. Estimate the time required for installing, every step along the way, maintenance, every step along the way." And it was a voluminous task. When they got through that task, they said, "Okay, we're going to get back together in 30 days, 45 days, whatever, I want to see those times for this portion reduced by 35 percent, all right?" And got back together and low and behold they had found things you had to do and could do to reduce them significantly.

Garner: So this was already after it was shipping in the field.

Branscomb: It probably was, although the 34 came-- we hadn't shipped yet I don't think. I think it was during the development cycle where you could do some things.

Garner: Okay.

Branscomb: Anyway, after you go through the first round and look at those you say, "Okay, that's where we are now. Here's the next goal." And it really worked, it really worked. As a matter of fact the-- IBM had-- I don't know what they called it? They had a management meeting periodically. One of those

management meetings, one of the people from the other part of the development area, those big guys, big system guys were supposed to make a presentation on ease of use. And I don't know, he got ill or some reason he couldn't go, and so they asked me to come make the presentation on ease of use. Well, we had now-- we had progressed to the point where our development manual for the development people had 35 pages in it on ease of use and what you do and I told them all about what we had done and what have you. And afterward, I don't remember which one it was said, "Boy, I'm glad that other guy got sick because we really understand ease of use in the real world now." It went very well actually. And GSD did a lot of work of that type because they were an integrated division. One of the systems we got in trouble with was System 38.

Garner: Okay.

Branscomb: This was the first relational database system. Glen Henry was the Fran Underwood of the System 38. I mean architect, software, knowledgeable across a broad spectrum, real great guy. And we announced it, got approval from product tests and announced it. We were having performance trouble with the software and we were going to miss shipment, which we did. And fortunately, being in an integrated division, I had a very different experience with the marketing people. Jim Desell was the head marketing headquarters guy from a systems engineering standpoint. Jim said, "I want to bring some of my guys and go to Rochester and really understand that problem and what you're doing about it." I said, "Fine." He did that and then he had some very good systems engineers from the field that were quite technical. When he got through he says: "Okay, I'm going to go out and tell the customers that you are going to get this problem solved. I'm convinced now you can solve it." And this-- we were delayed four, five or six months; it was not an easy deal. And it was crucial that the marketing guys got with us and supported us because otherwise-- they could have gone to the customers and said, "You know, this thing may never work," and what have you and given us a huge black eye. They did not do that and so the delay didn't really hurt us that much. When the 38 finally hit the field, it was extremely well received. Really, it was one of the easiest to use systems, I guess, that was out there. And of course later on it was enhanced and became the AS/400 which was very successful.

Garner: Now somewhere in there there's a Series 1…

Branscomb: Yes.

Garner: …AS/400 and then the PC. So how what is your involvement in the early PC.

Branscomb: Can we talk about the Series 1 for a minute?

Garner: Sure.

Branscomb: Series 1 was the thrust to get into the minicomputer business; namely that means DEC's business. The hardware to do that job wasn't [hard] -- we could do that, that wasn't a big deal.

Garner: Where was the hardware designed, in Rochester?

Branscomb: Boca Raton.

Garner: Okay.

Branscomb: Software was more of a challenge, but we could do some pretty good software to compete with them. The real challenge was marketing. We-- the traditional way of operating in the minicomputer world is that customers bought them by 10, 20, contract for 40 systems, numbers of systems at a time. So we got our costs together and went to the pricing people and said: "You know, we want to have a price of one and if you go 10 systems, discount, 20 systems a further discount" and all that. And the legal people looked at it and said, "You can't do that." And we said, "What do you mean?" "That's illegal. If you can show me that-- how much cost you take out of the works to get to 20 systems then we'll talk about it." We said, "Well wait a minute, DEC's doing this all the time. Are you telling me DEC's operating illegally?" He said, "I don't know anything about DEC, but you cannot do that. If you don't have cost justification for those discounts, that's illegal." So we scratched our head for a long time and then we finally, you know, the light bulb came on. We didn't do our cost base for selling one at a time; we did our cost base assuming we sold 20 at a time. And now you look at how much extra it costs you to just handle one at a time, it's easy to show the discount. The price for one is quite a bit higher.

Garner: Yes, just switch the scale to the other side.

Branscomb: Yes, but, you know, it took us a while. IBM did not have that mentality at all and our legal people, they didn't tell us how we could do it. They just said, "Hey, you can't do that." But we did reasonably well. We never were a serious competitor for DEC.

Garner: It was too late by then.

