Oral History Interview with

James W. Cortada

June 10, 11 & 12, 2020

Via Zoom

Conducted by William Aspray

Charles Babbage Institute

Abstract: James Cortada recounts his childhood and higher education before discussing his career at IBM. One main topic of the interview are his publications on business and management of computing, Spanish history, history of computing, and history of information. He discusses the various individuals and institutions he interacted with as he worked in the history of computing. Of particular note is the

Charles Babbage Foundation, which he chaired. This interview is part of the series on the early history of the history of computing.

Keywords: Computing, history of computing, history of information, IBM, Charles Babbage Institute, Charles Babbage Foundation, Special Interest Group in Computers, Information, and Society, Greenwood Press, MIT Press, Computer History Museum.

Part 1 of Jim Cortada interview

Aspray: It's the 10th of June 2020. This is an interview with James W. Cortada who is at his home in Madison, Wisconsin. The Interviewer is William Aspray, he's in his home in Boulder Colorado. We're doing this interview by Zoom. We'll give Zoom a little bit of advertising today. Ok, so, I'd like to talk in the first part of the interview about your personal life. Could you start by telling me about when and where you were born?

Cortada: I was born in Havana, Cuba on September 7, 1946. My parents were US citizens working in the US Embassy. My father was an economic analyst and my mother was a secretary to the Ambassador. It was an office romance that had flowered during World War II, although he had known her prior to World War II because they ran in similar social circles in Havana. Her father being a businessman, as well as my grandfather. While I was born in Havana, it should be noted that the intention was to have me born in Miami, however my mother went into labor a little too fast and they couldn't grab the shuttle over to Miami, so I was born in Havana, as was my mother, although she was raised as a North American, in the American community in Havana. So that's my birth, and I was told that I was late for lunch.

Aspray: I see. Okay. So, your parents stayed in the diplomatic core for a good portion of the time you were growing up? Is that correct?

Cortada: That's correct. My father retired from the Foreign Service at the end of 1970. By then, I was in graduate school. So, I spent my childhood roaming around in funny places. His initial tour of duty was in Havana, and then in 1948, he was sent to Washington, D.C. for his first Washington assignment, where he studied economics, and then we went out to Barcelona, where he was consul there, US Consul from 1950 to '52. Came back to the United States where he studied Arabic in Washington, D.C, and then went out as a consul in Basra, Iraq for two years so we lived in Basra from '53 to '55. Then he was transferred to Cairo, Egypt as an economic affairs attaché, and we spent the next four years there with an interruption in the fall of 1956, when the Suez Crisis erupted and the British and the French went to war with the Egyptians over the canal and Israel was involved. Started bombing Cairo, so everybody decided that all the foreign nationals needed to leave. So, we took a caravan one night, a drive all the way over to Alexandria, then were pulled out of there by the US Navy and Marine Corp. We spent nine months in a hotel room, except for my father who spoke Arabic, he had to stay behind. So, I spent nine months in Rome. I came back, and then at that point, I came back to the United States. I did not go overseas again

when he became chief of mission at the Taiz, Yemen embassy a couple years later. Because by then I was going to high school in Washington, D. C., at a private school, and then afterwards went off to Randolph Macon College in Ashland, Virginia, graduated in 1969 and then from there onto graduate school. So, his diplomatic career ended about three months before I got my master's degree.

Aspray: How does moving all over the world have an effect on you both in terms of your education and as your development, maybe self-reliance or experience of the world, those kinds of things?

Cortada: Oh, wow. It's a—it's pretty emphatic. To begin with, you have either the American school system or the British school system—I experienced both. I also had in the British system, Irish monks. I had American-trained teachers in Egypt and in Iraq as well, even though I had the Irish monks in there initially when I came to Cairo. Fortunately, all the instruction right up through high school was done in English. Although we were required to learn local languages. So, for example, in Cairo, I learned Arabic. And in Rome, we were expected to learn Italian. You had to be flexible. I mean, the first school I went to in Basra was a one-room mud schoolhouse, with one teacher, an American—trained Indian, from India. And if it rained a lot, and it does in the Middle East on occasion, sometimes part of the school would melt, and you had to stay home for a few days while it got fixed. So, we had that experience. Had the Irish monks. It was an interesting experience there because it's the old European system where you memorize everything, unlike in the United States where it's more problem-solving orientation, teamwork and so on. So, in the case of the—Rome, the Italian experience, because they started bombing Cairo in October of '56—I was 10 years old. I started out at an American school. A month later I was pulled out, spent two weeks on a Navy ship, landed in Italy, took the train up to Rome and literally the next day was taken to a school that was used by Americans and military and so on. This was all obviously been pre-arranged by the American embassy there. And literally the next day, I was put in the fourth grade. Of course, everyone had different textbooks than we had, and there were different places and so on. It was 'Suck it in, baby,' and catch up and do what you got to do and in some cases I was

ahead, some cases I was behind. This happened of course again when I came back to Cairo after the Suez crisis. And then, for the first time, attended an American public school in the fall of 1959 in Falls Church, Virginia. I don't know how many schools I went to, but there were a lot of them. and the conversation was always the same; "Alright, Jim, it's going to be different, you'll have to, you know, do your homework, and learn. The good news is it's in English. Oh, by the way, this country speaks whatever the language is, and this is what the currency looks like. It's no longer piasters or dollars, it's now lira or whatever it was, you know, and you just got to suck it in. So, two things happened. One was I never quite completely fit in because I didn't grow up with all the kids there—and that was ok because you just have to be resilient about it. The second thing is resiliency. You really are on your own to a certain extent and sometimes that involved taking leadership roles in something and in other cases it involved getting into a fight in the playground. Other cases, you volunteer to do things that nobody else wants to do, what have you. On balance, it made me very self-reliant. It made me in a sense flexible. I feel that you could parachute me into anywhere. Also, how to figure out what to do to be successful. And that worked out. I think it was the flexibility, and that has served me well in life because, let me tell you, going from graduate school with a PhD in History into IBM was equal in the amount of change as any I had had before. That's the bad news. The good news is been there, done that before.

Aspray: Did the fact that you were moving around so much, and you didn't have continuity of long-term friends mean you were closer to your family members? I think you have two sisters. Is that correct?

Cortada: I have two sisters. That's correct. I think my relationship with the sisters is no different than anybody else's. The continuity part or the intimacy with the family, was as much driven by proximity as it was by the handed-down values and culture of the family. This is a family that had many of the same cultural values of a Latino family, where family is a central pillar, everything comes and goes through that. And it turns out that the psychologists years later said normal kids, if you build strong marriages and make the marriage the primary thing, then everything hangs off of that like Christmas tree

ornaments. I think that's what absolutely happened here. It was all—we all got along very well. And we got along with relatives we saw in other countries. There was a consorted effort on the part of all members of the family, all the adults I should say, of the family—aunt, uncles, and what have you—to maintain relationships for many, many decades, regardless of where you were. And it was a cosmopolitan family. There were relatives in Spain, relatives in Cuba, Puerto Rico, the United States. People come and go, France and what have you. It just seemed like a normal ecosystem as far as I was concerned.

Aspray: As you were growing up, were hobbies an important part of life?

Cortada: They were. Probably typical of boys of that era, the 1950s and 60s, I mean, I collected stamps. In fact, I still have the collection. I liked to play basketball and that helped because when I went to Italy, I found that the Americans didn't play as good of basketball as I did. So, they gave me a certain social standing. Those I would say would be the two, not to be confused with skills acquired along the way, because my father taught me how to play golf, he taught me how to play tennis. I learned to ride horses, but I treated them more like transportation than a fun thing. I learned how to ride a camel. And I don't mean how to ride once in a while—there was a—in Cairo, Egypt, the second half of our tour there, there was a police station literally two blocks away, right on the edge of the desert, and I befriended those people and they taught me how to ride a camel. We hear a lot of negative things about police but in that situation and in a dictatorship, they taught me how to ride a camel. So that's said from a hobby point of view. I did like reading. I remember in those days; they didn't have television. I didn't see television until I came home for a short vacation in 1957, first time I saw television in the United States. So, growing up, we did a lot of reading, and listening to radio. My favorite things to read were the usual mystery stories, both my sisters' and mine and then—I don't know if you remember this or not as a child, but there was a series of history books called Landmark. They were about 200-page biographies and histories of American events, and I must've consumed all of them. So, I knew a great deal about American history

prior to coming back to the United States in 1959. And of course, in Italy, they took us all to Roman sites, so I know a lot about Roman history.

Aspray: Right. Were you a good student, and what were your academic interests as a child?

Cortada: I don't recall my grades, but my impression is that I was a competent student, and I say that simply because I was diligent. And in part, that diligence was reinforced by my parents [being] willing to invest an hour or two in homework each night because in those days you really did have two hours' worth of homework. It was everything from memorizing passages to writing text, to doing mathematics. So, I would say, yeah, and in high school, I was quite good. I had good teachers; classes were small. I had two superb history teachers. Both of them were graduate students at local universities, and it was a rigorous program because it was a college preparatory program, so every class with the exception of mathematics required a term paper. And so I did a lot of writing in that period of time, in high school, and that worked out great because I had also had a summer job working for a local newspaper in central Virginia, and there's where I learned "why write it if you weren't going to publish it." I did not realize what a radically different idea that was until I got to graduate school, where nobody published their papers except on rare occasion, and where you had faculty who disapproved. I answer—why write a paper if you're not going to publish it, it was stupid, you know?

Aspray: Right.

Cortada: It didn't make sense. And I understood from the newspaper work what a deadline was. If you have to turn in copy at 3 o'clock, in that culture, you turned in your copy at 3 o'clock. No excuse. You turned it in because the machines are going to crank it out starting at 6 or 6:30, and so, you know, the editors had to go to work on it. You just did it. So, I was diligent that way. That turned out to be a competitive advantage for me when I got to college, especially when I decided that I wanted to study history, where you do a lot of writing and that worked out great! I rode that wave very nicely and in

graduate school I published everything except two papers, and those two papers I thought were not good enough so I literally threw them in the trash can. I said, “These are stupid.”

Aspray: Before we finish the period of time through high school, a couple of questions, I guess.

Cortada: Ok.

Aspray: Were there areas you were really interested in, academic areas, and were there ones you were really not interested in?

Cortada: Yes. I was not interested in science. Part of it is that the chemistry teacher was very old and, I thought, lousy. His great claim to fame was that, at the Food and Drug Administration in the early 1900s, he made Campbell Soup put pork in their Campbell beans. Pork and beans. And then the Physics professor, teacher was from the University of Zurich, had a very strong German accent, and I didn’t understand him very well, so I got turned off. However, I was always interested in history, deeply so. In fact, the high school had a history prize that I got when I graduated from high school and my college, I got the same—similar—prize there as well. So, I was very interested in history. Going to school in Washington, D.C. encouraged the whole process because my high school, Woodward School for Boys, was located at 1736 G street, which is one block from the White House. So, we got to see everything in that place, including attending Martin Luther King’s ‘I have a Dream’ speech, although we were at the other end, so he looked like an ant from the other end. But they had speakers out on the trees, so you could at least hear. We had speakers that would come over to the high school who were staff over at the White House, and over at the Congress, at least one or two Cabinet officials. When the Kennedy assassination report was published by Allen Dulles, he came over and talked with us about that. Of course we gave him a hard time because we didn’t believe it was a single assassin, and we had all purchased copies of the one-volume report from the government printing offices that was located across the street, you could buy it for $3.50. We had seminars and everything else at school. So, a lot of interacting with history. The other thing I should point out about history is that in 1959, when I was I

guess I was in seventh grade, and—don't laugh—my history teacher's name was Mr. Lincoln, and he was a civil war buff. So, he introduced us to civil war history. Remember, I had lived overseas prior to this thing, and I could tell you about popes and emperors, but I didn't know anything about the Civil War. But I found it fascinating, and he took us on fieldtrips. Sixty percent of the war was fought between Washington D.C. and Richmond, back and forth, back and forth, so a lot of battlefields. You should understand, Civil War history is really a chronic disease. I still suffer from it today. Still interested in the subject. Just read a book last week on the Civil War. It never really ends. So, history really got engrained in me through all these various childhood and early adult, well, right through high school, and then college.

Aspray: Were there from this [time], up through to the end of high school period, any particular people you want to mention who were important, formative influences?

Cortada: Yes. Oh, my God! It took a village to raise me! One of those things that is interesting is that in 1962, my parents bought a house, their first home, in a little town in central Virginia called Orange. At that time, it had about 3,500 people. Classic small-town Americana. I spent a lot of time there. I fell in love with that town. It's the town that took me from being a boy to a man. And it took the whole town to do it. I mean, one of those things, all the guys were running the place were all WWII veterans, and they were all involved in all the various businesses in town as you would expect in a small community. They had decided among themselves that all the teenagers were going to be put to work on one thing or another as part of their maturation process. So, I learned to drive from the chief of police, who ran the driving school. I went to work for the *Orange County Review*. They had four brothers, and the editor was a World War I veteran, all the other ones were WWII and Korean veterans, the Korean one is still alive, he taught me photography. The other guys taught me how to work, how to write, how to act like an adult, and they role-modeled that, well they did that for all the teenagers. They taught us character, [taught] us responsibility, taught us how to do a job. I learned how to print. I could print church

bulletins, I could run the newspaper by the time I got to college, I could run off the newspaper articles if I had to. So, these people were emblematic of how one should live. They were very important. Then I had in my family two uncles. One was a Cuban who left Cuba when the Castro regime came in. He worked for Shell Oil and he lived in New York. He was one of these subtly cynical type of people—we'd say he's a good guy—he'd go to Spain, smart as a whip, Columbia graduate, and he didn't take crap off anybody. He taught me about values, about being tough; and also, how to operate in the New York area. And then my uncle George, who died at the ripe old age of 98, he was a Cuban, Cuban-American, New Yorker through and through, spoke like a New Yorker, acted like a New Yorker. You'd never know he was Hispanic, although completely bi-lingual, but he identified more with the Anglo-Saxon Irish culture. He taught me to be a free spirit. Then there was my Aunt Elodia, for whom they ought to make a movie. She was married three times, a Cuban girl who lived in New Hampshire. Her last husband was a stockbroker in New York, made a ton of money.

Aspray: Excuse me? How do you spell her name?

Cortada: Elodia; E-L-O-D-I-A Colas, C-O-L-A-S, and I spent a summer with her when I was 13 years old in New Hampshire and Uncle George who was her brother. Taught me how to fish, lakes and ponds and rivers, because they're different. And she was one of these people who lived in Russia during the Russian Revolutionary war because her second husband was Russian, a Russian nobleman. [Her] first husband was a Cuban plantation owner, third husband was the stockbroker, so she spoke with all kinds of funny little accents. But I found it fascinating because she was the sister of my grandmother, who's worshipped, apparently. So, these were people that—and then in high school—in particular, one of the teachers, a fellow by the name of O'Reilly, he was getting his PhD in Russian history, also taught creative writing classes. I took everything he could teach. And he gave me books to read and so on and so forth. So, by the time I was finished with high school, I'd been mentored, I hadn't been taught, I'd been mentored, I'd literally been mentored. And then there was a Spanish teacher there, Mr. Castillo, who

was a civil war, Spanish Civil War veteran, and a rather demanding fellow who did wonders for my Spanish. And all my math was taught by a West Point graduate, retired Army Colonel, he was an engineer, West Point graduate, and he was also a very serious guy. He expected you to take Algebra I, Algebra II, Geometry and Trig—non-negotiable—in that order. "Got it, kid? Alright? Let's go to work." So, these are people who taught us—taught me more than just simply whatever the textbook required. So, between Orange and the high school, I got quite a bit there. Now, there is a story to be told about high school, that may be also insightful here. I'm not sure I've told this to very many people. But in 1963, when I was halfway through high school, at this school, my father was appointed ambassador to Taiz, Yemen. There was no school there, so he was getting ready to stick me in a military academy. I looked at that situation and said, "This is not me. I am not going to a military academy." Remember, I was the guy who had to be resilient on his own. I went to my father and mother and said, "Look, this high school is going great, you know. I'm making good grades here; I got my friends here. It's working. I want to continue to go here. But it was a day school. So, long story short, my father made a deal with me. He says, "I'll stick you in a—in a—what do you call it?—boarding house in Washington D.C. [in the] second semester of my sophomore year, but you got to agree to do two things: number one is you got to agree go to Orange, Virginia every weekend to visit your grandparents, who were living there at the time, that moved into our house, and your grades have got to be good and we'll do this for one semester. If it works, and there are no problems or anything else, then you can continue to do that." He meanwhile found a boarding house who was run by an old battle-axe. I mean, this lady must've been 75 years old and tough as nails. It was just for guys, young men. And she looked at this thing…you're going to put a 15-16-year-old kid in here, really? But she agreed to the one semester deal. So, we did this. That was a pretty gutsy move on their part to do that. I'm not sure I would've done that. But long story short, as [to] why he did it, but the point is, he did it, and it worked. Then I spent the summer working at the *Orange Review* in Orange. And then in the fall, I went back to the boardinghouse and to the day school.

Junior year went by. Fabulous. Same deal with going home every weekend. The following summer, back in Orange again. Fall, my senior year, back again for that. And then they—my parents showed up—first time I'd seen them in two years, showed up for my graduation. So, that's a unique situation which also adds to the resiliency question we talked about earlier.

Aspray: As you were in high school, did your parents have certain kinds of expectations about your career, and did you have certain kinds of expectations about your career; what you were going to do, what kind of higher education you were going to pursue, and so on?

Cortada: Alright. Expectation was that you would do well in school. That was a given. Another given was that there would be higher education. That was a given, and that they would cover that expense, in those days, it wasn't like it is today. That was a given. And then beyond that, they didn't care what the profession was or the major. My father in particular had the attitude of it's more important that you learn how to ask questions, how to do research, how to be inquiring, how to scrutinize, how to scrutinize—to use a term you and I use a lot, ah, the bullshit. pardon my French, the BS, that comes into your life. He also made the comment literally as he was driving me to college, fall of '65, he says it really doesn't matter what you major in because you probably never going to have a job in that. If you ever went to graduate school, that's a vocational degree. But I'm not sure undergraduate. So, study what you want, take a lot of broad courses, and I went to liberal arts college that forces you to do that anyway during the first few years. And I think he made that comment also because I was one of those rare freshmen that knew exactly what they wanted to major in. No screwing around. I wanted to major in history, so I was saying "Why do I have to take all this science and all this math and everything, come on, let's get to the program." So, I felt that for two years they were holding me back. I was taking things like—the only history I was taking was my western civ. I'm going, "Really? I've been to all these places." And so, I found it boring and I didn't learn anything in western civ, which every freshman had to take. I kind of knew most of that stuff. And then the following year I was able to take general American history.

I found that very interesting because that was new news for me. But all the other course those first two years were just, you know, I was just wasting time until I could major in history. Then I took everything the school offered everything including overloads and what have you.

Aspray: Why did you decide to go to Randolph Macon?

Cortada: Ok. Randolph Macon in Virginia, most of the schools in Virginia are small, religious-denominated private schools. In addition to them, they had a couple large ones: University of Virginia, VPI, and William and Mary, among the White schools. In those days, the schools were essentially segregated, alight? Several small Black colleges and an equivalent to VPI for African Americans. I wanted a liberal arts college because I wanted to major in history, and they all had strong programs. Hampton Sydney, Randolph Macon, Washington and Lee, I mean they all had good, strong history programs, strong programs in humanities and social sciences. I just happened to like the campus. And it was only two-hour's drive from home. At that time, they had about 800 kids, and today they're about up to 1,500, and it just felt right. And my father left it to me to make the decision.

Aspray: Did you consider going out of the region?

Cortada: Ah, no. I decided I wanted to stay close because my grandparents were elderly, and my father was going overseas, so I wanted to be near in case there was a problem. So, that was a conscious, pro-family decision I made. So, I only looked at schools in Virginia.

Aspray: For some young people, college is a revelatory experience. They're away, they're experiencing all these ideas for the first time, but you had a very different background. What was the significance of college to you?

Cortada: Ok. So I arrived in town, I was never going to be homesick, I had already been living on my own for two and half years, in Washington, D.C., which had a great night life and lots of restaurants and record stores and cool movies and so on, so I was, in a sense, as my roommate years later said, I was the adult in the room. From that point of view, being away on my own already did that. So, I understood I

had to do my homework and I was a diligent student in a sense of—we had something we had an assignment due on Wednesday, Tuesday night I was doing it. I wasn't waiting, doing crazy things or avoiding work. I was a diligent student. I found the first year rather annoying in terms of the classes, utterly bored with them. I probably didn't do as well as I could have. C's aren't great grades, but it is what it is. The social life was largely orientated around fraternities. I knew my parents couldn't afford fraternity fees, so I never joined a fraternity. They were government employees, you know, and it was already a private school. But the social life was good. In my second year, I met Dora but we didn't start dating, and just for the record, we're talking about a lady by the name of Dora Tappy who attended Radford College, it's now Radford University, and I ended up marrying her in 1971 and we're still married, just for the record. So, it was –like most schools in those days, it was segregated in the sense it was an all-boys school, all men's school. Then there were all women's schools. So, if you're going to have a social life, you wound up using your connections to find dates at other schools, and that's how that whole process worked, the social life. Then they had all the normal social things like football games and what have you. The school—it was interesting—800 kids, you'd probably recognize most of them, although you probably only knew the names of a couple 100 of them. And I don't recall how many faculty there were, but I think I knew 75% of them. And of course, all the faculty I had to interact with largely were located in one building, that is the history department, the political sciences department, foreign languages. I think we—yeah, we had a sociology professor, oh, God, yeah—I remember the sociology professor. That's a different conversation offline. And we had—there were about four dorms there at the school. The school had been established in 1835. It's the oldest Methodist college in the New World. In those days, the only religious feel to it was that, every Thursday, everybody had to congregate in the auditorium, it would hold the entire student body, and the president of the college would wax out whatever it is he had on his mind, but they always had a Methodist minister who delivered a sermon. And that's where I learned—and I was raised as a Catholic—that where I learned

Methodist ministers were as bad at homilies as were Catholic priests. They just didn't train them right at Duke. Most of them are Duke graduates.

Aspray: Did you do well in your major?

Cortada: Oh, yes. I had double major. I took that one—I had the history major and then I had Spanish, which to me was just an extension of the history thing because most of it is literature, so, it's history. I had good working knowledge of Spanish initially, so that was fine. I wasn't enthusiastic about it. In my senior year, we had the option of writing an honors thesis which could get you basically two courses, right? However, many hours they are, that's six? And so, I wrote a paper dealing with the US, Spanish, British and Axis relationships dealing with economic warfare in the Iberian Peninsula during WWII. I expanded that into my master's thesis, and then I published that. That was my first book. So, I had that published before I actually left graduate school and it became a best-seller, like one of the top 15 books in Spain when I got published there. That was even before I wrote my dissertation. So that was a lot of fun.

Aspray: Were there any people you want to mention who were particularly important during your college years?

Cortada: There's one that just—yeah. He was a wonderful guy. I'm sorry. George B. Oliver. WWII veteran. Duke PhD. He was like my father. I took all [his courses]—he was the hardest professor on campus. He taught me everything I know about history; how to write about it, how to research it, how to think about, every one of my papers, he reviewed it, in excruciating detail. He encouraged me to publish—I actually started publishing when I was in college. When he retired, 30 years later, at his retirement party, he mentioned he had two favorite students; Jim Robertson, who went on to become a very distinguished Civil War historian at VPI and me. And I wasn't even in the room when he made the speech, so he wasn't being gratuitous. He lived into his 80s. He was always available, and well, he did a

lot of work on my thesis, my honors thesis. He said, you know, "You do this right, you can publish this." How many people tell that to a student—

Aspray: Right.

Cortada: —as an undergraduate. And so, if you really want to publish this, let's get serious about doing this right. And he was the one who basically kicked my butt and said, "Look you got to get through this first two years of all this other stuff, you're going to want to know all this stuff someday. So, shut up and get on with it." And a fine time to study history for a while. What a wonderful man he was! And he sort of in time, sort of, became the Mr. Chips, if you know that character—

Aspray: Yes.

