



Oral History of Michael Marcus

Interviewed by:
Burton Grad

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Michael Marcus

Conducted by Software Industry Special Interest Group

Abstract: Michael (Mike) Marcus, a long-time consultant in the computer software and system integration field, worked for many companies and set up a number of companies on his own. Mike describes his personal background and reviews the companies he worked for (Sperry Gyroscope, CUC, Unisys, SPL World Group and others) as well as the companies that he started (Realtime Programming, PictureWare, Systems Integration Corp. and others). He also served as a consultant to many other companies including Mergenthaler Linotype (automating newspaper publishing), Oracle (contract negotiation and renegotiation) and Sterling Software (due diligence on acquisitions). The range of his projects from order matching for brokerage companies to gas pump reprogramming to a wide variety of due diligence projects as well as project management gave Mike an unusually broad perspective on the computer software industry. His guidelines on contract negotiation, both domestic and international, provide valuable insights not only on business and legal issues, but more importantly on the need to establish personal relationships with the other side in a negotiation. He focuses on how to try to achieve win-win results or at least situations where both parties can live with the outcome since these are often cases where both parties have to continue to work together.

Burton Grad: My name is Burton Grad and I'm interviewing Mike Marcus. This is part of the oral history program being conducted by the Software Industry Special Interest Group which is affiliated with the Computer History Museum in Mountain View, California. The date is August the fifth, 2013; the interview is being conducted by telephone. Mike is located in Orlando, Florida and I am located in Lee, Massachusetts.

Mike, let's get started by talking about some of your family background and then we'll pick up on more of your industry activities later. Where were you born and tell us about your family?

[Editor's note: During the review of the transcript by Mike Marcus he added a number of comments, most of which were felt to be both informative and relevant. Therefore, we have included them in this transcript but have placed them in [brackets] where they were added by Mike Marcus.]

Family and Educational Background

Mike Marcus: I was born in 1938. My father died when I was about 12 so I didn't really get to know him very well because he was ill for the last eight years of his life. I was very, very fortunate to have a mother who was mother and father; strong-willed but always fair and always a reasonable person with a very strong sense of doing the right thing. My brother and I often say that was the best thing that ever happened to us.

Grad: Where were you born?

Marcus: In Brooklyn, New York.

Grad: And your family lived there while you were growing up?

Marcus: We lived in the Brownsville section of Brooklyn which was a pretty rough neighborhood. We moved out of there when I was about 16 to the Bensonhurst area which was a middle class nice area; and I lived there until I got married in 1959.

Grad: Did your father work at all before he got ill?

Marcus: He did. He had worked during the war for the War Shipping Administration, assigning sailors to the various merchant ships.

Grad: And after your father died, did your mother work?

Marcus: She did and I started to work when I was about 13.

Grad: What kind of things did you do?

Marcus: I started working Saturday nights at a newspaper stand in a very tough neighborhood; it was essentially the Harlem of Brooklyn. But I never had any problems because the newspaper stand was right outside of a place called The Club Baby Grand which was a jazz club and the owners of that club and the usual clients there turned out to be sort of a protector of my boss and for me. So, we never had any problems and that was great. But then I went to work in a bagel bakery.

Grad: Did you have a family connection there because, I gather, there's a tough union in the bagel industry?

Marcus: That was a very tough union there. My mother had remarried a very nice guy who had been a friend of my parents when all three of them were kids; he was a bagel baker so I got to work as a baker's assistant. You probably know that bagels are boiled before they're baked, before they're put in the oven. My job was to get those bagels boiled and laid out for the baker to put in the oven. And I was making very, very good money because I was getting union wages starting when I was just 16 and 17.

Grad: Where did you go to grade school, high school, et cetera?

Marcus: I went to the local junior high school. I had really good grades and then went to Brooklyn Technical High School which was the best education a person could want. I was in their college prep course and they had other courses like for would-be aeronautical engineers. It was a fantastic school. It had fully equipped, industrial-sized metal and wood shops with lathes, milling machines, and even a working foundry. [We made patterns in the wood shop and sand molds into which we poured molten metal from the foundry to create tools. We even detailed them like cutting screw threads and to form metal clamps.]. In addition, it had a very rigorous academic courses [for chemistry, physics and mathematics].

Grad: How did you get into Brooklyn Tech? Weren't there some tests or something you had to pass to get in there?

Marcus: You had to have a certain grade point average and I think you had to pass a test. There were a couple of schools in New York that I guess we would now call magnet schools. There was the Bronx High School of Science, Stuyvesant High School, the School of Music and Art, and there was Brooklyn Tech; those are the four that I remember.

Grad: Were you ever in the rapid advance program where kids could skip grades or wasn't that going on when you were in school?

Marcus: I personally did not skip grades, but they changed the education system when I was in grade school to do away with the half-year terms. So those of us who were on the odd half year got moved to the next half-year so we were all on a full-year cycle.

Grad: So, you picked up a half a year.

Marcus: Yes

Grad: I gather that you enjoyed the machine shops and things like that while you were in high school; building of things, making of things.

Marcus: Absolutely, and it has stood me in very good stead because now I have a whole workshop for wood working and fairly large equipment and I also build model ships with miniaturized equipment.

Grad: Clearly this was something that was an early interest. Did you have any interest during high school in electronics, TVs, any of those kinds of things?

Marcus: No interest in electronics. My interest was really in woodworking [and building static and flying model airplanes].

Grad: What were your grades in high school?

Marcus: They were good. I graduated with honors and that was fine.

Grad: Did you enjoy high school?

Marcus: I really did. As I said, it was a fantastic education. Every one of the teachers I had was a really good teacher and the curriculum was really good too.

Grad: Did you have any extracurricular activities or were you too busy working to do that?

Marcus: I did have some extracurricular activities. I did some shop work after school. I belonged to something called the Menorah Club and sporadically there were meetings of people to discuss literature and I would sit in on those when I had time. [Brooklyn Tech has a fully functional FM radio station that broadcast a current event program on which I was one of four or five broadcasters.] But other than that, I was pretty busy with school and with working and I had a girlfriend so that was more than enough.

Grad: That must have kept you busy. Did you work summers as well?

Marcus: Oh yes. What happened was that bagel making bakeries actually opened up in the Catskill Mountains and so I could work up there; and that was pretty good because that helped to earn a lot of money at that time to go toward college tuition.

Grad: I gather that you had planned to go to college all the time through high school. So, tell me about how you selected where to go.

Marcus: Originally, I applied to Cooper Union and I was admitted there which was a very tough school to get into; I was enrolled in metallurgy. And then I thought about it and I said, "My

goodness, the amount of chemistry involved in metallurgy, I'm not sure that's up for me." So, I switched. I went to Brooklyn Poly Tech, enrolled there in the physics department and I got my bachelor's degree in physics.

Grad: Brooklyn Poly Tech, was that local? Did you live at home while you were going to school?

Marcus: Well, Brooklyn Tech, the high school, was not local and I went to work by bus and subway. Brooklyn Poly Tech which is in downtown Brooklyn, was also not local and I commuted by subway.

Grad: And I meant local in the sense that you didn't live on campus.

Marcus: No, I did not live on campus. I lived at home with my brother and my mother and stepfather until I got married.

Grad: What's your brother's name?

Marcus: Howard.

Grad: And is he younger, older?

Marcus: Three and a half years younger.

Grad: And were you ever interested in sports, any of those kinds of activities?

Marcus: No, I never participated in any sports.

Grad: It wasn't a religious thing; just you didn't like sports; was that it?

Marcus: I didn't like sports, no, no. I played chess and I played cards but I never participated in sports.

Grad: You majored in physics and you got your Bachelor of Science degree in physics. What year was that?

Marcus: 1959.

Grad: Okay, so what happens after that?

Working for Sperry Gyroscope

Marcus: I got a job at the Sperry Gyroscope Company. Sperry was the owner, I believe, of Univac. Sperry was a leading developer and manufacturer of gyroscopes and navigation control systems. I worked on the very first nuclear-powered, atomic-missile carrying Polaris-class submarine, the George Washington, and was part of that team. It was really a fantastic training ground because of some of the people that I met and because the [computer and ancillary interfacing sensors and other machines] that Sperry had developed were [up to date, but certainly] really primitive [compared to what was developed just a few years later]. That meant I got in on the ground floor of learning not only the software elements, the basics of software assembly code and the microcode, but also the basics of hardware: environmental requirements, cabling, meantime to failure, etc. All of that stood me in very, very good stead when I was managing system integration projects later on.

Grad: Let me back you up just a minute. How did you get the job with Sperry?

Marcus: I got it through a friend of my stepfather who worked there [as head of an engineering department] and my stepfather had mentioned to him that I was going to be graduating and the guy said "Well, have him give me a call." And I did. And I met with him. He took me out to lunch at a deli. We had hotdogs for lunch and he hired me on the spot.

Grad: Where were you physically located when you were working for Sperry?

Marcus: The offices and factory [for development, assembly and testing of hardware and software] were in Syosset, New York, in the middle of Long Island. [But when the hardware and software had been fully developed and unit tested, the entire system had to be integrated and tested as working system.] While Sperry had built a full size, working, navigation control room with peripherals (gyroscopes, periscopes, radio navigation sensors, etc.) in Syosset, but after a while when the software and hardware which were being developed concurrently, were ready to be shipped, they were installed in the subs in Groton or New London and I went up to New London to work on the submarines to help get the equipment installed and debugged.

Grad: And you were part of a team doing this?

Marcus: Yes, I was part of a team of hardware and software guys. When I went to Sperry I was really, really fortunate in meeting a fellow named Peter Quint who is one of the very cleverest people I've ever met. And we became lifelong friends. He died just a couple of years ago. Peter was so clever and so creative in out-of-the-box solutions that we would say he was warped; and in a sense, he was, but it was for good benefit.

Grad: Were you actually doing programming? What were the things you were doing as part of the team?

Marcus: I was doing programming. [For example, I worked on orbital calculations for satellites that communicated information to and from the sub to other subs and headquarters and programs for radio signal reception that would help with navigation.]

Grad: How did you learn programming?

Marcus: From a book because at that time in 1959, there wasn't much else.

Grad: Did you program in college at all? Did you do any software programming, learn anything about computers?

Marcus: No. There were no computers when I went to school; not in my school anyway.

Grad: You're a physicist. You have a degree in physics and they make you part of the team and now what happens?

Marcus: Now they introduce me to Peter. And he said "Mike, here's a book. Go and read it and then we'll talk." And I really had a tough time at first just getting the concept of dealing with variables as addresses. And remember this was a time of assembly language, very crude assembly language. In fact, it didn't have an assembler [so it couldn't have symbolic names for operations and operands or results], but it did have all the assembly instructions so we had coding sheets and we would write on the coding sheet: add this variable to the one register. This machine had no index registers, no indirect addressing, no card reader input, no line printer. Its printer was, I think, about a three-inch paper tape that you see on calculators because all it did was print out latitude and longitude. So, we hand assembled the code from the sheets we had made and then, in order to get it started-- there was no bootstrap on this 25 bit machine, we'd stand at the console-- and it had a display for each bit in each word that you were looking at and the address register that identified where that word was in the machine-- and we would key it in bit by bit. Programming it was very ticklish because it was a real-time system that had no interrupts and had no internal clock.

[Later, we punched the programs into punched paper tape because a Flexowriter was interfaced to the computer and we wrote a loader that could read the tapes. But punched paper tape tears after a few passes, so we discontinued paper and we used Mylar] so that it wouldn't tear. Then we would load the Mylar tape with the program. [This was a real time computer with a drum storage system and it had no interrupts so as to get official standard time broadcast shore or any other data input so programming it was even more difficult because the computer had to periodically stop processing to poll for input data. Furthermore, if the instructions, operands and

results were not each hand placed in appropriate drum locations, vital input might be mixed and we were told that a missile that was intended to hit City A might wind up in London or Paris.]

Grad: Was this hardware that Sperry had developed specifically for this project or was it a general-purpose machine?

Marcus: It was a special machine called NAVDAC which stood for Navigation Data Assimilation Computer. We would say it was Not a Very Damned Accurate Computer because if you remember the way drum machines worked in the early days, they had what we call “blinkers.” In other words, they had certain bits on the drum that were present intermittently so debugging software and hardware with hardware blinkers was quite a chore. But I learned a lot.