Branscomb: The Series 1 was a successful product but it did not really challenge DEC too heavily. I had an interesting experience with Series 1. This is a purchase only market. It's a market where the customer gets inside to add stuff to it, gets inside the covers and what have you. Shortly before announcement, IBM Director of Personnel had a big non-concurrence with the announcing of the Series 1. He said, "IBM does not have union members go inside our machines." And so we had a big meeting with the corporate management committee again. Stu Elder was managing the Series 1 for me down in Boca. We got the IBM plane and flew a Series 1 up to Armonk, brought it in to the management conference room and showed the whole works and Stu described to them what happened, described what the customer would do in terms of getting under it for modifications and what have you. And Frank Cary and Walt Pedicord was the IBM Director of Personnel, Walt said, "We can't do that, And I nonconcur with that". And so Frank asked us, he said, "What does DEC do?" We said, "Well, what we just described is about what DEC does." And Walt Pedicord said, "Well, that might be right, but we can't do that." And he was concerned about the union things. And Frank said, "What's the tradition in the industry, the minicomputer industry?" Same thing. So Frank turned to Walt Pedicord and said, "We're going to announce the Series 1." And we did and, of course, it didn't turn out to be any real problem from

that standpoint. But personnel, corporate personnel was very strong on watching things that might entertain the union.

Garner: Interesting. So how did the PC start there?

Branscomb: Well, we had done a very small business system that wasn't very successful frankly; it was just a single small standalone system.

Garner: Do you remember the number?

Branscomb: One-fifty…

Garner: Fifty-one hundred?

Branscomb: Fifty-one twenty or something like that.

Garner: Okay.

Branscomb: And other areas of corporation-- well, Jack Rogers, our boss had brought in various people in the PC world to sort of rub our noses in what was going on. I've forgotten the guy's name now.

Garner: They were consultants you mean or outside…

Branscomb: Well, yes, they were outside people that looked at what's going on in the computer industry. They weren't necessarily a consultant, maybe they were Gartner Group or something like industry analysts and they'd come in and tell us what's going on at, what was the early names Atari or…

Garner: Atari.

Branscomb: Atari and what was the other? There's another major one there. But we wanted to put together a proposal and our group executive, partly because our marketing people said, "Hey, PC, we can't sell that thing. We can't afford to sell a PC." And so we wanted to, in development wanted to put together a proposal but our group executive said, "No, there's another group up here in Advanced System Development division that's got a presentation already together. They had a proposal to the corporation." And so we got a chance to see that proposal and it was sort of a typical IBM-- we're going to use IBM technology. We're going to lose money for three years, but we're going to come out and make a lot of money in the future. And we really didn't really think-- we knew a fair amount about the low end and had gotten fairly familiar with the PC world and so we were convinced that was the wrong deal but we were told not to put forth a proposal. But Bill Lowe worked in headquarters for me, Atlanta

headquarters for me at that time. Bill and I were sitting chatting one day and I think he's the one that said…

Garner: Do you remember what year this is about?

Branscomb: This is about '79, '78 or '79. And Bill said, "Look, we've got a couple of the conference rooms next to each other here, let's knock out the wall and let's build a prototype of a PC." I said, "Great. Let's do it!" Of course, we weren't zoned to have that kind of activity in that headquarters building, but we didn't pay much attention to that. Working for me as an administrative assistant was a guy named Lou Eggerbrect was an architect-oriented guy. So we put him on it. We got a software oriented guy from Boca Raton and we got another hardware guy from Rochester. And I think we had a total of four or five people working on it. And we said, "Build us a PC quick!" Well, six weeks later they got a running system, PC, Intel, Intel stuff.

Garner: Based on an 8080 or something?

Branscomb: Eighty-eighty, you're right.

Garner: Okay.

Branscomb: Eighty-eighty. And called Jack Rogers, my boss down and said, "Here's a prototype of our IBM PC." Well, Jack got very interested then. And of course, we said, "We don't have any way to market it." We had showed it to the marketing guys, and that one too as well as that earlier one, they said: "We can't do anything, we don't want that thing, nothing we can do with it." And they were right.

Garner: Because they thought they couldn't make any money on it, it was too primitive?

Branscomb: Right. Their marketing expense was too high.

Garner: Was too high,, yes.

Branscomb: And so they were right. And anyway, Jack jumped on that thing fast and got agreement to put the project in the Boca Raton lab and Lou Eggerbrect went down there to work on it, the software guy, Dennis Gibbs who had been from Boca Raton to work on it. We put together a team in Boca Raton, some of them who had been on this first small system we built and we were away building what became the IBM PC. Marketing was a big problem. We finally wound up with Computer Land as I recall as our first place we marketed it. At one point, IBM had tried retail stores, office stuff and the PC, but that's not IBM's business.

