

An Interview with

R. BLAIR SMITH

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Conducted by Robina Mapstone

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Charles Babbage Institute
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R. Blair Smith Interview

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Abstract

After describing his early life, Smith describes his move to International Business Machines (IBM) as a salesman. He discusses his experiences with the IBM 701 and 702 computers and his role in founding the Digital Computer Association (later SHARE). Smith also recalls how a chance meeting with C. R. Smith, president of American Airlines, eventually led to the development of the SABRE system. He also describes the design, sale, and implementation of

the SABRE system and the changes caused by the System/360.

R. BLAIR SMITH INTERVIEW

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INTERVIEWER: Robina Mapstone

MAPSTONE: I'm talking with R. Blair Smith, and we're doing an interview for the Charles Babbage Institute Computer History. Okay, Blair, why don't you talk about how you got into data processing and describe your educational background.

SMITH: Well Bobbi, my first exposure to data processing was in the summer of 1934 when I completed my sophomore year at Louisiana State University and returned to my home in Meridian, Mississippi. Being as the U.S. was in the depths of the Depression I could not find a job, I wrote my senator and he gave me a three-month appointment to the Agricultural Adjustment Administration in Washington, D.C. I happened to be there in 1934 when, I believe, we were the first ones to write a complete alpha-numerical check on an IBM tabulating machine.

I had no further experience with data processing until I moved to Seattle in 1939 and went to work for Boeing Airplane Company in their Tabulating Department. All of this was strictly punched card accounting. I do remember, though, that I was there when they acquired their first punched card calculator. I can't even remember its number any more, it's either the 601 or what preceded the 601. There was a 602A later, but this was one of the originals. I remember it well because I wired plugboards in unorthodox manners to get them to do things that the instruction manual didn't say they could do. I remember one time in particular when I wired a panel, put in a test card and pushed the button. The card went into the machine but nothing happened. I would eject the card, change some wires on the plugboard, and tried again; nothing happened. Finally, in disgust, I kicked the machine! As I walked away it went brrrrr, and punched out the results! It turned out that it was just laboring. You see, the timing was so slow in those days--we didn't know what a nanosecond or millisecond meant--that it took seconds to do the work. I had used all nines in my examples so the poor thing was laboring away trying to get the right answer for me, which it finally did. I've never kicked another machine since!

MAPSTONE: That's great. Was your degree in engineering?

SMITH: I never got my degree. My father died when I was five years old, and I was the man of the family. I started working at age seven delivering newspapers and then became district agent for the Curtis Publishing Company at age twelve, with twenty-seven boys selling magazines for me. When I was in college I not only had to work my way through; I tried to earn enough to send a little money home to my mother and younger sister. So there were certain required courses that I refused to take. I did take one year of college math and somehow passed it. I took it under stringent protest, because it was required. My major was psychology and my ambition was to go on and get an M.D. and then a Ph.D. in Psychiatry. But it was too much to earn my way through and send money home to boot. So I gave up and worked. Between Washington D.C. in that summer of 1934 and Boeing Airplane Company in 1939, I did all kinds of things, but nothing to do with data processing.

MAPSTONE: Did Boeing in any way give you the idea that this technology was something you wanted to get into?

SMITH: Well, I moved to Seattle to get as far away from Mississippi as I could and still be a United States citizen. I had a sad existence there, and it was hard making a living, especially a career, in my hometown. I went to Seattle because when I was in Washington I worked with a fellow from Seattle and he told me about the great fishing, the mountains and things like that, and I wanted to try it. I got the job at Boeing because of this trivial three months' experience I had with the Agricultural Adjustment Administration five years before. Of course I had a lot to learn. I was a tabulating machine operator, and later did some methods-type work, especially in the newer applications. In 1942 I moved to Southern California and went to work for the California Shipbuilding Corporation. My specialty was wiring plugboards for applications.

MAPSTONE: Do you remember any of the applications in particular?

SMITH: Well, they were typical--this was during World War II--and I happened to know the machines thoroughly. I also knew other people like Tom Lowther of IBM who was stationed at Lockheed. Tom modified the old 601

multiplier so it could do things like multiply standard hours times rate; overtime hours times rate and crossfoot the total on the daily time cards for the daily pay. IBM said it couldn't be done, but he did it. Then all of us in that area of defense business (Cal Ship, Lockheed etc.), did the same to our 601s to save us making two passes through the machine. There were so many things. For instance, the old 077 collator took two feeds for time card processing. The only sequence check was through the primary feed. We would take all the previous day's time cards that had been merged together by man number, and then merge them in the current day's timecard. But since the current day's time card would have the latest hourly rate for the man, and the latest department information, we wanted that data in front of the old ones. Yet we wanted the main body of the cards to go through the primary feed to get a sequence check. You weren't supposed to be able to make the secondary feed first, but I did it by just changing the wiring a little bit.

MAPSTONE: Which I believe in those days was very unkosher, wasn't it? You weren't supposed to play around with the wiring?

SMITH: Yes. But because the war was on, IBM was willing to make some concessions to benefit the effort. So we got away with it. Besides, we were customers, and Mr. Watson, Sr. used to say "The customer is always right!"

MAPSTONE: I don't think people say that anymore. What did California Shipbuilding Corporation do?

SMITH: They built Liberty Ships. It was one of those jobs where you literally worked from can to can't. I have put in many, many hours without going home. My longest stint was at Boeing when I had to work 72 hours. It was before we went on graveyard shift, around 1940 or so. I would take a nap on top of a table with a ledger book for a pillow, and make the night watchman swear that he'd come by in one hour to wake me up and make sure that my feet were standing on the floor before he left!

MAPSTONE: That must have been before labor laws.

SMITH: Oh, Yes! Yes!

MAPSTONE: So you were with the shipbuilding corporation until when?

SMITH: I believe until about the end of the war. You see, I went down to volunteer. I wanted to be a pilot in the Army Air Force, I guess it was called. But because I was classified as an essential war worker -- I was classified 4C, and would be the last one to get in before the 4F's or whatever were the others. I had to stay. They wouldn't let me or any of us who were supposed to be critical to the war effort leave. I'm very glad in retrospect, because one of the jobs that was open in the Army would have been in tabulating in the Philippine Islands, and I would have gone there just before the Japanese took over. So it's just as well I stayed at Cal Ship.

MAPSTONE: I think so. So you were with them through about the end of the war. And then what was happening to you?

SMITH: I put in a short hitch at 20th Century Fox studio. Again, in the tabulating department. Then early in 1945 I went with Western Airlines headquarters as manager of tabulating. I did methods work also on new applications, all for punched-card equipment, of course.

MAPSTONE: But most of the applications at this time were still dealing with...

SMITH: Payroll, accounting, inventory control. Nothing whatsoever to do with reservations. In fact, I knew very little, if anything, about the passenger side of the business. Meanwhile, Bob Prescott and others of General Chenault's pilots had started this little air freight carrier called Flying Tigers at the Lockheed Air Terminal in Burbank, California. Somehow they heard of me and after about a year or so at Western they hired me away as manager of tabulating. (I hope someday I can start calling it data processing rather than tabulating.)

MAPSTONE: Right. Somewhere in here that change happened.

SMITH: I stayed with the Tigers until I joined IBM. We were a small company, and all of us at the management level doubled or even tripled in brass. I had direct responsibility for tabulating, for personnel, for payroll, and for timekeeping. I pointed out to my President, Bob Prescott, that with direct responsibility for tabulating, payroll, timekeeping and personnel, that I could hire six fictitious men, pay them all and pocket the money. He said, "Yes, Blair. But you won't." So, that was that. That was a fun time because we were small, trying to earn a living, and grow. I had to negotiate union contracts with the International Association of Machinists, and things like that. The pilots finally joined the Airline Pilots Association. In fact, I'm rather pleased because I think I negotiated one of the first two-year contracts with the International Association of Machinists for any airline. It was in 1948 or so. For a long time, every IBM salesman that I had calling on me (I was a customer) would say "Blair, you ought to try selling these machines rather than just using them. You could do well as a salesman." Finally, in January 1950 I joined IBM as an Assistant Salesman.

MAPSTONE: Do you remember who hired you?

SMITH: Charlie O'Malley, bless his soul. He's dead now. Charlie O'Malley was branch manager for Los Angeles, which included all of Southern California in those days. I had been one of Charlie's customers for some years, you see, he and I knew each other. As a matter of fact, I had helped him get into the 100% Club by ordering a machine to help him with the branch's quota and my local salesman's quota. Then I spent the next few months justifying the equipment so that it could be installed. But we could always come up with good, new applications.

MAPSTONE: Tell me, when you went into IBM as a salesperson in those days, what did they do? Did they send you to school?

SMITH: First, I was interviewed by Charlie O'Malley, and he was a dear, sweet guy. Then I would have to go up to San Jose to be interviewed by the District Manager, and then hopefully be hired as an Assistant Salesman for training, and then finally Sales School and on quota as a full-time salesman. During my interview with Charlie - he was such a nice guy and he never wanted to hurt anyone's feelings - he said, "Blair, you know, Mr. Watson Sr. says there should be nothing about our personal appearance to detract from the sales presentation we are making." I thought for a minute - "Gosh, I've got a suit on." I even put on a white shirt and a narrow tie", because I knew that was the standard IBM uniform in those days. "What in the world is he talking about?" Finally I said, "Charlie, are you telling me to shave off my moustache?" He blushed, and changed the subject. I had worn a moustache ever since I was twenty one years old. My wife had never seen me without one. So before going up to see the District Manager, I decided to shave the darned thing off." I went to the bathroom, shaved off my moustache and came out. My wife took one look and said, "Put it back!" But I couldn't. And I never wore a moustache after that. Of course, nowadays I guess I could grow a beard and get away with it. Except now it would be white! I was hired with the understanding that because of my 11 years as a customer, I did not need to go through 18 months of training, and that I would be allowed to attend the first Sales School to be held after my hiring. That wasn't until about August of 1950. In the meantime I worked with older salesmen learning their end of it, and then helping them to wire plugboards for machines where they had problems, because I knew things like the collator and the multiplier cold and could help them. In about August of 1950 I went to Sales School at Endicott, New York. May I tell you a little about that?

MAPSTONE: Yes, please. I want you to.

SMITH: That was interesting in those days. Sales class 10-05, Endicott, New York. Every would-be salesman for data processing equipment had to attend sales school after his training in the field. It seems to me it lasted for six weeks, or so, during which time you're away from home. After the sales school we went back to our respective homes and were assigned a territory of customers, as well as a physical prospecting territory of all customers within that boundary. I had classmates like Don Spaulding, who is still in IBM management; Hunter Simpson who left IBM to become President of Physio-Controls(?) in Seattle, which I see in the Wall St. Journal has recently been sold; and

others like that. Tommy Spayne (?) is another I remember. We received our territory toward the end of September, 1950, and if we were to qualify for the 1950 100% Club we had to sell a full twelve months' quota, regardless of when we went on quota. Well, I was fortunate. I had a territory that in later years I realized must have been sadly neglected, because I made the 100% Club in seven weeks with nine orders. In fact, I was the first one in my sales class to make the 100% Club, and got a little special recognition from the head of the school, Gordon Lovell(?). That was just sheer fun, because I'd been a customer for so long -- eleven years -- that when I called on the customer or a prospect as an IBM salesman, I knew what he was thinking before he got around to thinking it. I even felt guilty cashing some of the commission checks, but I still did! But that's the easiest job I ever had in my life.