Grad: So, this was just assembly language for that particular machine. Now, how long were you working on this project at Sperry?

Marcus: About three years. I did work on the submarine a fair amount up in New London and Groton.

Grad: Were you actually on trial runs with the submarine?

Marcus: No, no. I worked on the sub dock-side sometimes for weeks at a time, but I did not go out on any missions or any trials.

Grad: Anything else interesting from the Sperry Gyroscope days that you'd like to add?

Marcus: It's okay in these days to talk about some of the things we couldn't talk about before. But at that time, they actually had developed satellite navigation and I got involved in programming satellite orbits which was pretty interesting work. And of course, they had radio communications gear and other kinds of navigation that may or may not still be secret.

Grad: You had to have, I assume, security clearance in order to get the job and do work on this?

Marcus: Oh yes. Yes.

Grad: Were you able to maintain the security clearance after that or was that a one-shot thing?

Marcus: That was a one-shot thing, but when I was in the Army I got security clearance there also.

Grad: What happens after Sperry? Why do you leave? What goes on next? You're there until 1962, I believe.

Working for Computer Usage Company (CUC)

Marcus: That's right. Sperry had a consulting company come in about a year and a half after I was there, Computer Usage Company. Peter Quint had left Sperry and gone to Computer Usage and he called me after a while and asked me if I would join CUC and I did. CUC and Computer Sciences, as far as I know, were the first software consulting companies of any size or substance. Computer Sciences [now called CSC] is still around but unfortunately CUC is not. But it was a very, very good place to work because I got to see all kinds of applications. CUC had three divisions: one for commercial software, one for scientific software, and one for oddball applications. The applications division was run by a fellow named George Trimble with whom I established a friendship that lasted until he died. George and I actually worked together after CUC on and off in different projects, in different companies, for about 25 or 30 years. [He and I were often independent consultants, but when one of us got a large project, we would retain the other to work on that project also.]

Grad: When you went to work for CUC, were they still located in New York City?

Marcus: Yes, but that still entailed a fair amount of travel. At Computer Usage, we did a lot of systems work: assemblers, compilers, operating systems. They did work on the IBM 7740 which was a store and forward message switching system and was very early into the data communication area, in particular synchronous communication, and I worked on that. The 7740 was quite a primitive machine because it was specially built to handle message switching. It had no card reader. It had no printer. We assembled the stuff by hand until one day, working up in Poughkeepsie, I figured enough is enough and sat down with one other fellow and over the weekend we wrote an assembler, or I guess you would call it a cross assembler. It would run on the IBM 1401 and would print out listings. It would take input via punched card and it produced an output tape. We could load the tape onto the 7740. And writing an assembly program turned out to be a really interesting and enjoyable job although it didn't last too long.

Grad: Why not?

Marcus: Well, it only took us two days to write that assembler.

Grad: I see. It was a very short project then in that regard.

Marcus: Yes, it was a short project and it was a good assembler. We had cross assisting tables and everything else you'd want on it.

Grad: Where did you get that knowledge?

Marcus: At CUC, somewhere, because when I worked for CUC, prior to that project, I had worked on some system software. They had a client, I don't remember the name, but I think their machine was the IBM I440 or something like that, and CUC had a contract to write an assembler and a compiler for them, and I worked on that for a while.

Grad: Had you used any higher-level languages by that point? Had you been introduced to Fortran, for example, or to COBOL or anything of that sort?

Marcus: I don't remember the sequence of when I got involved in Fortran. I did do very little COBOL. I never worked much with COBOL and I didn't like it, but again, I really never did much in the way of commercial applications. Almost everything I worked on was real-time and either data communications or process control or air traffic control, that kind of thing.

Grad: Were you part of teams again in all these projects or were these things you were working on on your own?

Marcus: No, I was part of teams on most of these things and I was a team leader reporting to George. I had the team reporting to me on the 7740.

Grad: It sounds like you did quite a bit of work with IBM during that period.

Marcus: We did and throughout my career it seems that I spent more time at IBM than a lot of IBMers. I worked later at CUC on the IBM 360/67 TSS, a time-sharing system, and that was in Mohansic, New York.

Grad: What was the timeframe for that?

Marcus: Let me see if I can remember... it was mid-1960s because I left CUC around 1965 and it was the last major project I worked on at CUC.

Grad: That was very early on for TSS then because it just got started, I think, in 1963 or 1964.

Marcus: It was, and we were pioneers in using what was at that time called the Blaauw Box.

Grad: What was the Blaauw Box for?

Marcus: Well, you may remember that one of the problems we had with computers was that they had a limited amount of main memory. And if you put things out on disk it took a long time to get them back. What the Blaauw Box enabled you to do was automatic software paging. So, the computer runs a portion of a program and that program is contained on one or more pages. When the computer is finished with that set of instructions, they are replaced by loading in the next page of software for the program. That enabled you, when you were writing your programs, to essentially just keep on counting, which was important to know when you wrote in assembly language. You had to know essentially the sequence of instructions and where in the machine they were located. But with the Blaauw Box you didn't have to worry too much about where it was located. You just worried about where it was relative to the start of a page.

Grad: So that was why they called it relocatable?

Marcus: Yes, it was a relocation box. It allowed software paging.

Grad: And that was essential because of performance on time sharing, is that correct?

Marcus: Yes. And also, because time sharing would enable multiple users to use the same machine where the machine split its time from one user to another. So, when it finished the processing for user one, it would load in pages of user number two's software and the machine would essentially then be dedicated to that user for a period of time; that was the process.

Grad: Now TSS was a massive project. How many people did CUC have on it?

Marcus: I really don't remember. I'm going to guess somewhere between 10 and 20. George Trimble actually started the project going. He was, as I said, the head of the oddball application group and I may have been the second guy on it and then we worked very closely with a team of IBMers.

Grad: You were located in Mohansic, New York, I think you said?

Marcus: Yes.

Grad: Was the whole team working on the TSS in that location?

Marcus: I don't know. Part of the IBM team probably was not. At that time, I didn't have a global view of what went on. It was still pretty early in my career.

Grad: You were just very project-oriented during that period.

Marcus: That's right.

Grad: Let me go back a bit. When did you get married?

Marcus: Got married in 1959. I graduated in June of 1959 and got married in August.

Grad: Is this someone you had known for a while?

Marcus: Since I was 16 and she was 15.

Grad: Oh, so that was who you were dating when you were in high school?

Marcus: That's right.

Grad: And that was Roberta, I believe. You had children during this period of time?

Marcus: Three kids. I have a daughter who is now in her 50s and two sons. My daughter Sue married a very nice fellow named Jimmy Destefano and I have a son Andy and a son Lee with four grandchildren, three girls, one boy.

Army Experience

Grad: Okay. When does your Army experience come in?

Marcus: It was while I was at Sperry. What happened for guys in my generation there was a universal draft and what that meant is that once you hit, I think, 18 you were likely to be drafted. You could go for a deferment if you were going to go to college. But if you went for a deferment, you were then liable to be drafted up until age 36. I didn't want to have my later career interrupted so I opted to go into ROTC, Reserve Officer Training Corps, while I was in college and I'm glad that I did for several reasons. One is that they paid us a certain amount each month, I don't remember how much, and between that and the state scholarship and the fact that I worked through college also, it covered the college tuition and money for dating and that sort of thing.

Grad: This is while you were at Brooklyn Poly?

Marcus: Yes. I was at Brooklyn Poly from 1955 to 1959. When I was with Sperry, it was between 1959 and 1962. I was actually in military service in 1960. I went in as a 2nd Lieutenant in the Corps of Engineers, and I had some very interesting training in mechanical and structural

engineering, civil engineering, road building, bridge building and destruction, airport construction, et cetera.

Grad: You were using big equipment?

Marcus: Well, yes. The army had what I thought was a very reasonable approach to things. If you were going to be managing people then you had better know everything that they should know. And so, we had to learn and be certified to operate a bulldozer, a road grader, steam shovel, and pneumatic air hammer. That was very enjoyable and quite interesting. After that I got posted to the Engineer Research and Development Laboratories in Fort Belvoir, Virginia and that was also very interesting because I worked on two projects, one of which I can't talk about, and the other was a project to measure the effectiveness of certain types of glass to reduce radioactivity for drivers of bulldozers. I was reporting to a captain who was a very nice, very bright guy and he was involved in managing contracts. He was a contract administrator for some Army contracts and he got me involved in that, and that was good training as well.

Grad: Go back to your ROTC training. You were in the ROTC while you were in college?

Marcus: Yes, and the Army holds classes in Army Engineering while you're at college and so one of your courses instead of regular electives is that one. And then you also go away to summer camp for what you might call boot training.

Grad: Now when you graduated from college you also became a 2nd Lieutenant at the same time?

Marcus: Yes.

Grad: Okay, so in 1959 you graduated from college and then went to work for Sperry Gyroscope right away.

Marcus: Right.

Grad: How could you do that and become a 2nd Lieutenant?

Marcus: Because you get your Army Reserve Commission, but they would let you know when you were going to go into the Army and they would let you know whether you're going in for two years or six months. They let me know I was going in for six months and they wanted me there sometime early in 1960.

Grad: I see.

Marcus: So, I got a leave of absence from Sperry and when I went back to work at Sperry, they managed to get me an exemption from the active reserve because of the work I was doing there. So, instead of having to go to drills periodically and having to go to reserve summer camp and that sort of thing I had to take a couple of correspondence courses of my choice. I took elementary algebra and elementary geometry of course, and that fulfilled my Army obligation. I actually thought for a while of staying in the service if I could've continued working at the Laboratories, but of course that doesn't happen normally.

Grad: Also, Vietnam starts to happen about that point in time too.

Marcus: I don't remember, but I was very fortunate that I never did see any combat. The closest I came was as engineers we were responsible for clearing mine fields and so we learned to do that. Although the mines were not totally active there was no guarantee that they didn't have enough powder in them to do you some damage, we just didn't know.

Grad: Was this all during that six-month assignment that you had?

Marcus: No, this was actually while at summer camp during college.

Back to CUC

Grad: Let's move ahead from there. So, we've finished with Sperry and you're in Computer Usage. You had a very interesting set of projects at CUC. Are there any others that you want to talk about while you were there? Air traffic control, anything like that?

Marcus: Well, yes, while there we worked on a couple of things that were really interesting. One was air traffic control; George and I, just the two of us, were down at what they called NAFEC, in Atlantic City, which is a think tank and laboratory for air traffic control. While we were there we were doing systems analysis to help them try to determine what had to be done to improve the air traffic control system because at that time there were a surprisingly large number of close mid-air plane contacts although that wasn't publicized at all. That was one very interesting job. The other job that was a lone job, I didn't work with anybody else. CUC got a contract from IBM to measure two IBM operating systems IBJOB and IBSYS, and you probably remember them.

My job was to take a number of test programs, run them through a machine, I think it was a 7090, and determine what the performance was under various conditions. That was quite interesting. I also worked at the National Institutes of Health doing analysis of the results of cancer smoking relationship studies. We worked on a Honeywell machine.

Grad: So, you had a wide range of programming assignments on many special purpose machines working with a group of people. Were you working in any leadership roles during that period of time?

Marcus: Yes, I was sort of the lead in the 7740 projects when George wasn't there and I was the lead on a couple of other small projects. One was an inventory control project and I'm trying to think of what else.

Grad: It was a very wide range of systems and even applications projects that you were working on.

Marcus: Yes, on both special purpose machines and on general purpose machines. We had a project, I don't remember what it was for, but I think it on was the GE-225, which was an interesting machine because it was not typical of the IBM machines. It had no scaling, so you had to do the binary scaling when you did the programming. It was sort of a ticklish business if you remember that.

Grad: So, you're enjoying yourself, you're doing good things. Were you doing well financially?

Marcus: Yes. Let's see; when I started working at Sperry I think I was making \$6000 a year. I don't remember what I was making when I left. I went to CUC because I thought I'd learned everything I could learn at Sperry and because Peter Quint was at CUC. I knew some of the kinds of work that CUC was doing, so I had an interview with George Trimble and a couple of other people, I think one was John Sheldon.