Garner: Do you remember what year the first one was announced? We're not talking about 1981 are we?

Branscomb: Oh, the first PC?

Garner: Yeah, that you guys…

Branscomb: The first one from IBM…

Garner: …from Boca Raton.

Branscomb: …was '80.

Garner: Nineteen-eighty.

Branscomb: I think it was announced in the fall or-- it could have been.

Garner: Eighty-one?

Branscomb: Was it '81? Okay. I left the program in-- they integrated GSD back into the rest of the corporation in I believe it was third quarter 1981 approximately. And the PC was announced in August, 1981. By the way, Frank Cary got so interested in it-- he was the Chairman at the time. He got so interested in the PC that we began to call Frank as Systems Manager of the PC. And he really was.

Garner: So you weren't there when the guys in Boca Raton offered this little unknown person, Bill Gates the ability to the BASIC compiler.

Branscomb: I was not there most of May, June July. I was still in GSD but was almost full time on a Corporate task force that was working on a major reorganization of IBM. I participated in some of the meetings on the PC and moved back to White Plains as an Assistant Group Executive in third quarter of 1981.

Garner: If you had been there, would history have been different?

Branscomb: Yeah. I don't know.

Garner: Would you have allowed an external consultant to provide the BASIC compiler?

Branscomb: I don't know.

Garner: Yeah, my understanding was they were moving from an 8080 design to an 8085 and they asked the Boca Raton compiler group, could they provide the basic compiler and they said that it would take too long and so they went outside and got this external guy to give them a BASIC compiler.

Branscomb: I am sure we would-- one, we would have gone outside like we did for the hardware technology, but I don't know what we would have done. I know there was another guy, I believe it was DigiTech that had architecturally a better system than Gate's system, but they were behind some. And I don't know what I would have done because I wasn't, you know, involved right at that point.

Garner: So what's fascinating though is the actual first PC prototype was under your watch and really you helped get it going.

Branscomb: Oh, sure, right there in headquarters.

Garner: Yes, you basically said, "Let's knock down the walls. Let's build a lab. Let's make one." Right? That was you.

Branscomb: Well part of the reason we did it right there Robert, our engineers at the locations were so ingrained in IBM technology, they didn't want to buy outside technology, Intel stuff and what have you. As a matter of fact, let me tell…

Garner: Well, hold on a second. I just want to understand. So the people you brought in were non-IBMers or were they just different sites?

Branscomb: No, they were-- one of them worked for me in headquarters already, Lou Eggerbrect.

Garner: Yes. But the hardware guys I mean, where did they come from?

Branscomb: Well, we could simply-- we brought in guys that we thought would be receptive and wanted to put together a working model right quick.

Garner: How did you find them?

Branscomb: I don't remember. We knew a lot of the technical people.

Garner: But they're IBM folks who were willing to do this kind of thing.

Branscomb: Oh sure, sure. And of course, it was not as if they were yet in a product program dependent on outside technology, this was a starter to get a prototype running. I had an interesting experience with Intel…

Garner: So, just want to understand, so they actually sat down and designed the schematics and designed the board themselves. They didn't buy the design from somebody else?

Branscomb: Oh no, did the design. Lou Eggerbrect did a lot of that, did not buy the design. Intel, they-- we were buying some initial stuff and they were good marketing people, they knew we were doing something in this area and so they came in to make a presentation to me. And they showed me, "Well, here we are now. Here's P1, P2, P3." I said: "Wait a minute. I can't look at any proprietary information from you. I'm prohibited by IBM. I don't want to see any of your proprietary information." The guy said, "Are you kidding? But we show this to everybody!" That was a fundamental difference in that industry. And, you know, I can remember-- I don't remember much of the specifics but I remember the point he identified on there that became the 286. And they had really laid out a long path for where this thing was going. So I don't know what I would have done on the…

Garner: But you did see their pitch though. You were inspired to know that there was a hopeful future…

Branscomb: Sure.

Garner: …and you promoted it and got this thing built.

Branscomb: We knew there was a future and the question was how good or bad could IBM participate in it.

Garner: When you had that little hardware prototype…

Branscomb: Yes.

Garner: Sorry, I'm asking so many…

Branscomb: That's all right.

Garner: …in the lab, what type of operating system did it run, do you remember?

Branscomb: That's a good question and I don't know. We had a software guy from Boca. I don't remember to tell you the truth. We-- I don't know the answer to that. We weren't trying to do a lot of work and what have you, we were trying to get together a little hardware thing that we could show it running and what have you.