Cortada: —on that campus. And I was on that campus just two years ago, and they're still talking about him and he's been dead for years. Just a remarkable—and he was just a wonderful teacher. It's interesting the way he ran his courses, all his lectures were taped. He never lectured. You were required to go listen to three tapes every week for each class. And then we showed up for class and it was a conversation about whatever the subject was. So, I took a course on the Jacksonian democracy from him. I took a course on the Gilded Age. I took a course on the period from WWI to 1950s. Then he taught a seminar on utopian societies, ah, what else did he teach? I can't remember but—yeah. And he wasn't the only guy teaching there. But, yeah, he's—the other ones don't stand out, but he does.

Aspray: So, you're about to graduate from college, did you give thought to doing anything other than going onto graduate school in history?

Cortada: Yeah, I actually had no choice in the matter. 1969, the Vietnam war was going on and if you were a college student, you had a deferment until you got out of school and then you were subject to the draft. So, there were a number of us on our hallway, we said, this is stupid to sit around and wait to get drafted. We need to take charge of our own destiny. And I was emphatic on the point that we need to get this thing nailed by January of our senior year. So, we all went down to the recruiting office in

Richmond, Virginia, which is 16 miles away and took all the tests and what have you, and we all wanted to be officers in the army. When they discovered I was too skinny and my eyesight wasn't right, I went over to the Navy, and [they] said the same thing, and then the Air Force said the same thing. And I said, "I'm not going into the Marine Corps", and I kept getting these medical rejections for being too skinny on the one hand, and the eyesight wasn't what it needed to be. Meanwhile, my draft board was getting all this stuff. I'm going. "Jesus, I'm going to get screwed here. One of these days, they're just going to pick me up." But meanwhile I also wanted to go to graduate school and study history as my plan B. I was absolutely convinced that we were all going to get drafted or what have you. So, I got accepted into various graduate schools. I looked at two paths: one law, and the other one history. I took the GREs and law boards and everything else. I got all my stuff back I guess in February or March that year, would [have] about been right. I literally got all my acceptances within 10 days. And I literally sat down at the dining room table in Orange, Virginia with the acceptances laid out, tying to make a decision. I mean, literally, I had three or four from graduate school and three or four from law schools. My father walked in, and said, "Well"—because he was home visiting at that point— "What are you going to do?" I said, "I don't know." I'm looking at—he said, "Pick the one you think you're going to like the lifestyle of and you're going to have fun with and don't worry about making money. There's plenty of money in the world. You'll—just don't worry about it. Just pick the one that's going to be fun." So, I picked the history path and I don't remember now whether it was—I was leaning toward William and Mary, I think, for colonial history. And the colonial history guy in our history department at Randolph Macon had just accepted a job at Florida State University because he was one of those few faculty members that you see at small undergraduate schools who published books. He had published a number of books dealing with Florida and the British and the Spaniards and so on in the early 18th and the early 19th century. I talked to G.B. Oliver, my mentor, and I talked to this guy who I also took very seriously, and I had to call the Colonial guy because he was already at FSU to get his advice, and he said, "Why don't you come to

FSU?" I hadn't even applied there. I said, "Florida State University…I don't know anything about FSU. Where is it, you know?" "Tallahassee, Florida." He's the one who told me that Tallahassee—if you think of Florida as handgun, where the trigger is, that's where Tallahassee is. Ok. That's what you get with a Korean war veteran, you know. Yes. Anyway, I said, "Well, I don't know anything about FSU." He says, "I will get you money to come to FSU." In those days, you didn't automatically get funding as a TA or anything else.

Aspray: Right

Cortada: And nobody had offered me that anywhere else. I was going to go get a part-time job and so on. So, I applied at FSU, whatever paperwork he sent me, and sure enough, he got me free tuition and a stipend. So I said, "Jesus, this is a better deal, and I got an ally in the place because I was sick of the politics of everything in the sense of you're working at an institution, you got to understand the politics. So that how I wound up there.

Aspray: Just a second. So that's why you chose to go there. Did it turn out to be a good choice?

Cortada: Brilliant. Reason for it: at the time, FSU had a very young faculty—they'd only started graduate programs in the '50s, so they had a lot of young faculty members who wanted to make it. So, they were going to be serious about their program. They're all interested in writing and publishing. They were serious about that. They were being very fussy about who they were letting into the place because they didn't want these kids getting in the way, harming their reputation. The program was—had every hurdle that you're supposed to have. The two languages, you had to take prelims, you had an oral defense this and an oral defense that. Every little thing that you could apply to graduate school was there. There were a lot of supportive faculty there, especially when I started publishing my term papers. Then they saw—wow—this guy's actually writing more than some of the junior faculty. So, little delicate politics there. But a lot of support, ok? It was very important. Very high standards of performance. My mentor was kind of like another G.B. Oliver: a WWII veteran, who took me very seriously, and a couple other of

the faculty members that also did. I remember, oh, gosh, the arrogance of youth. I showed up there, and I sat down with two faculty members and I said, “This degree is worth four years of my life. Not more.” I literally made that speech. “And I heard some of your students take five, six, seven years. I don’t want to spend that much time on it, so let’s build a plan for getting me out of here in four years.” “Well, you know. Geez. Nobody gets out in four years.” “Tell me what the requirements are. Let’s lay it out on a calendar, and if I don’t make it, it’s my fault, not yours.” So, we laid out a plan! And I stuck to it. For example, the two foreign language requirements. You have to pass a silly test where they give you a passage and you translate it. Well, I said, “Let’s get that out of the way, right away,” Do it on a Saturday, and they had a session in the morning and a session in the afternoon. So, I signed up for Spanish in the morning and French in the afternoon. Knocked those two little requirements out. My mentor, Earl Beck, said, if you’re going to study 20th century European history, which is what I told them I was interested in, (that was his specialty) he said, “You can’t get away with this. You got to do German or Russian as well.” Well, I had a smattering of German. So, I said, “Alright. I haven’t got time to screw around with Russian. I’ll do the German. So, I needed a refresher course. I quickly signed up for a refresher course on German. The first week, in the second quarter, because we were on the quarter system, they had another round of language tests. So, I went in on a Saturday and translated whatever silly page they had in German. They only thing I remember is that they have very long text with a verb at the end is the killer.

Aspray: Yeah, right.

Cortada: So, I got that out of the way. I took overloads. I usually took one more course than I needed to. During the breaks, I would write a term paper for one of the classes that was coming up. Smooth the workload out. And also revised term papers from the prior quarter to submit to journals. We ran this for 12 months. But now here’s the story. My experience was largely the same as everybody else’s, except for one little detail. I realized in the spring of 1973, that if I could finish my graduate program before September 7 of 1973, I could tell the world that I got my PhD at the age of 26. I’d already [been] doing

my research, been to Europe, done the archival stuff, so I gathered my committee together in a room, in a conference room, and said, "Gentlemen, I would like very much to finish this degree before my 27th birthday. For that to happen, I have to produce, I believe, chapters in the following order, and I need your feedback on the following time frame." And I got them to commit to that, even though they were all like, "Yeah, right." I started delivering chapters and when they were delaying in responding back, I was on them. "Hey! You got it for two weeks. No time for a nap, buddy. Let's get with the program." So, then they began to realize I was serious. Long story short, we got it done in August, and I'm convinced my dissertation director, because he denied he did this, went down to the registrar's office the next day, turned in the paperwork signed by the department saying that I had completed all the requirements of the degree, and demanded a diploma. And they can knock them out in the back room, it's just a little printer, because by three of four days later, I had a diploma in my hand in the same conference room where I defended the dissertation with the committee there, applauding. We made the deadline. So, I got my PhD at the age of 26.

Aspray: What was your dissertation topic?

Cortada: The topic was the relationship between the United States and Spain from 1855 to 1868. You will recall from your own studies of history that was a period when everybody got all excited because the United States was taking its eye off the ball on an international basis. So, Spain invaded Santo Domingo, went in with France into Mexico, went into Vietnam with France. There was a war between Peru, Chile, and Spain. The United States confederacy, well the Confederacy, was now interested in picking up Cuba. There was a civil war in Spain as well that resulted in the establishment of the first Republic at the end of this period. And of course, you had the rise of the German states, and the British and the French were trying to figure out what to do both in Latin America and across the entire Atlantic. From a diplomatic point of view, it was a highly fertile subject, far beyond just simply the traditional US/Spanish diplomatic relations. So, it was a wonderful dissertation. There is an account of that project

in a book I published a few years ago called *History Hunting*. There's a whole chapter devoted to it. I think the title of the chapter is 'The Perfect Project' or 'The Perfect Dissertation'. It was perfect because, from a graduate student point of view, there were essentially five piles of documents to look at. None of them had been looked at. I mean, they literally in some cases, like in Spain, had dust on them. At least in the United States, they vacuum clean files in the national archives. I had working knowledge of French and Spanish and that was not an issue, and most students of diplomatic history at the time did not work in foreign languages, I did. So that was a better advantage, although I saw myself as a European diplomatic historian at the time, so I viewed it from that perspective. That was the project. Eventually, it got published as a book by the American Philosophical Society at a time when people weren't publishing diplomatic history. But that's what I wanted to study.

Aspray: So, you're getting near the end of graduate school, what are you going to do with your life next?

Cortada: 1973, years later we were all told by the American Historical Association, was the worst year in the 20th century to get a job. But we all applied. One person at the American Historical Association's annual convention told me he'd gotten an average of 400 applications for every position they had open. I went to the AHA, went to the meat market, drill, I got two invitation to come on campus for second interviews. I did that. Become a professor. I'm not going to tell you the two campuses because of the story I'm about to tell you. In both cases, I was the pick. So, the search committee, the faculty and the department voted to extend the job to me. In both cases, when they went to their Deans, the Deans said, "You must hire women." Second choices in both cases were women. One of them turned out to be a fabulous choice. Just fabulous. Right choice. I don't know why they even considered me, given her track record. The second one was an ABD. I already had a degree in hand because I had a consulting project in the fall waiting after I graduated before going to the AHA, which is where you got recruited. In the meantime, you just sent out resumes. But that's where the action was. But in the other case, they

had to hire the ABD. I had publications; I had a degree. She didn't yet. Five years later, they had to let her go. She never finished her degree. Never got the dissertation done. I was sitting in an office in IBM when the phone rang, and it was the head of search committee from that university, had hunted me down. Obviously gone to the history department at FSU and they gave him my phone number, whatever. Anyway, he wanted to know—this is how I know the story, right? And he wanted to know if I was still interested in coming to his university. I was doing very well at IBM at that point. And it was just one of these existential moments, shock. I was sitting at my desk. I had a three-piece suit on, striped regimental tie, a starched white shirt, wing-tip shoes, making as much money as a—as at least as a well-paid associate professor or more. And I said, "I'm not sure I want to do this." He says, "Listen, you're not going to have to go through the chicken dance interviews and everything else. We've already decided that we want you. We just got to negotiate a deal with you if you want the job." And he had also prefaced by asking well, have you done any history since you left. I said, "Yeah, everything I told you I was going to do, I did. I published my dissertation, I published the sequel, I published a book on the Spanish Civil War, and now I'm working on yadda, yadda, yadda, okay?" My first book on computing. He goes, "I'm going to ask you again." And I said I made the decision right on the spot. I said, "This IBM gig is just too sweet. I mean, I've grown too much to do that, I really appreciate the offer and everything else." And he was fine with it. I wrote him and the chairman of the history department, thank you notes in the next few days, thanking them for their vote of confidence.

[going back to the job search while still in graduate school] So, with that out of the—so with those two done, I then hung up the phone on the second one. But wait, both offers came in the same week, had both conversations about they had to go hire the ladies and all that, I turned to Dora and I said, "I'm not going to do this. This is ridiculous. This whole academic thing is all wrong." So, I then called my father up and I said, "I've made a decision that I'm going to get out of history." Our family had always been in the business with him being the exception other than as a young man, as a salesman. I

said I want to get into something else. And he said he'd help. And what he did was he about a month later threw a cocktail party in Virginia where he invited a bunch of executives from Washington D.C. and central Virginia with some mickey mouse reason as to why he had to bring them together. One of the guys who showed up was the president of the U.S. Steel corporation. And he brought his son along who had just become an executive at IBM. He brought his son along because his son was married to a Cuban girl from Santiago de Cuba. Santiago de Cuba is where my grandmother came from. It's a small world. I'm there along with one of my sisters. So, we're working the room just like we had always done in a diplomatic family. We always talk to everybody in the place and everybody knows there's an agenda because these are mature people and we knew that. Anyway, so I met this guy from IBM. He asked me a little about my interest in history and why I was interested in being a professor and all that. Finally, at the end of the evening, he came back over to me. He said, "You know, I've been thinking about you. You're wasting your time thinking about becoming a professor. You should come to work at IBM. It's a really cool place to work and you would fit in." I don't know. But I wasn't sure because I knew nothing about computers, and I told him that. And he said, "Don't worry. We're like the Army. We teach you to fire a rifle our way. If you come to work for IBM, we're going to teach you everything we want you to know about computers. We believe you should know about how computers should work, so you can explain to a customer why they should be using it. This is the early 70s. You still have CFOs who still don't understand what a computer does and all that. So, ok. Fine. And then, meanwhile, I was kind of interested in US Steel too.

Cortada: I was more interested in his father. His father was the president of the damn company. So, he, he could make something work. But I agreed to come to New York at IBM's expense to be interviewed by a whole bunch of people. And meanwhile, his father was willing to get me an interview at US Steel. But obviously sometime after the party, the son said, "No. I want him. You can't have him." And then my uncle who worked in New York, Shell Oil. He got me an interview. So, all this is going on in one week, in

New York. So, needless to say, the IBM thing went through. It was a no-brainer decision because of the, not only the financial offer, but the career opportunity. So, within six weeks of making the decision that I'm not going to be a historian, a professor, I had an offer in hand. Which, I had to convince IBM to let me delay joining because I was writing the sequel to my dissertation and I wanted to complete that manuscript. So, I was writing like a booger as fast as I could to get that done. So, when I showed up the first day at IBM, I could be focused 100% on this new thing because I knew it was going to be just as wild and crazy as anything else I had done with my life. I had to learn, every time you go into something new, you got to jump right in 100%. Otherwise it doesn't work.

Aspray: So, what did they ask you at this job interview at IBM?

Cortada: They asked me things like, "If you got a job offer to be a professor, would you leave us? How committed are you? What do you know about computers?" "Nothing" "What leads you to believe that you could do well in that kind of environment? I just took your IQ test this morning and passed it." In other words, so they were testing to see how I could handle antagonist questions, you get that in sales, but also how quick of a response.

Aspray: Yup.

Cortada: Why would you be interested in IBM? What intrigues you about it? I said, well, in the last couple weeks, I've been able to find out the following things about IBM, and actually I have a lot of questions I want to ask you guys about the company because it's not clear to me either whether I'm going to be a good match for you or not. And if you can hire me but I got to hire you too. Oh! They loved that as it turned out. Good feedback. We had it wrong because it's got to be a match. And in those days, it was a paternalistic company for life, so I was asking the same kind of questions you may ask of say of a career foreign service officer going to be there forever and so on. They wanted to know what languages I spoke. They wanted to know what I knew about business, what my attitudes were to various economic topics. What I thought about businessmen, what I thought my strengths were. And it turned out I was

answering the questions correctly. They were asking me questions like, what do you read? Let me give you a situation, how would you handle it? And rather than just jumping in with an answer, I would pause and say, “Well, wait a minute. Before I answer the question, can I ask a few questions about the case study, the situation, which is exactly what they teach salesmen to do before they open their mouth, and say “Buy my computer,” right? So, I was in a natural way demonstrating that I fit their culture. And, by the way, it was all about culture fit. Intelligence and culture fit. And the fact I had a broad background, I lived in different countries and so on, after all, it is the International Business Machines company. They were looking for alertness, they were looking for intelligence, they were looking for communication skills. These are very important at IBM. These were skills I looked for when I interviewed hundreds of people over the next 38 years. Same skills. High level of energy, communication skills, intellect, ability to probe. Be curious about things. Ability to learn things, what have you. So, I went through…two, four interviews that day. And then the fifth one, there was actually a fifth one, was the hiring manager. He had his degree in statistics from Princeton. I did not know you could get a degree in statistics at Princeton. So, he was an engineering type, you know, math type. And everyone had obviously gone into his office beforehand, because somebody took me out to lunch and told him, “We want to hire this guy.” Ultimately, the branch manager, and I had been one of those, said, “Let him in. Ok? I need to spend some time, an hour with this kid. Send him in.” And he was skeptical in a sense that he expected that I would go back and be a professor somewhere, so why waste a year training this kid and lose him. But I pushed back on him and he didn’t ask that question, but it was the elephant in the room. So finally, I said something to the effect, “Sir, there’s a question you’re not asking, and we need to get it out on the table. Do you really think I’m going to stay here or not if someone decided to give me a job teaching at a university? Now, isn’t that really what’s on your mind?” And I kept my mouth shut because you learn, the next person who talks loses, right? And this is something they teach salesmen as well. You ask for the order and then you don’t say anything, you wait. And I waited, I don’t know, one, two, three

seconds. Classic IBM sales technique! I did not know that at the time. And he goes, "Yeah, that's the only thing I'm hung up on." I said, "Well, let me tell you why you don't have to worry about that. First place, you're offering me a better career than I could ever have in academia. Second, you're probably going to offer me a salary that's 50% higher than anything a newly minted PhD is going to get. Third, I like this part of the country, and in this company, I'll probably do a lot of traveling and I know how to do that and that's my space. And, oh, by the way, I won't stay if the work isn't interesting and challenging, and then, I promise you, I will leave because I'm in a hurry and oh, by the way, I completed my PhD in three years and eleven months when it normally takes people seven years. I'm in a hurry, so if it doesn't work out, you won't have to fire me, I'll quit. I said it almost in those terms and with that tone. And all of the sudden, all the hot air in the room left. You could just see his—he sort of relaxed in the chair and at that second, I knew he was going to offer me the job, which he did. Years later we had a conversation about this, that's why I know what was going on.

Aspray: So, what was the job you were being hired into, and what were the expectations of what would happen over the first few years of your career?

Cortada: Ok. In those days, IBM hired in many divisions, because they had computer scientists, they had engineers, they had repair people and so on. I was being hired to come into sales, which in those days was the elite part of the company. All CEOs, all senior executives, even some in the research division came out of sales, so that was the—in those days what they did was they hired people with diverse backgrounds, in terms of skills, prior experiences, and they liked to hire them fairly young. And they would run them through about an 18-month training program. So, my job for the first year and a half was going to be to go to school, to learn the IBM way. And then after that training, which involved classroom, self-study, mentoring, and a whole—we can get into that if you want, but that being done, then I would be assigned a territory, a sales territory, and this was in the New Jersey area by the way at the time, be assigned a territory and then I would be expected over the next several years to be

successful in that territory and from then on, all the doors of a career, the variety of it, begin to open up. And that I would probably spend three or four, five years in one sales office in New Jersey. So that was the trajectory. And I was fine with that, even though New Jersey had a terrible reputation, "Oh! New Jersey! Sheesh." Pollution and everything else. It turned out to be a fabulous place, but I didn't care because I had lived all over the world and you make your happiness wherever you go. So, New Jersey, I'm going to be happy here just like I was going to be happy in Basra, Iraq and Cairo, Egypt, and so on. Not a problem. So that was the expectation. I particularly liked the fact they had a training program where they assumed you didn't know anything about computers, programming, their products, salesmanship, business, finance, accounting, or about how IBM operated. They didn't care because they were going to teach you all that their way. At the time, and I didn't realize this until I was starting interviewing with these people, IBM was the coolest company on earth to go to work for. It was always ranked by Fortune magazine, everybody, as a number one corporation in the United States, best run, blah, blah, blah, all that kind of nonsense. And if you're a young guy coming out of an MBA program or coming out of college into business, you want to go to work for IBM. Just like today, it might be Amazon or it might be Google or Apple, especially Apple. It's very much how it is today. And I kind of sensed it from the research, getting ready for the trip to New York but you really don't know that until you've been in the industry for a while and can viscerally understand. It was so cool that anytime that I opened my mouth in the next ten years, everybody expected pearls of wisdom to come out of it if they weren't IBMers.

Aspray: So, you know, I have an academic career, an academic degree, I couldn't have conceived of taking an industrial job, I couldn't conceive of selling, making that hard call in a way. Was that an issue for you at all? You talked about having training, but you still have to do certain kinds of things.

Cortada: I had a number of conversations with my father who had been a salesman before WWII. WWII got him into the embassy, okay, in Havana, Cuba. But up until that point he had worked for five years

successfully representing companies in Havana who were in New Jersey, in New York that made pipes, metal fittings, nuts and bolts and so on. So, he had spent five years in a business that he and his father ran together. He understood sales. And we had some conversations about that. And he convinced me that I would be perfect for sales. I talked to the IBMer who was going to bring me in for the interviews about it, about this role. And he explained to me it was a very cerebral function. You don't just go in and hock something. You go in, you got to analyze what's going on, and you got to make decisions about problem solving, you build relationships. The order-asking is the most trivial piece of the work. You're problem solving. You're asking questions. You're trying to be honest about what the issues are. You have to be able to deal with people's personalities. The same speech that my father gave me. And they both said, "You're a natural. Stop thinking like a second-hand car salesman. That is not what we do here." It turned out he was absolutely right. I mean, some of the smartest people on earth worked at IBM. And they were problem solvers. It didn't matter whether they were running the organization at IBM or whether they were helping a customer, it's the same, same skill set. So, I was persuaded that I had that capability. I already knew I was not shy, that I could be extrovert, although I tend to think of myself as a bit of an introvert. I can be very comfortable alone. Not a problem. But I knew that I could work a room because my father could work a room, my mother could work a room, my grandfather—the one grandfather that I knew—could work a room. The other had a reputation for being able to take charge of a room as well. So, I said, "Ok. I obviously got the whatever that is." I was more concerned about being able to learn about the culture and the technology because the first class I went to following the custom that IBM always had at that time, everybody would introduce themselves by standing up in their first class and say, "My name is Jim Cortada. I went to school here. I did this, I did that." And there were engineers from MIT in the room. There was a PhD from Cal Tech. One guy had been on the Olympic track team in 1968. Another one had been a folk singer, I forget who. He was in somebody's band. Jesus. I'm so screwed. I am so out of my element. And of course, the typical MBA from Chicago, and Harvard

and everything else. And here's little old me. I was more concerned about learning about the technology. And the reason why I was concerned occurred on the very first day that I showed up to work. A story which is told in one of three different articles. I don't recall the names—which ones it was, I published three memoir articles in the *Annals of History of Computing* and one of them is about my time as a salesman. And, the very first day I showed up at 8—the first day I showed up, they had a meeting of the entire branch office at 8'o clock in the morning, and it was a one-hour meeting, it was a standard thing, occurs once a month. And the first guy got up and said, "We're going to have three speakers today. I got to get the first one up first because he's got to go make a customer call. And so, the first guy up, I hadn't even been introduced yet, I get introduced later on in the program, along with two other guys. So, this guy stands up, he's a systems engineer. He says, "I'm so excited. Today we're releasing a new release of VSAM and I want to take you through VSAM because we haven't done anything with ITCP, blah, blah, blah, blah, like this in a long time and it's—we're doing—everybody's applauding because telecommunications out of mainframes was always a problem in those days. And he goes on for 45 minutes with all the vocabulary and everything else. I'm going, "What did I just do? I moved from New Jersey, from Florida to New Jersey, my wife quit her job down there to get a new job up here, and I have no idea what this guy is talking about. And everybody, "Woo! Woo! Woo!" and then the next guy gets up and says, "Oh, by the way with the VSAM release, we also have a new release of CICS." Which is the hand-shaking software that allows computers to talk to each other, which Martin Campbell-Kelly in his book on software says is one of the most important pieces of software nobody's ever heard of. And he goes on for about a half an hour about CICS. And I know I am just so screwed. I have made the biggest mistake of my life. Then the branch manager gets up and he talks about the numbers, which made sense to me, we made about this much and we sold this much, but he's talking in points, not in dollars. So, we're two hours into this thing before, getting ready to wrap up and that's when he introduces the three of us. I couldn't get out of the room. I was sitting there in the front row,

that's where he had his guests. So, I had to stand up [makes clapping noises] "Welcome on board, blah, blah, blah." So, I went home that night and I was just thinking, "Oh, my God! Now I got to go through 18 months of learning this stuff?" I mean, talk about culture shock. I was very, very concerned. I came thinking back to the colonel teaching math in that high school. I'm going to go through 18 months of Colonel Booth all over again. Yeah.