Grad: How about Elmer Kubie?

Marcus: No, Elmer Kubie did not interview me. Sheldon was the cofounder with Kubie. I got interviewed by John Sheldon and I got hired. I don't remember what my starting salary was, but I always felt I did well. It was a good experience. I wasn't making a fortune of money, but I was well paid and the culture of CUC was a very, very good culture because it was informal. It was very focused on quality, very focused on timely delivery, a lot of nice people; just a very good culture to work in.

Grad: So why did you leave?

Starting Realtime Programming Corp.

Marcus: Because the company started to change; I was not the only one. I think Peter Quint left and I think George Trimble left and there was a management change. Cuthbert Hurd came on the Board and there were a number of other changes made. I don't remember exactly what they were, but they made a lot of people there, really senior people, not us, not the plebes, but they made them pretty uncomfortable; so, the culture changed a bit although the company grew very significantly. I decided I would leave and I went off and formed a company myself. Before doing so, I spoke with a couple of people I had worked with to ask if I was able to get the company off the ground, whether they would join me and they said yes. So, for the first time in my life I went out and became a salesman, knocked on doors. And, we were fairly successful, actually.

Grad: But, stop a minute. What was your idea in forming the business? What was it you thought you were going to do?

Marcus: Well, I thought I knew a great deal about data communications which was true at that time, although certainly I'm totally out of date now. I did know a good deal about data communications and online systems/real-time systems and that was all the rage, starting at that time.

Grad: What do you mean by data communications?

Marcus: What I mean is the ability of a computer to obtain data from other computers or from other devices like teletypes in those day, terminals, radio, wire.

Grad: How about non-digital stuff, analog signals, things like that?

Marcus: No, I worked with analog a little bit at Sperry because the gyroscopes were analog and in the software we did a lot of analog to digital conversions, but I didn't work on any analog communications.

Grad: Okay, so this is your idea. Were you planning to do products? Were you planning to do consulting? What did you have in mind?

Marcus: I didn't know about products at that time, and, in fact, I don't think there was a market for software products. Maybe IBM had products at that time, I don't know. But, there really was not a software products industry as far as I knew in 1965. [Ed. note. Neither IBM nor any other company was selling software products at that time]

Grad: So, you were going to consulting work?

Marcus: Yes, consulting and systems analysis and programming, sort of like CUC did. I had a non-compete for six months or a year, but it was with respect to clients, and I honored that. But I had no non-compete with respect to taking employees and so I didn't worry about that. I just got on the phone and I called companies like W. R. Grace. It was a big shipping company and we got a contract out of them. There was a large company called Union Camp which makes paper and paper bags. After a while, I could contact IBM and I did and got work on the 7740 in Waltham, Massachusetts. I don't remember exactly what we did for them, but we did something for them.

Grad: Where did your initial financing come from?

Marcus: We had none.

Grad: Did you have enough financial reserves to do this?

Marcus: No, not really, not really. I hadn't been working that long and I didn't make that much money, but I thought I would take a flyer at it because if I didn't do it then when I only had one child and we had no mortgage because we had rented a place. If I didn't do it then, it wasn't going to get done.

Grad: Was there any entrepreneurial background that made you feel like this was something you wanted to do? Was it that you didn't like working for other people? What was it? It's such an unusual step instead of going to work for another company?

Marcus: Well, I think I work well with people and I got along very well with my bosses, witness the fact that they and I remained friendly for many, many years, really close friends like with George and Peter, even my old Army captain. But, I always wanted to sort of do things my way if I could. I wasn't very stubborn about it, but I wanted an opportunity to do it and so I just did. My family background was such that we were not entrepreneurially or capitalistically oriented. If anything, we were left of that, we were union type people and working-class people.

Grad: So, it was more of a personal thing rather than a drive to make a lot of money or I want to be my own boss. It was more I want to be able to do things my own way. Is that a more accurate description?

Marcus: Well, I wanted to do things that I could do, that I wanted to do. I didn't want to work on commercial jobs and later if you're going to go there you'll see that I was not at all interested in the body shop, staff supplementation side of the business. I wanted project work, project assignments, be that consulting or implementation like programming and delivery of software. And so, I just tried it.

Grad: Okay, so you go out with no money, no employees. You had no projects, nothing.

Marcus: I had two or three thousand bucks in the bank.

Grad: That doesn't take you very far. But you got your first contract with Grace and with someone else very quickly.

Marcus: Yes, because in those days if you could say that you knew data communications, almost any IT guy would be really interested in talking to you. And it turned out that I was pretty good in the consultant sales approach. So, I think they saw some value in the interviews. I don't know how else to explain it.

Grad: Well, it's a good track record. You had a lot of experiences that you could point to as to why you knew what you were doing and I think that was also helpful wasn't it?

Marcus: Yes, and I was reasonably articulate. I knew all the buzzwords and I used them carefully. I don't want to sound arrogant about it, but I think that I must've come across pretty well -- within just a few months we had our first contract.

Grad: And, that's when you brought on other people from your contacts at CUC?

Marcus: It was a little while after that. I waited for a while to get some revenue because otherwise we'd have a hell of a cash flow problem if I had to make a payroll. I was very careful about holding onto whatever revenue the company got and banked it.

Grad: Now you had been covered when you were with Sperry Gyroscope as far as your Army Reserve responsibilities were involved. Did that continue at Computer Usage or what happened there?

Marcus: Once I got transferred I never heard from them again until I got the promotion to 1st Lieutenant and then I got a promotion to Captain and that was it.

Grad: Were you continuing correspondence classes or were you doing anything?

Marcus: I did correspondence classes for several years. I don't remember how many, but I did them for several years.

Grad: Did you have to go to drills at all or to meetings or anything?

Marcus: No, no, no.

Grad: And you got promoted and your pay went up? That's terrific.

Marcus: Well I didn't get paid.

Grad: Oh, there was no money involved.

Marcus: No, once you are off active duty, unless you go into the active reserve, you don't get paid.

Grad: So, you're weren't affected by the Vietnam War at any time then, were you?

Marcus: No, I was not.

Grad: Wow, how fortunate.

Marcus: Absolutely.

Grad: Okay, did you get an office for your company? How did you start it up?

Marcus: My office was a folding aluminum table in my bedroom. Why did I need an office? Clients didn't come to me.

Grad: Okay, but how about when you started getting people working for you, did you always work on client premises, how did you operate?

Marcus: What I did was I rented a space, I guess you might call it a loft, in Manhattan on 5th Avenue around 21st Street, which is sort of an industrialized commercial area. It was not air conditioned, had very tall ceilings, needed a paint job; I painted it and got a phone, took the folding aluminum table along with me and a folding chair, and then when I hired other people I got bridge tables and folding chairs, and we worked that way for a while.

Grad: Were these employees or were they working on a consulting basis? What was your deal with them?

Marcus: My deal was they were employees and they had a percentage of the business. I don't remember what the percentages were.

Grad: Name me some of the people who were involved with you then.

Marcus: Sure, a fellow named Ira Slutsky and Serena Meyer and Bob Kirkland. But Bob came on later. Ira and Serena joined me first. I had worked closely with them on the 7740 projects. There were multiple 7740 projects at CUC where I met with them and Ira was the fellow who worked with me in writing that assembly program I told you about over the two days.

Grad: Okay, how big a business did you build over the next couple of years?

Marcus: I don't remember the numbers, but in terms of people I had about six, seven people, and one of the clients we had was a company called Chem Systems. Chem Systems hired us to do some work for them. They were chemical engineering and petroleum engineering consultants. The company was owned by two principals, Dr. Robert Davis and Peter Spitz. Bob and Peter were both pretty well-known in their industry and Bob had a real interest in computers although he didn't know very much about them. But he could see where they were going and we did work for Chem Systems. Bob asked me if I would be willing to fold Realtime Programming into a company he wanted to set up and make me an officer of that company and give us stock and that sort of stuff. And, that's what happened. We called the new company Realtime Systems. Bob Davis was the CEO, I was Vice President of software development. We didn't do any chemical or petroleum consulting work because Chem Systems still did that as an independent company, but Bob had the connections to get laboratory automation work. So, we would write software for laboratory automation like auto-analyzers and gas chromatograph systems and that company did pretty well.

Realtime Systems

Grad: How long were you at Realtime Programming and when did it become Realtime Systems?

Marcus: I really don't remember. It was a long time ago. I would guess probably about two years at Realtime Programming.

Grad: Did you get any cash out of that merger or was this strictly stock in the new company?

Marcus: Well, I got two things. I got stock in the new company and I got a significant increase in pay because my starting salary there was \$24,000, I was not earning \$24,000 at Realtime Programming, so it was \$24,000 and I would be able to stop doing the sales work. I did all the sales work for Realtime Programming, but I never really liked sales work. This way I did the consulting sales when somebody else opened the door and that was much more to my liking.

Grad: Where did you get the financing for Realtime Systems? Did that come from Chem Systems?

Marcus: No, it came from a couple of sources. One was a fairly significant brokerage company called Loeb Rhodes. Loeb Rhodes was a Wall Street brokerage company and investment banker, etc. And because they were a venture firm as well as managing other people's money, they brought in other investors, two of whom I remember: one was the scion of an ex-US president; and the other a scion of the family that owned one of the country's biggest department stores. So, they provided the funding.

Grad: Was that where the bankrolling came for the salary and office space and things that you needed to operate came from?

Marcus: Yes, that's right. When that happened, Bob Davis asked us to move in with them and I said sure and we moved to a nice office space on Lexington Avenue. It was a much nicer office and a much nicer set up. All around it was a very good situation. After being there awhile I hired Peter Quint.

Grad: Oh, he went with you?

Marcus: Yes, yes, and Peggy Gordon, whom I think you knew. What I was doing was managing all software development and I was learning more about different kinds of hardware because they had a hardware group that knew what a gas chromatograph does and how it does it, and auto-analyzers and other laboratory equipment. And those guys would take care of all of the hardware details and they would let us know what had to be done to read the data from those devices, analyze the data and print it in a form that was relatively easy for the laboratory staff to understand.

Grad: Were you working with any standard computers during that point in time?

Marcus: Yes, I don't remember them, but we were working with standard off the shelf minis.

Grad: Okay, like from DEC, I guess...

Marcus: Yes, we had some DEC systems and let's see who was the other one that was aside from DEC?

Grad: Data General, I think, may come in about that point and, maybe a little later, Hewlett-Packard.

Marcus: I worked with Data General later on, but not at that time. There was another manufacturer that was around -- we worked on a Packard Bell computer which had a very interesting architecture because it had what they called magneto-restrictive delay lines for memory. There was another mini manufacturer. It was one of the very large ones. Well it was 40 years ago or something like that.

Grad: So, you're running this software operation and you're getting a nice salary and you're starting to build up a little more staff it sounds like.

Marcus: Yes, and the company was growing.

Grad: Tell me about one or two of the projects that you did during that period.

Marcus: Well, there were multiple projects for the auto-analyzers, different kinds of auto-analyzers, different kinds of gas chromatographs, so there was a difference there. We also did work for Loeb Rhodes and developed an online securities order-matching system for them, which I think was the first full order-matching system in that industry.

Grad: Tell me what order-matching is.

Marcus: Order-matching... well what happens is if somebody wants to sell a security, the seller calls a broker and the broker puts it on his list of things to be sold. Then when somebody or some group of people want to buy that security, this system will match the sell person's and the buying person's orders. That's pretty complex because the conditions under which you do it have to depend on when the order came in and there were rules that the SEC has for the way in which you have to execute a transaction, putting together a buyer and seller. For example, you have to do it in chronological order unless there was a special kind of buy order or a special kind of sell order; this was a very complex system and we developed that for Loeb Rhodes.

Grad: It sounds to me that the application logic was pretty difficult in this. It wasn't so much a systems problem as it was an applications problem; is that correct?

Marcus: Absolutely. Yes, it was.

Grad: And this was certainly a commercial application by any definition I would use.

Marcus: I guess you're right. It was a commercial application, but the reason I didn't think of it as a normal commercial run-of-the-mill application is that with commercial, I think about things like payroll or accounting or that sort of stuff. But this was an online system because it took information in from the stock exchanges and from the offices at Loeb Rhodes in real time.