Garner: Well, it may not have run an operating-- I mean, the story is is that when Bill Gates came into Boca, they asked him, "Okay, great, you've got a BASIC compiler that we can use. By the way, do you have an operating system?" And he actually said, "Yes," but he did not. It's possible that you guys didn't have-- I mean I don't know, I'll have to ask…

Branscomb: I can't answer that. I just don't remember what we did.

Garner: It could have just been running simple test programs or something.

Branscomb: That's right. It could very well…

Garner: Did you ever see like a word processor come up on it or did anyone ever do text editing on your prototype?

Branscomb: Not to my knowledge, not to my knowledge. Now at that time I had Austin and so they were very active in something called the Display Writer.

Garner: Yes.

Branscomb: But I don't remember anything like that at the time, I've just simply forgotten.

Garner: Fascinating.

Branscomb: But we knew that if we were willing to go with outside technology and the hardware and everything that we could do it and we could be competitive. We didn't know how we were going to market it. And of course at that time, before I left we hadn't zeroed in on any software plan yet. That's where of course, Bill Gates came in and cleaned everybody's clock.

Garner: Yeah, maybe if you had searched around IBM a little more and found someone to do all the software, maybe Bill wouldn't be…

Branscomb: You know, that's possible, Robert, but with the background of most IBM programming people, it would have been very difficult. It really would. It had been very difficult. We had problems in the minicomputer area with software like that because we had guys who had worked on large systems and what have you, and they wanted to build software for a large system and we didn't have a large system. So I don't know the answer to that, but I at this point don't know of any group that could have done it.

Garner: In what year did you leave General Systems?

Branscomb: Eighty (This is a year off – I actually left in third quarter of 1981).

Garner: Was this when they remerged back with (again, 1981)…

Branscomb: GSD was disbanded, well it became-- the development manufacturing part of it became a part of, I think they called it ISD and I'm not sure why. But then the marketing and service part went back in with the marketing and service division. And so as an integrated division, it was gone.

Garner: And that's when you left basically, right?

Branscomb: That's when I left and went back to White Plains and became Assistant Group Executive to John Akers who later became Chairman of IBM and written up in some place as not a very good executive.

Garner: So, yes, we don't need to…

Branscomb: I don't want to get into that.

Garner: How many years were you in that position with the Executive Assistant to Akers?

Branscomb: Not too long. It was early '83 I guess I moved back to Raleigh.

Garner: Okay. And then what happened?

Branscomb: Well, I became telecommunications-- Raleigh had telecommunications hardware and software. And that point La Gaude was in telecommunications and the two operations I had was the entire site in Raleigh, which was, oh, 8,000 or 10,000 people probably, I don't know. It was a big site, a lot of software people. And I had La Gaude responsibility.

Garner: So you got to know Maurice [Papo] again. He was probably not part of La Gaude at that point?

Branscomb: I think he probably was, but I can't remember for sure. But I don't feel like I had the kind of impact I would like to have had in Raleigh. See, IBM was on the path of a proprietary telecommunication-- had done very well that, System Network Architecture, you probably heard of SNA.

Garner: Oh, yes.

Branscomb: And it was proprietary IBM and well architected, very well architected, good security, good recovery from errors and problems and things like that. So it was a very good system, but…

Garner: All proprietary,.

Branscomb: But, the world was moving to mix and match and what have you. And we had run into that in the minicomputer world, Series 1, and it was very hard to change the direction of IBM.

Garner: There were a lot of forces inside IBM that didn't want to open up…

Branscomb: Earl Wheeler, great guy who goes way back to have done DOS/360 on the low end, the 360, he was-- I don't remember Earl's job at the time but he was very significant up in corporate and a very strong supporter of System Network Architecture. And it was a difficult transition because where you-- where the customer really installed the System Network Architecture, he had a better deal than most of the others but he couldn't install a lot of other equipment, non-IBM equipment. And so the world was changing and we-- well, frankly I tried to get the software manager of the System 38 who I knew was a broad individual to come down and manage and telecommunications, but he looked telecommunications and he was on the 38 and he said, "Thanks a lot, no thanks." But it was a tough time from my standpoint. We did thing like the Token Ring LAN and we should have done, you know, the industry standard kind of LAN probably. Token Ring did pretty well but…

Garner: Are you thinking of Ethernet, you mean?

Branscomb: Yes, something like that, off of that base.

Garner: Did you ever consider that or did you seriously consider that or probably not?

Branscomb: Well, when I went in there the Token Ring was well along and was-- I don't recall the exact time, and we had some technical problems we had to solve to get to announcement. But I did not immediately start upsetting that picture. And I found that I-- well, I try to get laid out product potential for looking at the digital, the whole digital world. And we made some progress in that but in terms of getting it out the door, I retired in '86. We hadn't made an awful lot of progress. I found the telecommunications area a very difficult area for me.