MAPSTONE: Were you unusual in the fact that you had been both a user client and a salesman.

SMITH: Yes. I was even somewhat older than the average sales trainee. Most of them came pretty soon after school. In fact, Charlie O'Malley had to get permission from corporate headquarters to hire me because of my age -- I was a few years older than the normal for hiring as a sales trainee. Then of course came the Korean War in 1951 and all salesmen were taken off quota, and put on a salary. In 1952 we went back on quota and I made that Club. By 1953 I had this computing territory in the Santa Monica area, and management wasn't sure about what was going to happen to the 701 computers. You know, if we lost business we got a chargeback against future commissions, which meant you had to sell more and more things in order to offset that chargeback before you started earning commissions again. They wanted to put all of us who had computing territories in the early days of the 701 on salary. I went to my manager, Ralph Harris, and then my district manager, Charlie O'Malley, and said, "I believe that my machines will be installed two years from now. Therefore I want to stay on commission. Will you put my commissions in an escrow account and not pay me for two years. Then, if they're still installed in two years, I want my money." And it was a whopping amount for those days -- 1952, 1953. But of course, corporate management in New York ruled the roost and those of us with computing territories were put on salary. I went off quota in May of 1953, but I'd already made the 100% Club for that year. I was on quota for one full year and parts of two other years, I

made the three possible 100% Clubs in a lapsed time of fourteen quota months. Which was pretty good for those days. Maybe even today.

MAPSTONE: It probably is. When they took you off quota, was it only for the 701, or were you still on quota for other equipment?

SMITH: No. We were put on salary. So naturally you couldn't go for the 100% Club, because there was no longer any quota. In the summer of 1953 IBM was getting ready to bring out the first big commercial computer, the 702.

MAPSTONE: Okay. Before we get into the 702, I want to backtrack on a couple of things. What did you do in Sales School? What was it really like in those days?

SMITH: Well, sometimes some students would take the part of the customer and other students the part of the salesman, and we would go through a routine of trying to sell a machine. These were punched card machines, of course. The instructor would sit there and critique us. That was fairly typical of a lot that went on. Besides learning more about the machines -- supposedly we knew a lot by then because most student-salesmen were working for 18 months before they went to Sales School.

MAPSTONE: So in the eighteen months preceding, your job was to learn the plugs and wire, literally, of the machine.

SMITH: That's right. Fortunately I was able to bypass that because I'd been a customer for eleven years.

MAPSTONE: When you started in the IBM Sales crew, was it still a period of pep rallies and some of the stuff that we always heard about under the Old Man?

SMITH: Oh, sure. We sang the songs. Don't ask me to remember them!

MAPSTONE: I won't.

SMITH: We sang the songs, and we sang them at Sales School every day.

MAPSTONE: What about back in the office? You didn't have to do it there, did you?

SMITH: No, not much. It was mostly work! Well, we did have meetings. My first Branch Manager was Charlie O'Malley who was a wonderful manager as well as a wonderful human being.

MAPSTONE: So the pep rally songs were being sung all the time you were at school, and they went on at the 100% Clubs after that?

SMITH: Oh, sure. Absolutely. Yes. And really, it wasn't bad. You know, you felt good!

MAPSTONE: Got in the spirit of things, right?

SMITH: Yes. Absolutely. And it kind of made you proud to be with IBM. We certainly were different. Back in those days, a salesman would have been severely criticized had he worn a colored shirt. It was a white shirt with a narrow collar, and a narrow tie. I think in Los Angeles, though, we did wear a slightly wider tie than they did in the East.

MAPSTONE: A couple more things I just wanted to backtrack on before we go on. Do you remember who your first clients were among those nine that you sold? Do you remember any of them?

SMITH: Yes. Boy, oh boy! You realize how far back you're causing me to remember but I do! Some were already customers to whom I sold additional applications, like Thrifty Drug. At that time, Thrifty Drug was the largest drug wholesaler west of the Mississippi River. I took them over as a customer, I was able to sell additional applications and machines. As a matter of fact, I believe Tony Staude,(?) the Executive Vice President of Thrifty, had not been too favorable toward IBM. After some months of representing IBM to Thrifty, he suddenly became friendly, and I found out why. They wanted their accounting machine to write an invoice and a picking slip, (the picking slip was used to pick up items at the warehouse so that they could be sent to a particular store.) However, it would take two runs through the accounting machine: one to do the picking slip, and one to do the invoice. That meant they had to have another accounting machine. In the meantime IBM brought out a special device for the type of accounting machine they had -- I think it was the 405. The special device would, in effect, split the carriage so that a second copy could be written different that was from the first, the original. By adding this device which rented for around \$35 a month (an accounting was several hundred dollars a month), they would not need another accounting machine. I sold Thrifty that device, and Staude heard about it. He called me into his office and he said, "Aren't you fellows on commission?" I said, "Yes." He said, "Well, didn't that cost you to sell us a couple of these \$35 devices instead of a whole accounting machine?" I said, "Yes, it did." He said, "Well, why did you do it?" I said, "Because Mr. Watson, Sr. told us that what is right for the customer is ultimately right for us salesman, and I believe him." From then on he was my friend, and we sold other applications to him quite readily. That was Thrifty Drug. May I tell you one story about a prospect. You know, a salesman had to register prospects with the office. Charlie O'Malley had been promoted to District Manager from Branch Manager while I was in Sales School, and a new Branch Manager from the East took over. I'd never heard of him, and he'd never heard of me, he followed the book. I mean, if it wasn't in the book, you didn't do it, and you went exactly by the book. Well, I liked prospecting, and I did a lot of cold prospecting. I would see a driveway with two or three trucks in it, and think "Well now maybe they're a prospect; if not for machines, for the Service Bureau." After all, I got 10% of the billings from Service Bureau work. So I saw a place called Kahan and Lessens that's what comes back to me. This was the end of 1950, so we're talking nearly thirty years ago. I called of them, and Kahan and Lessen were two partners who ran what was one of the very first health food distributors in the Los Angeles area. In my territory. One of the partners was there, and I got him a little

interested in how he could use our tabulating equipment to do all of his invoicing and things like that. He asked me would I wait or come back later that day when his sales partner would be in and both of them could discuss it with me. So I did, I went back. At Sales School we had been taught to always be prepared and carry a blank contract in your briefcase, just in case somebody wants to sign one! Well, before the evening was over, I had sold an installation to Kahan and Lessen, and had the signatures of the two partners on the contract. But since no IBMer had ever called on them before, they were an unregistered prospect. The next day I proudly showed this to my new Branch Manager and he did not want to accept it because they were not registered! Well, I prevailed.

MAPSTONE: I'm glad to hear that!

SMITH: I prevailed. And do you know that fifteen years later when I was in New York someone told me that Kahan and Lessens were still one of the spots where they liked to demonstrate small installations. So they did remain a customer.

MAPSTONE: That's a good story. Can you recall others of that first nine?

SMITH: I had others. I can't remember their names off hand but I know they will come back to me. It was a typical territory: a little industry, wholesalers, things like that.

MAPSTONE: Okay. Now going back even a little further for a minute, you mentioned when we were talking before that you were involved in starting the LA Systems and Procedure Organization at Western Airlines.

SMITH: Oh, yes. In 1947, I think. Yes. I believe SPA was started in Washington, DC, but I'm not sure. It was for people in systems and procedures. They had a New York chapter formed, perhaps out in San Francisco, and I was part of the formation of the Los Angeles chapter, which was either the 3rd or 4th ever organized. I was also a member of the founding board of directors of the SPA in Los Angeles. We would meet monthly and it was a serious time to

consider how to do things better. Some years later, after I'd joined IBM -- of course I lost my membership the day I joined IBM since it was a users only organization -- they were kind enough to invite me back to give a speech, and I think the title of it was "Punched Card Accounting, 1953 Style." I think the organization disbanded many years ago.

MAPSTONE: You were just starting to move into 701, and I was wondering about how the 701 was introduced to the sales people?

SMITH: Well, I'm sure IBM had some qualms about typical salesmen trying to sell and install. Remember, we were responsible for the installation as well as the sale.

MAPSTONE: The original installation?

SMITH: The original installation.

MAPSTONE: Then a customer engineer would come in?

SMITH: Oh, yes. A customer engineer would come in. Later on we got the systems engineers, when we hired Dr. Cuthbert Hurd in New York. Most of us salesmen knew nothing about mathematics, science and engineering; certainly not programming. I tried to learn binary arithmetic. I went to two programming schools. But I could never earn a living as a programmer. I would have been fired immediately. It was raw pioneering, because no one at corporate headquarters could advise us. There was no experience to use, no precedent. So we had to feel your own way. Now I must tell you that the Santa Monica office was established around this time with Ralph Harris as the first Branch Manager. There was a salesman named Chuck Hardway(?) who had sold some of the 701s and then was promoted, and I took over his territory and sold others. But Chuck Hardway preceded me in those early days of the 701. There were only five sales people in the Santa Monica office. In fact, the Branch Manager, Ralph Harris, was a quota salesman. (Great, great guy. I wish we could find him. He deserves some recognition. I'm sure he's retired in

California.) So he was out selling as well as running the office. It was a small office by IBM standards, everything was rather touch-and-go. But if you could convince Ralph of something, then he'd back you 100% of the way. Just as he did when I wanted to start the DCA, which I'd like to tell you about a little later. About Branch Managers, Charlie O'Malley was the greatest I ever knew; Ralph Harris was close to it. I'll never forget the day when Ralph called together all five salesmen, I think he was one of the five, and he said, "Fellows, we have an uneven distribution of Service Bureau business amongst the territories, so we're going to have to re-distribute." And boy, that was money out of my pocket because I made a percentage of all the Service Bureau billings in my territory, and they went on and on just like part of your paycheck. If one of my clients was doing payroll every week through the Service Bureau, I got credit every week. But I thought, Ralph was right. I don't know what the other guys had, but I received a fair amount of revenue from the Service Bureau business." Ralph continued and said, "Well, I really feel that some of my Service Bureau revenue should be split up amongst some of you." And that was his way of evening it up. For a Branch Manager, I think that's great. I was there for the installation of the first 701s in my territory. Douglas Aircraft, Headquarters Division was No. 1. Douglas Aircraft, El Segundo Division was No. 2. And then the Rand Corporation, which I sold, was No. 3. Those were the three 701s in my personal territory.

MAPSTONE: Who did you deal with when you first started approaching Rand on the 701? Or did they approach you?