Grad: Now, you're using online, you're using real-time; how did you differentiate those?

Marcus: Well not all online systems are real-time. Real-time to me is a more restrictive word because all real-time systems are obviously online. This was a real-time system and it had to be because there are SEC rules pertaining to the amount of time a broker has to execute an order. Real-time means that you enter something into a computer and it responds to you within a certain limited amount of time. Nominally it used to be two seconds but it has since gone down significantly. People wouldn't sit still for two-second response times these days.

Grad: Yes. So, online then simply means that you have direct access and that the timing for when the response takes place could be minutes or hours; it doesn't have to be instantaneous.

Marcus: Yes. A good example of that would be a computer system that is logging information from an instrument and doesn't have to respond to that instrument. It just keeps taking in the data; that's an online system. A real-time system is one that has to control or otherwise respond in a given amount of time to those signals.

Grad: Did you have any other unusual projects? That Loeb Rhodes one is a good example. Anything else of that ilk or anything else that's quite different?

Marcus: Let me just think about that for a minute. This was at Realtime Systems and Realtime Programming?

Grad: Yes.

Marcus: No, that's it. There were many other applications, but those are the ones that stick in my mind.

Grad: Was the business successful financially?

Marcus: It ran into financial trouble and Loeb Rhodes sold its interest and the interests of the other investors to Levin-Townsend. Levin-Townsend was a computer leasing company run by Howard Levin and Jim Townsend. In the beginning, things were nice and smooth. Then Levin-Townsend acquired another software company that was primarily in the body shop business. And they wanted us to take on a lot of body shop work which I was not very happy to do. And, aside from that, Howard Levin was a very small man in stature and he was just as small in his ability to manage and interface decently with people; he was just a mean son-of-a-bitch. So, I decided I was going to leave and I did. What happened when I left there is I cashed in my stock because Levin-Townsend was a listed security. So that was a windfall; that was my capital gain.

Grad: When the sale was made to Levin-Townsend you were not blocked from selling your stock? It wasn't restricted stock or anything?

Marcus: It was restricted for a period of time but not very long.

Grad: It sounds like these things happened very quickly, Mike. You formed the company in 1965. You merge it and set up Realtime Systems in 1967, probably. And then somewhere probably in 1968 or 1969 it's sold to Levin-Townsend; is that about right?

Marcus: That's right.

Grad: Okay. When they made the sale to Levin-Townsend, you still had stock in Realtime Systems, I'm assuming.

Marcus: But when the sale was made to Levin-Townsend they bought all the stock of Realtime Systems so I got Levin-Townsend stock.

Grad: So that's how come you had public stock that you could sell.

Marcus: When I left, yes.

Grad: Okay. Do you remember how much money you got for it?

Marcus: I'm ashamed to say I don't. It was a few hundred thousand dollars. I didn't make a lot.

Grad: Okay, but certainly it was more than a kick in the ass. And it was enough to give you a little bit of flexibility.

Marcus: Yes.

Grad: When you left did you had a specific other place to go or did you strike out on your own again?

System Implementation Corp

Marcus: I struck out on my own again and I created System Implementation Corp in 1969. One of the things I did was to go to Loeb Rhodes and ask whether they would give us the rights to sell the Order Matching software as a product to other brokerage companies and they said yes. They got a royalty; it was not big, but they got a royalty. And we built System

Implementation Corp essentially based on that product. We also did other brokerage work. We did some work for the American Stock Exchange. We did some work for other brokers, but most of the work was Order-Match or Order-Match-related for the securities industry.

Grad: Were those custom products or were they really packaged versions of Order-Match?

Marcus: They were neither. I would call them a replicable solution because while each of the brokers had to comply with the SEC rules and regulations, they each had a set of internal processes that they wanted to have accommodated. So, if I remember correctly, we would get three or four bucks of service revenue for every buck of product revenue, and we licensed the product for a hundred thousand dollars.

Grad: So, you would “sell the product” for a price, for a hundred thousand dollars, and then you would pick up another three or four hundred thousand dollars in custom services?

Marcus: Yes, something like that in the beginning, but it changed after the first several customers; I think we had seven customers. After the first couple of customers, what we found was we had to do less and less customization because as we learned more about the way different brokers did things we tried, wherever we could, to generalize the code and make it parameter driven rather than hard coded.

Grad: And what machine were you using doing this?

Marcus: I think it was an IBM System/360. I don't remember what model, but it was a 360.

Grad: And I expect that most of the brokerage houses were using 360s as well. Okay, what was the financing for this company?

Marcus: Initially self-financed but then by Loeb Rhodes.

Grad: Was that just Loeb Rhodes money?

Marcus: It was Loeb Rhodes and the same investors that were in Realtime Systems. Actually, while I was at Realtime, after Levin-Townsend bought the company, Levin fired Bob Davis and I became president of Realtime Systems. And because I was president of Realtime Systems I was fairly much involved with Loeb Rhodes. So, I knew the people at Loeb Rhodes and they knew me so I had no problem talking to the same senior partner at Loeb Rhodes that had put the money into Realtime.

Grad: How much money did they put in? I mean, are we talking a hundred thousand dollars, a million, two million? What kind of money?

Marcus: They put in several hundred thousand dollars.

Grad: They had ownership then, a partial ownership?

Marcus: They had a minority ownership.

Grad: Now, you also brought over some of the people you had worked with before at Realtime Systems?

Marcus: Yes, Ira Slutsky and Serena Meyer.

Grad: Peggy Gordon did not come over with you at that point?

Marcus: No. Peggy joined me in a different corporation later on.

Grad: Did you give them some ownership or were they just employees?

Marcus: No, they got ownership as well.

Grad: Had they made some money previously with the sale of Realtime Systems? I assume so, since they had partial ownership of that as well.

Marcus: Yes, I assume so, but I never asked.

Grad: As an aside, did you do any work for IBM? I know at one point while I was at IBM, we retained you as a consultant to assist us in developing applications software for the brokerage industry, which was one of the industries I had responsibility for. We may have met through ADAPSO where I learned of your brokerage knowledge, and I asked for your advice and consulting help and IBM paid you a consulting fee for that.

Marcus: Well, I remember seeing you at ADAPSO. I remember our talking about your possibly retaining us as consultants, but I don't remember whether you did or didn't.

Grad: My recollection is we did, but IBM was certainly not a significant part of your business I gather.

Marcus: In addition to the brokerage work, we had some other clients, but they were small things. Brokerage was the bread and butter of the business and one of the things that stood us in very good stead was the fact that we licensed the system to ADP.

ADP had a very large business in processing people's work. And they had a cage system. The cage is where brokers hold their securities and they have to track each security. ADP had a cage system and they were developing a new one and we spoke with them about using our Order Matching system and we did license it to them. Let's see, I don't remember all the details of the license but they had a license to use it for a certain number of years. They paid us several hundred thousand dollars to get started. They paid us a significant amount of money to modify the system and interface it with their other systems. And subsequently, many years later, I don't remember how many, their license expired so I contacted them and gave them two options. They could give me back the system or they could pay me what still had to be paid on it. They decided to pay; that was a couple of hundred thousand dollars.

Grad: That's a good story. Incidentally, my guess is you probably negotiated with Gil Mintz at that time at the agency.

Marcus: I did. I met and negotiated with Gil Mintz and with Bruce Anderson. And with Fred Lafer.

Grad: Gil Mintz mentions this in the oral history we have at the Computer History Museum. He mentions setting up the brokerage business and getting this license. But after you licensed them, did you continue to sell to other businesses?

Marcus: Oh, we also did some work for the American Stock Exchange and we did some work for the New York Stock Exchange, I think.

Grad: What kind of work, Mike?

Marcus: Just programming work; small programming projects. I met Armand Keim, a really interesting fellow when he was vice president at the Amex. Armand then moved to ADP and took over management of their brokerage business and so I dealt with Armand again. And Armand and I remained in contact for many years even after we were not doing business any more.

Grad: Okay, so how big a company did this become? Do you remember what revenues were or anything like that?

Marcus: I really don't and, unfortunately, I don't have any of those records any more. At one time when we moved I decided that's it. So, I just got rid of all the records that I didn't need for tax purposes and then I got rid of the tax papers when I could.

Grad: Did you have 10 employees, five employees, 50 employees? How big were you? Do you remember?

Marcus: We probably had about 30 or 35 employees.

Grad: Okay, so it was a good-sized operation that you were managing, Mike.

Marcus: It was, in fact, a good-sized operation and we did pretty well until around 1973; I think that's when we had a real slowdown in the economy and when the brokerage industry was hit pretty hard. As a result of that, I could see that we didn't have the money to keep going and Loeb Rhodes didn't want to put in any more money. So, I spoke with my partners and told them I think we should close this down and tie up all the loose knots. Pay off everybody that we owe and close up the company. And what I'll do with the ongoing projects, is that I'll assign them to you guys. I'll talk to the clients about accepting that assignment; and that's what we did. And so, for example, Serena Meyer got to handle and to work for Loeb Rhodes for many years. Ira did something for one of his clients until he got a job at Citibank. That was a way we did things. And I actually just closed the company. I negotiated with the bank.

Grad: Did you owe money at the end of it?

Marcus: We owed a small amount of money. We paid off all our employees, we paid off all of our vendors and we gave the landlord sufficient notice so that he could re-rent the space. We still owed the bank a small amount of money and we came to an accommodation with them. It was not much at all and I paid that.

Grad: How about the other investors? Are you saying Loeb Rhodes ended up losing the money they had put in?

Marcus: They did reasonably well on the royalties from AutoMatch. Now I don't know whether they shared that with the other two investors but the other two investors were really small minority holders in this company. So, nobody lost much money.

Grad: It sounds like you had very little interest in the financial aspects of these businesses, Mike.

Marcus: I've never really been interested in making a lot of money and now, at 75, I look back on that and say "Marcus, you were stupid." But no, money never drove me. What drove me was to be able to do work that I wanted to do and work with people I wanted to work with.

Grad: My question is a little different one. It's one thing about whether you're driven to make money but whether you paid much attention to the financials. I asked you about the stock ownership. I asked you about the percentages. I asked you about the revenues. I asked you about the profits. These don't seem to have been things that were very important to you compared to the content of the projects you worked on.

Marcus: Well, at the time they were very important to me but I don't remember them.

Grad: I see. But you did manage the financial aspects of it?

Marcus: I managed three areas. I managed the financial aspects of the business and that's why we were in a position when we could forecast and say, we're better off closing this thing than persevering.

Grad: So, you were the financial manager of these businesses?

Marcus: Yes. Although that's not a lot of work for a business that size.

Grad: Thirty to thirty-five people is significant, Mike.

Marcus: Well, I didn't feel that.

Grad: You have payrolls. You have all kinds of other expenses.

Marcus: Yes. Well the payroll got subbed out to somebody and we had an accountant who took care of the books and would talk with me about things I should know about; taxes and whatever.

Grad: Okay. All right, let's move ahead...

Dealing with Contracts

Marcus: Let me talk about lawyers for a moment. When I first started a business, I had a local lawyer; a nice guy, but just not more than a local lawyer. When I started System Implementation Corp I was introduced to a guy who was a senior partner at a major Madison Avenue law firm called Rosenman, Colin, Freund, Lewis & Cohen. Samuel Rosenman had been

an advisor to FDR; that's the level of that company. Andy Schoen was the partner I was introduced to and when I first met Andy and I told him that we were going to do a financial deal with Loeb Rhodes and needed help with it; he said "Why don't you write up exactly how you see the business and what you want and then we'll talk about it." So, I wrote it up. We went in. We talked about it. And then I said, "Well, okay now will you do whatever has to be done?" He said "You know, Mike, you write well enough, you don't have to incur expenses from us. Why don't you write it up? I'll sit with you and we'll edit it. It'll be done and I'll give you whatever advice I have to give you." That's what happened. And I learned a tremendous amount from Andy. And it stood me in good stead throughout my career in negotiating contracts and when I was an arbitrator; it was really good.

Grad: That's a very unusual experience to have with a large law firm that says you don't need us. That is special.