Aspray: Are there examples from your early years at IBM, maybe out in the field, for example, that made you either second guess whether you made the right decision, maybe you should've pursued that degree or alternatively said, "Yes, this is a good place for me."

Cortada: I think I went through six months before I concluded it was a good place for me. Because the early part of the training was heavily loaded with technology. That really is a mindset that they're physical parts of your brain that get used there that were not used in history. I don't know where they are, but there are cells up there that need to be introduced to stuff. Everything about computing is conceptually different than everything in history. It really was quite different. And it's more than just a language, it's concepts and everything else. A lot of people assumed you are already knew it, and so I really had to start from a point of ignorance. So that took a while, but I managed to succeed in each of the classes. And whenever they got to business issues or salesmen issues, or whatever then, fine, I was ok with that. But I had my doubts for six months. But by, God, I wasn't going to let anyone pull me down and crush me. I wasn't going to embarrass myself in front of my wife or family. I was going to muscle my way through this thing come hell or high water. So, at the end of six months, I decided, ok, I can definitely make it through the training program. No problem. So, then the only question was: will I be successful as salesman? And again, another six months of learning how to manage a territory and figure out how to gen up business and so on. And I was told by my sales manager that, that's all normal, and that every week I got lots of mentoring and handholding and so on. And so, the confidence level built up. So, I would say that at the end of a year, I figured this—I had made the transition sufficiently that I

could continue. At the end of the second year, I knew, oh, yeah, I can do this. And then it's just a question of learning how to manage a career, and the politics of the place, so on and so forth.

Aspray: We've gone about an hour and a half, a little over that so far. How do you feel? Would you want to go on some more?

Cortada: I'll go on as long as you want.

Aspray: Alright. Well, let's continue until the pace starts to slow a little bit. Ok, so tell me about a career for a person in the sales division of IBM. What's the expectation, how do you grow, what do you do and how was your job similar to or different from that standard approach?

Cortada: The answer to your question is a function of what period we are talking about because I would say it was sort of a standard set piece prior to 1990 but then afterwards it began to change. And I say that as a historian but also say it as an employee. So, let's talk about the 1970s. Let me set the stage for you. IBM was the number one computer company in the world. It dominated its industry, we didn't know by how much, but today we know that in the United States, it had upwards to 60% of market share and in some European countries, up to 80%. It was the go-to place for computing. It had been the go-to place for computing, prior to that, tabulating equipment, using the same business structure for many decades. That's very important to understand. And you know that from my history of IBM. So, IBM was organized on the sales side with a matrix of sales branch offices scattered around the world. In big cities, they would have branch offices that would specialize in certain industries. In other places, they were smaller, you might have two, three industries that are predominate within one office. Okay? In the 1970s, salesmen came into the organization, went through their 14 to 18 month training, I went through 14 months because they wanted to put me in a sales territory beginning of January, so it was 14-15 months, something like that. And they [salesmen] reported into sales managers. Sales managers reported into branch managers. If you were a salesman, you could expect two career paths: one is that you were a salesman who stayed a salesman for the next 25 years and you went through several levels,

several ranks in the course of that career. And the titles like an associate salesman, and a senior salesman, consulting salesman, and so on. The other path was that you'd be a salesman for three or four years, five years maybe, then you go to a staff job for a couple of years, then you come out as a sales manager or they used to call them marketing managers in those days. And you do that for two, three years, and then some people would stay stuck in that job forever or, if they were still moving up the organization, they would go to another staff job for a couple of years and come out as a branch manager. Then you go back to another staff job and then as an executive. It's like you see—saw your way up until you're chairman of the board, okay? That was fairly routine career path; and everybody kind of knew how long you stayed in each job, and what you had to learn and what political things you had to do along the way. So that was pretty well locked in and baked and had been for decades. That, of course, changed as IBM began entering difficult periods in the 1990s, and then they actually got rid of branch offices and they began to have product specialists. So, you were the big mainframe guy, somebody would bring you in or the mini guy or the PC guy, what have you. In the earlier period, the key model was relationship building. Everything that IBM did was to establish and maintain for decades relationships between the IBM corporation and the customer. Customer being the account. And that was more important than a particular sale, although obviously you had to close a certain amount of business every year, otherwise you're going to be looking for a job. But it was relationship building, and afterwards, it was more transactional oriented. Starting in the '80s, they began selling their products rather than renting their products, and then it ultimately caused the business to become a transactional-orientated business. Relationships began to decline, and it was, "How cheap can I get your machine?" So that began to change the formula and the culture. And then career paths all of a sudden began to disintegrate. There was no logical career path after that. In my case, for example, I got out of sales as fast as I could and got into consulting, which is as radical, almost as radical a move as when I left, if you

will, [the] academic world to move into IBM. But, again, I had a history of being able to drop into something new and figure it out even though I didn't know what it was when I dropped in.

Aspray: Tell me why the move from sales to consulting is such a radical thing.

Cortada: To begin, you're no longer selling machines and software. You are now calling very high in an organization trying to solve problems that may be in an industry that you're not familiar with. So, I get dropped into a utility company, then the next job might be into a government agency, and yet I have to come out with my pearls of wisdom. Consulting has very different methodologies for how they analyze different situations, how they come up with conclusions and recommendations. All that had to be learned. Selling is still a core skill. Interpersonal relationship [building] was still a core skill. Developing relationships also was very similar to the old IBM, but I'd been away from it for a few years at that point. So, it was different. The other thing is that IBM was bringing in a lot of consultants from other companies that had different types of consulting heritages. The Booz Allen guy isn't the same as the PwC guy, isn't the same as a Mackenzie guy. The culture was also different in that the arrogance of these new consulting managers and senior consultants was colossal, and yet the thing I had learned at IBM was how un-arrogant, to use a non-existing word, IBMers were because we had been taught to listen. So, arrogance gets in the way of that. If you're arrogant, you can't make it at IBM. You couldn't in those days. These other guys, they were coming in to solve the world's problem. "Hey, Mr. client. I know exactly what you need to do here. You need an international supply chain and let me show you how we did it in five other places." I'm going, "No." And I refuse to sign up for that because by then I was old enough that I was my own person. I've got my own way of doing things. And so, it is what it is. So, it was a very different, very different culture—that was for me the 1990s. In fact, the company was in such deep trouble that I decided I needed to commercialize my resume. It was too internalized. Too internally focused. So, I got together with three other guys and we established a practice in IBM. Our manager had essentially been fired and hadn't been replaced and so we were unsupervised, but we were still on the

payroll. So, I talked three other guys into joining me, I said "Let's start a practice; consulting practice and strategy and let's just wait and see if they ever catch up with us. And I know the managing partner for Booz Allen in Milwaukee. Let's see if I can get him to figure out how to train us because they have training." I talked the guy into enrolling us, almost like a client, in their six-week training program on strategy. So, we went off and we did that. And then came back, and we said, "Let's do one on public sector. Public sector people can't plan their way out of a wet paper bag. We can score here." So, we got a practice up and running fast and we were bringing in cash and we were using methodology and everything else. So, when IBM finally caught up and decided to get into the consulting business, then they rounded up all these little renegade practices and disciplined them into one group, and my little practice went in there as well. We were one of the few that had positive cash flow. Because we all started out as sales managers or salesmen and so we knew how to establish relationships and then we had learned the methodology of the strategy of consulting, we were consultants and we were practicing it.

Aspray: This is very entrepreneurial. How—

Cortada: It is!

Aspray: How much could one be entrepreneurial inside of IBM?

Cortada: Again, in which period?

Aspray: Okay. I'll let you answer the question.

Cortada: Yes. More so in the second one because of the chaos of the place. But in the first part, I felt pretty free to be entrepreneurial, I mean, there were guardrails, but let me give you an example. After I had been the branch manager in Madison, IBM established a quality—a total quality management program across the company, and I was assigned that role for the region that covered Wisconsin and a piece of Illinois, northern Illinois, and what have you. But nobody knew what that role should be. So, I could do whatever I wanted. I mean, my performance plan said, "You're the TQM guy, implement."

Whatever than means, because I didn't know what that was, so I had to go learn what that was. Well, ground zero in the United States for that was ASQC (American Society for Quality Control) was headquartered in Milwaukee. Perfect. Boom. So, I went over there and boned up on what this was all about. Then I decided that I needed to find out what from other companies what they were doing. So, I went to Ford and Citi Corp and all these other people, and Xerox, and find out what they were doing. Then I decided, well nobody's going to let me do this at IBM unless I have two protectors, one being my regional manager, who was an executive, and I'm going to need something bigger because I'm going to be messing around with personnel. So, I got the senior sales VP for IBM, George Conrades. I went and called on him and said I want to try experimenting with all kinds of new managerial and personnel practices in this region. And if I royally screw the place up, it's only going to cost 1% of your revenue, and I doubt 800 people in that region are going to allow me to screw it up. But I need a godfather. I need a protector because I'm going to be messing around with appraisal processes, suggestion programs and everything else. Will you be my protector? And he agreed because the whole company was doing totally quality and nobody in sales wanted to do that because the most conservative, least innovative group at IBM was always sales. They didn't want to mess anything up with their relationship with their customers. Leave everything alone. Don't mess anything up. Here we are all going to mess things up. In my case, since I grew up in sales, I was trusted. So, he agreed, which turned out great because, sure enough, nine months down the road, the HR people came after me. They wanted to get rid of me, violating all kinds of rules and laws and everything else. But I was successful. We created a lot of new, innovative programs, which some of them then were adopted by the company, others weren't. But that was a highly innovative thing. I mean, literally, my performance plan was a blank sheet of paper. I was told, "In a few months you're going to have to fill this thing out because like every employee, it's like a contract. But until you know what it's going to say, do your thing." So, there was that example. Then setting up the practice was another example. A third one, years later—many, many years later, I wanted

to—we were—let me put it this way. I was in IBM's managerial research organization, Institute for Business Value, and we were getting into a lot of economic development stuff because every country has an economic development plan and a heavy IT content piece to it. I said, "You know, we're really not doing squat here with this. We need to go get some expertise, crank out and do some serious work in this area." Well, of course, there's no money. I said, "Well, let me shop around. It's a big company. It's 190-billion-dollar company, or whatever it was. I said, "I think I can build a staff of three, four, five, six, seven people and it's not a lot of money. It'll cost you a couple hundred thousand dollars each between benefits and salary and whatever for these people, so we're talking only a couple million dollars to get this thing going. Let me see if I can find money." "Fine. Go ahead." So, I dug up the money. I hired a bunch of people and set up a branch of this think tank of ours in Dublin. Hired three PhD economists that I stole from local universities. I knew how to do that because I had gone from that to IBM and I told them all the pluses and minuses. But I got that done. Set this thing up. The Irish government loved it because at the time, Ireland was seen as a hotbed of innovation in Europe. This is what, 2008, something like that. And so, I made sure that we had this sort of ribbon-cutting ceremony for the institute. It had a big, fancy sign made that went over the IBM building in downtown Dublin. I invited a reporter I had been cultivating on several trips from the *Irish Times*, a business guy, to come over to take photographs. He ran a beautiful article about IBM investing in Ireland. And we had a minister, I forget what his title was, a minister of economic development. He just thought this was fabulous. The great IBM corporation is doing more than just building PCs. This is high-end investment. And we had the country general manager there, so we looked good on television that night, we look good in the *Irish Times* the next day. And they loved the fact that I had hired—everybody I hired was Irish. Right? And had come out of local universities. Everybody had all the funny accents that you needed. It was great! Then we started publishing, doing research and publishing a lot of stuff out of that office. Because the thing about the people I hired was that they all had publishing experience through their academic

backgrounds. So, they knew [how], and we had a publishing arm, so two weeks after you complete a paper, it was published and distributed to ten thousand people. They could never go back to academia after that!

Aspray: Right.

Cortada: So, this is just another example of where you could be entrepreneurial. At each level in the company, there are ways you can be entrepreneurial if we can't, the current CEO, the new CEO at IBM, about 18 months ago went to the CEO of IBM and said, "Listen, we're not getting the job done in the cloud. We got to go get a new company in here that knows what they are doing and leave them alone. And I want to go, and I want to go find that company and bring them in. So, she said, "Fine. Alright. Go do it." So, he comes back and says, "I want to buy RedCloud," I mean Red Hat. "And it'd going to cost us a ton of money but we bring them in, we do this, bada-bing, bada-bang, and people are going to start taking us seriously on Cloud because we cannot build this thing organically and I'm in a hurry. One of those things. So, as the story goes, it got done, and it got done in a pretty quick manner. Red Hat comes in as a 34-billion-dollar acquisition, the largest IBM ever made, and it made the president of Red Hat the president of IBM. It makes this other career IBMer, the CEO, current chairman of the board (Ginni Rometty), is sort of yesterday's news, just…gets a paycheck every two weeks. So, it continues. The company is so big, that you can either hide in it and never see the outside world or you can swim around in that fish tank and find all kinds of things to do. Now, it took me six or seven years before I realized that this is like a smorgasbord. You could fly airplanes for IBM. You could be a chef at IBM. You could invent a computer. You could get a Nobel prize in Physics. Oh! You want to get it in Chemistry? Not a problem. We do Chemistry too. You could live anywhere in the world, I mean you still got to talk to them into it, right? Remember the old story about the elephant and the branch manager I told you earlier, you still got to convince somebody. Want to be in sales? Great. You got to compete, and you got to be successful in your jobs, but it was so big. Hundreds of thousands of people, that once you were in there,

you were actually personally responsible for your career. You just shop around and do what you want. I had no expectations about ever being the chairman of the board at IBM because I came into IBM at a time—I was 27 years old—which by IBM standards was considered 'old' for a young person, I mean, a junior person. A typical president of the data processing division, which was the large, large account, the Cadillac piece of the business, typically entered that job at the age of 38. And the reason he had to do that is because he had to climb through so many other ladder steps, to become potentially chairman of the board, president of the company in his 50s, and would be retired at 60. So, they actually had a formal succession plan until the '90s that way. I already knew that there was no way I could get through all the steps to become a senior executive in the company, and that was fine because as long as I had a comfortable standard of living, as long as I was doing interesting work, getting real stuff done—again this fish tank, I had 400,000 people in this fish tank. Ten layers of management sitting in over 100 countries at that time, now it's up to 176, there was plenty to do. Jim Cortada was not going to be bored. My challenge was to make sure that I wasn't going to make an ass out of myself and could compete against all these wonderful people who stood up in classes and said they had an MBA from Harvard or had been on the Olympic team or had a PhD in something.

Aspray: Looking back on it, are you happy with the path you took through IBM?

Cortada: Absolutely! Even in the rough times when it really worked hard to go out of business in the early '90s. Absolutely. It was a blast! It also went by at warp speed. Just for the record, I was at IBM 38 years and one quarter. What's the math on that, 132 quarters, whatever it is, yeah. And it went by like a bullet. And it went by so fast that when I retired from IBM, I always like to use the term when I "graduated" from IBM, I've learned everything I wanted to ever learn from IBM, and I reacted probably the way the most people react when they do graduate from college, that first 90 days they look back and go, "What just happened? What does it mean?" But instead of doing it in four years, it took me 38 years. Same experience. Oh, yeah. It was fabulous. Absolutely no regrets. I have met some of the most

incredible people whether it's measured by kindness, personality, education, intellect, achievements, personalities in our industry…yeah. I always felt—and one of the things that is very interesting about a company like IBM, I felt that I was in the center of all the really important things going on in the second half of the 20th century. That is a remarkable thing to be able to say. The other thing that is pretty remarkable—and I realized this pretty early on—was that I could pick up the phone and get an appointment with just about anybody except the Pope. They used to tell young employees this. If you work at IBM, you could ask to see somebody, and they'll probably give you the appointment because you're from IBM, right? You've got five minutes to make an impression that—because otherwise they'll throw you out of the room. And I actually was actually able to prove this. Dora and I held a party one year—just IBM folks—and everybody had to pull a name out of a hat and make contact with them and come back for another party six weeks later and tell their story. You know, this separation by six. Everybody came back. They had had a conversation with whoever it is was in the hat. Actors in Hollywood, several congressmen, some senior executives. I had, had the CEO of, God, what's—forget the bank, I can't recall, Bank of New York, one of the big banks in New York. I mean, I literally called him at his house. I got his phone number of the telephone directory and introduced myself: "My name's Jim Cortada. I'm from IBM," and he should've hung up the phone, but he didn't, and we talked for about an hour. All I had to do to qualify for the party was just have him talk and let him hang up. But the point is the IBM calling card got you in wherever you needed to go. Of course, responsibility on your part was don't bother, don't waste anybody's time. You better have a real reason to go in there, right? So, it's a two-edge sword. And that was what made me feel that I was at the center of all the action, and of course computing was so important, right? It was the hot, new technology for decades and kept changing. Yeah. And everybody at IBM felt the same way. Even in the 90s, I mean, my God, when IBM is getting ready to hire Lou Gerstner that's all the business press, the New York Times, that's all anybody wanted to talk about. Who's on the short list? And I'd get phone calls from people saying, "C'mon. Give

me the inside dirt." I said, "I'm too low in the organization to tell you what that is. I'm not going to speculate. That's stupid." So even in the '90s, we were at the center of the universe. And that continued because even—because I was very fortunate in that, as were others who—as we got older and got white hair, even though IBM went through some rough periods, we were seen as, and one executive used this term, 'You're the real IBMer, aren't you?' not the other guy who had been hired from Price Waterhouse or somewhere.

Aspray: Right.

Cortada: I remember the first-time hearing that and I actually heard it two times, two different people. I said, "What do you mean?" "You're from the old IBM, right? You've been in IBM a long time?" "Yes, sir. Been with IBM 18 years," whatever it was, and he'd ignore the other guys and said, "Alright. Let's talk."

Aspray: Tell me how your historical training had some benefit to your IBM work.

Cortada: For one thing, I knew the history of all my customers. They didn't. So, here's my line: "Mr. Customer, your company and mine have had a relationship since the 1920s. In fact, I brought you a photocopy of the original signing agreement. I thought you might like have it, have it in a nice little frame you buy at the drug store. And you and I right now own that relationship. That's—our job is to maintain that relationship between two corporations that have felt that way for a long time. So that any differences we're having today are minor and we got to resolve them. And there are all these issues, right? Because if we don't resolve it, the CEO of your company and the CEO of my company are going to talk and we're both going to get kicked out of the way because the relationship has been around for 70 years. It's very important. Oh, by the way, here's a copy of an article in the *New York Times* describing how you were one of the first ones in your industry to use an IBM computer in 1964. I thought you'd like to have a copy of that. Who does that? Nobody.

Aspray: Right.

Cortada: Right. Nobody. You also ask different questions in a conference room. There was one situation around 2008. Corporate strategy people were having a meeting and I had been invited to the meeting. They wanted to discuss how they could penetrate the African market more than they were doing so far. And somebody came up with the idea of well, why don't we give a supercomputer to—I forget the name of the university—University of Ghana. Let's call it the University of Ghana. Whatever that university was. And then all the engineering students will grow up only knowing IBM and it'll work out great and then they'll install IBM. This is classic strategy. Everybody all [noticed that] Apple gave computers to teachers and that's all they use and so on. Okay? So, I'm sitting there listening to all this and I ask two questions. The first one was based on my knowledge of technology, and I said, "How confident are we that this university has a reliable supply of electricity?" I learned that from my training program at IBM. About dirty electricity, clean electricity. Somebody in the room asks, "Well, why do you ask?" I said, "Well, if there's a spike up in electricity or a spike down in electricity, you're liable to fry some of the parts. And that means every time you fry some of those parts, it could be up half a million-dollar replacement of supercomputer parts, and you're going to have to replace that. And I'm not sure you're thinking about the budget for that. And then it takes about six hours to reIPL system, that is to fire it—reboot it. Sorry. I was using a technical term there. Initial Program Learned: IPL. And that's really going to piss off the customer. Has anybody considered that? Of course, nobody in the room knew. They're just strategy guys. Ok. I have a second question. And I knew nothing about Ghana. Nothing. Zero. Nada. But at Randolph Macon College I had taken a one semester course on the colonization of Africa. Fabulous course. So, I asked the question. Somebody had said, "Oh, Ghana has got a fabulous democracy. It's working great! It's going to be stable. This is why I want to go into Ghana as opposed to Niger and all these other places. I said so, "How confident are you that the two tribes have worked out their differences?" And they're looking at me like, what? Every country in Africa was carved out on a map in the 19th century by Europeans without regard to tribal boundaries that had been there for eons.

So, in a lot of these places they had two competing tribes sharing the same colony. And when those colonies were freed up in the early 1960s, they kept their same boarders. In some cases, they even kept their same names. And then they spent the next 40 years having all these civil wars. And all these civil wars were about tribes reorganizing their boundaries. That's why one day, you'll have 52 countries, the next you'll have 48 countries, then it goes up to 50 again. It's still going on, right? Invariably, there are always two or three tribes that are hacking it out. So, I assumed Ghana had the same problem. So, then I explained that exactly what I just told you about the boarders and everything else. I said that guarantees that every democracy in Africa is at risk and why dictatorships are so popular. Dictatorships are actually more effective even though they are run by corrupt people. They are more effective because they reflect the interests of a particular tribe. And it's actually facilitating the reconstruction of the original boarders. Well, everybody's looking around, all the little MBAs from Harvard and so on, they're looking around like, Oh. And I ended the conversation by saying we can easily find out. It's not a problem and I looked at my watch and I realize it's just early afternoon in London and I have a friend in London who's a native of Ghana who works for IBM. And we had an internal texting system on our computers and I—so I told one of the guys taking notes, "Text my friend. See if he's in his office. See if he can take a quick call from us. And the guy was in his office. "Hi Jim. How are you doing? Blah, blah, blah. How's Dora?" and all that. I said, "Listen. I'm sitting here and can we pick your brain for about 15 minutes about Ghana?" Sure. So, boom. He gets on the little squawk box. I introduce him to everybody in the room. He's a native of Ghana. Went to Oxford. Got a job at IBM. And I said, so what's the political situation in Ghana? He says, "Well we've got this tribe, and we got that tribe and right now they get along great and they love the current president." I said, "How confident are you that this is going to last?" He says, "It's always good for two or three years." Some snarky comment like that, which of course raised red flags all over the room because IBMers are so conservative. I said, "I got to ask you one more question, what's the story on electricity. If we put in a 5-million-dollar supercomputer in the place, what are the odds it's

going to have a reliable supply of electricity?" He says, "Well as long as you have guards protecting the copper wiring coming into the building, you should be ok." He had learned that cheeky British humor, right? Thank you! Boom. End of the conversation. Ghana did not get their supercomputer.

Aspray: So, your answer is very interesting about how history helped you at IBM, but I didn't hear some of the expected things. I didn't hear, for example, in history you learn how to gather different types of information, you learn how to evaluation information. You will learn analytical skills. You learn to deal with missing information and ambiguity and things that are different—contradictory with each other and so on.

Cortada: The reason why I didn't mention it earlier because that was almost a given similar to what highly effective IBM people have anyway. It's the exact same skills. They're no different. You know how to research; you know how to analyze. You know BS when you see it and all that. They had those skills. Historians do not have a monopoly on that. Most people who come out of humanities and social sciences and a lot of the hard sciences have a lot of those same skills, they just use different vocabulary and different notions, but it's the same. In fact, to me, when I was at IBM, my definition of diversity wasn't having African Americans and women in the room, we had those. The bigger challenge was to make sure we had diversities of academic skills or intellectual skills, disciplines, so that people would ask the same question in their own vocabulary, which then forces us to tap into different sources of information and different ways of looking at a situation. So that for me was the definition of diversity. Which is different from what we normally hear about, right? But they all have similar skills—so for me that might be an argument coming into the company but is certainly not an argument once you're there. Once you're there, I mean, by there I mean within a year—it doesn't matter what your undergraduate degree was or what your graduate training was. Could you deal with the issues that we have to discuss today? Or that we need to resolve over the next six months or whatever it is. And when you become a manager, you begin to realize that very quickly you need different perspectives in a room the more

complicated the problems are. But then everybody's got to behave the same way. So, to me, it was already baked into the DNA.