SMITH: I don't know how that happened. I called on them because, I believe, they were a customer of some of our earlier equipment. They were busy trying to build JOHNNIAC, JR. when I started calling on Paul Armer who was in charge of computing. There were others there, Don Madden amongst others. I called on three or four people, but Paul Armer was my primary contact. IBM was limiting how many 701s they would produce, so they didn't print any more manuals. In the meantime while awaiting delivery, the customers could use the Service Bureau's 701 at Corporate Headquarters in NY. A customer who wanted to program something could go back there to run it. Rand wanted to run some of their work before they ordered the 701, and even after they ordered it. I refused to ask for a top secret clearance when I represented IBM to Rand because, being a salesman, I made my living with my mouth,

and hopefully my brain. I did not want to be responsible for accidentally spilling some secret of the Air Force or the Atomic Energy Commission. So, whenever I called on Rand, I had to go into the main entrance where the receptionist would call the secretary of the person I was going to visit, and that secretary would escort me into that person's office. Then if I was going to call on someone else, that person's secretary would come as escort me, and so on throughout the building. Paul and the other fellows were after me all the time to please get them some more 701 manuals, so they could study and learn. They were not only a prospect for a machine, but they were a potential Service Bureau customer for the 701 in New York. I could get, I think, only two copies of the manual. Yet in every office I went into in the Rand corporation there was a UNIVAC manual; my No. 1 competitor. There were UNIVAC manuals all over the place which upset me. Dr. Cuthbert Hurd of IBM had just organized systems engineering and he had a group of young mathematicians in Los Angeles. I found out that all of them had 701 manuals. So I went down one day -- they didn't know me from Adams or Fox -- I went in and threw my weight around and said, "I'm Blair Smith and I have an urgent need for some 701 manuals; I'll see that they're replaced." I grabbed some off the desk, walked out and went to Rand. So maybe they ended up with five instead of two. After I'd finally got the order for the 701 from Rand, Paul and the other fellows took me out to lunch. Paul Armer happened to mention "Blair, did you ever notice when you couldn't get 701 manuals that we always had UNIVAC manuals?" I said, "Man, yes! You had 'em everywhere!" He said, "Well, let me tell you the true story. We were only able to get one UNIVAC manual, and when ever we new you were coming, because the receptionist had to call, we'd be sure the UNIVAC manual was on that person's desk. Then as you were ready to leave to go to the next person, we would send somebody with it to your next point of call, so that you would think we had lots of UNIVAC manuals!" And I thought, "Boy! What an [---!]" I made it a practice for the rest of my career, whether I was a salesman or a special rep, or a program manager, or anything else, that if there happened to be a competitor's manual in a customer's office I would pick it up and then very discreetly tear off just a corner of the cover so that I would be able to recognize it.

TAPE 1/SIDE 2

SMITH: The 701 was ultimately installed not only at Rand, but also at Douglas's El Segundo Division. That, by the way was my only contact with Grace Hopper. I don't think she would have wanted me to take the programming course.

MAPSTONE: So somewhere around this time I think what was happening was that there were a lot of users, and somehow a need was starting to emerge for the sharing of ideas.

SMITH: Well, can I get into that? Let me tell you one thing more about Douglas. As I said, I had two 701 machines on order: one for the headquarters of Douglas, Santa Monica, and one for the El Segundo division that built primarily Navy Military planes. As I remember Ernie Sporleader was vice president of engineering and was over the group that would have run the computing installation. By the way, in those days Douglas Aircraft accounting work was run on (Remington, Sperry Rand equipment not IBM.) We finally installed the 701 at their Santa Monica headquarters division, but I got to worrying because it wasn't being used anywhere near three shifts a day, and here I had another machine coming in, some twelve miles away at the Douglas El Segundo Division. I thought that I would probably get a chargeback if they didn't learn to use these machines more efficiently. Furthermore, that we might go through the horrible expense of getting to the point of shipping the machine, and then finding we didn't have a customer at El Segundo. So I went to Ernie Sporleader, and I said, "Ernie, until we are sure of the future needs why don't we at least delay the shipment of the El Segundo 701. They can come here and use it graveyard shift since nobody's using it and its just shut down." They were doing mostly programming check-outs on the swing shift, and the only real work was being done during the day. I thought they should not have the second one installed until they could really justify it. Ernie said to me something I always remembered the rest of my life in computing. He said, "Blair, don't you know that computing breeds computing? And that soon we will be using both of those machines around the clock?" Boy, was he right! Was he right! Computing does breed computing. Yes.

MAPSTONE: That was an amazing foresight, because back in the days of the 701 debates were going on by people from von Neumann through IBM on how many large-scale computing machines the world would need. Six, someone said; twelve, maybe.

SMITH: Well, I have a story about the 702 in that regard, where I personally doubled the forecast for 702s by telling headquarters that I could sell all that they had originally forecast.

MAPSTONE: And they believed you?

SMITH: That's another story. But those were the early 701 days, and it became so obvious that we were all pioneering: the customer, the manufacturer -- all pioneering. Not just in technology but also in methodology, programming, if you will, and it looked to me that we needed to share. For instance, Douglas El Segundo was trying to write a program for stress analysis. Across the valley, Lockheed was probably writing the same program. Why should everybody write their own program? Why not say, "Okay, El Segundo Douglas, you write stress analysis and I, Lockheed will write this, and we'll swap." It made sense. Frankly, I had another very important reason for wanting to get an organization which became the DCA going. The only place you could train 701 programmers was in New York City at IBM's Service Bureau location. So, at great expense, a 701 customer waiting for delivery would hire a bright young mathematician out of college, and send him to IBM school for weeks and weeks to learn to program the 701. Frequently, he would no sooner return home, than another 701 customer would hire him away for a 25% increase in salary. As an IBM salesman with a purely selfish point of view, I could see the cost of programming going out-of-sight to where people could no longer afford my computers. I thought they should get together on a friendly basis and somehow agree not to do this pirating of personnel. I don't think I've shared this story very often, but that was one of my two reasons for wanting to start what became the Digital Computing Association (DCA). In fact, that does bring us up to 1952, and the start of the DCA. May I talk about that?

MAPSTONE: Please.

SMITH: Paul Armer was my good 701 customer at Rand. When we started talking about getting together, Paul lent me a great deal of encouragement. In fact, at times I really think Paul slipped me the idea of IBM picking up the bill at the first meeting! I don't know. Knowing him, it's quite possible. When we decided we should get all of the 701 customers together -- there were only 18 -- and have a meeting, I had to talk to my Branch Manager, Ralph Harris. Ralph was quite familiar with the problem having a territory of his own, and so he was highly in agreement. But because it was so different a kind of a thing for IBM to sponsor in any way, unofficially or otherwise, we felt we had to get the District Manager's, Charlie O'Malley's, approval. Charlie went along with it since he too saw the need. I doubt very much if Charlie ever talked to anybody at Headquarters; we just did it. We had our organizational meeting in November 1952, I think, at the Santa Inez Inn. Where is that? Santa Monica? Yes. Around Santa Monica, or just north. I don't know where it is. I do remember that some of the 701 customers were pretty upset with each other over the former pirating of personnel, and it seems to me I had to buy about three rounds of drinks before we became friendly. In fact, I believe it was the largest single expense account I've ever filed in all of my years with the IBM Corporation.

MAPSTONE: You personally filed it?

SMITH: Yes. Yes.

MAPSTONE: Was it accepted?

SMITH: Oh, yes, because I had my Manager and District Manager's approval before we started. Now, I'm not positive of that. Maybe Ralph Harris signed it. I don't know. But I remember it being a very large bill. But it worked. Of course, the customers did it.

MAPSTONE: So you were conceptualizing it and sending out letters...

SMITH: Getting them together.

MAPSTONE: How did you go about bringing them all together?

SMITH: I think we did it through the other IBM 701 salesmen and then they through their customers. Which was the right way to do it.

MAPSTONE: Blair, do you recall who else came? How many of the 18 users?

SMITH: I remember Herb Grosch was a 701 customer from General Electric in the mid-West or somewhere and he came.

MAPSTONE: After the first meeting with those users, did they establish a method for keeping it going? (Blair, do you recall any specific applications that were developed there DCA?)(?)

SMITH: Yes.

MAPSTONE: Did you have a role to play in continuing ...

SMITH: Well, the first year they called me the Chairman. At least that's what the historical records show. I'm sure I did not play a very important part because the customers were the important ones to share with each other. I was a peddler, I was in favor of it, and I did everything I could to sponsor it.

MAPSTONE: What type of documents records exist on DCA formation, minutes, etc. Where are they?

SMITH: We had dinner, too, and a meeting. And it was so obvious. All they had to do was just talk over dinner about, "Well, I'm trying to do this -- and he's trying to do that -- and my goodness! Let's get together and share it." In fact, the later user group was called SHARE for that very reason.

MAPSTONE: And SHARE grew out of DCA, did it?

SMITH: Yes. Three years later. It should have been sooner.

MAPSTONE: So did DCA die at that time, or did it go on?

SMITH: No, it went on its own. The members, I'm sure, joined the other groups as were appropriate.

MAPSTONE: The 701 people stayed on as the user group until there no longer was a need for it?

SMITH: Yes. And then DCA became a once a year happy gathering time. In 1962, on the 10th Anniversary of the formation of DCA, (I was back in New York) I was invited out to the annual meeting where I was presented with a model computer. It's one of my prize mementos.

MAPSTONE: A model 701?

SMITH: Well, they apologized, they couldn't get a model 701 so it was a model 704. But it has a plaque engraved: "To our founder, Blair Smith, from the DCA, November, 1962." I'm very proud of that. It's still in my office at home today. It operates on batteries. It doesn't really work, but little lights flash. Then for the 11th anniversary in November 1963, I was invited out to talk to them. That afternoon President Kennedy was assassinated. Paul Armer and others of us in the DCA had a meeting on whether to have the function or not. We decided to go ahead. But I was so upset over this assassination, I don't recall much about it except being upset. I do know I mispronounced the

name of Descartes, and I was so upset I didn't even bother to correct myself. It was that kind of evening. It was a sad time. No matter what you thought of the President, the idea of a young man being assassinated was terrible.

MAPSTONE: It was a terrible, terrible day.

SMITH: That was the last time I attended a DCA meeting. I've been invited but unable to go until now. I'm going this year.

MAPSTONE: That's wonderful. Well, it really filled an incredible need, and was the founder of other group-sharing computer user technology.

SMITH: [This part of the tape is dictated by Blair Smith after the interviews.] What follows is being dictated at the specific request of Dr. Henry Tropp. Hank asked me to record the beginnings of the Digital Computer Association from my personal point of view as the Founder of DCA.