Marcus: Yes. He knew that they would be our attorneys and we would do business with them, but it wouldn't be the level of business that he might otherwise have. And, of course, they had to prepare all the rigorous investment documents because I couldn't do that. But in terms of just about everything else, that's the way it worked. I drafted and he edited and helped me with it. And when I would negotiate contracts, big contracts, he would do the same thing and we became friends. At that time, I was living a block away from him. I had an apartment on 81st Street in Manhattan and he lived on 83rd Street. So, we became pretty friendly and it was a very good relationship.

Grad: So, it sounds like because of the nature of the relationships you had with both Realtime Systems and then later with Systems Implementation Corp that you had to have contracts on all these projects and they had to be pretty carefully drawn.

Marcus: Oh yes.

Grad: Was that your first real experience in doing contract work on your own?

Marcus: Well, remember that when I was in the Army in 1960, I was reporting to Captain Tolman; he was the contracts officers so I had some experience with contracts. What I did learn in my career later on was that there are four kinds of deals. There's private sector, which is the easiest to negotiate. Next in line is federal government, that's next easiest because that's like a kabuki dance; both parties know the rules and they dance around it and you can almost tell what your counterpart was going to be saying. And next are the state governments which are difficult. And then the local governments which are even more difficult. But there are these four levels of contracts and that was my experience.

Grad: Okay, the private sector and then three sectors of government contracts.

Marcus: That's right. And there's a major difference in the kinds of contracts and in the quality of people with whom you're dealing and their motivations between the federal government on the one hand and the state and local governments on the other; that's my experience anyway.

Grad: Why don't you talk about that for a minute?

Marcus: Well, in the private sector, as long as you don't contravene any laws, you can negotiate almost anything you want, and you do. And so, you have a real good horse trading game and it works out usually. In the federal government, you have a very precise set of rules. You know that any RFP or RFQ is going to be given to contractors, would-be contractors or vendors who have theoretically been given all the same information, the same restrictions, and the same requirements that you have been given. And when they write a contract with you, very often they have the right to terminate for convenience. Meaning they can just stop the work, pay you for what's been done and not pay you for the rest. They don't have to finish. You don't get to finish the job. So, when you negotiate that, you better know that the way you structure payments better be front loaded. And you also know that midway into the job, if they cancel the job you better get a clause that says that they will pay for any obligations you undertook that they approved. So, if you're going to be doing work out of town and to save the client money you rent an apartment for two years as opposed to going to a hotel, if they cancel after a year they have to pay that other year. But it's just a different set of rules.

There are also different sets of motivations. In the private sector, people are interested in obviously pleasing their bosses and the people you negotiate with are interested in making money or in some other ways enhancing the business. Federal government employees are interested, I think, primarily in following every bit of the government procurement and contract administration rules. State and local governments are much more interested in what's going to show up in the newspaper that might embarrass them, and that gives you negotiating room when you have a project that runs into trouble. We can talk about some examples later if you want.

Grad: Well, let's stick with this. One thing you haven't mentioned is international contracts. I gather you got involved with them, not in this period of time but somewhat later on.

Marcus: Yes, I was involved in contracts in South America and in Europe.

Grad: And in Asia also?

Marcus: I had one job in Asia, just in Hong Kong. Whether you consider that China or not I don't know, but I did get to negotiate a contract over there and do what I would call a bailout over there. We can talk about that later if you like.

Grad: I think that's fine. Were the international contracts primarily with government agencies rather than with private organizations?

Marcus: Let me think about that for a moment. Yes. Or they were with large utilities. Let's put it this way, there is sort of an intermediate step that is not quite private but isn't government; it's private that is subject to a regulatory commission like a telephone company or an electric company or a gas company or cable company. They could be a separate category, I guess, but I usually use it as a subcategory of the private sector. And when you're dealing with the companies that are regulated, you have some of the governmental restrictions because things should go out to bid and all the vendors should be treated the same way, et cetera, et cetera. So, there's some of that, but you do have the ability to negotiate all kinds of other things you want, licensing and things like that.

Grad: We're going to come back to contracts later because that becomes a significant part of your role later on, but this was clearly the period of time when you became reasonably proficient at writing and making sure the contracts are doing what you want them to. Is that right?

Marcus: Yes, and I had a lot of experience writing proposals, which is sort of the flipside of the contracts.

Grad: Okay. You closed down System Implementation Corp in 1974; now what do you do next?

Becoming an Independent Consultant

Marcus: Well, I didn't want to have responsibility for a company any more. I didn't want responsibility for payroll and I believed that I could make a good living as a consultant, just with the people that I had already met, so I wouldn't have to worry very much about cold-calling and I wouldn't have to do sales work. So, I decided to be a consultant and I did that for a long time. I did that for, oh I don't know, 11, 12 years and then later when I retired, I went back to doing that.

Grad: So now you're out of System Implementation; do you remember what some of your first assignments were as a consultant?

Marcus: Yes. The first assignment was for Lockheed. A fellow I had met before was a high-level manager. And he had a lot of software that was pretty old, assembly language software, and not documented. And he was really worried about that, and rightly so. He asked if we could document the software. And I said, "Well, what do you mean?" He said, "Can you read the listings because we don't have those programmers around? Can you read the listings and from that, give us program documentation, system documentation, and user documentation?" I

said, "Yes, sure. I'll try." And we did that on a T & M [Time and Materials] basis. We did a lot of that type of work for a while on that worked pretty well. And then we got a couple of other contracts from other companies to do that same sort of thing. At that time, I felt secure enough to say, "We're going to bid this fixed price, a buck a line, a dollar for every line of assembly language code, including comments and everything else in a listing." And we made money on that. We had a couple of projects like that.

Grad: You say we. Who's we?

Marcus: George Trimble, a fellow named Kurt Stephens who worked part time, and we retained other people. I think Serena Myer did some of that work also because she was doing consulting work at that time mostly for ADP.

Grad: These were not employees. You had them on a consulting basis, is that correct?

Marcus: That's right. And what may be significant about this for future discussion, is this is the first time I worked with George Trimble, with both of us as independent consultants. The deal that I struck with George is whoever sells the project gets 10% of the revenue. The rest of the revenue goes for the people working on the project. So, for example, if I sold the project, and George did several thousand dollars' worth of work, I would get ten percent of that. He'd get the remainder. And that ten percent was because we had an office and I was on the hook for that. That relationship with George Trimble worked for thirty years. When he brought in consulting jobs, I worked for him on them. When I brought in jobs, he worked for me. And it was just a great relationship, a great personal relationship. In all those years, we never had an argument about a nickel or a dime.

Grad: Did you apply this same thing to other people? Or was this just a thing that you did with George?

Marcus: I did this just with George.

Grad: How about the other people you used on these projects?

Marcus: They also gave me or George 10%.

Grad: So basically, you marked their time up by the proper percentage so that you'd have 10% clear?

Marcus: Well, I had 10% of the revenue. And, out of that 10%, I had to pay our company's expenses.

Grad: Yes, but my point is these are mostly T and M, time and materials, contracts, is that correct?

Marcus: There were some that were not, where we took a risk.

Grad: When you took a risk, you bid a fixed price. Did you pay Serena or the others who were working for you on an hourly basis? Or did you give them a piece of the contract?

Marcus: I think we paid them on an hourly basis in almost all cases. But, sometimes we did it on a job basis.

Grad: So, in these cases, you took the risk.

Marcus: Later on, we did a very interesting set of jobs for the newspaper industry where George and I worked together. I was the project manager and George was the chief architect. We very seldom disagreed on the strategy for a project, or anything else. But, if there was a disagreement, in general, the guy who brought the job in got to call the shots.

Grad: When were you doing this?

Marcus: Well, in 1975, George brought in the job for Rohr Industries, so he kept 10% of the billing.

Grad: Okay. Now, did you bill the project and pay George? Or, would George bill the projects he sold and pay you?

Marcus: Whoever brought the job in usually billed the project.

Grad: Fair enough. Okay, let's talk about some of the more interesting projects you had while you were an independent consultant.

Marcus: Well, the project for Rohr was quite interesting. It was a high performance personal rapid transit system in which a city would lay out a grid of track. I'll use the word track. By that I mean elevated structure. But it wasn't railroad track. It was the kind of guideway that you see like at the Orlando airport and some other airports. The cars were magnetically levitated and driven. The purpose of the project was to enable a traveler who wanted to go from point A to point B to go to his nearest station, key in where he wanted to go, the number of passengers in his party, and the system would dispatch a magnetically levitated car to him. That might not be on an exclusive basis because if the system thought that there were other people going in that same general direction, it might do multiple drop offs and multiple pick-ups. But it was a personal system as opposed to a public system that ran on routes. The technology was

very complex. Magnetic levitation was something pretty new at the time. And the problems involved in doing the routing and trying to make sure that everything was absolutely fail safe was very complex.

For example, if there's an emergency, you have two different conditions under which to stop a car. One is when it's fully loaded going uphill against the wind, the other is when it's lightly loaded going downhill with the wind behind it: it was that sort of thing because if you stop the car too suddenly, you could seriously injure people. To get an understanding of how to do that, Rohr brought in railroad consultants because the railroad industry is very big on fail-safe mechanisms. So, they handled that. They did the specs for the fail-safe considerations. Rohr's engineers did the magnetic levitation and propulsion. George and I did the analysis and the design of the central system, and communicated with all the kiosks at the stations and with each of the vehicles to route the vehicles. It was a very interesting job. George and I were in San Diego for many, many months working on that one.

Grad: And did they implement any of this?

Marcus: No. They couldn't get the money to implement it.

Grad: That was certainly an intellectually exciting project as well as what it might have done for transportation in the various cities.

Marcus: Yes, absolutely.

Grad: Okay. How about some of the other early projects that you worked on?

Marcus: The next job I worked on was also something George brought in. A large system integrator defense contractor had a project to automate the filings of general aviation, meaning not for commercial airliners, but for private pilots for general aviation flight plans. That job ran into some problems and they wanted to bring in some additional people. So, they retained George to handle it, along with me. And I think Serena worked on that one also, where we did the technical work. And I did some managerial work on that as well. They had a project director who was a very bright guy, but he didn't have a lot of experience in large systems. I worked pretty closely with him, and that worked out quite well. And just about this time, I think I did some work for you, Burt

Grad: You did. You had a police command and dispatch project you had also?

Marcus: Yes, it was 1976. That was an interesting deal. A large defense contractor and system integrator in Texas got a contract from a company called Berlinger Electronics in Argentina. Berlinger was the prime contractor, but they subbed the whole thing out as a turnkey

system to this defense contractor and system integrator. The system was for a police command and dispatch system. At this time, this was for the Federal District of Argentina, which is Buenos Aires and the surrounding territories, a very large area, and for the cities of Cordoba and Rosario; so, they were going to have three systems.

At that time, Argentina was going through a lot of political and economic upheaval, which is not unusual for that country. And they were having some terrorist problems as well. What they wanted was a system for being able to track two kinds of vehicles: all of their police cars and other police vehicles, and VIP cars, namely very important people who might be kidnapped because there was a fair amount of kidnapping going on. At that time, before GPS, there were transponders located on lampposts throughout the city. And when a police car got in range, those transponders would send a signal to the system telling it which car were where. The dispatcher then had the ability to send the nearest or best suited vehicle to wherever it had to go. It also tracked the VIP vehicles.

The project had been running for a while and when it ran into some problems, George and I went to Texas. He took over the technical stuff and I did the project management work. I also did some of the technical work relating to the project management. For example, I worked on setting up what acceptance tests would look like because when we got down to Texas we found a team of the contractor's people plus two Argentines who were employees of Berlinger who were there to do two things. They were there to monitor the work, and also to contribute technically because they were both strong technical people. And that's the first police and command dispatch system I ever worked on. And I learned a fair amount about the rules and the processes for dispatching emergency vehicles. It seems to be basically the same in the couple of applications that I've seen since then.