Aspray: Especially in the earlier years of IBM, the company has a reputation for being strong culturally. It has an image of itself and the way one behaves and the way one thinks, and so on. How does this affect your ability to be an individual or Dora's ability to have a kind of life that she wants or your kids or whatever.

Cortada: It was not at all smothering—if there's an implication in the question—for a couple of reasons. The culture, the values of the corporation matched my own moral and ethical values. That's very important to understand that. So, you don't lie, you don't steal. You tell the truth. You're honest. You're blunt but politely blunt. You're expected to do that. That allows you the intellectual freedom to say, like the story about Ghana. There was a senior VP in the room when I made those snarky comments about well, how's the electricity and so on. And this is in 2008 when supposedly all kinds of issues and so on. I can make the same snarky comments politely and respectfully, probingly in 1978. Rank did not matter. Ideas did. Better that you bring up a problem so that we can solve it than to hide it. Better that we apply our best thinking to an issue regardless of who has the thought. And this isn't just about somebody filling out a suggestion form and then getting a thousand-dollar prize for coming up with a different way of putting a paperclip on a piece of paper. This is about resolving an issue or chasing an opportunity and whoever had the best idea in the room, we're going to take. That existed. That was part of the culture. A very important part of the culture. In fact, one of those memoir articles [that I published] in the *Annals* [*of the History of Computing*], there is a—there are two articles, one on how branch offices operated and another one on my experience as a salesman; and I think there are some stories there associated with it, including one called 'War Stories' where all those war stores were, if you will, were all moral dilemmas. They were real. I caused a customer to go to jail in New Jersey. I had a situation where the mafia had stolen an entire system, and I chose to fix the problem my way as opposed to getting IBM

involved. Talk about freedom of action because I figured I could solve the problem better that way than have it in appear in the newspapers and everything else. Basically, I convinced a mafia guy in New Jersey to write me a check made out to IBM for the equipment that got stolen for $980,000, which was drawn on Citi Corp so that's how I know Citi Corp was the laundromat. But the check went through. I said I want a certified check and we're going to let this situation go away. Of course, the CFO, who came along with me, the customer CFO, was some American guy, one of the Italian American guy, some mob, whatever. And afterwards in the hallway, he said, "My God! Did you—do you know who you just lectured?! No. And the guy appeared in the newspaper about six months later as associated with some mafia family, Giordano. It was the Giordano family. Ok. I'm not sure if I told that—yeah, I think I did tell the story in the *Annals* report, but he was already dead by then. But I didn't mention the company I don't think. It was Fedders Air Conditioning. It was a mafia run operation in New Jersey. But, yeah, you had plenty of room, but you also had responsibility. You get credit for getting the job done right, but you get beat up if you don't get the job done right as well. But it was a very ethical organization, so that helped. And the fact that they valued the best ideas that one could put forth. And it was a culture where, if you didn't think you had the best ideas, you could pick up the phone and call the best idea guy, whoever that is. It was a moral and ethical responsibility for people to help. The worst thing that you could have somebody tell you is, why didn't you tell me you had this problem? I would've been delighted to help you. I can't tell you how many times I had to lecture people on that and how many times people got lectured because it's a command and control culture. Unless you're encouraged, you're reluctant to call on a senior VP or president of a division or what have you. Certainly the first few years I was at IBM, I was reluctant to do that until I became an instructor—sales instructor—and had to recruit a lot of these people to come in and give talks to band new salesmen. In which case I got very comfortable with the whole senior management at all kinds of levels. My rolodex was to die for. And when I went back out into the field as a sales manager, I had no problem picking up the phone and

calling somebody and say, “I need some help here,” because I knew I wasn’t wasting their time. They really wanted to help close a piece of business. In fact, it was in their performance plans to do that and I knew that.

Part 2 of Jim Cortada interview

Aspray: Today is the 11 of June 2020. This is a continuation of the interview with James Cortada from his house in Madison, Wisconsin. The interviewer is William Aspray from his house in Boulder, Colorado. We’re doing this interview on Zoom. So, today, I wanted to talk primarily about two topics. One of those topics is the history of the history of computing field, and the second is about your scholarship and your participation in the history of computing field. If we still have time left after that, we’ll do something more. Those are the main topics to cover. Now, usually as an interviewer, I simply interview. For the parts we are going to be talking about, your scholarship, that’s the role I’ll play, the standard role of interviewer. But in the part that we’re talking about the ecosystem or ecology of the history of computing, especially in the early years, I may occasionally step out of my role simply as interviewer and participate a little bit. In particular, I want to make sure that a certain set of activities or stakeholders, players in this [enterprise] get mentioned so that if somebody wants to write the early history of the history of computing, they’ll be able to do so. We know somewhat complementary parts of the story. So, don’t be surprised if every once in a while, I go on at more length than I usually do, ok? So, let’s begin by having you tell me how and why and when you started to be interested in and participate in the history of computing.

Cortada: Ok. So, I joined IBM on October 1, 1974 not knowing anything about IBM or its history or the industry or about computers, other than I had played Hangman and baseball on a system, a 1400, in a basement of our college in 1968. So that doesn’t qualify. But because I was trained as a historian, my instinct upon joining the company was, time permitting, that I would want to know something about its

history. The first 14 months I was working, I don't know, 60-70 hours a week between studying and traveling and whatever, so I had no time to do that or time to work on my normal Spanish history projects that we've talked about before. At that time, my plan was I would continue to work on my Spanish history projects because no company was going to stop me from enjoying that as a pleasure, as a hobby. But that first year and a half was just impossible in terms of doing anything. After that, however, starting around 1975, '76, I had two Spanish book projects that I was working on that I needed to spend most of my free time on that. Then we had a daughter born in 1978 so every parent listening to this would understand all that free time just got sucked out. But, all that given, some time in '75 or '76, I came across a biography of Watson Senior that had been done in 1959, and somebody had given it to me knowing well, you're a historian, you might actually like this, and it's one of these laudatory biographies; he walks on water, and what have you, but at least it told me the company was formed out of three little companies in 1911, and then he came over in 1914, all—some of the basic stuff. That was about it until around 1977 when I heard that IBM had a corporate archive and the bells went off. I, at that point, looked around to see how much had been published about the industry and on IBM. And you could put everything that had been published on half of a shelf on a good day. The only piece of really meaty technical history that I had come across by that point was actually not written by a historian, but a lady, Jean Sammet, who wrote on the history of programming languages and—published in 1968, but other than that, there was almost nothing. There were a lot of journalistic accounts about the emerging computer industry and several monographs were just beginning to appear on the economics of the industry. But I heard about this corporate archive, and I said "well, I wonder if anyone's even looking at it." I happened to, on occasion soon after that, be in the New York area, and so I made an appointment to go call on the archivist. I walked into this place and it was a gold mine. They had had this archive since the 1960s, they had thousands upon thousands of pages of materials that were properly organized, they had videos. They had copies of all of IBM's publications up until that point. The archivist, while he was

not a formally trained archivist, smelled, walked and talked like a real archivist and had the passion for it and the place was loaded also with antique equipment.

Aspray: His name?

Cortada: Hold on a second. I'll get you that name. You should have that name. Just bear with me a second, and I will find that name for you if I can find the book that has his name in it; otherwise, I will have to give it to—Pokorak. That's his name.

Aspray: I'm sorry?

Cortada: His name is Pokorak. Let me get you the correct spelling. Robert Pokorak. P-O-K-O-R-A-K, and he wrote a nice little introduction to that archive for a book I edited years later called A*rchives of data processing history: A guide to major US history collections*. Anyway, he showed me around, and I asked a critical question, how much traffic do you get in here from academic historians? And he said really none. All his traffic was from the lawyers and from the media people, speech writers, advertising, that was it. And once in a while one of the product people would come over.

Aspray: Was that because the archives weren't known or because the policy about not allowing outsiders to use the materials?

Cortada: I think there were two reasons. One is that nobody knew about the place and secondly nobody was doing research on the history of computing at the time in a scholarly way. That changed in the '80s, of course. But this is in the late 70s. So, at that point, I was already starting to think like a businessman, remember I had joined IBM four years earlier, and I said nobody's looking at this thing. There's tons of stuff here. IBM is the coolest company on earth. I could do some [of] this history and have no competition whatsoever and be able to control the supply of raw material going into the books or articles. So, I started a process that continued right to the end of my tenure at IBM of, whenever I was in the New York area, I'd make an appointment to go see the archives. Years later, I would actually order up specific boxes of materials to examine and they would be ready for me. This went on for years,

looking at materials, and I got to the point where I probably was as familiar with what they had as the staff themselves. I use the word 'staff' because, depending on what year you were in, there could be two, three people working there, sometimes just one, although there was always staff. So, I began to just look at material without the intention of writing anything, just to familiarize myself with it because they had some internal histories. There were typed manuscripts of—that were 50 pages long, whatever it is, chronologies of the history of the company, little biographies, one-, two-page biographies of CEOs and things like that, so it was all pretty primitive, but they had the stuff. So, I began to do that while I was finishing up my Spanish projects and starting to write about business management, which is a separate conversation. I kept looking at this material, and said, "You know, nobody's looking at this stuff. I could probably write a history of IBM." But since I was trained as a diplomatic historian, I was looking around for all the normal tools that a historian has and diplomatic history was fully configured, to use a nice IT term. It had bibliographies. It has anthologies. It had collections of manuscripts. It had journals. It had all the accouterments that one needs to do research in that field. So, I looked around and nobody had anything. I mean there wasn't anything. There weren't any bibliographies. There weren't any historical dictionaries. There weren't any anthologies and famous articles—nothing. Absolutely nothing. Zero. Nada. I said, "oh my God. No wonder—nobody's ever going to get any work done around here unless we have some of these tools." So, I decided not to write on the history of computing. I decided that for my own purposes—selfish purposes—I would prepare several tools that I could then use for future research. The first tool, for me, was a bibliography; and I did that, and without the intention of publishing it. I mean, it was a 3x5 card bibliography, which we all used to do on a regular basis before we started a book. Pick four or five hundred titles of stuff so you know what the landscape looks like and how to organize it by topic and all that. So, I did that. About the time that I had finished doing that, a couple years later, it dawned on me, a village idiot could publish this thing. It's not that hard. So, I looked around and found that the—the leading publisher of bibliographies at the time was

Greenwood Press. They are the ones supplying all the libraries with historical dictionaries and anthologies and so on and so forth. So, I reached out to them—they were in Connecticut, I was in New Jersey—and said, "Hey I got this idea for a bibliography." They immediately loved it. So, I basically typed it up and it was published around, I think, 1984 or so. It did very well because it was the first bibliography on the history of computing. And 99.99% of the material in it was not historical, in the sense of it not being written by historians but it was of historical interest, very important point. It got published. I think *Choice* magazine gave it an award for bibliography of the year for being innovative, it was different, it was fresh, all the usual, blah, blah. So, I said, ok. This works. Greenwood came back and said, "Every library is buying this thing. We're making money off of this. What else do you want to do?" So, I said, "Well, the other thing I need is I need little one, two, four, five-page histories of key things in the industry as little corporate biographies of corporations. I need histories of different devices and software. I need to know what the ACM is, Computer Society, all that kind of stuff, and I really need three or four or five pages each so that I can someday maybe do a real book on the industry or IBM." And they said, "Well, that sounds like a historical dictionary." I said, "Ok. Yeah. Alright." So, I agreed to put together a historical dictionary, and I knew what those looked like because they existed in so many other sub-fields of history. I'd known for diplomatic history, seen one of American history. So, I started to put this thing together and it kept growing and growing and growing. So, this decision was made in 1984. In 1986, I had a meeting with my editor, and I said, "To do this thing right, I've got to have X number of entries in this thing and it was going to be like a 2,000 page manuscript, and said, "This is stupid." And she said, "No, no, no. Why don't you break it up into, say, two or three historical dictionaries because historical dictionaries tend to be fatter than a monograph." So, I said, "Alright, let's divide it by biography, by organization and by stuff—technology. So, we did that, and all three volumes were published in 1987. Again, at this point, a few things were getting published on the history of computing both in terms of articles and the *Annals* and some other places, and books were becoming to

come out [that] was very helpful. So, it was a huge difference between the early 1980s and what I was dealing with in 1987. Again, Greenwood was thrilled. The three books were doing quite well. So, by then I realized that the bibliography I had published six years earlier or five years earlier, probably needed to be updated. Meanwhile, I continued to add to my 3x5 card file because I was still trying to figure out what to write on and I needed to get a handle on the literature, which I did not have at that time. So, in 1990, I published a second bibliography which was about three times the size of the first one and then I did a sequel, two sequels in 1996. At that point I edited a contributed volume where I got each of the archivists around the country that had real collections on computing, history of computing, to write a chapter each about what their collections were. So, at that point, I decided I now have got the core research materials—reference materials—that I need on my shelf in order to start doing what I thought back in 1978 I would do, which is to write a history of something. So, I had the basic tools that I needed. Whether anybody else used them or not, I have no idea. I know the libraries bought the stuff, so Greenwood was happy. I liked getting them published because they took up less space than 3x5 card files or folders with these little five pages histories of one thing or another. So that basically took a ton of material down to looks like...let me see…about half a shelf when you put them all together. About this amount. I said, Ok. I've got my little thing. Then I went back to the idea of writing a history of IBM, and by this time I realized that really the history needed was to go back to the time of the American Civil War because technology that went into computers started back in there. The typewriters, the adding machines, the calculators, the cash registers, all that kind of stuff. Bicycle technology was pretty important, teaching people about gears and stuff like that, and machining and so on. So, I conceived of a history of a—I decided I would write a history of the industry because, as a businessman, I knew people weren't doing that. They weren't looking at computing as business history, but I said, you know, every engineer who invented anything was on somebody else's payroll, and they got paid to go and invent computers, so let's go back and check out that crowd, the people who write the paychecks every, every

week. That's how I got to the business end of it. Also, my experience at IBM was teaching me about the concepts of industries, the role of computing within an industry, how it varies from one industry to another. And of course, I was learning about IBM. I realized that IBM was a giant player—the high-end of data processing beginning in the 1890s, not in 1911 or 1914 or whatever it was. But there were all these other insularly things they were important in creating, what was quaintly called at the time, that is in the 19th century, early 20th century, *the office appliance industry*. I love that term! And it worked. It was office appliances just like you think of appliances in your kitchen. It's the exact same idea. And that's probably what they—how they got to kitchen appliances later on, probably the same kind of idea when that came later. So, I started. I outlined a book that would go up to the early 1960s, and I thought that was enough of a scope. I'd published enough history to know that's probably the right scope.

Aspray: Why the end point?

Cortada: Ah, the end point is before the system 360 because up to that point, you essentially invent the computer, commercialize it and get enough copies out there that there's a built-in demand and problems with the existing technology. And then 360 comes along and solves those problems, takes advantage of the demand, and that's really a different story. It was then and still is today. The world did change on April 7, 1964 or at least the next year when they started delivering it, the machines. Anyway, I started writing this thing, and the first draft of it, which you—and you were a reader for it, in Princeton, basically took the story from 1956 through the 1400, which would've been the early 1960s. Then, I believe it was you and one other reader, who agreed that the last two, three chapters probably should be taken out and the book should be about everything except computers. I said fine. I'm okay with that. It's not that I'm going to throw the other chapters away, I already figured out what I was going to do. The story still needed to be brought forward. So, the editor and I at Princeton agreed that I would rework the major part—only a few minor changes to be made based on the reader reports—that I'd take out the computer piece, and write a nice, new conclusion. So, we did that. The editor decided

before we put it into production that he would send it over to Al Chandler, who I already knew at this point, just to make sure that this is completely ok because Princeton was thinking that this —thinking of sticking it in a series where they were going to publish a whole bunch of technology histories. They only published a couple but [that was] their thinking at the time. So, they sent it over to Al Chandler at Harvard because he and I had already established a bit of a relationship at this point. He quickly jumped into the book and read it, loved it. He said it's ready to go into production. No more screwing around. This guy's done the job the way it's supposed to be done. And so, boom, that takes off, and while that goes into production, I have these two, three leftover chapters, and I added a new front-end chapter about the changing nature of technology history, then I had a story about the invention of the computer, and how it came out of the laboratory and I did it as business history, unlike what other people had done (which was technical history). So, I did this as business history and then I had a concluding chapter and the title of the book was the *Computing in the United States*: *1956-1961*, whatever it was. So, this is business history. It was published by M. E. Sharpe and it came out literally the same month as the Princeton book. What was very interesting about those two books was that nobody knew who I was. And it was almost like—and on top of that, on the dust jacket, there was an endorsement by Chandler who had a policy of never endorsing books by colleagues, and all of a sudden, he's endorsing this one. And it was because it was a manager in business writing industrial history and he liked the way it fit. And it fit also his mojo, the way he thought about industrial history. And so, all of the sudden, it was like, who is this guy, and I started getting letters and a couple phone calls from historians, sort of like, who are you? What's your background?

Aspray: [A short break] We are going to reconvene in this story. You had just told me about the M. E. Sharpe book.

Cortada: Ok.

Aspray: —and the reception that the book was getting and the fact that Chandler had written an endorsement, which was an unusual thing.

Cortada: Right. So, people reached out to me to find out who I was. From the—not so much from the computing history field because it still was too tiny but from the business history field. Anyway, as a result of all that, I realized two things: number one is that it was my first time thinking about information as a history project. That's important because several years later, I went to Al Chandler and said we ought to work on a project to really energize the history of information, so that anthology that was published in 2000 came out of that realization. I literally went to his apartment, sat down with him and said, neither one of us is capable of writing this thing because too many diverse topics, but we ought to put together an award-winning team. And he said, yeah, let's get a bunch of guys that are in and around the Boston area so we can always get them in a room to work them over and I said, I can fly in. I can be the out of town guy. But that's a story for later on. But in the '90s, I began to realize there was—what we needed here wasn't a history of IBM, what we needed was business history of computing, how people were using computing. Meanwhile I had started to have conversations with a couple publishers about a short book of case studies about how people were using computers today, but historically set, which I thought would inform me for when the time came to go do the Chandler book. Already in the 90s I was beginning to think more about information more than I was about computing—

Aspray: Right.

Cortada: —but that's a separate story. The key here was that I discovered in the IBM archives that they had a ton of material on our customers, our competitors, economic and business and managerial literature on the industry, which was just beginning to get definition. The academics had already started to create a field of computer science in the '50s, but the business side of it was still ill-defined in the '60s and '70s. But by the '80s, it was defined–people knew that they were in or out of industry and so on.

There were press clippings, what have you. But the gem in the collection were these things called Application Briefs. Application Briefs were these pamphlets they were—ran 10, 20 pages long. They were case studies of real IBM customers using IBM equipment at a specific time for specific purposes. These were put together in order to be able to demonstrate to somebody else in a different industry, "oh, look, here's somebody doing what we're telling you to do." Accounts receivable is using it, an IBM 360, and they'd quote the IT guy and so on. Later on, I had several of my customers who did innovative things also get written up in these case studies. So, I know—I knew the drill already by the time already I got to discovering this massive collection, which had been built since the 1940s. I knew the drill it went through. It was legitimate case studies. It was truthful. The lawyers on both sides have vetted it, people had to sign off on it, and so on. Anyway, I decided, I bet I could write a history of how computers worked in American industry just based on this material. Not even need to go into *Computer World*, *Datamation* and all that, which I did anyway, or all the business literature that I had accumulated in my bibliographies. So, if there was an article in the *Harvard Business Review*, the *CIO* magazine, whatever it is on computing, I had it in my files. I started to go through literally thousands of pages of materials. That's how much we were talking about at the archives. Collecting them, getting copies, most of them were photocopies, and I organized them by industry, by topic, and then I added into those folders articles from their trade magazine because every industry has a trade magazine. I knew that. You know that. They all have it. And I discovered here at the University of Wisconsin, that they had a ton of trade magazines as well. Nobody had ever looked at them because they had dust on them and so for many Sundays, I would go over to the business library here at the University of Wisconsin on Sunday afternoons, spend three or four hours just turning thousands of pages of—because they weren't indexed. And I built these folders for 18 industries. Then I said in the early 2000s, I am now ready to write a history of how computers were used in American industry.

Aspray: So, let me ask you a question.

Cortada: Yes.

Aspray: How do you know that this is about the way that computers were used in industry rather than IBM computers were used in industry?

Cortada: Ah, because I also—thanks to things like *Computer World*, *Datamation* and the trade magazines, I had access to what other vendors were doing. This is very important because one of the things that you learn at looking at all this material from the '50s, '60s, '70s and usually the '80s, and some in the '90s, was that every time someone got a new computer, or whenever somebody got a new use for it, they ran out and bragged about it. So, there was always press coverage. And then on top of that, you had all the conferences where CIOs would show up and IBMers and so on. There were user conferences and they all published their proceedings and they're all at CBI. They're all available there. There were available, in some cases there earlier, in other cases, they were available at the Harvard libraries as well, business school library there. So, everybody was bragging about how they were using computers. And they were giving talks at conferences and so I was able to gather that material. The reason I had to do that is that, here in the United States, and I focused on the United States for that project, I knew that IBM only owned about 50% of the market. I don't know if it was 50% or 60% and everybody was trying to hide the numbers because of the anti-trust suit going on and so everybody's moaning about it on both sides; the lawyers, ours, the government's and so on. I didn't care. I knew internally that we're talking half the market was owned by IBM. And the other half of the market was owned by the seven dwarfs. So, I paid attention to what they were doing, and I collected material about them. Then I decided the way I was going to do this was that I was going to write a book on the history of computing used in manufacturing and distribution industries, which were some of the earliest users of computing. I knew those industries because they were my, my set of customers. I knew what a production schedule looked like for a shop floor. I knew what inventory control was all about, and so on. So, I wrote that.

Aspray: Two questions for you.

Cortada: Yes.

Aspray: One is a question of clarification. You said you had been collecting information about 18 industries. How did they map onto this manufacturing sector that you wrote about first? And the second thing is, can you give specific names of book titles as you talk about these projects?

Cortada: Ok. The reason why I collected 18 industries is that I needed to know what constituted 80% of all the action. And 18 industries, if you took their sales volumes and so on, purchasing of computers and renting them, I knew from internal IBM documents that if I wrote up about 18 industries, I would be able to get 80%, and therefore, I would be able to generalize with confidence. Because the books coming out were 200, 300 pages of nonsense, very thin statistical data and what have you, on it and what have you. I wanted to be diligent. I decided so the first thing I'll do is I'll write up the manufacturing and distribution industry, first with an eye cast to the possibility of writing a second one about, clustered around the financial industries. Banks, stock brokerage and so on. And then a third one on services industries. So, while I was going through all these archives at IBM, their records were mixed. They weren't always organized by industry. They might be organized by product or by application. So, I had to re-sort that into the industry thing because if I was going to write business industry, it had to be sorted that way. And I knew that the earliest users, in addition to some insurance companies, were really manufacturing and distribution and transportation. So, I wrote that manuscript up, and it was called *The Digital Hand*. And it turned out to be the first of three volumes. *Digital Hand,* [the] subtitle is *How computers changed the work of*, and then you name the industries. So, I wrote the first volume. I really liked how it came out. It was rich. It had new content. It was different. Heavily archival material-sourced and so on. And I came up with a title and I decided, well, I got to ask permission to use this title, *The Digital Hand*. Adam Smith was dead—

Aspray: Yes.

Cortada: —and he came up with *The Invisible Hand*. Then Al Chandler can up with *The Visible Hand*, for which he got a Pulitzer Prize and all kinds of other accolades and so on. I said, well he owns *The Hand*.

Aspray: Right.