Well, in 1952, IBM offered very little help to its early computer customers for the 701. Anyone to be trained as a 701 programmer had to go to New York and stay in mid-town Manhattan where IBM had the first 701 installed at their Corporate Headquarters. This was expensive for the customers, and of course there were no programming aids, no advanced languages. And another thing I noticed -- nearly all of the 701s had been ordered directly for the defense effort. After all, the Korean War was underway. And a number of them were like some of my customers, such as the Douglas Aircraft Company, who were writing more or less the same program. I seem to recall that Douglas El Segundo was writing stress analysis for air frames, and I'm sure that North American and other 701 customers were writing the same programs. So there seemed to be two excellent reasons for getting all the 701 customers together in some kind of organization. Now, I had quite a selfish motivation here. You see, a practice came about where one 701 customer would wire a

bright young mathematician, send him to New York at great expense to become trained as a 701 programmer; then another customer would hire him away for a substantial increase in salary. Well, I could see the cost of programming going so high that customers could no longer afford my computer. Secondly: why should everyone write the same programs? Why not exchange programs? In other words, share. So those were the two reasons I wanted to start the DCA. Of course I had to get permission to do so. I don't recall IBM being much in favor of any kind of user organizations. I know that I was one of the founding members of the Systems and Procedures Association Chapter in Los Angeles when I was a customer of IBM's, in the old tabulating days. When I applied for a job with IBM, I did not bother to state my past affiliation with SPA.

However, my Branch Manager in Santa Monica, Ralph Harris, Jr., agreed with me that we needed to get all of the 701 customers together. Then we had to sell it to our District Manager Charlie O'Malley, and Charlie, bless his soul, agreed with Ralph and me. And then I began to get a log of help from my particular 701 customers, such as the Douglas El Segundo Division, the Douglas Santa Monica Division, the Rand Corporation; and I know that those customers had a great deal of influence on me and on the formation of DCA. Men like John Lowe, Walt Schleiser(?), Don Madden and Paul Armer. In fact, sometimes I think Paul Armer quietly gave me suggestions in such a way that I ended up thinking they were my own ideas.

However, be that as it may, in the fall of 1952, we notified all 18,701 customers of a proposed meeting in Santa Monica in November, 1952. And as I recall, most if not all of them showed up. I do remember Herb Grosch coming from General Electric in the mid-West. I picked up the tab for the dinner at the Santa Inez. In for the first meeting of the DCA. And I believe it was one of the largest expense accounts I ever filed. You see, some of the 701 customers were angry with each other for hiring away their newly trained programming personnel, and I think I had to buy about three rounds of drinks before they began to talk to one another in a friendly fashion. Be that as it may,

the Digital Computer Association did get off to a good start and it did accomplish its objectives -- that is, my objectives. Namely, to stop the pirating of personnel, and to share programs. Having this part in the founding of the first computer users' group is one of the things I shall always remember with pleasure, and I shall always remember the wonderful cooperation of my Manager Ralph Harris, and my District Manager, Charlie O'Malley. And of course, I shall always remember my customers. And I'm glad to say that some of them twenty-eight years later are still my dear friends.

First, this would be dated in the 1952 era when IBM was beginning to deliver 701s and really didn't know much of where to go in the future with computers. Once Jim Birkenstock, the IBM Vice President of Product Planning and Market Analysis, visited us in Santa Monica. I took advantage of that to introduce him to my customer at the Rand Corporation, Paul Armer. Jim asked Paul, "In future computers, what size do you think the memories should be?" Now remember, the 701 memory would hold 20,000 digits. Paul shocked Jim Birkenstock by saying that in his opinion, computers, even in the near future, should hold many times that much information. I don't recall the exact number, but I'm sure it was in the order to several hundred thousands digits in main memory. I noticed that Jim Birkenstock took some notes and, hopefully, Paul's recommendation was taken into account in future generations of IBM computers. I also recall Jim Birkenstock being very interested in our electronic scrapbook which we maintained in the Santa Monica IBM office. Ralph Harris, Jr. was our Branch Manager and there were only five of us in the office on sales quota. Part of our job was to read and clip out and add to the scrap book anything involving computers or electronics. In fact, I remember once reading in the scrapbook in 1952 or early 1953 about the future possibility of barium titanate crystal storage as a means of holding a large amount of data and accessing it at high speed. In any case, Jim Birkenstock had that entire scrapbook reproduced and took it back to IBM Corporate Headquarters with him. That was the kind of office we had in Santa Monica. Ralph Harris deserves a great deal of credit, and all the others who

participate in those early days of computing. What is still remarkable to me is how I was accepted by the scientists, engineers and mathematicians who comprised the clientele that I dealt with in the 701 era. I had no training in these fields and although I'd been a user of data processing equipment for eleven years before joining IBM, it was strictly in the punched card era. I had one year of college math, which I took under stringent protest as it was a required subject, and I had two programming courses in my career with IBM, but would never have dared to earn a living as a programmer. When I first took over this computing territory in the Santa Monica area, I believed the old story that I would have to become an expert in psycho-ceramics; that is, the art of dealing with crackpots. However, I soon learned to thoroughly enjoy being with my 701 customers. In retrospect, that was one of the happiest times of my entire career in data processing.

SMITH: Those of us in the field who got that early experience with the 701s learned things that they didn't know anywhere else in the IBM company, including headquarters. That's why IBM decided to have a class on the proposed 702 commercial computer. They selected forty IBMers from the field and from headquarters. I was one of them selected to go back for two weeks to learn something about this proposed 702, and to give my input. It was still such a raw pioneering stage of our business that practically every officer of the company came to talk to the class, any of them expressing caution not to get too overly carried away or overly enthusiastic. That was the summer of 1953. I boarded an American Airlines plane in LA to ride to NY. Having been with Western Airlines and Flying Tigers, I had read the Federal Aviation Administration's statistics on accidents and survival in airplanes. I knew the safest place on an airplane is as far to the rear as you can get. In those days there was just one class service, so I sat in the rear-most seat. The only further back you could go would be the head, but they didn't let you stay in there for the whole trip. Anyway, I sat next to the window and an older man came in and sat next to me in the other seat -- there were only two seats. This was a propeller-driven plane before jets. What could it have been? A DC6 - maybe. It was after the DC3. By the way, it took ten hours to get to New York because of intermediate fuel stops. So when you're going to be sitting next to someone that long, you kind of look them over. I looked over this guy and I noticed his white shirt should have been changed a couple of days ago. He also needed a shave. I immediately decided that

he was probably an unsuccessful travelling salesman returning from a bad trip, and just dismissed him. But when the stewardess came around and asked me my name and destination, I said, "Smith" and New York. He said, "Shake hands with another Smith." So then I decided he's an unsuccessful salesman named Smith. Pretty soon we got to talking, and this man turned out to be a master conversationalist. Within thirty minutes he knew my life story, and I only knew his name was Smith and his shirt was dirty and he needed a shave. That's all I knew about him.

MAPSTONE: And you're the salesman!

SMITH: Yes, and I'm the salesman. But I wasn't trying to sell him anything! Goodness! Then when he found out that I was with IBM, he said, "What do you fellows think of that new young president you just elected, Tom Watson, Jr?" Fortunately, most fortunately, Tom Watson, Jr. had just been out to make a customer call with me on my customer, Douglas Aircraft, and met Donald Douglas, Sr. I thought it was a beautiful customer call because neither Mr. Watson nor Mr. Douglas knew anything about computers, but they were both sailors and they talked sailing. So I was highly impressed with Tom Watson, Jr. after my first real personal contact with him other than meeting him in sales school. I told this man named Smith that we IBMers felt that Tom, Jr. deserved the presidency, not just because he was a chip off the old block, but because he deserved it on his own merit. And I believed that. I would have had Tom call on any of my customers after that wonderful call he made on my customer Donald Douglas. Then this man named Smith said, "Well, I'm glad to hear that because young Tom's a good friend of mine." Oh! Then I said, "What company are you with, Mr. Smith?" He said, "I'm president of American Airlines!" I learned later that he would be sitting in his office in New York and he'd suddenly wonder how things were getting along in L.A. He would tell his secretary, "I'm going to L.A." He would go to the airport, just walk on a plane, and fly out without a shaving kit, pajamas or anything. Then he would take a look around and catch another plane back.

MAPSTONE: That's why he needed a shave and looked dirty.

SMITH: After I found out who he was, then I became the salesman and I told him that I was going back to study a new machine called the 702. Also I happened to be familiar with their reservation system in those days because Ralph Harris at the Santa Monica IBM office required us to keep a scrapbook on electronics and computing. Anything we found that would be of interest, we'd cut out and put it in the office scrapbook. So I knew about Bunker Ramo's early efforts, Teleregister's early efforts, and so on. The system that American used was a drum computer that only kept numeric information on availability of space. For example, on flight #155 on May 25, there are twenty seats left. That's it. I told him I was going back to study a computer that had the possibility of doing more than just keeping availability. It could even keep a record of the passenger's name, the passenger's itinerary, and, if you like, his phone number. Mr. C. R. Smith just was intrigued by this. And, you know, he was a true entrepreneur. When Douglas was going to bring out a new airplane many years before -- it was called the DC2 -- Mr. C. R. Smith of American Airlines went out and called on Donald Douglas, Sr. and said, "Here's what's wrong with the airplane. Here's what should be done, done, done, and done." And Mr. Douglas listened to him and that became the DC3. Smith had a mind that was quick to grasp, and I intrigued him with my story of what the new computers could do for his reservations. He took out a card, and he wrote a special phone number on the back. He said, "Now, Blair," by this time it was 'Blair,' "When you get through with your school, our reservation center is at LaGuardia Airport. You go out there and look it over. Then you write me a letter and tell me what we ought to do." "Yes, sir," I said, "We've got some other people who are eminently qualified in product planning." He said, "You do it. You were with Western Airlines, you were with the Flying Tigers, you're with IBM now, You do it. You tell me." I said, "Yes, sir." And we finally ended the trip. It turned out he's a fly fisherman, and I'm a fly fisherman, so we really had a great deal in common there. In any case, at the school for the first class every held on the 702 for marketing people, Tom Watson, Jr. came up to talk to the class. Since he and I had just made a customer call on Donald Douglas a couple of weeks before, he came over to me during the coffee break. I told him about this trip I had made with his friend C. R. Smith of American Airlines, and what C. R. wanted me to do. I said, "Tom, don't you think Jim Birkenstock vice-president of product planning and market analysis, should do this?" He said, "No, Blair. I know C. R. Smith. You do it his way. But when you write him a letter, you copy me." After the class I toured the reservation center. I wrote him a letter in which I suggested a joint research and development project, with American Airlines furnishing

the airline know-how, and IBM furnishing the computer know-how, because I was sure it would take new machines as well as methods. Then it turned over to product planning and model analysis, and an R & D contract was signed. It was in Research and Development for five years.

MAPSTONE: Did Smith ever write back to you directly? (Do you have a copy of letter to Smith ?)

SMITH: You know, I'm looking through those files all over. He saw I had copied Tom Watson, Jr., and I know the two of them got together right after that, because that's how Tom Watson, Jr. later got it a little confused in his memory and thought that he had started it. But I straightened him out! In any case, I had nothing more to do with it. I went back to Santa Monica after the 702 class, and within a matter of weeks, Vin Learson, who was then Sales Manager for the country for IBM, called me back and offered me a job as one of the first two Special Representatives in EDPM -- Electronic Data Processing Machines -- that was primarily for the 702 that we were just bringing out. By the way, Ed McAllister (?) was the other Special Rep. He later quit IBM and joined a small competitor out in California. Later he tried to get me to join. We were the first two Special Reps, and then others followed. Our job was to go around the whole country helping the salesforce, telling them how to market computers, and talking to customers.