If any of these jobs had problems, our job was to help get them back on track; each required sixty hours a week or more. If the projects were out of town, you didn't get home for the weekends. And that's the way it was on these jobs in Texas and with Rohr in California and in a number of other locations. Initially the relationship with the two Argentines was not a good one. They had very little respect for consultants and not a hell of a lot of respect for guys who wore suits. The first couple of days we showed up, we were wearing suits. But I spoke to one of the people there and said, "Look, we don't know where the hell this project stands. Why don't we write a series of acceptance tasks for each deliverable? And then we'll have some idea of where things are." And she said, "That's a good idea." I said, "Well, all right, fine. Let's get started." And she said, "Well, are you working this weekend?" I said, "Yes. But if I work on Saturday, I always listen to the opera that gets broadcast from New York." That changed the relationship. She was an opera lover. We worked on that system for several months. And when the system got shipped, the two Argentines went home.

Grad: This work was all done in Texas then?

Marcus: All the work for Rohr was in California. All the work for the Texas general aviation and police command and dispatch systems was done in Texas.

Grad: I see. Okay. So, you're spending a lot of time away from home base in New York?

Marcus: Yes, I would get home sometimes every week and sometimes every other week. It depended. I tried not to let more than two weeks go by.

Grad: You had three children by that point in time?

Marcus: Yes. But they were not babies anymore.

Mergenthaler Linotype Co.

Grad: When did you do the Mergenthaler project?

Marcus: It started in 1976 and lasted until 1981. To make a long story short, I got a call from Mergenthaler who initially retained us to do documentation for some existing small systems. Mergenthaler Linotype Company was in the business of manufacturing Linotype machines.

While we were doing that job, Mergenthaler had developed two very large, very sophisticated electronic typesetters. What the electronic typesetter did was to replace the manual setting of type, which is a very personnel-related project and very expensive. So, they had developed these machines which would do the typesetting. Somebody could sit at the keyboard and type in a story. The machine would compose the story and put it on a photo-engraved plate. That plate could then be used to drive the photo typesetter. Prior to their large typesetters, they sold mostly small typesetting systems to small printing companies. Now, they had an opportunity to sell a system to the New York Daily News, but they didn't feel they had anybody to run the project and they asked me if I'd be interested in doing that. I said sure. I knew something about typesetting because at Brooklyn Technical High School, one of the courses I took was typesetting. We actually learned how to set type. And we learned what a galley is (the galley is where they lay out each letter of type). So, I took that job on.

The first thing that had to be done was to negotiate the deal with the New York Daily News. They were halfway into negotiation, but they wanted the project manager to participate in all the operational aspects. So, I did that. And then, when the project came in, they asked if I would run it. I said sure. And then they asked if I would staff it. I said okay. I started to hire some of the people that I had worked with before. First was George Trimble. We worked out on Long Island at the place where Mergenthaler's engineering department was located. Then, when the project

really got underway, we took space in midtown Manhattan just three or four blocks from the Daily News.

The system we were developing was going to be all inclusive. It was going to handle the three main non-business aspects of the newspaper business, namely all the operational aspects: the editorial, including getting in editorial matter and stories; the classified aspects, getting all the classified advertising in there. So, you could have order takers or ad takers on the telephone who could type in a classified ad that a caller wanted and price it right then and there. And if that was accepted, it went directly into the system. The third element was to send things off to a typesetter. In between, the system did a certain amount of page make up, which is to locate the stories and the display advertising.

Under the advertising system, we had a sort of a subsystem for classified advertising. This was the early days, really early days of graphics. And what we had were self-manufactured graphics terminals. Mergenthaler manufactured its own editorial and other terminals. It had a tracker ball; with this tracker ball, they could draw designs and that sort of thing. What the production system did was a good deal of the page make up to pull all these things together. The way they do the newspaper business, classified ads goes in one section. The remainder of the paper is essentially for news unless it's a special section. But what happens is the first thing that gets placed is the display advertising because that gets placed in prominent places. And what's left over is called the news hole. And you have to lay out the stories into the news hole which is the space that's left. This was the system.

It was a fixed price system for several million dollars and George and I got started. We hired and staffed the team. We set up three programming analysis groups, one for editorial, one for classified, and one for production, and started to staff them. I hired Peggy Gordon and Phyllis Hershon, both of whom had worked at Realtime. And I also hired a fellow named David Sherdell who had been an independent contractor, and actually the lead technical person on our Pictureware system. So, we had a very strong team to begin. When we took the space in Manhattan, Mergenthaler told us that they wanted to sell the system to lots of companies, and we better get a fair amount of space. And so, we did. We got offices between 22nd or 23rd Streets on Park Avenue South; although it was a not a fancy area, we started to set up there. Mergenthaler, of course, paid all the office expenses. The deal with Mergenthaler for George and me for these jobs and we were free to do anything else we wanted if it didn't compete. But we had our jobs to do. And they paid us by the month, so, we had a regular income.

Grad: Do you remember how much they were paying you?

Marcus: I really don't remember, but it was at very good rates. And, as I said, we also had the ability, if there was time, to do other work; which we did. The news job was a very interesting one. I went into it with a certain amount of misgivings because I was told that the guy who was going to negotiate for the News was a very, very tough character. In fact, he was the guy who

negotiated labor contracts. And the labor relations in that industry were not good at all. He was the guy who was going to be responsible for the systems installation and implementation. He was the real client at the News. My client was Paul Huber, the CEO at Mergenthaler.

We negotiated the contract and we got started. Things went smoothly for a while. But then we had problems with the News because some of their people and some of the Mergenthaler people didn't get along very well. And that was because, I think, the News was a very political organization, but I'm not sure. In any event, we were having some problems with the News project director. I was the project director for Mergenthaler, but also, I had sort of a sub-project director for the system. The CEO of Mergenthaler insisted on this and I reported to him. He insisted that I hire a full-time deputy project administrator or whatever you want to call him. I was able to get a lot of administrative things assigned to him.

The fellow that I dealt with at the News was named Alan Flaherty, a very, very bright guy. I found him to be quite reasonable and he and I got along very well. In fact, we would have weekly meetings of the staff where we were having the two sides battle across the table. So, Alan and I had to adjudicate right then and there. Alan suggested that he and I get together at his apartment for breakfast each morning before each of these staff meetings. And we did. We knew what was coming up because we set the agenda. And he and I decided at breakfast what we wanted to do at the meeting, unless something happened at the meeting changed our minds. And that's how the meetings got run and it turned out to be quite a success.

Mergenthaler subsequently sold systems in Australia and in England. I did a fair amount of work there because the CEO of Mergenthaler, asked if I would set up a division for large systems. I did that and the group that was in place became their large systems division. George and I and the other guys remained as independent consultants on 1099s for a time. And it worked out very well.

The Australian jobs brought with it a whole series of different challenges because, among other things, they had fifty cycle, two twenty electricity down there. And we have sixty cycle, one twenty electricity in the US. You can step down two twenty, but you can't do anything about the cycles on which a motor runs, as far as I know. At least that's what the electric company told us. So, we had to buy and install motor generators where we would have electric motors drive generators that would produce two twenty volts, fifty cycles. And we had other issues working with the Australian projects.

Grad: Mike, we have run out of time for this session, but we will continue this at a later date. Thank you very much.

[Interview continued on August 14, 2013]

Grad: This is a continuation of the oral history interview of Mike Marcus. Today's date is Wednesday, the 14th of August 2013. Mike is in Cocoa Beach, Florida and I'm still in Lee, Massachusetts. We will pick up where we left off after the end of the first part of the interview.

Mike, you were just saying as we got on the phone that you've been in 21 countries and worked in 14 of them.

Marcus: Well, some of that work was sort of short term, but others were much, much longer and required lots of on-site visits.

Grad: Let's continue discussing the project you did with Mergenthaler. That was a long-term project. It involved some very exciting things. So why don't you go ahead with that.

Marcus: Well, you remember that project lasted from 1976 to 1981. And when I worked there I was an independent consultant still running the project for the New York Daily News. Mergenthaler had decided it was going to try to make that into essentially a product and asked me if I would form a division and run that division. I was willing to do that, but I didn't want to give up the 1099 status I had. I wanted to remain independent and they agreed. So, to all intents and purposes I was in fact a vice president and I think most people at Mergenthaler thought I was a vice president and running the large system business for Mergenthaler. We actually sold that system, which was named the 5500, to an Orange County paper in California, and a number of other papers including two of them in Phoenix, Arizona, and there were several others here in the U.S. We also sold two systems in Australia, one for the Melbourne Herald and the other for the Adelaide Advertiser.

Before this, I had done some traveling, but not a hell of a lot for work. All of the travel I did before was in North America. And although I was away from home a fair amount, I usually got home every weekend or at worst every other weekend. And the trips were relatively short. The longest trip was to California. But with the advent of this new division and with Mergenthaler having a worldwide presence, I started traveling to Australia, to the U.K., to South America and so on. And I was away from home a lot more.

Grad: Let me ask you a question there, were those trips all for Mergenthaler? Or were they for other projects you were doing?

Marcus: My deal with Mergenthaler was that I was not going to be paid by the hour. I was going to be paid by the month, a fixed amount each month, and I had to do whatever had to be done to run that division. I was free to do anything else I wanted to as long as it was noncompetitive and didn't unduly interfere with Mergenthaler. And the truth of the matter was I wound up working the usual 12 to 14-hour days, 6 days, sometimes 7 days a week. But I did fit in time to do some very short-term things like be an arbitrator for the American Arbitration

Association and to run seminars for the University of Chicago and for NYU in project management for computer systems. But basically, I was dedicated to Mergenthaler during that period.

Grad: What are some of the highlights of that experience?

Marcus: Well, one was that the sheer size of those projects was larger than anything I had previously managed, because we're talking about projects of several million dollars each, fixed price and total turnkey, including hardware, software, training, subsequent maintenance and warranties, et cetera. So, that was a basic element. In addition, this was the first time I was managing a large organization because I had to build that organization as opposed to managing either a small company or a project. And although I did some system integration work when I was at Realtime with the auto analyzers and laboratory automation equipment and some system integration when I was a programmer at Sperry; this was a totally different ballgame because Mergenthaler manufactured all of its own hardware, other than the commercial minicomputer systems. They manufactured their own terminals. They manufactured the typesetters. They manufactured the interfaces. They designed fonts and copyrighted them. It was a total system integration job. So that was really a broadening of my experience.

Grad: Did you enjoy that?

Marcus: Oh yes, I certainly did. I think I mentioned that I was the leader of that group responsible for the management. I think I told you that George Trimble was the system architect. And I hired people for that job that I had worked with before like Peggy Gordon and Phyllis Shershon. Throughout my career I have tried to stay in touch with people I'd worked with for whom I had a lot of respect. And when there was an opportunity to hire I tried to hire those people again and I did.

Grad: That sounds like a very straight, long ongoing relationships with a lot of those people.

Marcus: Yes. And I kept those relationships until some of those people died like Peter Quint, I think mentioned him previously, and George Trimble and Peggy Gordon also.

Grad: Tell me from a technical standpoint or a computer standpoint, were there any special or unusual things you had to do as part of the Mergenthaler project?

Marcus: The Mergenthaler project was also unique in that I had to set up a facility in Manhattan near the News I think I mentioned that. And I learned an awful lot about environment, floor loading, air conditioning. And let me admit to an oversight on my part, which was sort of amusing in retrospect. The Mergenthaler typesetter machines were very delicate large units.

And we had to ship them from the plant out on Long Island to our office and what we found to my dismay was they would not fit in the freight elevator. And I think we were on the eighth floor. So, I talked with the building people and they said, "In that case" -- and this was not a new building—this was an old loft type building--. What they said was, "Well we can take the windows out and it will fit through the window, but then it's your problem. You have to hire a crane." So, I went and hired a crane but the crane company said, "Yes, but before you do that we need the New York City Police Department to give us the okay to close down I think it would be 33rd Street between Park Avenue South and Lexington Avenue." Okay, I said, but what about the fact that these are very, very fragile, expensive, hundreds of thousands of dollars machines. And they said, "Well, you know, we'll do our best." <laughs> What choice did I have? Because the idea was to get these machines shipped to our location before shipping them to the News. And with the Australian jobs we had them ship them to our location where an Australian team would be working with us so they would have access to the machines and learn how to help us maintain them.