Cortada: So, I flew to Boston to ask him for permission to name my book *The Digital Hand.* He said, "Oh, you don't need my permission for anything." I said, "No, no. I need your permission because when I use this title, I'm going to be doing two things; one is building on your concept of professional managers running a business, the Mandarins," the new Mandarins, as he called them, and they're using this thing called computers, and they're the ones who bring the computers in, it's not the geeks, it's the management team, and there's a managerial history. Secondly, everybody's going to pick on me and say, "Well, he just stole the name from Chandler, and he's just riding his wave and I want you to make sure—I want you to be able to defend me when the time comes," and I had already asked him to read the manuscript anyway to critique it, and he had made suggestions for improvement and so on. So, I was covered politically, I was covered academically. I then approached Oxford, my editor at Oxford, who had already published a book of mine, and he quit. Actually, he retired just as the book—the manuscript came in for review, so [it was] another editor who reviewed it. I said, by the time the editor had gotten the book, I said I'm going to write two more, and I'd like you to commit to all three volumes. Well, nobody likes to do that. But I said, really? This is stupid that I write this one, and then I do the finance book, and then I got to go to MIT to do it or somebody else. It's stupid. Let's just do this thing. She was a little nervous because she was a young editor, and I said, "oh, by the way, I've got half of volume two written, so you can take a peek at that and you can see it's going to be just like the other one" except I think I had written up at that point the banks. I was staring at the financial providers at that point. Stockbrokers, stockholders, wall street at that point. So, she read that, sent it out to reviewers, I don't know who the reviewers were, but I don't know whether—don't know about either one of them. I remember one came back and said, yeah if Cortada does this, he will actually complete it, which is

always a real concern to a publisher—a scientific, multi-volume publications, will they complete it? And even when she got that back, she asked for the names of three or four people who knew me. She was going to call them up to find out whether I can deliver. So, I gave her the name of my editor at Prentice Hall, [who] at that point I had done three books with. I think I gave her your name. I gave her Arthur Norberg's name, and I forget who else. Anyway, the point is—and she actually called some of these people—if I sign a contract with this guy, I could lose my job if this guy doesn't deliver! Oh, he'll deliver alright! So, I got the contract for all three volumes. Then I just did my due diligence of every Saturday, I would write. Every week I would copy edit. Every Sunday I'd go to the library. Meanwhile, a frenzied exchange with the archivist at IBM to send more materials. And, so, between 2001—well, already I had a ton of material, but between 2001 and 2008 when the third volume came out, that's basically all I did. And I did something every day unless I was traveling. I did something every day, and I wrote almost every weekend, and I got into a cadence. I got through about 12 industries and then decided I could write up the other six, but I wasn't going to say anything new that hadn't been said. I literally had made my target of being able to pontificate about 80% of all the transactions. I could do that with the 12 industries I picked. I approached Oxford and said, do you want a fourth volume, although my heart's not in it, do you want a fourth volume? They said, "No. If you're comfortable with three, declare victory and move on." So that's what I did. So, the second volume dealt with all the finance industries, and the third volume dealt with things like media, publishing, movies. All those kinds of service-type of industries that were significant users of computing up through the early 2000s. So, I figured if I did that, that—I think I was in my 50s at that point—I had the energy and I had been at IBM long enough and I knew the different industries and understood that the industries have personalities, that they are ecosystems, they are real and a lot of business historians didn't fully understand that from the modern period. They could do the cotton industry of the 19th century or lumber industry or fishing industry in the Middle Ages and so on, but they hadn't done a whole lot of work on what a post-WWII 20th century industry looked

like. In my case, I said, half the book is going to be about, or half the chapters are going to be about describing the industry and how it makes money, what it does for a living. And the other half would be how computing supported that. That was the architecture of the book. And I followed that formula from number one, number two, and number three. By the time number two came out, there had been a lot of reviews of number one. They were terrific reviews. Martin Campbell Kelly weighed in; Arthur Norberg weighed in. They all wrote wonderful reviews of that book, so I knew I had the formula right. So, I didn't screw around with the formula. And then at the end of this whole exercise, several years later, I donated to CBI all the files for all 18 industries. So, they're there. And they are organized in the order in which I used it, so people have gone back and actually written about other industries and they were able to pull out folders in the order in which the footnotes were appearing in the book. So, the book, any one of those volumes winds up almost ends up being like a fancy finding aid. It was particularly useful for European historians who—because then they started writing about the business uses of computing. In fact, around 2010, there was a conference in Sweden on the thing, based on those three volumes. And I was the—what do you call it—lead speaker, whatever it is.

Aspray: Keynote speaker.

Cortada: Keynote speaker. Because there were a lot of people who were trying to do the same thing for Finland and Germany and so on. About 150 people showed up for the conference, so that was pretty impressive, and they were all interested in this model. That's how that worked. Subsequent books, we can go through fairly quickly. I then was interested because of this project; I was interested in diffusion. How does stuff get out? That's when I wrote *The Digital Flood*, published in 2012, by Oxford, which was an account of how do computers spread around the world, and I followed my 80/20% rule again. I wasn't going to write about 200 countries, but I did want to write case studies about specific countries and regions that accounted for about 80% of how computing spread around the world. That turned out to be a fascinating project because, again, the same formula. Deep dive on understanding what the

situation was in South Korea and Sweden and so on. When I first approached Oxford on it, they sent it out to reviewers, two, three reviewers, of the proposal. And all the reviewers said, 'Well, it's impossible to do this because Cortada doesn't know that many languages." What they didn't realize was it didn't matter because IBM was in every country. It kept records in English, reported back to corporate on a monthly basis around the world, tracked every machine that was installed by us and all of our competitors, and that's where I learned that in some countries, we owned 80% of the market. Had names, had budget dollars, knew when stuff went in and why, had copies of proposals, and everything was in English, even the Japanese who hate to send reports to IBM in English, would send in their Japanese language reports and attach translations. So, yeah. I have a working knowledge of several European languages. That was never going to be an issue. I could work in German, French, Italian, Spanish and Portuguese, not a problem, and English. I didn't care about the Swedish or Finnish language or Russian because the reports were coming in in English. And then when I needed to translate stuff that was published locally because you have to do that, I reached out to IBM in those countries and asked them if they would get people to write summaries or to literally translate material for me.

Aspray: So, it seems to me like both for *The Digital Hand* and for *The Digital Flood* that you were in an exceptional place to be able to do this work. I mean—

Cortada: Yes!

Aspray: Could somebody who didn't have access to all these IBM resources have had a chance of writing such a thing?

Cortada: They would not have been able to do *The Digital Flood*. Absolutely, positively, no. *The Digital Hand*, sure. Probably would have taken them six, seven times as much more time. It would've been a lifetime's work to produce those three volumes. Because they weren't going to get into IBM's archives that much and nobody knew about these records, particularly the application briefs, the silver bullet there. With respect to *The Digital Flood*, I had one other advantage because IBM was in all these other

countries, I could get help even from local government officials. For example, Singapore. Singapore is very important. Very innovative. Singapore tracked everything in the place. They count everything. But you can't just go to see your library and find Singaporean reports on how many computers were installed and so on. But Singapore was an IBM customer. I got hold of the people who sold computers to the Singapore government, explained, "I really need to have some reports on how much computing went into the place and so on and so forth." "Oh, no problem. Let me introduce you to the director of statistics, whatever it was." And I had a conference call with their, the local IBM branch introducing me, and, of course, they speak English in Singapore. I explained what I was trying to do and she said, "Oh, we've tracked everything since the founding of Singapore. We will, of course, Mr. Cortada, send you copies of everything because we want to make sure you have the full story about Singapore. I really like your project, and we'll send you some additional materials." That's Singapore. Sweden. I don't do Swedish. Swedish is very important because it's the largest of all the Scandinavian countries at 12 million people. The other ones all have two, three, four, five million people, that's it. So, it's very important to get the Swedish story done. So, again, the same drill. Got a hold of the local IBMer. He introduced me to two, three people who all spoke better English than you or I do, and they said, if there are critical materials that you need, some of them have been published in English, but privately published, reports at universities and so on. Never made it into the marketplace and you can't find them anywhere or anything. And there were government reports on, again, statistics on usage and what have you, and they said, "Let us translate those for you because you'll screw it up. We'll take care of it." So, that kind of material came in. That's another example of when nobody else could do this, right? And then of course as I wrote chapters, I went back to local IBMers in these countries, and said, I need either a historian or a long-serving IBM employee in the country to review the manuscript for their country. So, for example, in South Korea. There was a gentleman who had been in sales and marketing and management, an executive position who had just retired after 40 years. So, he read the South Korean

pages. Made sure that I had all the facts right and so on and so forth. I did this for every country, and it was priceless. For example, in the case of the IRS, for the *Digital Hand* volume, the gentleman who was responsible for e-filing, who ran the project—by the way, it was the only project up to that point up through the early 2000s that came in on time, under budget in IRS computing history. I had him read my IRS section. He was getting ready to retire. He had like 38, 39 years at the IRS. And I was very impressed with what the IRS did in the 1960s. They did some of the best computing work in the federal government. He was a part of that as a young man, and then he grew up—he spent his entire career in IT at the IRS. So, this is basically a history of his time. And he was very good because I didn't quite get it right. And the reason why I didn't get it right is the IRS couldn't figure out if I was the enemy or a friend because usually people want to write about the IRS, they want to say bad things about it. He saw that this is a very complementary, very positive account of a government agency getting it right most of the time, so I was no longer the enemy. And he actually got me additional materials to fill in a paragraph here, a paragraph there, and so on. So that was the IBM advantage. The other one could have been done, maybe a historian would've discovered that the IBM archive was there, would the archive had been willing to help someone from outside of IBM? I don't know. I would say, probably not. They'd give them some materials, but they wouldn't give them thousands and thousands of pages of materials. None of it was secret stuff, I mean, it was intended for use with other customers, basically saying, "Hey, look what K&E did. Why don't you do that here?" And the customers loved it because they were handing those out at conferences, "Hey. Look at us. We're so cool. We're into high-tech, and you at IBM think we're pretty good and it's writing it up, and it's got the IBM logo on the cover." How cool is that? So that story gets you up through 2012, and then we did the IBM history. Finally, I decided it was time to do the IBM history, and I knew I was going to do that history, and I had been collecting materials for decades on it. A lot of it from the archives. When I find cool stuff, I said, I'm going to need this. So, in 2019, *IBM: The rise and fall and reinvention of a corporate icon* came out. Now, there have been other

books on computing history that I wrote along the way that I consider to be, sort of minor in a sense. There was one book I did the mid-90s on the management issues, the business issues in computing and stuff in the series that Greenwood published because they wanted me to write a monograph. But those—the ones I just described, are the major ones. What's interesting about it, looking at it from the point of view of a historian, my strategy all along was to write about business history, not about computing history. Because I knew business history. I knew business management. I was in business. So, I could speak confidently about what the business issues were. And it turns out, nobody bought a computer because they wanted a computer. People bought a computer because it was going to do something from a practical point of view. And the reason why that's the case is because we're talking about a lot of money. [In t]he 1950s and 60s, most of these computer decisions were board-level decisions, and not some CFO grousing because his IT guy unfortunately spent a half a million that wasn't budgeted, and so on. These are big decisions and they're strategic and we change the company when you automate something. That's politics and that's big business and it's always the top of the house. Yeah. So, it was always business history. So, every one of these projects was business history, and oh, by the way, it was about computers helping or supporting it as a secondary role. That was different from other folks who were writing business history of computing but the ones that came along, interestingly enough, look at their backgrounds. Norberg had been in business. Martin Campbell Kelly had been in business. In fact, he started out as an IT guy. His first book was about minicomputers in the 1970s. And so, then ICL wanted a history written of them, and he goes to Oxford. They work out a deal, and so he gets started on business history. You can see it in his subsequent history of software and the one he did several years ago on the computer industry. This is a business historian who had walked the path of business. He understood P&L statements and how to read an annual report, so he was the real deal. There have been other people writing business history that got a PhD in Business History and then started writing about computing a little bit or somebody who was trained as a technologist and then

acquired PhDs in Technical History, Computing History, whatever. And then they started writing about business history. It's just different. It got different later on. But in my case, I was playing from my one strength and that is what IBM had taught me. So that's the nut of the books. Now, I don't know. Do you want to talk about how articles played in and all this or…?

Aspray: I guess I'm going to leave it to you. Is there something of value to talk about the articles?

Cortada: Yes, there is. When I took on a book project, what I did was I would take on a topic project, not knowing how many books or articles would emanate from the project but that the project would result in a number of things. And this is good because, you know the concept of a battlefleet. A battle fleet consists of an aircraft carrier and then very specialized ships that have very specific functions that are central to the protection and operation of the aircraft carrier, and in combination, you have a very powerful military force. Well, think of the aircraft carrier as the book on a topic. And think of the articles as the support vessels around the ship. That's how I choose the articles. When I started working on a book project, I would write as early as I could in a credible fashion, articles to sort of test-drive the ideas and the topic and publish them, so I could find out where my gaps were and also what the criticisms were going to be, because I was going to do a preemptive strike on anybody who would criticize my work by either fixing the problem or by taking them out with an argument that anticipates their argument in advance. So with all my books, you'll see—articles—and I started doing this in the '70s, even, I think, in graduate school, you could see articles appearing around a topic, then the book is published, and then there are additional articles around it. At first, it's a test drive of the ideas and to find out who my enemies are and all that kind of stuff. Then afterwards it's to defend and promote the book. So, it becomes more of a promotional thing and you get the noise level up so people pay attention to it, and then you move onto the next project. So, there was sort of a two-tier strategy around the articles. And of course, as every publisher will tell you, you have to show up at the right places. That

meant publishing in the *Annals of History of Computing*, it meant publishing in *Business History Review* that Harvard folks have, *E&S*, and on, and on and on.

Aspray: The *Enterprise and Society*, just—

Cortada: Yes, the *Enterprise and Society*. Sorry. In each case, I would look at these journals and say, alright, we need to appear in their pages. What do they like? Some want case studies, others want theory-based stuff. Some wants lots of footnotes, others don't and so on. So, I tailored my submissions in support of my battle fleet but within the context of the style of the journals. By the way, that was a terrific way of getting stuff done because then you increase the odds that they are going to accept it for publication. It's the right length. It's got the right style, and that worked. And continues to work, and you and I know this from the work you and I have done on fake news and scrutiny where we wrote these two books but we also did a couple of articles around them for the same purpose of test-driving ideas but at the same time also advertising the materials and getting people to know about them. And now I do it with blogs as well.

Aspray: And what has been your success rate with articles?

Cortada: In the sense of getting them accepted?

Aspray: Yes, getting them accepted.

Cortada: 99.9%. Now I have one floating around that I have to send out again to a different journal that absolutely got rejected for a wonderful reason. I've had this idea for about 20 years that consumers behave like Moore's Law. They know when to buy new technology. An economist could prove that because they would know how to do the math. I'm not an economist but I like the idea, and I believe the idea, and when I take a look at when people bought stuff, there is a Moore's Law-like behavior underway. So, I wrote the first draft as an economic paper, and I sent it off to an economics journal. Well, they threw up on it because I didn't use their language or their methodology. Well, you and I have read economic reports, that's the last way we ever want to write a paper. It's awful. They have language

that you and I don't understand, lots of math and so on. That's ridiculous. It's a story here. So, I then sent it off to a European history journal—I don't recall which one—and they rejected it because it was too economic. But in both cases, I learned a great deal, and as a result the paper actually increased in size by 25%. So, I'm still learning, and I'm kind of glad that these two journals turned it down. I don't know what to do with it yet but I'm still learning about the topic, so it may not be ready yet. I don't know. That's the only one that has been problematic. I would say that I don't know, I've published, I don't know, 125, 150 papers, whatever it is. I would say that a third of them required significant revisions, but I found those significant revisions sometimes significant, and sometimes trivial. But in every case that I can think of, very productive and the papers were better off for it. And, by the way, remember my strategy, the first set of papers that goes out is to test-drive ideas. That's when I want significant revision-type critiques. The other ones, I'm really not interested in you telling me what's wrong with the paper. I already know what's right with the paper and it's more right than wrong, and I want to go ahead. I get less critiqued there because they know the battleship is right behind them. The aircraft carrier is right behind them. So, people tend to be very careful but by then I already know the subject, right? Whereas the early ones might still have work to be done. That's the important thing about the articles. I never wrote an article just because, "Oh, look! I have a bunch of leftover material I got to do something with it." I never did that. Never, never did that. It was trivial and time was too precious. I didn't even do that in graduate school. I wrote a bunch of term papers in graduate school that I published and I had already decided I was going to write on US/Spanish relations for every course I took, I was trying to figure out a US/Spanish relations paper that would fit into that course. That's when I formulated that strategy. I then shared that strategy with my major professor, my dissertation director, Earl Beck. He loved the strategy. He was a strategy guy himself. He never thought to publish that way. He said, "Yes! That makes sense! Keep doing it!

Aspray: Yup.

Cortada: Very efficient! And, of course, each article informs the other ones. Anyway, that's all I really wanted to say about the articles, but it explains why, when you look at the list of articles, why they are what they are.

Aspray: Ok. There's more to be said about the history of computing but I think instead of going there right now, where I'd like to go is to your scholarship on Information History. So, could you tell us that story? You started it with the Chandler book, in a way, but why don't you tell the story.

Cortada: Ok. In the 1980s at IBM, it had already dawned on me that computing was not about computing. It was information to go run a place, and I had started to read books on the history of information. And in those days, it was history of knowledge, philosophy, truth, and, of course, books on database management, James Martin's books on telecommunications and database management and so on. These were important topics in those days. And so, I had become sensitized to the issue that information was a thing of itself. In the 1990s when I started to collect materials for *The Digital Hand* three volumes, it was really about information, but nobody was going to publish a book about how information was used in a bunch of industries. They were going to buy books if I wrote about the history of computing in those industries. So, the computers began to be, for me, as surrogates for information. And I was learning specifically what information we're talking about. Inventory, massive production schedules. I knew what these things looked like they were data. They were information. At the end of the 1990s, I decided that we really didn't have a good business history of how information was supplied into the American economy. But since I studied American history, I knew about newspapers, I knew the post office, it was one of the first laws passed by the New Congress and so on. So, I knew it was a big deal. So, I started reading general history books in the late '90s of American history, now with an eye cast seeing where they mentioned this stuff. Sure enough, you hear about the telegraph, the railroads and the telephone, and then, of course, looking at cash registers; and the cash register guys want data on them make sure no one is stealing money out of the money box and so on. So, I began to realize that

this was going—there was a story to be told here. So, I went to see Al Chandler and said, “I can’t write this book. But we need a general history of how information came into American society, not how they used it so much but how it got pushed in. I can’t do this. I had no confidence that I could do it.” In hindsight, I could’ve done it, but I didn’t know that at the time. I said, I would like to pull a bunch of guys together who are experts on the postal systems, newspapers and so on, and write a good general history but nobody is going to show up to my party if it’s just Jim Cortada. I want to shamelessly engage you in this project because nobody is going to say ‘no’ [to you]. Let’s just get the best people in the country and let’s just do this thing. And we talked about it for two hours in his living room. At the end of it, he said, “This is a great project.” And I said, “I will find us a publisher,” and I said, “Oh by the way, who do you want?” He said, “Well, we can’t do Harvard because the editor and I aren’t getting along.” I said, “Well, how about Oxford?” He said, “Perfect,” because he had done a book with Oxford and had a good experience there. I said, “Alright. You recruit the guys. I’ll take care of getting us a contract at Oxford because nobody is going to want to contribute unless they are confident that we got a publisher lined up. So, he got on the phone, got Richard John, all the usual suspects, got them all lined up. Nobody was going to say ‘no’ to Al. Meanwhile, I got on the phone to talk to my editor at Oxford and explained what the project was. I think we were into the phone call, maybe seven minutes before he interrupted me and said, “I want the book. You’ll have a contract by Friday.” This was like on a Monday when I called him. He’ll have it. It’s done. Do it! Come back and tell me when you think you guys will deliver the manuscript. It’s the easiest sale I ever made in my life. So, then I called Chandler up and said, “Hey. Listen, did you talk to all these guys. We’re in. Oxford’s going to have a contract to you and [me] by the weekend.” And I said, “Oh by the way, I negotiated 5% royalties for every contributor, so everybody gets something.” “Ooh! I never heard of a deal like that!” He said, “I’ll like sharing this! Great!” And it never occurred to him to do that. It occurred to me that why would recruit anybody and not give them something. So that project did extremely well. It was a positive experience for everybody involved. The

book got published and as you've probably seen, the reviews were good. It made the rounds. It got cited for years after that. So, that just simply encouraged me to pay more attention to information. I mentioned earlier that I did a book on case studies of how people used information in the United States at work, religion, and things like that. I didn't have a publisher for it. I was thinking of going back to Princeton when I ran into a publisher I knew from Prentice Hall, who was now picking up the *Financial Times* imprints. I met him at a bookstore by accident in New York, and we were chit-chatting and so on, and he said, "What are you working on these days?" So, I told him about this project, and it was around 2000, just— I think the Chandler book hadn't quite come out yet. Anyway, I was working on this thing, and he loved the project and he said, "You know, I'm going to need materials for this new imprint for the *Financial Times*. This fits. Can I have the book?" "Sure. Why not?" I sent him what I had, and he sent it to reviewers, and it came back. They're fine. Change this, change that sort of thing. And so, he published that book, *Making the Information Society*. Meanwhile, I was in the thick of writing these industry studies, but now I had my eye cast on information. So, at the end of 2008, the third volume comes out, I get involved in the diffusion book, which took me from about 2008 to 2012. Then somewhere around 2009, 2008, I saw you at a conference, and I don't know how the conversation started but essentially the way it went was, "Jim, you ought to think about writing a book about, a little book, for—about the role of information in corporate America. And, oh, by the way, MIT is starting a book series of"— what do they call these things? I hand these things out like lollipops now. *MIT Press Essential Knowledge series*. And they hadn't even started the series. They hadn't even designed it. So, I just said, "Ok. Fine." I call up the [staff member, Margy] Avery—and she hadn't yet designed the thing, let alone run anything through. And I propose well, why don't we do this, and it's was called *Information in the Modern Corporation*. I helped her to design the series because she didn't even know what the series ought to look like. I said, "Well it ought to look like *Qu'est-ce que*, the French language series published by the University of Paris Press since the 1930s. It really ought to look like that but a modern

version of it. The standard size, small and so on. A few weeks later, I was in Paris on business, and so at the airport, I went to the little bookstore at the airport and bought a half dozen *Qu'est-ce ques* for her. One was on religion, another on politics, and so on. But it just so she could understand the format. And she didn't know French, and I told her don't worry about it. You just got to see how they format this thing. It's worked since the 1930s. It's a proven strategy. Go do this thing. Just get your guys to redesign. So, that's what she did. She took that and she loved it. She redesigned—she designed the series, and the series is still going strong. They have a ton of books out now in that series, even though she's no longer at MIT. So, that book caused me to step back and say, well, the way to do this thing is to describe for most readers what are the major parts of a corporation, and what kind of information does each of these areas need and where is it hidden? It's in file cabinets. It's in your head. It's in the computer. It's on the PC and so on. So, those three things, I want to look at. That pretty well defined the shape of the book, and I could rely enormously on, at that point, what, 25 years' experience at IBM, and also with lots of customers. I wrote the book in six weeks. She sent it out to readers and it came back, very few changes, really minor, and then she began to think, well, I don't know if it was the first one or second one in the series, but then she started thinking about bells and whistles, such as, "Well, maybe we ought to have a glossary in the back." Ok. So, I did a little glossary. "Maybe we need a little bibliography." Ok. Do a bibliography. So, she was crafting the series based on this thing, and I knew what she was doing, and I was fine with that. Once that project got done, for which I blame you, by the way, it's your fault that I did that, it worked out very well. She sold a bunch of those, and then that's when I decided, well, maybe what's needed now is a real history of information in America. Take the Chandler concept from earlier, expand it out, take the little book of case studies that I did for the *Financial Times*, really expand that out. I started thinking about it, and then Walter Friedman at Harvard came to me and said that he had convinced the Press to do a series of business industry histories and would I be willing to contribute a book to the series. I said, "Yeah, Walter," I mean, Walter and I had been friends for years at this point.