Garner: Based on proprietary standards at the time and things like open standards just emerging.

Branscomb: Yes, right. I retired in '86 but for three years I had a full time consulting contract with IBM and I spent a fair amount of that time down in the PC area. Bill Lowe was running the PC group and I spent some of that-- quite a bit of that time down there.

Garner: By now the PC volumes had started to rise rather dramatically.

Branscomb: Yes, but they were on a path that turned out to be-- and I'm sort of disappointed that I didn't come on stronger in this because of my background in looking at customers. But they were working on

the PC2. Footprint and using IBM technology to narrow things down and everything was a big push. And, you know, when you just look at it, it looked great. However, a lot of the PC users had cards to attach this I/O and that I/O and all over the place. Well the interface on this thing was different. And so what happened, the industry kept the standard of I/O attachments and the PC2 had trouble. They finally put out a separate box where, you know, to provide that interface. But in retrospect, I feel like, geez, that's one of the things I should have jumped on full bore and looked at the customers and what they were already doing. But Bill wanted me to do some other things which were kind of interesting like spare parts. IBM's spare part pricing policy, we didn't get any of the business for spare parts in the PCs because our pricing policy was not price competitive in that area. And the company wasn't about to change the pricing policy for spare parts to take care of the PC. So back then that was a lot of money, big market area, we didn't participate in really.

Garner: Yeah, I think it started a long tradition of IBM not trying to be involved with commodity stuff. Any time something becomes too high volume or commodity like it's hard to keep the profit going.

Branscomb: That's right. Yeah, that's for sure.

Garner: So that may have been a tough battle to tow. All right. So you retired and then you consulted back for three years and then you went to North Carolina and volunteered…

Branscomb: Yes. I had maintained close contact with NC State University because IBM had what they called a college relation-- representative to the universities and I was that individual for many years at NC State. And so shortly, it may have been-- I got involved before I retired, but at least shortly after I retired I wound up as President of the Engineering Foundation in the College of Engineering and helping get donors and things for special reports and special projects. But there's another guy that retired and moved back into the area about the time I retired and then there was another guy who had-- who was NC State man and started a business and he was going into sort of semiretirement. We went to the Dean and said, "Larry ,we're receptive to quite a bit of time if we've got something we can do that's significant." And that's when Larry said, "Well, I'd like for you to look at my five year plan." And we said, "Five year plan? We weren't thinking about-- you know, that sounds rather boring maybe." He said, "Well, take a look at it and tell me what you think." So it was just a few days-- we were impressed by the way. He had laid out a five year plan, had looked at undergraduates and graduate school, had looked at student body, had looked at faculty members, he looked at facilities and it was a pretty impressive job, but we quickly saw he had a serious problem. So we went back to Larry and said, "Larry, we assume, you know, there's no way you can implement this thing." He said, "Sure, you're talking about facilities, aren't you?" We said, "Yeah." He said, "Well, that's where I need help." And so that's where we went through the thing with Bill Friday and managed to get a significant building. And then I spent a lot of time, as I mentioned earlier at the Ben Franklin Scholars' Program. I got really intrigued with that program and spent a lot of time, formed a committee to help move the program along and included the retired Chancellor, John Caldwell , a very, very good man. And he helped provide some direction. And the program is still going today and going pretty well and is pretty well respected. But we haven't achieved the success-- we said-- in one of our meetings we were in, he said, "How will we determine when this thing's been successful?" And we talked a little bit and finally said, "Well, when we get the Governor of North Carolina, have him come from the Ben Franklin Program; we'll say we were successful." So we said, "Well, who's in the program now that might become Governor?" All of us said, "John Quinn ,John Quinn." Well, John Quinn is an outstanding guy. He missed becoming a Rhodes Scholar by I guess one vote and he became a

Fulbright Scholar. He went from there to MIT and got a-- yeah, he got a Master's Degree in something. He went from there to the Harvard Law School and he graduated number one in his class at Harvard Law School. And he's now in the D.C. area with a law firm. And he might someday be Governor or North Carolina. He's a North Carolinian, so who knows. But it's a great program and it broadens -- the thing I like about it. And as a matter of fact, my experience at the Aspen Institute was one of the reasons that I was very receptive and got into this thing. And every year I interact with the students in it quite a bit and I go to their-- they have a separate little graduation program for the Ben Franklin scholars. And I go to that I interact and I tell you, those young people…

END OF INTERVIEW