So that's what we did. They closed 33rd Street. And the crane lifted those typesetters, swung them through the window. It was interesting to watch them swing in the air, not much, but enough to give me sort of palpitations. And they set them down very gently on the floor at our facility where we hooked them up to the power that came out of the walls. And for the Australian systems I think I mentioned that we had to put in motor generators because they're 50-cycle and we did that. That was an interesting thing about the environment.

Grad: I'm going to back to the other thing on the technologies. Were there different kinds of problems, different kinds of tools, different things you had to develop in order to make the systems work?

Marcus: George developed one of the very first client server systems. What we had was a failover system which means that if any one unit failed another one took over immediately without loss of data. We had three or four machines dedicated to editorial work, three or four machines dedicated to classified advertising, a couple of machines dedicated to driving the typesetters, and two machines dedicated as file servers.

Grad: When you speak of machines, what do you mean by machines?

Marcus: We're talking about large minicomputers.

Grad: And was there a particular brand?

Marcus: I think they were HP. I don't exactly remember. But Mergenthaler developed all of its own terminals. They were green screen terminals because this was really before the advent of PC's for use as terminals. So that was essentially new technology.

Grad: Were they essentially dumb terminals, then? Were they just simply interfaces built into the mini?

Marcus: No. What happened was the computers communicated with what we called a concentrator. The concentrator had all of the logic and so the terminals were therefore dumb. But the main logic driving the terminals was in the concentrator which Mergenthaler built as opposed to the large mini.

Grad: That's interesting. So instead of buying a mini for somebody to use for that function, they effectively built their own minicomputer?

Marcus: Yes, I think they did.

Grad: Fascinating. Anything else about the Mergenthaler project, because that was obviously a significant part of your life for five years?

Marcus: Oh yes, there was another significant thing. I had mentioned that Phyllis Shershon and Peggy Gordon worked at Mergenthaler. And as I was setting up this group, sometime in mid-1977, I got a call from that Argentine woman that I had worked with on the police command and dispatch system. At that time, both the economic and political situation in Argentina was really pretty bad. She was a college graduate computer person looking for a job and thought that I might have a contact to give her a hand to move to the U.S. and work here. I was delighted. I hired her at Mergenthaler after she got clearance for a green card. This was mid-1977 and she came to the U.S. in 1978. And she and I were married in 1984. And her name is Alejandrina Pattin. And Alejandrina and I worked on several jobs after that.

Grad: Anything else? Let's see, Mergenthaler lasted five years. Why did you end the relationship there?

Marcus: Why did I leave Mergenthaler? It was the management. What happened was Mergenthaler was owned by a holding company that also owned a sneaker manufacturer and some other companies and they sold Mergenthaler to Eltra. The new people didn't get along very well with the Mergenthaler CEO so he got replaced. And then other managers got replaced. And I figured, I think that this is about it for me so I left there.

That was in 1981. And I had also had enough and more than enough of managing large groups. At least for a while, I didn't want to be responsible for large projects. I wanted to work on projects, but on smaller ones. It would be almost a vacation for me.

Grad: Let's go back. So, they didn't say you're gone or we can't handle it this way. It was based on a decision on your part to leave, then.

Marcus: I think in all of my career there was only one instance where I was sufficiently unhappy, and the person I reported to was sufficiently unhappy, that we really decided on an amicable basis to part ways and I left.

Grad: Okay. Let's finish up this period. Now, we're dealing with a period of 1974 to 1985 when you operated as an independent consultant. Your largest single project in the first five years or so until 1981 was certainly the Mergenthaler project. What are some of the other things you worked on?

Independent Consultant Projects

Marcus: There was one other project that I did in that time that you might find interesting. It was for a company called Gilbarco. That was the Gilbert and Barker Company that manufactured gasoline pumps. I and one other person were retained to do a study because this was the time at which gasoline prices went up significantly and prior to that a lot of gasoline pumps didn't have room for anything above \$.99/gallon. So, they were interested in doing two things. First, in redesigning their pumps to be able to handle 3 digit prices per gallon. And secondly, they also wanted to start to develop the business that we now know of as convenience stores as part of gasoline stations. That was a very interesting job because I had no idea of the technology behind the gasoline pump, but when I got involved, I found it fascinating. I learned, for example, about the fail-safe mechanisms in them. And also, about the fact that there's a significant temperature difference between the gasoline down in the ground and when it's pumped into your car. The gas pumps know the difference and they've got to account for that. And they adjust the volume of gasoline you're getting using that differential because the volume changes a bit.

Grad: What kind of computers were you using?

Marcus: That was really a study contract, a design contract, in which we were responsible for laying out the control of the cash register in the convenience center. It had to be a total minicomputer sales system because it did some inventory and that sort of stuff, but also controlled all of the gasoline pumps.

Grad: Well, those kinds of systems are still in use today.

Marcus: Absolutely.

Grad: You did not have implementation responsibility there?

Marcus: No.

Grad: You had a strictly design contract?

Marcus: No. That was a consulting job. What happened after Mergenthaler was I took on mostly consulting jobs as opposed to managing projects and managing a lot of people.

Grad: And why was that?

Marcus: I think I was close to burned out from the travel on the large projects, from the stress -- and the enjoyment actually too -- of negotiating these large projects, almost all of which were System Integration, fixed price, some with penalty clauses. I felt that it would be sort of a semi-vacation to just do some independent consulting, which I did.

Grad: Let me ask you a question here, on the work with Mergenthaler, were you responsible for writing the contracts in any way?

Marcus: Oh yes. I helped negotiate the contract with the NY Daily News. And I was deeply involved in the contracts with the Australians. There's sort of a funny story if you want to hear it. The Mergenthaler operation was split so that a lot of the development was in the U.S. But the head of engineering was in the U.K. where he was responsible for some of the development of the computer systems, including all of the software. So, when we went to negotiate the contract with the Australians, that negotiation took place in the U.K., I think in Cheltenham, and it was not going smoothly. The Brits and the Australians just didn't hit it off well. And when you go into a negotiation, you make so much more progress when there's good personal rapport. You argue like hell about the substantive business issues. But we had some personnel problems between the Brits and the Australians.

So, one day during a break, I went off with this VP who was head of engineering and we talked about it and I said, "Look, here's what they want. It's not a big deal if we give this to them and we get in exchange whatever we want." And he said, "No, those guys just don't understand." I said, "Joe, they understand better than you think, but their understanding is probably based upon a different set of assumptions. And their feeling is that you're looking down on them." And he got angry and his comment was, "Absolutely not. I'm not looking down on those..." I won't use the word, "...on those 'bleep' convicts." I said, "QED."

Grad: <laughs> That's an interesting story. Now, also during that period I believe you worked with me at Burton Grad Associates on some projects.

Marcus: That started in 1981 after Mergenthaler. I worked with you and I learned a fair amount about the finances of software companies and about the valuation of software companies. It was an interesting time.

Grad: You were helping with the due diligence studies on a number of these projects.

Marcus: Yes. And the portion of the due diligence that I worked on was the operational side of the software companies. I can't remember whether it was services or product companies.

Grad: It was both. And you were involved in a number of the studies for Sterling Software as I recall. And then you got involved with AGS, if I remember correctly.

Marcus: That's right. When I started working with you and it looked like it was going to be on a reasonably long-term basis, I was living in Manhattan. And decided to move out to Westchester County near where you had your office and we worked out of there.

One of the jobs that came up was a job for Atlantic Software. Atlantic Software was in the business of providing a mainframe project management system and a paper-based project development methodology. After I went to do consulting there, my job was to manage the development work both on the software and the methodology. Shortly after I went there, Atlantic Software was bought by AGS Information Services. And it was merged with what had previously been a competitor in the project management business that was run by a fellow named Joe Herberts. Atlantic Software had been run by Dick Thatcher. I had met Dick briefly at ADAPSO meetings but didn't know him very well. Atlantic Software was located in King of Prussia, Pennsylvania near Valley Forge and I commuted some of the time, but I stayed in Pennsylvania some of the time. When I commuted it was on Amtrak, a long commute but it was profitable in terms of getting work done. So, I was there essentially as a vice president for a couple of years. And after AGS had bought the company, Dick Thatcher had an opportunity to move up because AGS IS was on an acquisition binge and they could use somebody to do the merger and acquisition part. So, Dick became an officer of AGS IS and left AGS Management Systems and Joe Herberts took that over and I then reported to Joe. This was only the second time in my career that I left because the relationship was not that good. Joe and I had very different concepts of management.

Grad: Were the issues on a technology basis on how project management should be done or how you worked with him?

Marcus: It was his philosophy. For example, my view was that if you have a group that is responsible for development of a particular product or a system, you give that group all of the resources you can afford. Joe's was different. He would sometimes split the resources and set up two competing group that didn't talk to one another, couldn't even know what the other one was doing.

Grad: Why did he do that?

Marcus: I don't know. But that, in fact, is what he did. And I just found that unworkable.

Grad: But were you still operating as a 1099 independent consultant or were you an employee?

Marcus: No, I was a 1099.

Grad: Do you remember any other projects that were really significant during that period before 1985?

Marcus: No. I think we've covered all of the significant ones. I think I mentioned that I did arbitration already.

Arbitration Assignments

Grad: Let's talk about that. How did you decide to do that and how did you qualify? And then what kind of things did you do? That's an interesting sideline.

Marcus: A friend of mine was an attorney and he was also an arbitrator. I think we discussed what the arbitration concept is, didn't we?

Grad: No, we did not. Go ahead.

Marcus: Well, there are a number of ways to resolve a dispute. The simplest, of course, is that the two parties can come to an agreement. If they can't come to an agreement, then you have a real dispute. There are three basic ways to go about solving that. One is mediation. In mediation, you hire a professional mediator. What that mediator does is talk with each side to learn what the goals are of each side and what the gripes are of each side and he tries to find common ground. And he -- I'm going to say he, I'm using it for he and she -- tries to recommend to each party, privately, as give and take opportunities. And when he feels that there is enough to talk about, he'll bring the two parties together and say, party A might agree to thus and such if party B agrees to A and B and sometimes that works, and works well. That is the least expensive means of this kind of resolution. But the mediator has no power to impose his view. He's a facilitator. That's all he is. The results of mediation are private.

The next step is arbitration and the third is litigation. The difference between arbitration and litigation is that arbitration is, number one, less formal although there is a process. Arbitration is private; the results of an arbitration are not made public, but the results of litigation are. So, if one or both parties would like to keep this dispute out of the headlines or out of public knowledge, they have to stay out of litigation usually. And they might go to arbitration.

Grad: Now, is arbitration an appealable decision? Or is that a decision they have to live with if they agree to use it?

Marcus: Arbitration is a decision they must live with. It is non-appealable except in very rare circumstances. And those circumstances are that it can be shown that one of the parties did not have an opportunity to present his case or that the arbitrator or arbitrators were biased. There's one other case, if the arbitrator exceeds the bounds in the arbitration agreement. So, when you go to arbitration, you specify what the problem is and the arbitrator must make a decision based upon that problem or that series of problems and nothing else.

Grad: Okay, now how did you qualify to become an arbitrator?

Marcus: Well, I have this friend who's an attorney who was an arbitrator. And he said, "You know, they're looking for guys who know the computer industry but are not attorneys," because, at that time, most attorneys didn't know anything about computers or computer systems. So, I called the American Arbitration Association and said, "I might be able to do some of that. Are you interested?" And they said, "Well, come in and talk to us." And I did. And they said, "Yes, absolutely." They told me what's involved. They told me what the process is. Basically, the process is there's a means of selecting arbitrators. It can be either that the American Arbitration Association appoints an arbitrator or that the two parties each has an opportunity to name one of three arbitrators. And those two arbitrators select the third who would be the chairman.

Grad: My question was a little different. Did you have to go through any special training?

Marcus: Surprisingly, very little. I just had to learn what the rules are of arbitration. They've got fairly stringent rules. I think it may be different now, I'm not sure. There are fairly stringent rules and guidelines as to what you can do. For example, arbitrators are to hand down a decision in writing and specify only the finding, which is what the result is, and not the reasoning. This is unlike a judge who often puts in a lot about the reasoning; the arbitrator or arbitrators are both judge and jury.