There's no way I was going to say 'no' to him. And also, the thought of publishing with Harvard was attractive. I had not published with them yet. So, I said, "Alright. Why don't we think about a history of how information was used in corporate America?" In other words, take the little MIT book and expand it out into a formal history. He loved the idea. So, we spent two months going back and forth. I would prepare outlines and prospectuses and so on, and he would critique and so on, back and forth. Had a really good outline. So, he took it to the editorial board, and one editor there said, "Oh, no. nobody's going to be interested in business history of information. How boring! No, I'm not going to vote for that." And they make collegial decisions. It's got to be unanimous. So, he was kind of a little humiliated by that and he had already brought a couple projects to them that were successfully endorsed. So, I said "Don't panic. This actually may be a good thing that happened." I said because, over the last couple months, I was thinking about volume two and volume three which would be the public sector and then private life. Maybe I just smash all three together into one book. Take the good work that you and I had done to think through the logic of the business, I know it's very similar in public sector, and then add in little sub-industries in there, right, like higher education and so on, for which I had tons of application briefs, because it was one of the 18 industries, right? And I said, then I got to put in all this stuff about girl scouts, boy scouts, people that go to church, how you dealt with community organizations, but I could structure it the same way. I then, I literally sent him a draft of the revised prospectus that showed these other two columns. Not so much for him to take it back but just to have a second set of eyes looking at it, sort of—yeah. And then I shopped it around in terms of having several other people look at this thing. I think I went to a book historian who published several volumes for the University of North Carolina press. Anyway, I went to several other people. I went to a historian of farmers' wives, what have you, and once I had that, then I said, "Ok, I now want to write that book," and I didn't know how to write the book, so I didn't go to any publisher to get a contract. I said, I don't know if it's going to be three years, five years, ten years to do this thing. I knew it was going to be a big book. At that time, at

2012, yeah, 2012, you look up the literature on the history of information and nobody could agree on definition of what is information. You have people using the word 'knowledge', 'facts', 'data', so I figured well, we need to come up with an architecture, a framework, and just stick my spear in the ground and say, "It is what it is. Knock me off the helm." I had published enough that I knew good historians did that. They just— "Here's my definition, challenge it." That wound up being the first chapter. Then, based on the framework of that first chapter, I wrote all the others to do that. So that's how we got to the book, *All the facts: A History of Information in the United States since 1870.* While the story goes back to the 17th century, in a very meaty introductory chapter, because people didn't wake up on January 1, 1870 and start using information. The thrust of that book was this enormous growth in the use of information in the United States during the second industrial revolution. More kids were going to school, so they become literate. Half these big corporations couldn't run without less, they needed more information, while basically all the federal government did in those days was to collect information. That's what they did for a living. That's how we got to that book. Now, while that was going on, you and I had some conversation about how to study information history, and you had made the recommendation that I do a book of case studies of how different groups use information and do it in a historical format. Problem I had with that was that I was getting to a point in life where a mature historian must contribute more in the way of context than an episodic history. So, I thought, well, to write case studies would be more of the sort of thing to do coming out of graduate school. But I know why you recommended it because there are so few case studies, so it made sense. But I just decided I wasn't confident enough to do that until I wrote the general histories, so that I had the context in which to situate the case study. So, I did it in reverse order. Most people would write the case studies first and then the next book would be the big one on whatever the topic is. So, I did it in reverse. I was very happy with that, so I did it in reverse. I decided I would use the case studies as a way of testing out further the notions that were in the *All the Facts* book. And the first test of that was the article on the

Spanish diplomats and their information ecosystems because I knew I wanted to be able to connect information to information ecosystems to, if you will, corporate politics and to networking, and I worked that out in that article. As a result of that, I said, I can apply this formula to other things. So, the next paper I did, which I didn't publish, I interviewed housewives, farmwives, I should say, and 4-H participants from Madison County, Virginia, from the early 1950s to the mid-1990s, when the internet comes in. And I interviewed them to find out what their information ecosystem was. The demonstration clubs, the 4-H programs, the role of the county agent, the role of the county, what do they call it, they all have different titles, home economics expert. Home Economist. I found that they had as thick a network and infrastructure and volume of material in the way they handle it as did the Spanish diplomats. Then I said, whoa! I just discovered something that nobody else knows about. Let's do another little test. So then, I started doing research on, guess who? IBM salesman from the 1920s through the 1980s. And darned if they didn't behave the same way! They were reading the same literature, using it the same way. Anyway, long story short, I prepared my case studies, and Roman & Littlefield will publish it early next spring. But they're embedded in the rich context of in the experience that I gained out of writing *All the Facts*. So, it fit. And the feel of it is very similar to the feel of when you and I did *Fake News Nation*, where we had a chapter where we set up the intellectual issues, then we went through the individual case studies in sufficient detail to demonstrate that. Then the final chapter that answers the question 'So what?' and what are the implications. So, it was essentially the same formula, and think the length of the book will be approximately similar as well. So, that's how I got to where I am now where I'm now writing a history of how information changed since the dawn of the second industrial revolution. You can see some of these threads from earlier studies coming in. We have technology, which forces changes. We have librarians who are forcing the categorization of topics, and the topics increase in volume as disciplines and professions come to place in the association, so we have this vast increase in specialized knowledge, or information and data, then the technology obviously

affects it all. I take this story from the 1870s, essentially, although, again, I started earlier in a meaty introduction, but I take the story down to the present. The plan for the book, and I don't have a publisher for it yet because, again, I'm still trying to experiment. The plan for the book is that it'll be 12 chapters long. At this stage, in June of 2020, I have drafts of 11 chapters. The reason why it came so fast, I think, is the pandemic in the spring of 2020 for those listening to this later on, basically forced everybody to stay home. It took seven weeks of travel out of my calendar, and therefore, I had all this time to work on the project. I had been collecting material around the periphery of it for years. So, pulling it together turned out to be one of these things where you just work seven days a week on it, six, seven hours a day, until you go brain-dead, just do your homework, and we have a draft. Now, emphasis on the word 'draft'. Once I finish that last chapter, then I have to go back and make sure everything is properly integrated, think about whether I'm happy with the level of research, details of what to add, subtract, so on and so forth. But that is my current thinking now. And what I have learned from my prior projects is that information did change profoundly such that we're going to need some new definitions. There are some new insights that, I think, I can bring forth about how information evolves because it is not static, and it ties back to some old concepts that were introduced many, many decades ago in different fields. So, the librarians have contributed to concepts that are applied now to computing and artificial intelligence. You have engineers at Bell Labs who thought of information coming on a telegraph line as being electronic impulses with memory, I believe, and that makes possible, for example, the modern sensors that we have today. By the way, there are more sensors collecting data today and putting it out on the internet than there are human beings doing it. That goes back to a paper written by Claude Shannon published in 1948. One of the things I wanted to do in this book was to fix a lot of little problems. There are a lot of folks who have written on pieces of this story, but they never went back to the original documents themselves. This was a rather painful experience. I would not recommend that anyone read Claude Shannon's paper, published in 1948, unless they had a PhD in computer science and

a minor in electronics. You get about three lines of text and the rest of it is math. But that itself is a finding, isn't it, that it only counts if you can mathematically prove something and I actually will have in this book as a figure simply one page, picked out randomly from his paper, because when you see that paper, you go, "Oh, my God! This is not fine literature as we have known it," but it explains in a science-filled world, why he could sell a new idea and nail it first time through. So that's what's happening with information history so far. I don't know. Did I explain how that evolved?

Aspray: I think you did. One thing you didn't mention was that you had been the special issue editor for an issue of *Information and Culture* on ecosystems. Do you want to talk about that briefly?

Cortada: Yes. Just for the record, Bill, you were the editor of the journal at the time, and you were keen on getting specialized issues from time to time on different topics. We had talked about information ecosystems, and I was beginning to think about that, but I had not yet written much on it yet but wanted to. And I suspected that there were other people who were interested in it because in certain fields, disciplines, information ecosystems are fairly advanced, obviously in computer science and telecommunications are good examples of that. There was growing literature in the economics literature. Economist were paying attention to it. And of course, everyone is using their own language, their own ideas, nothing meshed together. The DNA crowd and the brain scientists were figuring out that synapses were telecommunications networks and were reacting almost like telegraphs, except more sophisticated, so they were doing stuff. I just needed an excuse to start wrapping my head around this thing in a more disciplined fashion. That's why I was willing to work on this thing, so, two things had to happen: one is I had to write an initial paper that laid down some concepts so that whoever we recruited into this process wouldn't be wandering around aimlessly. To make the issue work, it had to be disciplined and people had to salute a framework just like Al Chandler insisted we do when we did the *Information* book in 2000. That was the model, to have the diligence. Also, if you eliminate ambiguity then you can put a young scholar on it, tell them to fill out the form. An older scholar would say, "I know

how to make my stuff fit it," right? That had to be done. It was very helpful to me. Then you and I went about recruiting people to work on this issue. And it was very helpful I think in recruiting to be able to show them the paper. So, for example, we had the previous, I guess it was the previous editor, who was interested in western history. Hadn't thought about this topic. He was an archives guy. That's his world. He read my paper and said, "This is very interesting. I never thought of John Wayne as having a little pad of paper and a pencil." Well, there's a scene in one of John Wayne's movies, and I know exactly which one he was talking about, and I can't remember the title of it but he runs all his cattle into a town and he's sitting there on his horse, and he pulls out a little notebook and a little stubby pencil, and he licks the lead and writes down how many cattle he's got; that he just put into a pen that he was going to sell. And, of course, when you see that scene and you're thinking about cowboy history and information networks, you go "Oh, my God! Did I just get an insight?" So, he was able to write a history of the cattle industry and what kind of information they gathered and how they used it and it was pretty impressive. Well, then we had the young lady who worked on—

Aspray: So, just for the record, it's David Gracy, at the University of Texas at Austin that you've been referring to.

Cortada: Yes. And David was just—he wrote one of the most interesting, modern, American western papers I have ever read, and I'm a western history junkie. I've probably seen a couple hundred western movies. Now, in fact, that paper is the sort of thing that you could go to anybody who's an expert on a topic and say, "write the information version of your story." It did not require him to do an enormous amount of research. He knew, for example, what the ledger books looked like.

Aspray: Right.

Cortada: He had them. But now he looked at ledger books differently, "Wow. This is actually important. I think I better open up some of the old ledger books and look at it. He said, "Oh, yeah, right." He knew what kind of little notebooks the cattle drive masters had. Oh, by the way, the cooks had it also because

they had to keep track of how many cans of pork and beans they had, and coffee and so on. And they were, by the way, the accountants on the trail, usually the cooks. You learn all this stuff. But it was intuitively there. What these people brought to the project was zero knowledge of networking, but a tremendous amount of knowledge about the context in which their particular group was working. That is priceless. That was fabulous.

Aspray: Ok. I think—we've been going awhile. Are you ok to go a little longer?

Cortada: Sure! I got my little glass of water here.

Aspray: Ok. So, I think it might make a nice matched set for this session if we talked about the two other major areas in which you've done writing and maybe in less—especially with the Spanish history maybe in less detail—

Cortada: That makes sense.

Aspray: —but also your business and management studies.

Cortada: Let's begin with the more important of the two, the business management things.

Aspray: Okay.

Cortada: After I joined IBM, I knew nothing about business, so I began to read business books. Colleagues would say, "Hey, here's a good book," and, "You ought to read the *Harvard Business Review*," and so on and so forth. I started reading on a regular basis, business books and also books about the use of computing, and I discovered two things very, very early on, I mean, within a year of joining IBM. Most of these people were terrible writers, just God-awful. They weren't trained in the humanities or the social sciences, where people worry about dangling modifiers and such, split infinitives and how to present a story. Lots of charts and graphs and tables and so on and sound bite statements that weren't backed up with evidence and what have you. A lot of 'How to be a great leader' by somebody who thought they were a great leader, and no research. So, by around 1977, I began to wonder whether, given my writing skills and then what I was learning at IBM, maybe there was an

opportunity going down the road. I called up the editor of the computer series at Prentice Hall, which at that time was the premiere press for computing management books. And I asked him—I was particularly interested in learning how to cost-justify computing because that's what I did as a salesman and I wanted to see if he had anything to say beyond IBM and what they had taught me because I was still new in the business. And he said no he did not have such a book. I said, "Well, has Wiley or somebody else published?" "Nope! Nope! Nobody's actually done a book like that." And I said, "Well—" but he then went down a list—he had done a survey a year earlier of topics people wanted books on. Number two on the list was this topic. Number one was database management. Number two was this book. And he said, "Well, look. Since you're interested in the topic, what do you think that book ought to look like?" I said "Well, I'd have a chapter on this and a chapter on that, blah, blah, blah, blah, blah, blah. And he then said, "Why don't you send me a letter with that"—He didn't say a book proposal "—just send me a letter with that because I want to see if I can find somebody to write that up for you." So, I sent him the letter. I didn't know—I was innocent, because basically I didn't know I had submitted a book proposal. And so, he talked me into writing that book, and I was very reluctant to do it because I really didn't feel I knew that much. But, anyway, I decided to go ahead and write the book., I could tap into lots of IBM people and customers for spreadsheet analysis, cash flows, all that kind of stuff. I wrote the book and he sold a ton of copies because, again, he had done his market survey, and it was the second [most desired] one. So, then he said, "Ok. Now that you got his book done, why don't you do another one?" So, I wrote a second one that involved looking at the issues that a data processing manager would look at. Planning, implementation of stuff, handling budgets and so on, which was in my wheelhouse because I'd dealt with those issues all day long, and I already had my sources for the kind of information I needed for the first book so I did the second one. And then I did a third one aimed at senior management because I was calling—as I got better at my sales job, I was calling higher up in the organization. So, I was actually calling on presidents and vice presidents and CFOs and so on. So, I was

learning what their views were, which were different than the techy views. So, I wrote a little book on—published in the mid-'80s on strategy. How to use computing, what's a smart way to use computing, and by the way, this was the first time I wrote about applications, uses of computing. And, again, in each case, I did more research because I was trained to do more research; and I wrote better than these people because I had been trained in the humanities and the social sciences. So, the books had more meat in them. So that was three. Then later on, I got involved with total quality management practices in the late '90s, so I wrote a series of books on TQM for sales, TQM for IT systems, and a third one on best practices in systems engineering. All three were published by McGraw Hill in a series that they had. Then I did several other books beyond that. One was on how to publish on management, knowledge that a corporation has, how to leverage that. I did that book. And then I wrote two books for John Wiley—actually it started out to be one big managerial book that combined lessons of history learned, and how one could apply best management practices to the use of computing. Let me pull them both off the shelf because I want to give you the titles because they're actually, I think, rather important books in comparison to the earlier ones. The first one is entitled *How societies embrace information technology: Lessons for management and the rest of us.* So, it discusses issues such as how computers spread around the world, how governments leverage information, how mangers and officials decide what technology to acquire, what has been the impact in the organization, what is the role of scientists and engineers and other techy staff in the enterprise, where's this all going, how to keep up. So, that was the first one. The second one—and this one was published, excuse me, let me give you date of it so we can keep the chronology right—this one was published in 2009. The second one, it is a sequel called *The Essential Manager: How to thrive in the global information jungle.* Published in 2015. I consider this the last book on management practices I would publish because, when I left IBM at the end of 2012, I knew that the business world would change and, therefore, the half-life of what I knew would kick in. So, I wrote this book, and in this book I argue that by 2015 there was a new managerial style in place where people

think in term of processes, where they think in terms of having data, facts, and so on, underpinning their decisions, rather than experience because experience no longer was as relevant because too much had changed. So, that was the thesis of the book. [The] typical ten chapters, when management confronts information ecosystems, what does that look like. How technologies affect the work of industries. New organizations: what changes, what does not. Emerging economic and business realities and then a forward-looking section. Again, aimed this time at senior management as well. Originally, the two books were going to be one. That would've been a 550 page book, which is dumb for business, but the problem that I was having is that, [in] the second book, the content was changing so fast in the marketplace that [I had] better get the first one out and then I'll just keep up with the second one. It's a lot easier to keep up with the second one. So, that wound up being my latest management book and probably the last one because of the amount of contact I've had in business on current business activities here in Madison as part of a group that has been providing free consulting to start-up companies, how to be successful. And to be honest with you, well, I think the folks that I have advised have benefited from it, I actually learned more from them. So, I'm the wrong guy to write that book. So that piece of my work over the years may be over, and that's ok. It's fine. There's no law that says I have to keep up with everything.

Aspray: Sure.

Cortada: So, let's talk about Spanish [history].

Aspray: Yes.

Cortada: So, [let me] remind our listeners that my PhD was in European history, but with a country emphasis on Spain. Both my master's and PhD dissertations were on Spanish diplomatic history. My father was a diplomat, so I understood that culture, that world. In fact, he had also served in Spain on two different occasions. So, Spain was a logical topic to continue. When I joined IBM, I was still very interested in the subject and I had my dissertation, dealt with the 19th century US-Spanish relations, and

I knew that I was going to write a sequel for that because, while I was in Spain and France and England doing research on the first one, I used the occasion to acquire materials for the second one, absolutely confident that I would write that book. So just to improve my productivity enormously, I didn't have to go anywhere after joining IBM to write the second one up. I wrote up the draft of the second one, that actually got published first in 1978. I wasn't quite happy with the dissertation because it had a lot of stuff in there that other people made me put in that I needed to clean out, so that got published in 1980. I then went on to edit two contributed volumes dealing with Spanish diplomatic history in the 19th century, Spanish diplomatic history in the 20h century. I published a bibliography on the history of Spain, the diplomatic history of Spain. Then I did a massive historical dictionary of the Spanish Civil War that Greenwood Press published, where I got everybody who was working on the Spanish Civil War of 1936-39 to contribute to it with the exception of one gentleman. Hugh Thomas didn't want to participate, but everybody else did. So, it became sort of a wonderful time capsule published in the early 1980s. I got final satisfaction because I sent him a copy of the thing and [he] wrote back a letter of apology, saying "I should've taken you seriously". He was the only one who didn't participate. By the way, for those who don't know, not only is he—was, a magnificent historian, deceased now, he was Margaret Thatcher's speech writer. And he had written the standard history of the Spanish civil war in the early 1960s and the revised edition that was, just for decades, it was the standard work in the fields, and still consulted. Alright. So, got that done, by then I'm beginning to divert into computing history business books, but I was still interested in the Spanish civil war. So, I published an anthology of papers, reports that had been produced, [by] an American consul in Barcelona during the Spanish civil war that really had a lot of new material about what was going on there. It was a fascinating little book for me to do. It was easy enough to do. Then I wasn't going to do any others. I thought I was done when one afternoon I got a phone call from one of the archivists at the National Archives who I had worked with before on the earlier Barcelona book. Basically he said, "We just got a ton of material in from the Department of Defense,"

and there were military issued reports from the 1930s, '40s and '50s being turned over to the archives, and he said that included Spain. I said, "Ok. Yeah, I'm a busy guy. I really don't have time." He said—I think I can quote him and say, "Cortada, you need to get your fanny over here right away, like this week or next week. It's that good." Whoa! How often do you get an archivist making that speech? This is like on a Tuesday. All the sudden I had an urgent meeting to attend at IBM in Washington, D.C. on Friday, Friday morning. So, I was over at NARA in the afternoon, and what I found was that the commanding general of the United States Army in the 1930s, a fellow by the name of [Stephen O.] Fuqua, upon completing his four-year term, did not want to retire. He wanted to stay in the military. Well, normally you retire but Fuqua decided he didn't want to retire. So, they said, "Well, what do you want to do?" He said, "Well, why don't you make me the military attaché to the embassy in Madrid. My wife and I would love to be in Spain for a couple years." Well, military attachés are typically captains or majors. This is a two-star general. So, they said, "Well, we can't send you over as a two-star general, so we'll bust you down to Colonel if you're ok with that." He said, "Fine. No problem." So, he goes to Spain, but as follows military custom all over the world, everybody in Spain treated him like a two-star general because he was a two-star general. So, he got to meet General Franco, and all of the generals who eventually wound up in the civil war on both sides. He knew them personally because he came to Madrid a couple years earlier. So, his reports back to Washington, D.C. were far better than anything you ever find from any person, and I was hooked. By the time I got on a flight out of the airport that evening, I knew I was going to publish this thing, which I did, and it also went into Spanish translation and did very well in Spain as a very fresh, whole new look written by a guy who had been in the military since the 1890s. He fought in the Spanish-American war and he also fought in the Philippines, and he had been a division commander in World War I. So, he knew tactical, operational stuff and he knew strategy stuff and he could pick up the phone and call Franco and all these other guys and say, "Well what were you doing last year? What were you thinking when you [inaudible]. Why'd you screw that up?" Say, "Well, you know,

Frank, let me tell you why." So, that was the latest piece. That was done in 2012. I'm currently just finishing up a book now, the last Spanish book I'll probably write, and that is a history of my family, which is Spanish, and I wrote that, I wrote that the way a professional historian would write it, so it's not your normal family history. It follows the same strategy and format as writing the history of IBM. You think of every branch of the family like a division, you don't write about every person in the place. You worry about family strategies and why they moved from one place to another, heavily sourced with Spanish Catalan, Puerto Rican, and Cuban archival materials. That's really the last Spanish thing I may get to. I'm not sure I'll do another one at this point. So, that's the Spanish story, and then of course, as with the history of computing and information, there've been articles along the way, and you will recall that you edited a contributed volume on the internet in American Life, and I think in that volume I wrote a chapter on the role of genealogy and the internet. The reason why I felt confident to do that is because I was going through the process of milking the internet for everything I could find with respect to this history of the family.

Aspray: Okay. So, we've talked about these areas in which you've done in writing, these four areas: computing, information, management, and Spanish history as though they were separate. Are there connections between these that you think we should know about?

Cortada: Yes, there are connections! I think of it as one field. The reason you're saying it's separate is because the culture you grew up in defines disciplines with very specific boundaries, and you're not allowed to cross them. You do so at your professional risk, as I have done with this article on Moore's law and consumer behavior where the economists look at it and say, "It's too history orientated" and the historians say, "You're using too many economic ideas and so on," right? So, there's good reason why you're supposed to stay in your own pig pen. It makes very good sense. However, if you leave aside this Spanish history piece for a minute, I consider all the other topics inter-related. The narrative I took you through today basically says, I go from one project that teaches me about what the next project

needs to be. It teaches me about the next project, and the aperture opened up each time wider than it had been before, at least in my mind because I'm looking at new material, jumping off the diving board that I'm familiar with into this new water, but it's new material, but it's basically opening up the aperture of the same. So, you take a look at, for example, *All the Facts*, which is my history of information in the United States, published in 2016. My first run at that was with the Chandler book back in 2000, but now wildly broader and more confident, Confident because I just had more experience under my belt, and I knew the topic better. So, there's the maturity issue in terms of scholarship on one hand and the—then also just the knowledge. So, I consider them all inter-related. In the book I'm writing now, who in their right mind would dare take on a topic of writing all the history of how all information changed in the 20th century? Very risky. Unless it is a continuation of strands of research that had started decades earlier. So, my argument to you would be this current book I'm working on right now has been in the making for 40 years. So, yes, I should be able to write with confidence all 12 chapters. So, I think there are those kinds of linkages. Another linkage is that I already know what the research is that needs to be done, what the resources are. It's not mysterious to me. So, if I'm missing something, I know that I can fill it in because I know what the sources are I have to go to. It's an intellectual surgery that can be conducted with confidence. The other thing is, since I don't usually have absolute confidence in my ability, I tend to do more research than I actually need for a chapter or an article or a book – and you can call that best practices, good behavior. It's—you could also say it's inefficient. But as you've seen for example, with the paper that I wrote for your next contributed volume on real estate, I did as much research there as for maybe two chapters or three chapters. I may still write some [thing additional] because there's that much material that I collected. I had to do that because I had no confidence that I knew enough about real estate (other than I bought a half dozen houses in my lifetime) to do that, so that it stands up to the rigor of scrutiny on the part of academics or people who are experts in the industry. That's been my practice all along. But as a result, there's always leftover

material that can be applied in other circumstances and sometimes that has influenced my thinking about the next project. I don't know whether that helps, but that's essentially the nut of it.

Aspray: So, let me preface the next question for you by a couple of comments. You told me off-line—I guess it was yesterday—that you had been helping a scholar, an art scholar, to craft a book, or organize the way to proceed on a book. You have written some large number of books, 50 plus books, I don't know what the number is exactly—

Cortada: I don't either.

Aspray: And you have—and yet you have done this [part-time], where this was not your principle job for the most part. In fact, you've had very demanding job—professional jobs – for your career, and yet you've had a productivity that is three or four or five orders of magnitude better than most scholars. Tell me about writing, and about productivity and about the crafting of a project.