MAPSTONE: So you were really beginning to develop liaison between the hardcore sales person and the client, almost like the beginnings of a systems person?

SMITH: But in a marketing sense, not a technical sense.

MAPSTONE: I see. So you would go to the client, hear about their problem and what they needed, and you would talk about how the machines might be able to help them. Would you then go back to IBM and tell IBM what was needed?

SMITH: Oh, yes! I had no sooner become Special Rep in November 1953, when I found out that the worldwide sales forecast for the 702 was some trivial number of machines. I can't remember exactly, but it was something like twenty-five. I went storming all over that place at Corporate Headquarters saying "What do you mean? I can sell that many myself! Just one man! What do you mean?" Ultimately they did a new forecast, but it wasn't really raised anywhere near reality. And of course new machines kept coming along. I think one reason we didn't go to core memory in the 702. It didn't warrant the expense to develop it. So, core memory came along later.

MAPSTONE: In the 705?

SMITH: Yes. Those were fun days. We would be experts travelling all over, putting on presentations, talking to groups or individual customers wherever we went, like General Motors, U. S. Steel, Chrysler, and of those, talking to their executives, and doing a lot of talking with local IBMers. Then, in May 1955, I was promoted to Manager of Market Analysis and Field Testing for all IBM products, from typewriters to computers.

MAPSTONE: That was a big task!

SMITH: Yes, and especially at that point in time, because computers were so new that IBM really had not had a chance to make proper use of them for their own work. I also found that most of the market analysts were former salesmen like myself, and I thought we should get some really technically competent people. So I found Lou Hartheimer, a statistician with a Master's degree who was working in our engineering lab and was familiar with the 704 computer -- we had a 704 by that time at our Corporate Headquarters Service Bureau -- and I promoted him to Headquarters. In punched/card equipment days there were special devices that a customer could add onto a machine to increase its capacity or give it another function. There was a myriad of them for our accounting machine equipment, yet no one knew how extensively they were used. The IBM district billing offices used punched-card billing of their customers, and those cards had details I wanted. One month I asked all of them to make a duplicate set

of cards and send them to headquarters. Then Lou Hartheimer and about four programmers, wrote programs to analyze what machines and special devices we had installed, not just or machines, but by industry and application.

MAPSTONE: So in 1955 IBM really didn't have that information?

SMITH: Oh, no. As a matter of fact, the United States Government was suing IBM for anti-trust -- the second suit -- and it was a terrible, terrible ordeal for a corporation to go through a suit like that. By this time, Vin Learson had been promoted a time or two -- but he was still a vice-president -- and he found out that I had this 704 tape containing information on machines installed and the special devices on them. IBM was considering entering into a consent decree, but they needed to know what they were talking about because, for the first time, they would have to agree to sell machines as well as rent them. Up until then we only rented our equipment, which included the maintenance charges. If we sold them, we needed to know more. So on an urgent, urgent basis, I was told, not asked, to make special runs off of this tape so the headquarters people considering the consent decree would know what would be involved. And I mean, it was urgent. I took Lou Hartheimer and those programmers and put them in a hotel suite in midtown Manhattan near Corporate Headquarters at 56th and Madison. It was so urgent I sent other people to get them clothes from home, and had them brought down. Lou and his fellows wrote those programs to get that information to the top of the corporation who were considering should they enter into a consent decree, and if so, what? I'm not saying this played a key role, but it was information which was much needed, and it was the first time it had ever been available in one place and on magnetic tape!

MAPSTONE: And your reason for doing it?

SMITH: To do a better job of market analysis. Absolutely. Because we had to make a sales forecast for every proposed new product before it was priced and announced. A sales forecast is very important to the pricing. If you're only going to sell 100 of them, the price is going to be far more than if the sale is 10,000 or 1,000. Because of the tape and what we were able to do -- Lou Hartheimer and his guys did all the work you know, I just bossed things

around a bit! -- I was invited to participate in some of the meetings on the proposed consent decree with Tom Watson, Vin Learson, Dick Watson, Al Williams, who was the Executive Vice President of Finance I guess by that time, and so on. I'll never forget Tom Watson saying to us one day -- I may not be quoting him exactly, but I remember very well how he said it -- "It seems to me we have no choice but to enter into a consent decree and get this over with, because it is taking so much of management's time away from the business and we will stop growing as a company. So we have no choice but to go ahead with a consent decree." And that was true, it took hours and hours and hours and days and months and years! Well, look at this current one going on. It was filed the last working day of the Johnson Administration. How much management time has that taken in the past eleven or twelve years? At one of those meetings that I was party to on the consent decree, Tom was asking each one of us what we thought after he made that statement. He even asked me, and I was just Manager of Market Analysis and Field Testing, and had just happened to have contributed some information. I thought he shouldn't have asked me, and I almost said, "Well, Tom, I don't believe every Tom, Dick and Harry should be asked," then I realized Tom Watson, and Dick Watson, so without even thinking, I said "every Ralph, Joe and Harry" -- and he laughed. I had very little to do with that decision except to furnish some information that Lou Hartheimer and his boys obtained. Lou was a very objective statistician, a real good one. When the very first reports on smoking and cancer came out based on the work they did with rats -- they shaved the rats and rubbed nicotine on them to see what happened -- I said, "Lou, you have never been a smoker, but I am. Read this and look at the statistics for me, which I don't even understand, then whatever you say I'll obey. If you say that it's really dangerous, I'll quit." Lou came back to me in a day or two and said, "Blair, I've read this thoroughly and the only conclusion one can rightfully draw is that rats who shave should not bathe in nicotine!"

MAPSTONE: That's a statistician! They're a crazy bunch! But out of the work that you did with him, did it indeed affect the forecasting and the production of IBM machines?

SMITH: It had some affect, but I don't mean to blow it up. There was still a lot of intuition, especially in new products that weren't just replacements for older ones. We were plowing new ground so we all had to use an overall knowledge and some intuition.

MAPSTONE: Right. IBM's attitude was generally expansionism anyway.

SMITH: I'd prefer "growth." I was Manager of Market Analysis and Field Testing. It was at that time when I got to know Perry Crawford who was part of the product planning side, and Mike Kami who was Manager of Advanced Product Planning. Subsequently, Mike was Corporate Director of Advanced Planning, and then left and joined Xerox, I believe. Even back then, Perry Crawford did some of the pioneering work on what became SABRE. When we first started it in Research and Development, he and several other guys...

MAPSTONE: (Blair, can you add names?)

SMITH: ...did some of the advance application planning for SABRE by working with American Airlines. The work they did was beautiful, because years later it turned out they were pretty well on target even though there were no computers big enough to handle it. No suitable magnetic disk files, no terminals, no communications devices -- it was beautiful to see how their dreams were on target.

MAPSTONE: They had analyzed the airlines' needs, and imagined what should happen even without the technology to do it.

SMITH: And working with their counterparts in American Airlines.

MAPSTONE: I just want to make a linkage here. Saber was what grew out of that original on-the-plane meeting with C. R. Smith?

SMITH: Yes. We didn't know enough to call it anything. Later on, the word "Sabre" was adopted. By the way, it was originally spelled S-A-B-E-R -- the only precedent we had was S-A-G-E Semi-Automatic Ground Environment System. SABRE was used to detect incoming airplanes. Radar defined the perimeter of the United States and then that information was signalled into a central computer -- the Sage computer. The perimeter data was then compared with what information they had about friendly aircraft, and so on. That was the only precedent we had. When the airline system was in Research and Development, they adopted the code name SABER for Semi-Automatic Business Environment Research. Later on, American Airlines changed it to S-A-B-R-E, and, I believe may have had it copyrighted. I'm not sure.

TAPE 2/SIDE 1

MAPSTONE: That chance conversation with Smith on the plane did indeed lead to the SABRE system?

SMITH: Yes. However, during the time of SABRE was in research and development, I had nothing whatsoever to do with it except that Perry Crawford and other fellows would talk with me now and then. That's how I got to know Crawford and his Imaging concept. It's a shame we didn't bring it out, but there was a great need for Perry Crawford's concept of imaging. That's another story. I tried to help him. I even got him meetings with the top brass to make them listen to him.

MAPSTONE: Can you describe it a little bit?

SMITH: Perry's idea was to eliminate typical application programming altogether by having a master program; then have all of the data concerned with, say, running a given business available and identified in the computer. Then if somebody wanted a report of any kind, all he had to do was to tell the computer what was wanted, identify the data from which it would be drawn, and out would come the result. Now, that's an over-simplification. Obviously it would

be terribly complex to do. It was a most difficult job, and it never got off the ground. I'm sure other people in other companies thought of it at one time or another, because I know Perry used to go around giving talks on Imaging. He was still working on it a few months ago when we talked to each other several times, because I'd been one of his early supporters. I told him he'd have a tough time, because with the status of programming the way it is today, after all of these years of programming, and the programming languages we have developed, introducing the Imaging concept would be about as difficult as converting the typical American to the metric system today. Maybe it can be done, maybe it will be done. But it's going to be tough. From May 1955 until December 1956 I was Manager of Market Analysis and Field Testing at Corporate Headquarters. Then in December 1956 I was made Director of Corporate Methods and Operations Research at Corporate Headquarters. Of course I had a lot of methods experience as a customer of IBM as well as a salesman. But Operations Research! Heavens to Betsy! Once again, I found the group I inherited were predominantly former salesmen for the Methods group, and Operations Research was about 100% mathematicians. I decided to get some more professional types, and one I heard about was a guy with Dan River Mills, down South somewhere. Dan River Mills had put in what I considered to be one of the first true, what we now call, "teleprocessing" systems. They had teletype machines at each of their mills around the country where they made cloths of various kinds. Each night they would teletype in from the mill what yardage they had produced of what type of cloth. Then an 650 (?) tape drive computer would consolidate all of it and make some reports so that the next morning corporate management knew their current inventory of goods and yardage everywhere in the country. I thought that was great. I found out that the name of the guy that did it was Paul Rizzo, and he was Assistant Comptroller for Dan River Mills. Well, I felt it was high time the IBM Corporation started utilizing their own computer products in their corporate accounting. And since I was Director of Corporate Methods and Operations Research, I could go ahead and do it. They were still using punched cards in those days. I had to get permission from the Branch Manager of wherever Dan River Mills' headquarters was located to interview Paul Rizzo, because you couldn't steal from a customer. Since you could get in big trouble with their top management. I finally got permission to interview Paul Rizzo and hired him as Methods Analyst, Grade A. He was one bright guy, and still is. I also felt we needed more than mathematicians in operations research. I wanted, amongst other things, an economist, because we were doing operations research for the whole IBM company not for just a division. It was worldwide. What I wanted