Cortada: Ok. First thing, you need to know is that I like doing this. I grew up learning how to play tennis and golf and so on. But I had a little back problem. By around 1980, I couldn't play that much golf anymore, so that automatically frees up four- or five-hour blocks but I think the first thing is you really got to like to do this. I have been told by enough people that I believe this to be true and that is—well, I'll use the term that Ernie May, who was the chairman of the history department at Harvard, used on me. He said I have a "precocious intellect". I'm curious about stuff. I get on an airplane and I want to know who you are, what do you do for a living and why and so on. What do I need to know about you, and part of that is IBM training, but I think that I was born with that, it's just curiosity. So that's very important—is to have that because when you're actually doing research, you're asking—well, what about this, what about that. So, that, I think the first thing is it's fun to do, I'm good at it and why not enjoy it, right? Second is the curiosity, the wanting to learn about stuff and knowing that I can apply it in my day-to-day life. The third thing then is to be very disciplined about going about the task; understanding what is it that I'm going to study and having a plan. And by the way, that plan actually

goes on paper with dates on it. And, of course, the plan will change. Napoleon said planning is very important but they're useless once you're engaged in battle. And he's absolutely right. But we have the battle fleet, which I know is going to be a combination of articles and books and so on, or maybe just one book and just three articles, it depends once you get into it. So then, here's what I do. I get out a sheet of paper, one sheet of paper, and I write a title on that sheet of paper and, oh, I should also add, I never write a book I don't want to read. Nobody's written the book I want and therefore I'm going to write it because I need it. That's very important. Got to have at least one customer who wants to read it. So, I literally write on a piece of paper the title of the book. Very important to do that because then what that does is that it takes the scope and it shrinks it down to something manageable. A history of the Charles Babbage Institute Immediately eliminates all the discussion about the Hagley computer era and the museum and everything else. We're just going to concentrate on this one little thing that happens to be in one little building. Then I imagine, well what would be the perfect book on the Charles Babbage Institute? Well, it would be a 300-page book because it's not worth 450 pages. Okay, so that's probably a seven, eight, nine-chapter book. What would those chapters look like, and I would write the names of those chapters down. Origins of the Charles Babbage Institute. Chapter Two: the Tomash era. Chapter Three: the Norberg era. Whatever it is. Then I look at that and say, "No, this is like writing royal history. That sucks. Let's come up with a different outline. So far, I've written seven things and a title on a piece of paper, it sits around for two, three days. It may be three or four versions of that sitting around. It may sit around for six months. I have about 15 of these things sitting in a folder. Then once I settled on one, then I say, well, every chapter has civil rights. They must be equal value and equal size. Now, I don't know how to write a chapter to be honest with you, but what I can do is write seven to ten pages on a topic. So, I divide the chapter outline now into seven, sections of seven to ten pages each so those are just simply bullets under the Charles Babbage Institute origins chapter. [One] might [cover] the need for such an institute. The second one is the hunt for a home. Third, launching it. Fourth: the

first five years. That could be chapter one. That's four little essays, seven to ten pages each. The village idiot can write that. And then you do the literary survey to launch it and you got a nice conclusion. So, that's my outline. Then I write a preface as if I had written the book knowing perfectly well, I'm going to throw the preface away. This book is about, blah, blah, blah, blah, like a book review. Four or five pages. Now I've kind of snuggled up to the topic. Now I've got scope control. So, then I go, alright, so now, for this book I'm going to have seven chapters, so four times seven, that's 28. Twenty-eight little essays. I think we can write 28 little essays. And then what I'd do is I then schedule how much time I want to spend on each one. And while I'm working on one chapter, I'm doing research and writing CBI to get more material so on and so forth because it could take weeks or months, whatever it is, and I'm stockpiling stuff in anticipation of subsequent chapters. Then on the execution side, because this is all about execution, a week does not go by without me doing something. I don't believe that you wait for moments of inspiration. It doesn't work that way. This is grunt work. Every Saturday morning for years at IBM, I would get up at 6:30 in the morning before my daughters came down from waking up because once your children are there, you're holding court. You got to get up, get them cereal, and get the TV going, and start paying attention to them. So, I would write for an hour and a half on a Saturday morning, and in those days when we were behaving ourselves [reference to limited travel because of the pandemic] so that we would take the kids to church and so on, I'd only write for 45 minutes and then we had to go to church. And I would do that, probably maybe 48 weeks out of the year. Do the math. That's a lot of hours, times fifty years. I never recovered from graduate school. I always had a term paper due. I still have a term paper due. The trouble is that I'm the one who's assigning myself the deadline. And then, during the week, if I'm flying on an airplane or it's in the evening and I'm brain dead or whatever it is, that's when I would do my copyediting or reading or getting materials ready for Saturday. Now, the true genius of the Saturday deal is I know the previous Saturday what I'm going to be working on the next Saturday. So, two things are happening; one is I'm running around gathering

materials, getting them all organized around my PC, or whatever typewriter in the early days, for that. But the other thing that is going on, and every psychologist will tell you this is really what happens, you're writing that book in the back of your head without knowing that you're writing it. So, by Saturday, I'm taking dictation from myself. I'm reaching over here to get that nice pithy quote that you need, and so on and get the footnote all written up and everything else so that I have a deliverable, a thing by the end of Sunday. And some days, I could do more and some days I could do less, but it's that constancy of purpose where you're working the outline, working the system, giving yourself a deadline. Now, if I'm ahead, no pressure. Hey! I finished this chapter ten days earlier than I really anticipated. Woo-hoo! I can either choose to move up the schedule for the next chapter or not! The reason I did it faster was because I'm going on vacation. So, hey, let's forget about it. Put everything away, back up everything in case the machine blows up, whatever it is and go on vacation. Go fishing with the grandkids. So, I do that all the time. The other thing that I regularly do, and you'd probably suspected it in this interview, is I always have more than one book project going on. Right now, I have the history of how information changed in the 20th century, and I got this family history going on. The reason why I do that is that every book has a different requirement in terms of time commitment, waiting for materials, and whatever; so, I treat it almost like the Toyota model for how you build a car. Toyota builds a car by having multiple models that can be built on the same production line. Maybe a little truck, maybe a car, maybe a caravan, SUV, whatever it is. But the key is that there's something coming off that production line constantly. It may be an article, it may be a chapter, maybe a book, who knows? It doesn't matter. The point is you're knocking stuff out on a regular basis. If you get stuck on one book, because you're waiting for something to come in, you flip over to the other one and you work on that. There's always a Plan B. There's always a secondary player. There's a primary book and then the secondary book but in this case it's the family history. It's the secondary player. So, if I can't work on the first one, I just flip over to the second one. There's a continuous of process of production. It's almost a manufacturing

process, and that works very well. That also allows things to percolate because good writing requires you [to] let things sit there, and you look at it a month later, and you go, what was I thinking, or I can improve this, or I really like this, I'm going to leave it alone. Or I need to build a chart or a graph to really nail the message, what have you. So, that's another thing that I do with my writing. And it tends to also influence from one project to another what I say. For example, I may use, in the information history book that I'm writing now, an example, in two sentences, of some writing of what diplomats use in the way of information. Doesn't have to be Spanish, but I wrote that Spanish history article, where I said all diplomats from around the world use the same information and so on, so I can generalize, so I can pull something in from somewhere else very conveniently. That's how the production process goes. So, I don't look for inspiration. I break everything down into as smallest parts as possible. I copyedit when I'm riding an airplane or sitting at an airport. I read on whatever the book is I am working on constantly. I try to set aside 45 minutes a day to read, and I've done that religiously since probably high school. I'm pretty disciplined. I consider that candy for me. So, I try to do that every day. That's just for Jim Cortada, not for anybody else's purposes. And I sometimes choose to read on whatever the book is that I'm writing, or I choose to read on something different. When my kids were in high school, one of them was taking a course on astronomy, I read her textbook. She doesn't know I read her textbook. I read her textbook on astronomy because when I went to school, there were nine planets and Pluto was one of them. Today, there are eight planets and then hundreds of thousands of planets out there, so the astronomy book is different. So, I got up to date on astronomy from a high school textbook, so I could do that. The other thing is by having two projects, I could also send chapters out to people to critique without holding up the project. I just flip over to the other one. I just keep rocking and rolling, and then if they take too long, I can just nag, them: "Hey. Come on. Get going." And then their stuff comes back from them and just goes into the cesspool of activity that I have to engage in. So, when I recommend to people what to do with a book, I take them through that process that I just took you through. The one

piece of paper, let it sit there for a day or two with the title on it and my name. I actually write my name on this. And then add in—what's the perfect book, how many chapters would it be and then the sub-bullets. Then all the sudden, people have specificity. They have scope control. They look at that, and everybody goes, "Yeah. I can write ten pages on that. In fact, I've got tons of material on that." I say, "Well, ok, but it can only be ten pages." Unless you alter the outline, and remember, every chapter has civil rights. They are entitled to be of equal value, so if all the sudden, you jack up a chapter to a—by 50%, you got to ask yourself, why aren't you doing that with the other chapters or is this chapter way too long or is there a fault in the design of the scope of the book. Stop, fix that, and then go back. Don't just be writing stuff all day long because it'll all just be stream of consciousness, and it's *Ulysses* gone haywire by somebody who isn't as good as Ulysses. Oh, Joyce, I should say. So, that's how I operate, and I'm always assuming that two, three, other potential book projects down the road, so whenever I see material, I kind of grab it when I can. I learned to do that with *The Digital Hand* where—yeah, I know I'm writing a book about manufacturing industries but oh, look at this fabulous article on the insurance industry! Let me grab that now and stick it away so that when I get around to the insurance industry, and I open up the folder, I've got a couple hundred pages of material all ready before I've even started to do the real work on it. So, I do that to this day. So, that's my short lecture on how I do this.

Aspray: Okay. I'm close to being ready to end this session, but is there anything else that you'd like to say about writing? We've talked—this session's been about your writing, and is there anything else you want to say about it?

Cortada: I have some rules of thumb about how I like to write. My initial writing experience of any consequence was for the newspaper, and what that editor taught me was try to tell the story as briefly as you can. By that, I don't mean fewer facts, but if you can say it in two sentences as opposed to five, do it in two because column inches are precious. That leads to all kinds of things such as, you don't begin a sentence with an article. You don't use all these transitional words like 'however', 'thus'; it just

takes up space. So that's one lesson. Second lesson is to try and acquire a couple styles of writing. When you write, for example, for an academic audience, they want more nuance, and therefore, you're going to use more adjectives and adverbs, and you got to choose those carefully so that they really impart the meaning that you have. But on the other hand, if you are reading—writing—a trade book, adjectives [are] often times poorly used by everybody: "This is a great product!" No. That's not what you want to say. "This product effectively does the following three things." Little bit more boring language but, it's an honest human's language. So, the writing style for a trade book will be a more active voice, fewer adjectives. You'll want to use the passive voice more in academic work, although I have infused a lot of active voice into that as you saw, for example, in the IBM book. But understanding consciously that there are different styles of writing. And if I'm writing a business report, like a proposal, there may be two sentences followed by five bullets, and then another sentence, and that's the paragraph; "You will need to change the following five things in your company:" Boom, boom, boom, boom. Maybe each with a sentence. Well, that's not great literature but for somebody who doesn't want to spend a whole lot of time reading, that's exactly what they want, so you have to—you must do that in writing. I'm surprised at how many people don't realize that they have to do that. They don't ask who's my audience, how do they like to digest their material. I always ask that question for every article and every book. Who is my audience for this, and I—and if I'm under pressure to do this for a publisher, I ask them the question, who is going to see this, and then I pick the writing style that fits that audience, and there are only those—basically four. There's the newspaper style. There's the trade book style. There is the academic and scholarly style, and then there is the sort of blog or business proposal type of style, the bullets. So, that's it! Those are the four. If you gain experience enough in any of them, it's like, "Well, you want to have this conversation in Spanish or do you want to have it in French or do you want to have it in English? *Je suis un etudiant en histoire espagnole* or *soy estudiante de Espana.* I'm a historian of history. So, you want to develop that repertoire and then each has their own little rules about

grammar and style underneath it. I do that for every one of these and would I certainly recommend that everybody do that. Ask who's the audience, what's the style we got to use and then that gets you to the outline, big book, little book. Whatever. I don't know if that helps but it's just little rules of thumb that I've imparted over the years, and oh, by the way, your first draft is not your final draft. First step in writing a book is getting a manuscript because nobody is going to criticize any work that you're working on until you have a manuscript because everybody lacks sufficient imagination to know how to criticize because they can't get into your head. But when I throw a manuscript in front of you—you had no problem. And for those who are listening, Bill has no problem saying, "This part of your chapter or book stinks," or "This needs more work," or "This is fine." Whatever it is, but because you're being normal and that is you've got something explicit in front of you, so that's why I say the first step in writing a book is getting a manuscript. The second step is cleaning it up, and third step is publishing it and the fourth step is helping the poor publisher sell it. That's book writing from beginning to end.

Aspray: Ok. Well, why don't we stop there for today. Let me turn off the record but stay online for a moment.

Cortada: Alright.

Part 3 of Cortada interview

Aspray: Ok. We're now recording. It's the 12th of June today, 2020 and this is the third session in an interview with James Cortada from his home in Madison, Wisconsin. The interviewer is William Aspray, from his home in Boulder, Colorado, and we are doing this via Zoom. Today, I want to focus on, primarily two topics, but we might go beyond those two topics. One of them is to talk about your service activities in various ways, and your participation in professional organizations; and the second is to get some reflections on key individuals and institutions in the history of computing. I'm going to do IBM and then Babbage, and then we'll open it up to a much wider set of questions. So, let me start with IBM. There's

some early history and some on-going history of IBM involvement with the history of computing. For example, there was the famous exhibit that was designed by Charles and Ray Eames. There was consulting work on that project and other projects by I. Bernard Cohen. There was the well-known early book by Herman Goldstein about the early computing history, a very von Neumann-pro book. There was the technical history project first led by Charlie Bash and later by Emerson Pugh, and there might be some others. So, are there any things about any of those or other IBM-related activities that you want to discuss, reminisce about, reflect upon?

Cortada: Yes. Let me set the stage. In the first 20 years or so that I was at IBM, I was not involved in any of these projects, well, I should say, at least the first 15 years. I was too busy, focused on my career, and I was just—as you recall from yesterday's session, just beginning to probe the archives quietly in the '70s and '80s. These other projects were already underway, particularly the technical history published by MIT press that involved these folks: Charles Bashe, Lyle Johnson, Emerson Pugh. In fact, I did not meet Emerson Pugh until sometime in the late '80s. Although I was aware of his work, I was involved with my own career things, and the last thing I had time to do was to get involved in these projects. However, as the '90s went by, occasionally somebody at the archives would call me to ask a question about something dealing with IBM, very sporadic, wasn't a lot. But obviously within the organization or at least within that piece of it, I was becoming recognized as knowing something about the archives and the history of the company. But of course, I didn't really publish my first big book dealing with IBM until I published *Before the Computer* in 1993. On that occasion, there was at that time, an organization at IBM that bought books and made them available to people within the firm. You charge it to your department code and they always got these things at a discount. They don't have that program anymore, but they did in the 1990s. So, I had negotiated a special print run of *Before the Computer*, that this department had bought 3,000 copies. It was a different print run than the one that was available for trade—in that the trade edition, the Princeton edition had come out in hardback, this one came out in paperback, so it

cost IBM less. 3,000 copies were sold. My editor at Princeton thought I was a genius because they made a ton of money off of that. They literally printed 3,000 copies of it, and it went from the printer straight to IBM's warehouse, so it didn't go through theirs or anywhere else. They sent one bill, got paid, and that was it. Done. So, that really was my first coming out, if you will, within the firm. I established a relationship with Emerson Pugh where we talked about history on and off, in fact as recently as a few weeks ago. He's still alive and still retired, and what have you. Then, I had more dealings with the archives in the '90s because [of] the *Digital Hand* project, where I was stopping in there all the time. So, every time I came to New York, I would try to carve out a couple of hours to go over to the archives, and on occasion, to the corporate library in Armonk, to see what they had. Eventually I got to the point where I had more stuff on IBM then they did, other than they had bound copies of newsletters and so, which I wasn't interested in accumulating. That might have been a mistake on my part, but there's only so much you can put in a house before your wife starts making comments. My relationship with the archive was the main part of this, and obviously over time I got to know the archives, in some cases better than the staff. But then about 2009, I approached the archives, and I said, "Hey. We have three, 100th anniversary[y options] coming up, and you probably ought to think about starting to plan them now because somebody in Armonk will think about it 10 minutes before, and they'll want all kinds of stuff and you won't be ready." The options are 2011, when the little companies that were pulled together to form CTR, which eventually became IBM, were pooled, were organized. I said the second one was 2014 because marketing for 75 years thought that life began in 1914 when Thomas J. Watson Sr came to the firm as a general manager. There was no life before then from their point of view. And he's the one in 1924 who initiated the third anniversary, which is the name change from CTR to IBM. So, you have three birthdays. Very appropriate for a big company like IBM to have options like that. My recommendation was that they go figure out which one they want to celebrate, and that really was a marketing decision, and probably one that would have to be run by the chairman, Sam Palmisano, who,

by the way, majored in history when he was an undergraduate at Johns Hopkins. Not a well-known fact because he liked it better known [that he was] a football player at Hopkins, but he majored in history. So, he had a sensitivity on the subject. Well, they did what I asked, what I suggested. They had meetings with the marketing people, and the decision was made to take advantage of 1911 in 2011, and that decision was made in 2009. Appropriate budgeting, planning, all that kind of stuff then began. In 2011, IBM had a historical exhibit that floated around the world. They flooded their websites, advertising, and other marketing material on essentially 100 stories about IBM. I wrote 15% of those. They were 1,000-word things.

Aspray: Right.

Cortada: But other people did them too. So, they did that. They prepared several videos on the history of the firm. They also published a combination history, and statement of what IBM thinks it's learned over the past 100 years that would be relevant to customers today, and how wonderful IBM was and what it was doing. It was a book published by McGraw Hill in ten languages, probably a total close to 400,000 copies. If I were a book publisher, I would have loved to have had that contract.

Aspray: Yes.

Cortada: Those were distributed to all employees and extra copies were made available to other folks, customers and what have you. But it was about 400,000 as I recall. Ten languages; all the usual suspects: German, French, Spanish, Portuguese, Korean, Japanese, English, go through the list. I have, by the way, in my collection about five. I don't have all 10 but I do have about five of them. I was not one of the coauthors on that, and I think that's because I was an IBMer, and they didn't want any conflict of interest. I would have turned down the assignment anyway because I would have wanted absolute control over my text, and this was going to be a marketing statement more than anything else. As part of the centennial, they hired two firms, one to do PR and another one to do—to prepare the exhibit. And I was asked to come in and teach them about IBM's history and what was important for them to be

aware of. So, I ran a day-long seminar involving about 30 people somewhere in New York. I don't recall. Hawthorn, Poughkeepsie, somewhere, anyway where I took them through, at a very high-level, a history of the company, it's culture, described its culture, its value system, and what I though was some of the interesting iconography that they should pay attention to, such as the classic 'Think' sign and the importance of exhibiting it in full-bolded capital letters and why that was the case. I explained, for example, why IBM has been referred to in the firm and by many people as *The* IBM Company. In fact, it was so embedded that even today when I say IBM, I say *The* IBM Company. So, I took them through that logic, which had eluded all of them. And I said, "If you leave the word 'the' out, bad things will happen to you, with your client, The IBM company. So, write that down," [that] kind of thing. Make sure you don't screw that up. I took them through—and I had a slide presentation, which I made available to them—I took them through several images that have become famous at IBM, one of them being of wild ducks, and I took them through that whole story, and then another one showing the system 360 of the 360 degree one, and I explained that logic because everybody gets that wrong. Everybody thinks it's because it covers everything, where it was 1960 so, I walked them through that. I said, "None of those two images are going to appear in whatever you do, so just get used to it. Oh, by the way, I gave you 600 BPI copies because I didn't turn this into a PDF file, so you can cherry-pick anything you want off of this." And I actual got an applause from people. Because that's what they want, right? They didn't want a PDF file. So, I said you can cherry-pick anything you want because it's IBM property, and you're now a vendor to the corporation. So, then they went off and did their thing, and I got lots of calling cards. They kept calling me and we had a few meetings over the course of—from 2009, 2011. 2011 came along, I wrote some of the hundred little things. They had articles on *IBM goes to the moon*, 1969, that whole story. What 80-column cards look like and how that came about, the tabulating equipment, what the 360 was all about. They were posting these things on a regular basis, on the internal IBM website to raise

awareness about the history of the firm. So, that was the biggest thing I got involved with. It was all *ad hoc* because I had a regular day job at IBM.

Aspray: What happened to the exhibit?

Cortada: I'm sorry?

Aspray: What happened to the exhibit afterwards?

Cortada: I have no idea. It's probably in storage somewhere.

Aspray: And since I'm interrupting you, anyway, do you happen to know what happened to the Eames exhibit because I saw it in the IBM facilities in the '80s.

Cortada: Yeah. That one went into storage. So, the real question you have to ask me now is how long did it stay there? Is it still there or not?

Aspray: Right.

Cortada: Now, the archives, has moved, one, two, three, four times in my lifetime, in my time at IBM. The archives consist of two things, to keep in mind, one is the ephemera, the things you'd normally think of in archives; paper objects and so on, and videos and so on. The other thing is that normally the archive was also responsible for keeping copies of equipment. It all just came into the same manager. Sometimes they had two managers, one for the archives, one for the equipment, but they all reported to the same— and sometimes the same person would have responsibility. These machines were kept essentially for three reasons. One obviously for future product development, somebody wanted to go in, see how the keyboards were done, which our keyboards have always been the best in the industry, and everybody admits it. And so, you copy keyboards from one generation to the next. Another reason to have it is, if you have say, have a product liability lawsuit, somebody's got, what's it—carpal tunnel syndrome. Oh, your typewriters caused that. Well, you got to have access to typewriters to go figure out whether that's true or not. And then the third, obviously is for advertising and for public relations purposes. And just—and there's actually an emotional fourth one that is you want to keep a copy, just

like you want to keep a copy of every book you ever wrote. You're always going to keep one copy around to remind you of your efforts. So, I don't know how many of all the machines they have, but they have a Hollerith machine, they got a 360, they got PCs and so on. They've got thousands of pieces of equipment going all the way back to the 1890s. On occasion, because these things would be in warehouses, and when I first started looking at IBM, I'd never seen a 360. I'd never seen a tabulating machine. I've seen pictures, but what does that mean? I want to go touch it. I'm a three-dimensional type of guy. So, it was very helpful to be able to go in, on occasion, and see these. The last time I saw them, they were—they occupied a room that was just slightly bigger than a basketball court. All with little plastic sheathing over them.

Aspray: Right.

Cortada: To give you a sense of the volume.

Aspray: Where were they then?

Cortada: At that time, they were in Poughkeepsie, then they moved out. And now they are back in Poughkeepsie. For a while, they were in East Fishkill, which was just down the road from Poughkeepsie because it's a big campus. They sold off the campus and so they had to do something with that equipment, so they brought it back up to Poughkeepsie. So, the archive has moved a number of times. I personally don't like that. I don't think any archivist does because any time you move anything, paper's rubbing against paper, but it is what it is.

Aspray: Right.

Cortada: Space is always at a premium.

Aspray: So one of—one other IBM connection is that at some point in the past, Emerson Pugh recommended me to be the ghost writer for Watson Junior's biography—autobiography, and the company was smart enough not to hire me but to hire a professional writer, but you knew that.

Cortada: Yeah, because that would've been around 1982?

Aspray: I don't really remember.

Cortada: It was in the early '80s, yeah.

Aspray: Yeah. Anyway, were you involved at all in that?

Cortada: No, because I was an unknown entity at that time.

Aspray: Right.