was a detail-type economist. I had several applicants and I would call their universities and speak to some professor who knew them. One was Dr. Merv Mueller. I didn't know much about economics, I could barely pronounce it, and this professor explained the difference to me between macro-economics and micro-economics on a long distance phone call. I said, "Which kind is Dr. Mueller." He said, "A micro." I said, "Good. That means detail." He said, "Yes." So I hired Merv Mueller. He subsequently left IBM. We had some fun in Corporate Methods and Operations Research. John Backus was Manager of Operations Research. Good guy. A mathematician. And I inherited him with his group. John had on his wall the picture of a nasty little man peering around the side of a building, and the caption on it was "People Are No Damned Good." I thought it was a terrible thing to have in the headquarters of the IBM corporation. I had all kinds of outsiders coming in to see me, and they had to pass John's office and see that terrible little man with that horrible caption: "People Are No Damned Good." I called John into my office and explained this to him, but he didn't want to change it. He felt that it was his office and he could hang what he wanted on the wall. Well, after a couple of arguments, he turned the picture's face to the wall. Then, there was this cheap looking back of a frame hanging there for people to see as they walked toward my office. So I called him in again. "John, I want that picture out of here now." The next day I could hardly wait to get to work to see if that doggone picture was there. The picture was gone, but in its place hung a black ribbon and a little sign which read: "In Memoriam Libertatis." Anyway, we did a lot of good things. IBM finally put a 705 on order for corporate headquarters. SABRE meanwhile had been dragging on for five years in Research and Development. Remember they didn't have big enough files, they didn't have terminals at all, so there was a lot of engineering work that had to be done; not just programming. In fact most of it was engineering of new products. Then in September or so of 1958, Vin Learson called me in his office one day and said, "This SABRE thing has been going on in R & D for five years, and I want you to prove whether it's saleable or not. I want you to take over as Program Manager for SABRE in the Advance Systems Development Division." Now, Jerrier Haddad, who reported to Learson, was president of the division, and he's the guy that should have interviewed me. But he was off at Harvard Business School for an Executive School so Learson was running ASDD at that time. He hired me with Jerry's okay. And I said, "Vin, I believe in SABRE, I believe in the future of this type of system, but I think the first three-six months I'm going to spend proving whether we should even market it or not in its present form. Now, if I happen to prove that we

shouldn't market it, then I want you to find me a job." He said he would so those were the terms under which I accepted the job as Program Manager of SABRE and ASDD. And it was quite a time!

The following incident took place about 1960, when I was Program Manager for SABRE, the proposed Airline Reservation System. Tom Watson, Jr. wanted me to present SABRE to the IBM Board of Directors. When I arrived for the meeting, the board was in session. Then Hank Trimble who was the Corporate Secretary came out and called Dow Jones. He announced that IBM had just had a stock split. He hung up the phone and a minute later it rang again. It was Dow Jones confirming that this was truly IBM calling them. After that, I was introduced to the Board by Tom Watson, Jr. and Tom introduced me by saying that this system we were developing for American Airlines would have 15,000 terminals hooked into one central computer site from all over the country and even Canada. Well of course, it wasn't 15,000 terminals. It was 1,500 initially. Sherman Fairchild of Fairchild Camera and Instrument was one of the outside directors, and I saw his eyebrows rise when Tom said 15,000 terminals. So I thought --well, I had to correct it, but how to do it without offending my Board Chairman! Since they had just voted to stock split, I said, "Mr. Watson is in a splitting mood today. He just split the SABRE terminals 10 for 1." Fortunately, everyone laughed, including Mr. Watson.

MAPSTONE: (Blair, do you recall the reactions of Board Members to SABRE, individually and as a group?)

SMITH: We had very dedicated people both at IBM and at American Airlines. Real good guys. Men and women, by the way. It was tough. The disk file that we wanted for SABRE was being developed at IBM, San Jose. They said they couldn't do it and that we should go with this small file -- I forget the number of the thing. I said, "Wait a minute! For the records we want American to keep, I will have forty of those files in one room, and the maintenance of them is such that some will be down at any given moment. Not acceptable." So we kept fighting and fighting and fighting. Finally came what was called the 1301 (Ramac)(?) That was the file that we forced into being for SABRE. Of course it was announced for the whole world, and proved very useful. Time after time we did that. For instance multiplexes(?) for changing the signals coming over phone lines. Believe it or not, in those early days, the Long

Lines Division of AT & T used audio modulation. (I think that's what it was called). But that would have been entirely too cumbersome and slow, so our engineers had developed the use of frequency modulation, which was much better. I'm not sure I should say this because it's my memory working and I could be wrong, but it seems to me that we had IBM engineers working for the Long Lines Division and giving them the benefit of everything we'd learned about FM data signals. That's what we finally used in SABRE. When we began to be convinced that maybe we could sell it I said, "Wait a minute. We've worked with American Airlines for over five years, exclusively. How do we know this isn't a one-of-a-kind system just for American?" At that time, American was the largest airline in the country. That was before United merged with Capitol and outstripped them. I said, "How do we know it will work for anybody else?" So before we ever sold the system to American, we started a joint study effort with the international carrier called Pan American, and with a regional carrier called Delta. That was before Delta got any cross-country runs. Now we said, "If it works for all of them, then we have a saleable product." Delta was located in Atlanta, Georgia; Pan Am right in New York, so it was easy for me to get qualified people for Pan Am but with Delta it was a different matter. I went to see the young man who was representing IBM to Lockheed, I believe in Atlanta. His name was Cecil Webb and he was an account representative not a manager. He was a head honcho for IBM at a big customer's. I got an okay to interview Cecil and brought him up to New York. I liked him. He was young(?) he was knowledgeable(?) and he knew more about the inner workings of machines than most salesmen. So I offered him the job of account manager at Delta. It turned out that when the Branch Manager gave me permission to interview Cecil, the District Manager, his boss, was out of town. When the District Manager got back and found out I had interviewed this boy that he had his eye on, he called me up to tell me I couldn't have him. I said, "I'm sorry. He's already been introduced to the customer." That's the Second time I'd pulled that. I made sure he was introduced very quickly to Delta. Cecil was wonderful. After some work at Delta and at Pan American, we found that SABRE was saleable but we had to use a different computer. Pan American wanted the 7080 -- not the 7090 that we had started out with at American -- because they had to have two computers; one on-line and one as back-up, and they wanted to do some typical accounting applications on the off-line machine. To do this they needed a more commercial computer than the 7090. So we had to specify another computer. Then, Delta, being a small airline compared to the other two, couldn't afford either the 7080 or the 7090, so we had to go to the 7074, I believe. That

sounded wasteful, but it broadened our market base. It gave us more potential coverage no matter which way computers went in the future. If we could only do this for a large airline, the day would come when we wouldn't have equipment that would be saleable to very small airlines. Well, we ended up selling all three of them. American, the first one, was the largest commercial order that IBM ever received in its history outside of U.S. Government orders.

MAPSTONE: Do you remember the figure?

SMITH: \$28.5 million. It probably got to \$30 million by the time we were through installing it. I don't know. But I believe it was around \$28.5 million.

MAPSTONE: This was to handle national reservations, giving information on the destination and on the people, names, all of that.

SMITH: Yes. It provided information on every flight that American planned to fly for a year in advance, I believe, the status of that flight in terms of reservations, and if reservations had been made, the name of the person holding the ticket, the itinerary, and how to contact that person.

MAPSTONE: So, truly, it revolutionized the airline system.

SMITH: Oh, yes. Oh, yes. No-show was a huge problem with the airlines then. They thought they had the tickets sold, but people just didn't show at the gate. So they would fly with empty seats, and you lost money when you fly an empty seat. It turned out in a study that 80% of the no-shows were the fault of the airlines' bookkeeping problems. Not just on American, but all of them. Obviously, we should be able to eliminate most, if not all, of that. It was a terrible hard job selling it to American because it had never been done before. It was hugely more expensive than the little numeric availability system they had. C. R. Smith turned the problem of it over to Bill Hogan who was Executive Vice President of Finance for American, and Marion Sadler who was Vice President of Sales. They had to

decide whether they could afford it or not; whether it would save enough to justify the huge cost? Mind you, they had to build a building for it out in Briarcliff Manor in Westchester County, then they had to have nationwide communication links. The initial system had 1500 terminals all over the United States, and I believe there were a few in Canada. Then there was the training of people and the enormous amount of the application program.

MAPSTONE: So that \$28 million figure did not include the training?

SMITH: No. That was just for the purchase price of the IBM equipment. So it was tough one to sell, and I had to do the selling.

MAPSTONE: You sold it?

SMITH: Oh, yes.

MAPSTONE: Did you ever get back to Smith again?

SMITH: Oh, yes. But I had to be very careful because now I was officially working with his Vice President of Finance, Bill Hogan, and his vice President of Sales, Marion Sadler, and you don't by-pass people at that level and go to the Chairman if you're upset about something. Oh, I've got a story about that. In fact, when I told Marion Sadler this story years later he said, "Blair, that's beautiful. Put it in Wings." -- I believe it was called Wings. I said, "C. R. Smith would get upset." "No, he wouldn't," he said. "He'd laugh his head off." Well, in selling SABRE to American both finance and sales had agreed that it would save them some money, but they were arguing over how much. Three months went by, and here I'm sitting with a couple hundred people -- I don't know how many -- but all working. Vin Learson, my group executive, called me in and he said, "Either this is going to sell or not. And we can put those people to work somewhere else." I was scared he was going to break up my group which would have been rough, but we couldn't just keep building and working on an unsalable project. Yet, if he broke up my group I'd never get

them back together again. It would have been real tough. But it was right and proper to either do it or not. When I found out that the finance and sales people in American both agreed SABRE would save money, but were arguing for three months over how much, I had to see C. R. Smith without offending any of his Vice Presidents. I had learned that C. R. had coffee in a stand-up coffee shop in the bottom of the building where American had offices -- they had several floors of a building in downtown Manhattan. I started going to that coffee shop at 5 p.m. every day, and I'd stand at the counter, drink a cup of coffee and wait. It 6 o'clock came and no C. R. Smith, I'd go home. One night he came in. I'd only waited a couple of evenings for him. "Blair! What are you doing here?" I said, "Oh, just having a cup of coffee!" And of course, we got to talking. Finally, I said, "C. R., your financial people and your sales people have been arguing for three months over how much money SABRE will save American Airlines. Both sides agree it will save them money; it's a question of how much. In the meantime, whatever those savings are, American has lost three months of them, and I've lost three months of revenue for the IBM company, so don't you think it's time for you to fish or cut bait?" He got red in the face, changed the subject, and pretty soon left. He didn't even offer me a ride uptown in his chauffeur-driven limousine. I thought I was in trouble because he was a friend of Tom Watson, Jr. and he would call Tom up and say "Who's this young whipper-snapper you've got telling me how to run my blankety-blank airlines?" I went back to the office -- it was only about 5:30, and Vin Learson was still there. I said, "Vin, Tom Watson could be getting a call from C. R. Smith any minute, and Tom could blow his top. And here's the story." Vin, although he was known as a tough executive, was also a human being. In fact, he'd chew you out, but unlike many executives, after he finished chewing you out, he'd help you solve the problem that caused the chewing out in the first place. So I was ready. Man, I didn't know whether I was leaving by the window on the 15th floor, or the elevator. He stroked his chin, and he said, "No, Blair. I've heard that C. R. Smith, when he has differences in his top management, waits for a catalyst. I think you've just been that catalyst. This is Friday, you go home and have a good weekend." Well, I could have hugged that guy! Monday morning I got a call from Bill Hogan saying he wanted to write a letter of intent for SABRE. And would I come down and help. I said, "Oh, I'll be right there." I dictated a letter to his secretary, he didn't change a word and he signed it. Of course that led to a long contract negotiation, but at least we had the go-ahead. Later I found out that on Saturday morning, the very day after I saw C. R. in the coffeeshop, he called Marion Sadler and Bill Hogan down to the office to talk. He verified that they both

really thought SABRE would save money, but didn't know how much. Finance thought a lot less than Sales thought. So he said, "You've been at this for three months now. Don't you think it's time to either fish or cut bait?" And then we got the letter of intent. What I like about that story is how understanding Vin Learson was when we could have gotten a real rough time.

MAPSTONE: It could have gone either way.

SMITH: I didn't even use the right words with you about "fish and cut bait." They were much stronger than that!!

But in any case it worked. I know that Vin Learson supported me again when I got the letter of intent which I dictated. It was just a typical letter of intent, but for \$28.5 million! Our corporate financial people didn't want me to commit a lot of effort and funds based on that, because they knew the contract negotiation would take a while since there had never been one like it before. We had to plow new ground in the contract. So I said, "C. R. Smith shook hands with me after I got that letter of intent. He went out to Boeing and ordered new Boeing jets, and he shook hands with Bill Allen, the President or Chairman of Boeing, for \$300 million worth. Now, you mean to tell me, I'm going to take this back and say 'Sorry, I love your handshake, but I need so-and-so.?" And I stomped out of the office. I found out Learson told them it was going to be done Blair's way, and it worked, we got the contract.

Contract negotiation is always a matter of give and take. As a matter of fact, the SABRE contract set a precedent for other contracts of similar nature where hardware is scattered all over the world and yet goes back to one central computer. That was tough. Anyway, American turned out to be No. 1, then Pan Am, then Delta. In the mean= time, I brought Cecil Webb up as my sales manager, and put in Charlie Rose as his replacement. Charlie is dead now, bless his heart. When we'd sold three of them and had a lot more prospects coming along -- Eastern was No. 4, and they were getting close -- IBM Management felt it was wrong for the Advance Systems Development Division to be doing so much of the data processing division's marketing. So they split it up. They made the Data Systems Division (DSD) responsible for the main frame hard= ware of the computer and for the programming effort. And they made the General Systems Division (GSD) responsible for the terminals and the files. They moved me to the Data Processing Division (DPD) and made them responsible for marketing and contract negotiations and customer

relations. I argued against this because SABRE wasn't yet in being. It hadn't been delivered and we had a long way to go. I argued that it was like taking an unborn fetus, dividing it amongst three wombs, and expecting it to gestate and be born a normal single integrated system called SABRE. And you can't do it. But I lost. I was moved to DP as Director of Market Development, but SABRE wagged my tail for a long time since it was still in the rough pioneering stage of implementation. A year later it was proven that you couldn't split it up, so they gave me back the responsibility.

MAPSTONE: Oh, really! It was starting to get messed up?

SMITH: Yes -- with problems had to be centralized. The responsibility to coordinate something that was in the process of being born.

MAPSTONE: So the splitting up, the three wombs and back to one womb, all happened before it was on-line?

SMITH: Oh, yes. Yes. Yes. Now, mind you, the people in GSD still went ahead developing the terminals and the files, but I had the say-so. The people in DSD still remained engineers, or programmers, whatever they were, but it had to be coordinated. Later on the company decided that maybe it wasn't a bad idea, so they started Industry Marketing. At the DP Division headquarters there were marketing managers for various industries. Their role was to coordinate the work of the engineering and development groups for new products, new programs, and so on.

MAPSTONE: It makes sense.

SMITH: Yes, it does. It was a necessity. Nothing smart about that. It was just a brute necessity.

MAPSTONE: While all this work was going on at American Airlines, were they looking at any other systems, or was there any competition?

SMITH: Yes, they did. They may have even received bids. We had an inside track since we'd started the R & D project with them years before, and I felt it was very very skittish ground to tread on. I steered clear of that and I wouldn't even talk competition.

MAPSTONE: Did you know what it was? Or did you pretend not to even know?

SMITH: Well, I'm pretty sure that some of the big ones were there. Later on, Sperry Rand won the first United Airlines contract. Burroughs won the first TWA contract, but after a couple of years, IBM got it, especially for the central hardware and programs. There were a lot of different terminals. As a matter of fact, I think IBM is probably not doing as well in the terminal market as they should today. Someday I'm going to visit a couple of airlines and find out first hand. I don't know whether I'll know anyone, but I'd like to see. In any case, I learned a great lesson from SABRE. If you're going to develop a new system, try to pioneer either methodology or technology, but try to avoid having to pioneer both in the same system. That's rough. Sometimes you don't know what's really causing the problem; is it the methodology or is it the technology? And sometimes both are causing the problem.

MAPSTONE: So ideally you try the scientific approach. Change one thing at a time.

SMITH: Yes. You'd really like to. I think you can progress faster. You may not make as great a leap forward as you would if you pioneered both simultaneously, but it certainly wouldn't be as frustrating.

MAPSTONE: In 1953 you met Smith. When did it SABRE finally go on line? Do you remember?

SMITH: I believe in 1961. The contract negotiations were completed in the early summer of 1961. I know, because I have here a letter from Vin Learson dated July 5, 1961: "Dear Blair, Congratulations on settling the American Airlines

contract negotiations. I know it has been tough and I think you deserve a lot of credit for having concluded it. Sincerely, Vin." The completing of the installation followed that.

MAPSTONE: Did you stay with it during installation?

SMITH: Yes, even though I had other jobs like Director of Market Development, which included all industry for the DP Division, a lot of speech-making, a lot of education and passing the word to others in marketing on how to do this. SABRE was so huge that I couldn't let go. I tried. I even flew to Florida to go fishing and I got hauled back right in the middle of it under the condition that they fly me and my wife back again to finish our vacation, which they did. SABRE was the tail that wagged this dog for too long, really. I couldn't let go. Undoubtedly some people thought I didn't want to. I wanted to so badly but other programming and marketing groups needed the kind of experience we had. So I had to spread people around. I promoted people all over the place. Bill Ellimore(?) was my Manager of Programming on SABRE. After it was all under control, the ideal place for Bill was at the IBM System Research Institute in Manhattan where he could teach. So I promoted him there. A year later I find out that Bill was bored to death because he was only working forty hours a week. We really put in the hours. In fact, I've had some heartbreaks over SABRE. One was a young, married woman programmer working out at American Airlines. She became pregnant. I found out that she was working horribly long overtime hours. I told her manager to just stop her from working so much and, if she needed the money, to give her a raise because she deserved it. Later she had a miscarriage. I found out she'd taken this work home secretly and worked on it at night-time. I felt horrible about it. Another one of my guys who was working day and night without any rest, drove off the road driving home and had a serious accident. I blamed myself. One guy had a heart attack. It was hard.

MAPSTONE: Of course you know that you can't or shouldn't blame yourself because these people were -?-

SMITH: Truly dedicated. They deserve the credit though. They truly deserve the credit. The men and women in both American Airlines and IBM who did that terrific amount of work literally went from "can't" to "can." When Bill

Ellimore(?) was Manager of Programming for American he worked horrible overtime. One time when I was out to see him I noticed he looked tired, and I said "Bill, when's the last time you had a day off?" He thought for a moment and said, "I guess it was the day I buried my son." -- his baby boy had died some time before. So I made him take some time off. It was tough. But the people; IBMers and customers did tremendous work. Roger Burkhardt(?) of IBM did a tremendous job. If I recall properly, he helped our predecessor, Teleregister, with the design of their terminal.

MAPSTONE: I'd forgotten about Teleregister.

SMITH: You know, they did work with what they had to work with.

MAPSTONE: What was their connection?

SMITH: They had a numeric drum computer with terminals, and they could keep track of the availability of space. I described them to you earlier.

MAPSTONE: Yes. Yes.

SMITH: And that was in several airlines. We always had to be careful, because we were big and we didn't want to throw our weight around. We'd already entered into two consent decrees and we didn't need any more. Of course, now the third antitrust trial is underway. You know, I wish the judge handling this one could have heard a conversation I had with IBM attorneys after we had sold American, Delta and Pan American. They called me in and told me that United Airlines was the largest remaining customer of Teleregister, and if I were to go in and knock them out, it would practically force Teleregister into bankruptcy. I was told to stay the hell away from them and not drive them out of business. We never called on United until years later when they put out a request for a proposal to all vendors.

TAPE 2/SIDE 2

SMITH: We had a new system under development which became the 360 system. The company fooled me completely when they announced it because I knew the status of the Type 1 software for it, and I figured they were at least a year further away from announcement than they actually were. It caught just about everybody unawares, who had big systems based on the older equipment. I felt though, that if we were to continue to market this Airline System, that we couldn't do it on archaic equipment that would no longer be built. I found out that Bill Ellimore was unhappy because he wasn't working hard enough, I got him and a group of programmers back again. We started on the 360 control program for the SABRE airline system, only we called it PARS (Programmed Airline Reservations System). I had a little difficulty with my immediate management. They did not want to spend money on it at that time and they felt I should continue to sell the older equipment because it wasn't yet obsolete. We just had something new. I felt differently, so I literally hid Bill Ellimore and his programmers in my budget for six months. Then, when the right time came, and we were able to get PARS out it looked like we did a remarkably quick job. But Bill Ellimore and his programmers had a six months headstart. PARS became the generalized airline reservations system. Years later when I was saying good-bye and taking my early retirement, I was reminiscing with one of the corporate officers. I shared with him how I had committed an illegal act of hiding Bill and his people in my budget for six months. He said, "Well, we knew about it at Corporate, but privately we thought you were right, so we kept our mouths shut." Can you imagine that?

MAPSTONE: What brought about the change from not wanting you to do it to wanting you to do it?

SMITH: Well, the 7074 was the computer for the moderate-sized regional carrier airline. Only a few were built and most of them were sold, so there'd be no trade-ins. Furthermore we weren't producing any more 7074s, 7080s and 7090s so it was a matter of necessity, really. If we were going to continue to sell the system we had no choice but to go ahead with 360. Furthermore competition was waking up and getting into the act. They were developing and using newer computers than our old 7000 series, so we had to go to the 360. We skipped something, Bobbi.

MAPSTONE: We were going to talk about C. R. Smith's idea?