Cortada: I was just getting involved. However, I did have one conversation with Junior, and here's how it occurred. He had an office at Armonk in what was called the management training center. It was a separate building from corporate and in fact, the picture of him that appears on the dust jacket of his autobiography was taken in that building. It's where we managers would go to get our annual—every two-year training on how to be leaders, how to do HR, and all that kind of stuff. I had already started to study IBM history, and he came into the building and I happened to be in the lobby. He was the only other guy there, and he came up and introduced himself, curious to see who I was. I think I was in my first or second managerial job. Anyway, I introduced myself and said I was in sales. He said, oh, yeah, he had started in sales too, all that that I had, all the usual chit-chatter, and I said, "I'm really pleased to meet you because I have a PhD in History, and I started to look hard at this company's history, and it's fascinating," and I complemented him on his role. Okay, fine. The conversation's going nicely. So then he asked me what were some of the more interesting questions that I was coming up with, and I said something to the affect—I then said, "I actually do have lots of questions but there's one that I'm particularly interested in, and that is how did IBM make the decision to get out of the tabulating business after 50 years and get into the computer business? I mean, that was the single most strategic decision. I said, your father made the decision to major in tabulating equipment, not scales and everything else. But then, either you or he, not sure [which], made the decision to go into computers. The decisions were equal in terms of style, but the second one was of greater risk and probably required changes in the marketplace. So, he said two things to me. One, is he said he was the one who

engineered that, I mean he was emphatic, and second that it was a very difficult thing because the old guard didn't want to change, and blah, blah, blah, blah, they had no choice. Ok, so he answered the question, and I don't know, we started talking about a couple of other things. This was maybe only a half hour conversation, but he mentioned that he was thinking about someday writing his memoirs. And I said, "If you do that, absolutely take the time to tell the story of the transition because that is what made you successful at IBM, what made IBM go from a small company to the behemoth that we are all so proud of today." He said, "Good point." Then he looked at his watch and saw that he had to go run off to something. It was the one and only time I met the guy. I didn't take notes or anything else because it was just serendipitous—

Aspray: Right.

Cortada: —little thing. But anyway, so that's my connection to that project. Other than for the centennial, and subsequent to that, I would still get the questions. Some reporter would email them a question they didn't know how to answer and needed to respond back. Oh! I did get involved one other time, when Black published his history of IBM and the holocaust.

Aspray: You mean that evil company IBM?

Cortada: That evil company, right. I knew it was coming out, and I had placed an order for it so that I would get it right away. Well, I got my copy obviously the same time that the archives and corporate got their copies. I stayed up all night and read it, and the next day I had a conference call with the archives and corporate communications. My assessment of the book was that it was rather faulty, in its construct[ion]—some of the—I felt that some of the German translations were faulty as well and the interpretation wasn't buttressed appropriately. And I said, and further more from what we knew at that time, we know a lot more now, but what we knew at that time in which I knew because remember, my PhD is in European history, 20th century European history. I walked them through how corporations in Germany operated in the 1930s. I told them about the story about the naivete of Watson Sr in thinking

he could influence Hitler. I said it was the same problem that three Chancellors of the British government faced and that two Chancellors of the French government. So, in other words, I was able to give them a very mature briefing. I said my recommendation is that you don't dignify this with a response unless you're forced to. And I said, "Oh, by the way, call your peers at Volkswagen and at Ford and Siemens because they've gotten blasted earlier than IBM by other people, Black to a certain extent, but other people, so you want to talk to them. I think from their point of view, it was a fabulous conversation to have. I said, "I want to let you know the New York Times and everybody else will run book reviews on this thing." My guess was, I said, "The historians will trash the book. Let them do it, not you." So, they thought that was good advice. They took it, but I also told them they've got to read the book—

Aspray: Right.

Cortada: —and take notes. It was one of those homework assignments. You really need to read the book. And I said also, legal also needs to read the book. And that in Germany, IBM Germany, needs to read the book. Same by Legal and media, media relations. A year or so later Black filed a lawsuit against IBM, not because it was—because the company was saying anything bad, but on behalf of all the victims. Of course, the case never went anywhere, but IBM did need to show up at court just to acknowledge the case. At that point, they did have to put out a denial saying this is all rubbish and we didn't do anything like that. I did not participate in the crafting of the denial. There's no reason to anyway.

Aspray: Can you remind me what the tenor of the reviews were, especially those from historians?

Cortada: The author left out lots of information and didn't fully set the context with other companies and what Hitler was doing in terms of trying to control the economy, so it didn't explain that. Exaggerated the use of technology. In fact, IBM, like all these other companies, didn't have enough supply of goods for all the agencies—basically Hitler had a lot of New Deal agencies, just like the United

States did, and they were data-driven. Everybody wanted tabulators and so on, and they couldn't manufacture them fast enough. Then during the war, there was the same problem as there was in the United States just getting sheet metal and rubber and stuff like that. There were—the first concentration camp that got a tabulator was in late 1944. By then, war's over, and it was used simply to keep track of labor, not who to execute but to manage labor, because they were using slave labor to work in factories. So, that's what the historians said. Now, fast forward about 20 years later, enough research had been done in Germany to confirm that a lot of the record keeping as to who was Jewish and who ought to go to the ovens and all that was done using in pre-existing 3x5 cards, hand-written records that existed in all police departments. They just simply updated—they had a card on everybody, where you live and so on. Then they went back in the Nazi period and added in what your religion was. So whenever somebody wanted to clean out a town of all the Jews, they would go to the police department. Said, "Alright. Let me have all the cards on the Jews," and then they go knock on doors or go to the Synagogues, because they had different methods of doing this. Which stores were Jewish and what have you. They—there wasn't any of that done on IBM equipment. The only thing that IBM equipment was used for in the early '30s was for another one of routine census, and I think it was done the year before the Nazis took over anyway. So, that data was used but it was no more detailed than typical census data in Unites States, in Austria, all these other places. But we didn't know that at the time that Black had his book out, [we learned it only] subsequently. By the way, I tell that story in some detail in my book, *IBM: the rise and fall and reinvention of the corporation* just because of the good research was done in Germany in English, although one article did appear in the *Annals of the History of Computing* on the same topic. So that was the last time I got involved in any substantive way with IBM and its history. Then of course, in 2012, in April of that year, I retired in December, but in 2012 I published *The Digital Flood*, and that had a lot of material about IBM because IBM essentially owned 70% of the world market. So, there was a lot about IBM in there, and that got me a certain amount of

publicity—positive public attention within the firm as 'the historian'. This guy knows a lot about IBM, particularly about Europe, because I explained IBM strategy for conquering that market because it was radically different than what everybody else was doing. Everybody else was just building national champions, so they couldn't get the economies to scale that IBM did because IBM treated all of Europe like just one big market and that proved to be brilliant.

Aspray: One last topic about IBM and you, which is what's the reaction been to your big IBM book that came out not very long ago.

Cortada: The book came out in March of 2019. It became widely available in April and May. I was pleasantly surprised. I expected, since the last chapter was critical of the sitting CEO, in which I wrote in a very professional, balanced manner. I wrote it as a combination of here's what's going for IBM, what's going well and here's what's not, and this is after eight years of declining revenues under her tenure. We're talking about Ginni Rometty. I was hoping that the book would come out after her tenure, but she decided not to retire at the traditional age of 60. She retired at—this year is retiring at the age of 62, so she was still in the saddle when the book came out. But she gets her helmet dinged by me in a balanced, professional manner in the last chapter. You should know that I wrote that last chapter first, and then kept rewriting it over the course of the next two, three years because I kept thinking she was going to leave. And I really wrote the book, in a sense, for the next CEO. This is what you got to know. And it literally goes into the preface, it says, if you're a sitting IBMer, read the last seven chapters first. If you're a retired IBMer, read the last 14 chapters. If you're a scholar, read all 20 chapters from chapter one. I literally say that in the preface. So, that was my signal to team management, and knowing how managers operate at IBM, you know a bunch of them ran out, got the book, and read the last chapter first, and then the previous six chapters, then maybe read the prior seven before that. I wanted to make sure I spelled their names right. So, here's what happened. The book comes out. Within a week, I get a phone call left on my machine from the senior VP of Communications at IBM, who I did not know. He

came from Ford two years before-hand, and I had already been out of IBM at this point, six, six-and-a-half years, something like that, seven years. “Dear Jim, I’d like to talk to you about your new book. Can we set up a conference call?” I knew it was going to come. I didn’t know if the guy’s going to have a gun or a Pulitzer Prize.

Aspray: Right.

Cortada: Anyway, he read the book. He was very impressed with the book. He said I was fair. “I get paid to disagree with you on the last chapter, but you were fair, completed staff work, which is what I’ve learned IBMers do very well, and your history of the company really taught me a lot about the firm.” I mean, he literally started the conversation with that. I said, “Well, how long have you been with IBM?” which is a classic IBMer to IBMer question. “Two years.” “Where were you before?” “Ford.” Well, Ford had been a customer of mine three times in my lifetime. So we started exchanging ideas, and lo and behold, I knew one of the guys who reported to him directly before he left Ford, who he liked a lot and who I also liked a lot and wrote a blog about how cool this guy was in using social media to promote Ford. He says, “I remember that blog!” I said, “Well, that was me.” So, we—as they say in Spanish, [were] ‘simpatico’. We had a bond there. He wanted to know what I was doing and why, and was I writing more books about IBM and so on. I said, “Listen, you and I share one thing in common, we both reported to Ginni Rometty. We can have a conversation about what that means, and I’ll tell you, it was very hard to write the last chapter because of that whole entire relationship.” I think he subliminally heard some things just by translating what I was saying. He ended the conversations by saying two things. One is, “I’d like to keep you posted on what our official position is on different issues and so on.” I said that’s great. So, he assigned one of his divisional vice presidents to do that, and he’s done that a number of times. I appreciate that. The second thing he said was, “any time you are in the New York area, let’s get together for lunch, chat more about the company; “ he has subsequently left the company. He now works for somebody else. So, we need to have a conversation to close out, well what

happened with him and Ginni Rometty. I know exactly what happened, but I need to hear it from him. So, that was that group. Then I began to get emails from IBMers because, in the back of the book, I have an afterward that says in the spirit of transparency, you need to know who I am, and what my career was at IBM, and I ended on the very last line with my email address to continue the dialogue, knowing perfectly well that people were, the last line there, if they're sitting at their terminal, they're going to say, "Hey! I'm going to write this guy!" Just type in the email and say… So, I got a lot of critiques. The only general comments that really fit here is number one, is nobody criticized the book. Everybody said I got it right, particularly they were really hung up on the culture, being able to explain the culture of the company. They said, I was the first one to get it right. When there was a criticism, it was, "Well, you didn't say enough about office products division" or, "The typewriter salesman deserved more attention." Well, when you have a 750-page book, and says add more, that's a complement. You can't do everything, right?

Aspray: Sure.

Cortada: You can't do everything. But then I responded to every email, graciously thanking them for reading the book, for their insights. There were a lot of them who told me stories. I mean, there was one guy in Mississippi who was in his 80s who was a field engineer in the office products division about which we know very little, and he spent 30 years in that division. He started typing up stories about what his experience was, which I had to say probably was 3,000 words worth of content. And he could name names and dates and so on. He was very explicit. I think he was pleased that someone was paying attention to his stories because I talked to him a couple of times on the phone and his family didn't know what he did or whatever. Clueless. And this is a problem a lot of IBMers have, their spouses don't know what they did for a living, and it's difficult to explain if you're not in the industry. But anyway, there was that, and the next group were retirees. A lot of websites with retirees, I announced to them this book existed. I got a lot of positive comments on Facebook, within those groups, they're closed

groups, obviously. Probably 150 responses. And, of course, in a lot of cases, people would then tell their story.

Aspray: Right.

Cortada: "I joined IBM in Hoboken, New Jersey back in 1963, and I remember, oh, yeah, those 360 days they were terrible. You're absolutely right. We all worked 100-hour weeks, and in fact, let me tell you what I did." And I saved all that material because I don't know what will happen to Facebook someday, so I literally printed out that material and just saved it, organized it by topic. So, I got, I don't know, maybe 10,000, 15,000 words of new content that way. The reviews, in different places, have been mixed. The guy who reviewed it in the *New York Times*, or, no, I think it was the *Wall Street Journal*, said I should have done more about labor, and it turns out he was a labor historian. The guy in the *Harvard Business Review*—I don't know what happened there, but he basically said it's just an internal account of the company, as if that was a bad thing. It was a sad review. He said I was very competent, did a lot of research, blah, blah, blah, blah, but then he ends up saying, but at the end of the day, it's an internal view of the company, which is misleading because I wrote it as an historian. Other reviews, maybe a dozen, have all been positive. The book is going into Russian. MIT is trying to sell it to other people. A lot of publishers are reluctant to go through the expense of translating a 750-page book. The Russians had no problem with it. I had a conversation with the Russian editor because I said, "Have you—are you aware that I've got a whole chapter that basically says your countrymen stole 360, 370 patents and what have you and literally just copied the software." "Oh, yes, he's aware of that story." "Ok, because I don't want you to get embarrassed when you publish the book. It did save your country 5-10 years of R and D, and your guys did make some changes to IBM's System 360, 370 architecture." Everybody else denies it happened, but I tell them the story about the Russians—the Russians aren't stupid. If they could improve on our machine, they did. For example, when they brought out their machines, from day one, they could use telecommunications with it, whereas when IBM brought out its 360, the initial release of

that product in ’64, did not have telecommunications. Little things like that but I said, “I just want to make sure you’re not going to shoot yourself in the foot because I don’t know your political situation.” I knew exactly what the political situation was, but I said, “I just want to make sure that you’re ok with this.” And he was felicitous. “Thank you very much for being candid about it.” I said, “Fine. And by the way, thank you for publishing the book.” So that’s been the reaction. I keep getting reactions to the book. People are still buying it, and I’ll get an email on occasion. In fact, I think I got one last week, and I always respond back to these folks because they share things with me that they wouldn’t have otherwise. Two people, however, did something very interesting. They asked me where they could deposit their ephemera. It wasn’t a lot. I mean, in one case, it’s 25% of a banker box and the others are more like folders, folder thickness. And I said “Well, you’ve got various options.” So, I walked them through their options, but in the two cases, they said, “Are you collecting materials?” And I said, “Absolutely. I have 60 banker boxes of materials on IBM I’ve collected over the years, and I keep collecting them all the time. I have a fabulous collection.” “Would you take the materials?” I said, “Yes.” Oh, and by the way, I told them my intent was that it was all going to go to the University of Minnesota where they have the world’s largest archive on the history of computing, and they already have some of my materials on IBM there. and so on. So, these two people saw that they could find a home for their ephemera because their kids would throw it out. So, I got some material this way. One of the collections that I got involved [with was] a Spanish and Columbian, he had—dual citizenship, an IBM executive. The gentleman had joined the company around 1933 and retired in the late ‘60s. He was the oldest IBM retiree. He died at the age of 104 in Miami. His daughter arranged the phone call, so I had a ‘conversacion’ in Spanish with this guy, although he could speak English; but out of respect for his old age, I had the conversation [in Spanish]. His daughter is secretary to the chairman of the board of Coca Cola, who several years ago I was cold calling in Atlanta just to get the connection. Out of that came the thicker of the two files. They were important for a couple reasons. One of the arguments in my book had

been that IBM's culture was the same all over the world. One way to tell that is are all the rituals the same. One of the rituals at IBM is that on the occasion of your 25th anniversary, your manager goes around and finds everyone who knows you and gets them to write letters saying how wonderful you are, throws a party for you, then gives you a binder with this material. And his 25th anniversary was 1957; and guess what he got, a binder with letters. He was in Colombia, he was an executive at the time, so there were press articles announcing he had been with IBM 25 years, and so those were included in the binder. There were photographs, 8x10 glossies of him at his party. Well, that was the first time I had hard-core evidence that part of that soft culture was alive and well in Latin America. Later on, she sent me a manual that he had translated and published while serving in Madrid just prior to the Spanish civil war. It was the first publication in Spain, internally circulated only, that described all of IBM's products. She sent that, so I have that as well, and that's in my Spanish file, as opposed to my Latin American file. It was a sort of mimeograph-type of publication, but it went to all the IBMers in Spain. So that's what's been happening with the book. It's been an unanticipated delight. I expected to get fried, and so I made sure when I got to the last few chapters, that they were legally bullet-proof. Even though I had internal knowledge of what was going on, I knew from experience that everything that goes on at IBM is written up somewhere. I cited all the juicy stuff using external sources, so if a lawyer came after me, I can say, "I got it out of the *New York Times*." Or "I got it off this blog." And I, of course, I'd keep copies of all that because IBM lawyers have taught me to do that years earlier. Anything that appears on the internet, always print it out and time stamp it. So, I did that. But it turned out it was not a problem. Everybody, internally, liked what I did and found it informative, including, and I'm going to be very discreet here, including some of the new senior management at IBM.

Aspray: Okay.

Cortada: I know for a fact, between the board of directors and the other senior managers, that several have read the book, which included very specific recommendations for what had to be done, and we'll just leave it at that.

Aspray: Ok. Let's move on. Let's move to your involvement with the Charles Babbage Institute, the Charles Babbage Foundation, and the IT History Society – and not only your involvement, but your comments, your reflections, about those. I'll let you tell the story.

Cortada: So, in the mid-1990s, it was time to start writing more than just about the IBM corporation.

Aspray: Right.

Cortada: My Princeton book was out; I was no longer a closet historian. I was now a known entity and was beginning to broaden my view of things. I had written an article, guess it was the first article out of 25 that I've done for the *Annals of the History of Computing*, in the mid-'90s sometime. I apologize. I don't have my list in front of me. That's how I began to come into the community of historians dealing with computing, it was through the *Annals*. I began to meet some of those people. That led, at some point, to you asking me about how to develop a strategic plan for the Babbage. We talked about how that should be done and so on, and from my perspective; and you went off and did whatever it is you were going to do. But as a result of that, I got a call from Erwin Tomash, who was the head of the Charles Babbage Foundation, inviting me to join the board of the Foundation. When I saw who was on the board, I realized, wow, this is an opportunity to meet some very, very interesting people, and to also begin to enter the world of historians of computing, because I knew at some point I would need to do that. I saw it as an entry path into that community, as well as I did the *Annals*. At this point, it is not clear to me whether I had done any research at the Babbage. I probably did because I can't imagine having published the *Before the Computer* book without going there, and I had already [visited] some others as well: the Hagley, the National Archives. So, I had probably already been to the Babbage, and that's when it was located over in the old library. You walk in and hang a left.

Aspray: Walter Library. Yes.

Cortada: So, I already knew what the Babbage was about and realized that was a very respectable operation, a serious operation, because there are a lot of flakey ones floating around that were beginning to get interested in computing. This was legitimate and it fit my profile, both as an IBMer and as a trained historian. So, I joined the foundation, I guess it was around 1996, '97, probably '97, and I was the youngest guy there. I mean, I was in my early 50s, but everybody else was in their 70s. I was the young kid at the other end of the table. In those days, the foundation was basically an organization that Tomash ran and everybody participated. He used it as his way to fund the Charles Babbage Institute and that's why the Foundation was established. He also used it as a way to of being able to—I want to say the right word, be honest here – to influence, and possibly control, to a certain extent, the activities of the Babbage, but more influence than control. He wanted to make sure that the crazy professors over there didn't take their eye off the ball, which is we're going to preserve the history of computing and we're going to do this in an honest way, and that they did not get involved in trivial projects. In other words, he was reacting like a good, solid executive, and he was writing all the checks. He didn't ask anybody to write any checks. He wrote all the checks, which I thought was kind of unusual because every non-profit I had ever been on, you're expected to write a few checks. But, okay. That's fine. Time passed, and he got older, and he eventually made the speech that it's time to start the changing of the guard. Well, hell. Half the people on that thing were older than he was, so you know where all the eyeballs turned. However, he had already done a little bit of homework on me, I think largely through Norberg. I don't know whether he talked to you or not, [but] to Norberg [he] said, "If made this guy the president, the chairman of this thing, is that a good or bad thing?" And I think it was Norberg who said, "If we make him the chairman, he'll get stuff done. He has energy," and I already knew Norberg at this time. Tomash came to me and asked me to be the next chair. He said, "We got a lot of old people on here, blah, blah, blah, blah, we're going to have to replace some of these people, that's your job, is to go

bring in some new blood." So, he retires, I take over. Well, I'm different. Number one, I can't write $75,000 checks, I got kids going into college at that point. So, I start doing what everybody else does on the board, start tapping into board members; and in fairness to them, they were very gracious about it, they were willing to—Marty Goetz, Lee Keet, and so on. They had no problem writing $5,000, $10,000 checks, and they were willing to do it, they just needed to be asked. So, I began to set expectations for that because in those days we had a commitment that we considered a moral commitment to support the Babbage Institute at the rate of—it varied each year but it was always either $50,000 or $75,000, but it was always in that range.

Aspray: Right.

Cortada: The Babbage people always expected that, and they always kind of baked it into their planning and so on; so, that's what makes it a moral or ethical obligation. That was fine. With the original crowd that Tomash had in there that worked. I began to think about how to replace these folks as age crept up on them, and I drew the conclusion after conversations with all kinds of different people, that it really needed to be situated in California, where the industry was headquartered. That's where you would get access to money. And, although the Computer Museum was there, it had made the same decision, reached the same conclusion because it used to be in Boston. Nobody cared less about the museum there. It was a children's museum more than anything else. But when it went out to California, it became a serious operation, and there was a lot of money available and it was the right decision for them to make. I had reached a similar conclusion, and I persuaded the board of that. We went through the whole legal process of locating in California, as a California non-profit organization, and as old age began to claim these people, I began to get replacements. Jeffery is a good example of that.

Aspray: Jeffery Stein.

Cortada: Yeah. Jeffery Stein and David Arscott and so on. I began to replace some of those older folks with them. Now, when that happened—well, two things happened. One is we ran into a recession in the

United States at the turn of the century, which made fundraising for everybody a real challenge, including for us. That was the first thing that happened. The second thing that happened is that the folks who came in had no loyalty to the old Tomash model of how this should be run. Their perspective was, "Well, why do we limit it to some organization out in the Midwest somewhere? Why don't we really rock and roll and expand this, our offerings in support for other organizations?" They were adamant about it. So, you had this financial problem, fundraising on the one hand, and then you had this change in spirit on the other. I was loyal to the CBI concept that Tomash had because it was the only organization in the United States at that time that was doing serious work, so I wanted to protect that funding that went in there. Tomash was beginning to distance himself, either because of health reasons or other interests, and what have you. But he was still adamant that is should be 100% support for CBI and none of this other stuff. But now I had this new board that wanted a broader image. So, I figured, well, gee, how am I going to solve this problem? This is a tough nut to crack. So, I proposed to the board that we hire a fundraising organization to do an analysis of what makes sense. Should we continue just to solely focus on CBI, should we be focusing on other things and so on. That organization, and I've forgotten the name of it now, that study came back and said we would be able to increase the odds of raising funds, not only for CBI but for other projects if we didn't just limit ourselves to CBI. They gave us a list of all the other people and companies and people that might donate, and so on, in California. Some of them were already donating to the Computer Museum, some to Stanford and so on. But the thing I liked about the report was the fact that, the possibility of raising enough money would allow us to continue to give CBI their $75,000 a year. Of course, Tomash hated the report because all the money will go to the Computer Museum, and he never gave a penny to the Computer Museum because they didn't need it. They were getting millions of dollars from other places. It was about that time then that the recession, the early 2000s occurred, so we couldn't raise money for CBI and all these other projects. Nor could even the Computer Museum at that time. They had difficulties as well. So, the model explained to

us by the consulting firm could not be implemented. We entered a period of struggle trying to raise enough money to take care of the Babbage and everybody had to contribute money to make this thing work. Meanwhile, Tomash was furious because he didn't like the report. He didn't like the fact that people were coming in that weren't committed to the Babbage, and he really chewed me out. In fact, he chewed me out so bad that I think his wife made him call me the next day to apologize. She must've overheard the conversation because he was barking on the phone. But I was now chairman of the thing, and I had—it was the right decision to be in California. We were getting younger people on the board. This recession will pass someday. So, we limped along. The amount of money that went to the Babbage declined over the years. I was amazed that we were able to raise any money in 2002, 2003 and so on, because some of the people on the board were entrepreneurs, and they were going through tough times themselves. Eventually, I came to the conclusion that I had been the chairman for 10 years, and I said, "Well, it's time for new leadership." So, we made the transition over to Jeffery Stein, he's really the third head of this thing. At that time, we all agreed that it probably would make sense to change the name of the organization because there was a lot of confusion. What is CBF? What is CBI? If I give money to CBF, does that mean is it always going to go to CBI trust? I'd rather it go to an organization that's got a different name. We were going to name it, what was the original name? So, we all met in New York for a day to kick around names. Society of History of Information Technology. That's what we were going to call it.

Aspray: SHIT, huh?

Cortada: We struggled with that for a few hours but that's how we came up with the ITSH. But yeah. The logical name didn't work. But anyway, it was a question of rebranding to get at a fresh start. So that's how it became that organization.

Aspray: I think we should close for today.

Cortada: Ok.