SMITH: Oh, yes. We were still working on SABRE and hadn't produced anything. One time when I met C. R. Smith in the coffee shop below his old headquarters building, he said, "Blair, it seems to me that you fellows ought to be able to help us with another problem. We've got something we call 'flight planning' and the pilots have to work with the flight planning people to map the route that takes advantage of the winds, or minimizes the headwinds wherever possible. It seems to me that we could use a little bitty computer or something for that." The next day I assigned some people to the job of investigating what flight planning was all about. I knew somewhat about it, having been with Western Airlines. We ended up selling them a very small computer. I don't even remember which number it was, but it was quite small compared to the SABRE computer, more in keeping with the 1401 style or something like that. Then, a long time later I was out at Briarcliff Manor and Coincidentally American was having its Board of Directors meeting there. C. R. Smith once told one of his executives that Blair Smith must have a good underground knowledge, because every time he (C. R. Smith) shows up somewhere there's Blair Smith. Really, it was coincidental in most cases. This day he invited me to talk briefly to his board. I told them of this new young system we'd just put in that had proved itself, that Mr. Smith really gave us the idea and we just followed through on the research and development, but the only thing that disturbed me about it was that the IBM hardware cost was a tiny fraction of their estimated \$2 million a year saving in fuel alone. So we had a laugh over that. It was C. R. Smith's idea to do something about flight planning. He was the true entrepreneur: an idea man. I'll never forget when we were in the throes of installing and implementing SABRE. We were having to use real problems - and we had them in spades out at Briarcliff Manor. I was there one Saturday and C. R. Smith brought David Rockefeller out to see it. The Rockefellers, at that time, owned a big hunk of Eastern Airlines, so I guess it was in connection with that. Smith walked in with Mr. Rockefeller and said, "Oh, Blair! What are you doing here on Saturday?" Without thinking, I said, "Well, Mr. Smith, if possible, I'm even more interested than you are in seeing this system work." Mr. Rockefeller thought that was very funny, since I was with IBM. C. R. Smith was a true, true entrepreneur. A real bright man.

MAPSTONE: It sounds like there was some vision on both sides - his side, and IBM's side.

SMITH: True. Very true. I don't think any computer manufacturer would get very far without customer input. No indeed. And it pays to listen. Just as it did on that little side comment he made about flight planning. I'm sure that idea is in use everywhere; whether it's IBM computers or not, I no longer know because I don't have anything to do with it. I hope some of them are.

MAPSTONE: When did you finally stop being involved with reservations systems and airlines?

SMITH: In November 1965.

MAPSTONE: It might be interesting for you now to go and see what's happening.

SMITH: Yes. I would love to make a tour. I still know some of the top executives that are in the airline industry. Frank Hinesman(?) who is in charge of all computing for Eastern Airlines is in Miami. Frank does everything in the world on his computers, not just reservations, but all kinds of things. The last I heard, Eastern was doing reservations for some smaller airlines as well on their own system. Why not?

MAPSTONE: Once it's opened up, once the ideas are there and you realize that you can do them ?

SMITH: That's true.

MAPSTONE: Then it moves from there.

SMITH: It's very foolish to retire and let several years elapse and still think that you're up to date. Believe me, this is a business in which you can get out of date so fast, and it would be very hazardous to think that you're still there.

However, I find it interesting. I consulted briefly with IBM after I took early retirement, and did some work for others. But that didn't last too long. In any case, I still get the literature, and I still get DATAMATION. And I love to try to keep a little bit up to date. In fact, I want to write an article for DATAMATION.

MAPSTONE: I hope you will. You've got a lot of information.

SMITH: It's going to be entitled "Memories." And the subtitle is "The Other Kind," because I don't want any unsuspecting person who doesn't know me to think that it would be a learned discussion of MOSTAT(?) or heaven forbid, BUBBLES(?). You know, speaking of Bubble Memory, I told you of the scrapbook that Ralph Harris used to have us keep at the Santa Monica office. I remember reading an article in 1952 about the future possibility of Barium Titanate Crystal Storage for computers, where you could store many, many times the bits of information that we could in those old days. Remember, we had cathode ray tube memory. In fact, I have one of the tubes, either from the 701 or the wooden wheel.

MAPSTONE: Wooden wheel!

SMITH: Oh, the X 795. I haven't told you about that.

MAPSTONE: Tell me about that. I'd forgotten about it.

SMITH: Northrop Aircraft used to be one of Ralph Harris' accounts. I believe it was Ralph's. It was turned over to me when the office grew to where Ralph couldn't handle it. Northrop had Eckert and Mauchly's BINAC installed, but they felt they needed something more. I guess they started this work in 1951 or somewhere around that time. They put in a special order under government contract with IBM for a computer. Rex Rice(?) who was in charge of computing for Northrop in those days, and his theory was that you did not need much memory for the type of work Northrop was planning to do. By the way, the genesis of the name "Wooden Wheel" was the names of the IBM

engineers: Woodbury, Tobin and Wheelock. The main frame of the computer had a tiny facsimile of a wooden wheel! It really was called the X 795. "X" meaning that it was not part of the regular product line. It was ordered before I took over the account so I had nothing to do with selling the Wooden Wheel. But I was managing the account for IBM when the Wooden Wheel was delivered and BINAC was removed. I just happened to be there the day that they were going to take the BINAC out the door. They had the main frame loaded on one of these big flat bed pushcart things. Rex Rice, or someone at Northrop asked if I would like the honor of rolling BINAC out the back door? I said, "As a matter of fact, I would." So I rolled it out the door!

MAPSTONE: And it stayed there too.

SMITH: I don't think the Wooden Wheel lasted too long, because it had much too short a memory. But I still have one of those old cathode ray tubes at home, as well as a special tool for wiring permanent plug boards that I designed and had a machinist at California Shipbuilding Corporation build for me in 1943.

MAPSTONE: That sounds like a useful tool for those days.

SMITH: Oh, yes. Anyway, that was BINAC and the Wooden Wheel, or the X 795. And all of it was a learning process. It's amazing we didn't have more replacements. Not only IBM, but other manufacturers as well. It's amazing that some of the machines lasted as long as they did, because we were in our infancy in computing. Truly.

MAPSTONE: That's why these interviews and this history is important, because as I said earlier, this industry is moving so fast that 20 years ago is the "old days" in this industry. There are kids out here who have no idea what a tube from a 701 looks like.

SMITH: I also have a vacuum tube plugable unit with resistors and condensers attached to it. In any case, I think that no one should overlook the part that individuals played in all capacities in pioneering computing, Ernie

Sporleader(?) taught me about "computing breeds computing." How right he was. And I'm so glad he taught me. He was my customer, teaching me, a member of a computer manufacturing company. I've learned so much from customers over the years. Talking about the contributions of individuals, look at FORTRAN. I was at headquarters when Cuthbert Hurd, as Director of Applied Science, started John Backus and a few others on FORTRAN. When Hurd was promoted, a guy named Dr. Charles DeCarlo took over Applied Science. By then we were growing in leaps and bounds in computing, and good programmers working for IBM were worth their weight in gold. Charlie DeCarlo hid John Backus and his group in a building adjacent to our old headquarters at 590 Madison Avenue. He had John and his group on the top floor which could not be reached by elevator, so you had to walk up the last flight of stairs. I know, because I tried to get some of them to do some programming when I was EDPM representative, back in 1954 or so. But I couldn't come near those guys. And thank goodness Charlie DeCarlo did that, otherwise we wouldn't have had FORTRAN. Or it would have been long-delayed. You see, those are contributions of individuals.

MAPSTONE: There's a little theme that I see coming through. It seems that there were several times within IBM's history when you and other people found a path, even though perhaps it wasn't approved of, for six months to eight months before it surfaced.

SMITH: Yes, that's right. When I started to give talks all over the country and ultimately the world for the IBM company, I used to quote from a speech given by the former chairman of the board of the Bank of America, Lundberg(?) to a graduating class of a small university out west. He said, "what we need are people who will act without a committee, and who will not take chances unless they also strive for anonymity," and other things like that. In other words, we still need entrepreneurs, people will to take a chance no matter how big our business gets. I know. I had a bad argument with Gil Jones, president of the DP Division when I joined him after ASDD. He and I agreed that I would work with his organizational director on how market development should be designed, and whatever we decided on would be it as far as he was concerned. We shook hands on a company airplane. When we came up with an organization he refused to approve it. So I said, "I don't want to work for you." And for two weeks I didn't have a job. I went back to Jerry Haddad, the president of ASDD, and told him the project with Gil Jones has

fallen through. Jerry couldn't offer me anything because everything had been removed from ASDD. Finally group executive Max Smith, who was Gil Jones' boss, had to arbitrate it. And I won. After it was over, I went up to Gil and I said, "Can we wipe the board clean now because, after all, I'm going to be in your division. It's kind of known that you have a long elephant's memory, whereas I'm just known as 'Sweet Old Blair.' Only frequently they abbreviate it! Initials only." Gil laughed, put his arm around my shoulder in front of his group executive and said, "Blair, I wish we had 100 Blair Smiths, because you fight for what you think is right even if it should jeopardize your career."

MAPSTONE: You mentioned earlier that IBM appeared to announce the 360 before anybody was expecting it.

SMITH: I wouldn't say that. Before I was expecting it. Not anybody.

MAPSTONE: All right. Was it a surprise to a lot of people within the corporation? Was it an accelerated announcement?

SMITH: Well, we desperately needed it. Customers were outgrowing the earlier computers. If we had had our 'druthers, I as one management level person would have preferred the Type 1 software to be further along. But I guess chances have to be taken in anything. So it fooled me. I'd have preferred them to hold the announcement until the Type 1 software satisfied me! There was a lot to be done, we had to pour a lot of effort into that software. Which we did. But I don't know whether you could say it was announced prematurely.

MAPSTONE: We were talking about your farewell dinner.

SMITH: Yes, some IBMers gave me a farewell luncheon when I took my early retirement. Afterwards Bill Elmore asked me how, since I claimed to be neither a programmer, nor an engineer, nor a systems engineer, nor technically competent in anything except how to take apart a flyfishing reel, that when we were trying to estimate the number of operational instructions in SABRE, that my estimate came closer than anybody else's by a longshot. I said, "Bill, now

that I'm leaving I'll confess. There were three of you and I had a lot of respect for your ability to program. I called each of you in to my office separately and asked you to estimate the number of operational instructions SABRE would probably end up with. Bill, yours was the highest number. However, I felt we were in such a raw stage of pioneering that none of us really knew. I wanted to increase your figure not nearly double it because it would appear obvious to you. So I multiplied yours, since yours was the highest, by 110%. By sheer coincidence we came out fairly close to that. So that's how I used my management judgment without any true expertise."

MAPSTONE: Have we pretty much talked about the people who were significant in the SABRE work, DCA, and people along the way that you've had dealings with or you've met up with?

SMITH: Well, there are names that I've forgotten. I know them but I just can't recall them at this moment. Customer names like John Lowe of Douglas Aircraft. I can get them for you. All I have to do is sit down alone and think a while. There were not only customer people, but IBM people at all levels who did great work and had influence, not only on me as an individual, but I think on the future of the business. Individual thinking and work and not being afraid to fight for it.

END OF INTERVIEW