Grad: I remember when I went through a course to become a mediator. And it was, I don't know, two or three days plus some study work in order to qualify to be appointed as a mediator. Although I never was appointed, I did do some work like that. I was just wondering if the arbitrator had a similar kind of formal training program.

Marcus: No, I think I may have been in that same group with you taking that mediation course. It was a fairly small group. And I think Milt Wessel had a hand in setting that up.

Grad: Exactly.

Marcus: Yes, so we were probably in the same thing. So, I did train to be a mediator.

Grad: Okay, did you have many cases where you served as an arbitrator?

Marcus: Yes, I had several cases in which I was one of a three-person panel. And I had one case where I was the sole arbitrator.

Grad: Can you talk about any? Or are they confidential?

Marcus: Well, if I don't name the names there's no problem about it.

I'll give you an example. There was one case in which a software company and a garment manufacturer in New York had a dispute for several hundred thousand dollars in which it was claimed that the computer company didn't do what it should have done. And the computer company claimed that the client didn't do what it should have done and didn't pay its bills. That panel was run by a lawyer. There were two other arbitrators, myself and one other person. One day we made a finding: we found in favor of the computer company. So, the manufacturer had to pay the computer company. Several months later, I was working in Manhattan and walking down the street -- like 37th Street or something like that. As I'm walking toward somebody, talking with a friend as I walk down the street, I saw somebody walking toward me and gesticulating. And when he got up to me he started to shout and curse. And for a moment I didn't recognize him so I must have looked pretty dumbstruck. And he said, "You bastard. You don't remember. You cost me a couple of hundred thousand dollars." He was the president of that clothing manufacturer.

Grad: He didn't threaten you with goons or anything like that though?

Marcus: No. No. He was sort of an excitable guy. I had one other situation in which I had an excitable guy. This was where I was a loan arbitrator. There was a dispute between an employer and an employee. The employer claimed that the employee was fired for incompetence, while the employee claimed that he was fired for no reason and wasn't paid for work. I don't remember all the details. I didn't think the employee had a case so I may have said something that indicated that I didn't think he was owed anything. And he was there with his lawyer and there was another lawyer there who a representative of the company, sitting at the head of the table. The guy then got red in the face. He stood up. He leaned over. And he started to threaten me and shout, "I'm going to kill you etc., etc., etc." His lawyer and then the other lawyer came around to the other side of the table to sort of physically sit him down. That was a little scary. One doesn't usually expect that kind of thing.

I had another case that was very interesting. This was in Cincinnati. There was a dispute between a hospital and a computer company. The terms of that arbitration agreement were that one arbitrator had to be a hospital administrator, one had to be very familiar with the computer business, and the chairman had to be a lawyer. And I found that format very useful because when the three arbitrators go and discuss the matter, there was a representative who could tell the others about the real problems on the side of the guy that named him as their arbitrator. Now each of the arbitrators is supposed to be independent anyway. But I found this a very useful forum in this case, because it was a really complex case.

Grad: Do you find, though, that if the lawyer is the chairman, that he sort of dominates the discussion and the conclusions?

Marcus: No, it doesn't. I didn't find that it dominated, but it helped to guide it because, not being a lawyer, I would get advice as to what the law was relative to certain things. And you know I don't profess to be an attorney.

Teaching Experiences

Grad: That's an interesting distinction. All right, let me go to another one of your experiences. You said you also had done some teaching, some seminars and so forth in Chicago and New York. Tell us briefly about that.

Marcus: Yes, the University of Chicago had a series of seminars. They were three-day seminars. They had them on systems analysis, on project management and on several other subjects. I was contacted by somebody whom they had hired to put together a seminar on project management for computer systems. I don't know where he got my name from, but he did. They made that connection and I got interviewed and retained. I ran project management seminars for several years. While it was a three-day seminar, it didn't really interfere with the Mergenthaler work or anything else. While I was doing that, George was teaching systems analysis; although when I say during this period, it was not at exactly the same time, because George and I tried never to be out of the office at the same time. That experience was interesting. I think when you run seminars, when you teach, you learn an awful lot.

Grad: Who were the students?

Marcus: Most of the students were IT managers. Every once in a while, we would get a CFO or somebody high in an accounting department because the finance department was responsible for computer operations in those days. This was before there was really a push to have IT as a totally separate unit reporting to a CEO or VP of operations or whatever.

The seminars were very interesting to me. And what happened at the end of these seminars is everybody was asked to fill out a confidential rating. And I was pleased that all of those ratings were really very good. So, I could have kept on teaching for as long as they were holding those seminars over, I don't know, three or four years.

Grad: Why did you not continue?

Marcus: Because I was starting to get involved in things where I didn't have the time anymore between the arbitration and winding up Mergenthaler. That was really enough.

Grad: These were all in the early 1980s, not later on. Now, we come to a period of time about 1985. You've still been working on individual projects. And you decide to start another business.

PictureWare, Inc.

Marcus: Right. I had hired or retained a fellow named Dave Sherdel to work on our order matching system and subsequently to work on Mergenthaler. And Dave was a real technical guru. He had an idea at this time that he could develop a system to capture photographic images and be able to put them into a database in which case they could be used for ID systems, for inventory, all sorts of things. At that time, outside of the military, this really was not being done as far as I knew, to capture photographic images, so I thought about it for a while and said, "All right." He said, "Mike, I would want you to be CEO. I don't want any of the business headache. You be the manager. I'll worry about all of the development." I said, "Okay." At first, we started unfunded. Dave worked without money. I worked without money. And then after putting together a business plan, I started to talk with people I knew like Dick Thatcher and some people that I had met at ADP and they put some money into the company. We continued to work without salary for a while and they paid all the company expenses. Then, after a while they started to kick in a bit more money and I went out and started to look for additional money in earnest. I did this through contacts that Dick Thatcher gave me and I met a fellow named Gerald Hildebrandt. I don't know what I would call Gerry. He was a financial guy. He was an investor. He was a deal maker. He was such a straightforward guy, such a well-balanced and well-meaning guy, that I even asked Dick whether or not to trust this guy. And Dick said yes. What you see is what he is. Gerry Hildebrandt had been an investor along with Walter Brown in Atlantic Software, Dick Thatcher's original company.

To make a long story short, Gerry Hildebrandt introduced me to Safeguard Scientific, which is a company in the Philadelphia area and they provided enough money to get the business off the ground. As I said, it was the very early days for that kind of technology, but we actually did start to sell units here in the United States. And we sold units in the Netherlands. This was a PC-based system. It was one of the very early PC products. It got a very favorable review in PC Magazine and we were doing okay.

One of the reasons that we went with Safeguard Scientific, although there were other people that I could have brought in, was that they had promised long-term investment and they seemed to understand the business. What happened was, after raising some additional money, I hired Phyllis Hershon and Peggy Gordon again and Alejandrina Pattin to work for Dave Sherdel. And they worked on PictureWare which was the name of the company. And the product was called PicturePower. And that went reasonably well, but we did run into a cash bind. And what I wanted to do was continue to try to build the company and Safeguard Scientifics didn't want to do that.

Grad: What business was Safeguard Scientific in? What were they doing?

Marcus: Safeguard Scientific was originally involved in some kind of security system. But subsequently they became VCs. They invested in companies and eventually took them public. It was a unique kind of organization.

Grad: Okay, so that's a little different. There's a Safeguard Software company, a fairly large one, that Jim Mann has run. But you're saying that's not related to this?

Marcus: No, it is not.

Grad: Okay, so what happens? You run out of money? Or you closed up shop? What happens?

Marcus: Well, we hadn't quite run out of money, but we were going to. I felt if we could have done what we felt we had to do to develop this market we would have succeeded because we were really, really innovators in this. One of the lessons I learned is that unless you have really deep pockets, you can't create a market.

Grad: Stop a minute. Tell me what was special about what the product did.

Marcus: This was before you could take get a regular photograph easily into a computer. And so, the images came from what were essentially video cameras. We could capture pictures taken with a video camera and store them as stills. And we could annotate them with text. And we could place them in a database. And all this ran on a PC.

Grad: Why would anyone want to do that, though? What was the market? What was the value?

Marcus: The value, and this kind of technology is used all over the place now, is for ID systems with a picture of the guy to check against the badge he's wearing. And you know whether that is, in fact, the same person.

Grad: Okay. Were there any other major applications or usages of that technology?

Marcus: Yes, because then you could put together some computer-based brochures. There was an opportunity for a company, instead of printing brochures, or in addition to printing brochures, that it could send out a disk with pictures of its wares. Remember, this was all before the Internet came into where it is now.

Grad: Yes, I understand. So, you made some sales in the United States. And you made some sales in the Netherlands as you mentioned. But your revenue wasn't enabling you to expand. Safeguard Scientific didn't want to put the money up for expansion. So, what did you do with PictureWare? That was your company. You had some stock in it. And other people had investments. You had a number of friends of yours working there. What did you do?

Marcus: Well, Safeguard Scientific was the majority shareholder at this point. And I told them I was going to leave unless I had an opportunity to continue to build the company. They said, "Okay, give us a chance to get somebody." I said, "Okay." And that's what happened. What happened then was that I got a call from Dick Thatcher who said they were looking for a replacement for Joe Herberts at AGS Management Systems. And then I left Pictureware and joined AGS Management Systems as CEO in 1989. This time as an employee.

Grad: Did some of the people you had brought in stay with PictureWare? Or did they leave also?

Marcus: They all stayed with PictureWare.

Grad: The technical staff was still there even though you had left as CEO?

Marcus: Yes. Right. When I was at PictureWare, I was CEO and also the salesman. After a while, we did hire somebody to sell. But I still did an awful lot of sales work.

Grad: One more question on that. You must have had stock in PictureWare. So, what happens to that when you leave?

Marcus: I still have the stock. Nothing ever happened with it that I know of because after that I sort of lost touch with what happened with PictureWare. The people I had hired stayed with PictureWare for a while, and then they left sort of one by one. And I just don't know what happened with PictureWare.

Grad: So, your stock was never bought out or anything like that?

Marcus: No. I didn't make any money on that.

AGS Management Systems Again

Grad: Okay, Dick Thatcher calls you. Now, was AGS Computers, Inc still an independent company at that point? Or had AGS been bought by anyone at that stage?

Marcus: No. AGS Computers was an independent New York Stock Exchange listed company at that time. And I joined them as an employee with a good salary and with stock options.

Grad: And then what happens? What were you running at AGS Management Systems?

Marcus: I was president of AGS Management Systems, which continued to develop and market a project management system and methodology. I was reporting to Joe Abrams, the president of AGS Computers

Grad: Now you were in a regular management job. You had employees. You had a product you were selling.

Marcus: Oh, yes. Just as Joe Herberts had been running what was an independent company, so to speak, owned by AGS Computers, I now had sales, finance, development, operations, everything. I was the CEO.

Grad: Did you enjoy it?

Marcus: Yes. I did enjoy that. And I was into that for a couple of years. And then AGS Management Systems, instead of operating as an independent entity, with me reporting to Joe Abrams, I was to report to Tony Stepanski, who was head of AGS Information Systems. So, the financial part of the business really went to AGS IS, but I kept the rest of it as my responsibility.

Grad: What do you mean by the financial part?

Marcus: Well, accounting and finance, they had a fairly large department.

Grad: But you still had sales and development and support and things like that?

Marcus: Yes, I had all the operations. And I was very, very happy with that set up because the CFO was Len Ostfeld, whom you may remember. He was a very knowledgeable and bright guy and it was nice to have his input on things. So, I continued in that role reporting to Tony Stepanski. And then Tony asked me to get involved in something else. AGS IS was, for the first time, getting involved in project work because previously, a large part, if not the

majority, of their work was staff supplementation. They did some small projects. But now they were starting to get involved in some larger projects. So, they asked me to get involved in, I would call it risk management, which is to take a look at some of the projects that they were in that might have problems, talk about what could be done to help them out. And I did that, too. I stayed with AGS Information Services until it was bought by Keane. Now, Keane was almost totally staff supplementation at that time, and they did want to do some more project work. And, for one reason or another, NYNEX sold AGS IS and AGS Management Systems to Keane.

NYNEX

Grad: I'm a little confused. At some point, AGS was bought by NYNEX? Do you remember when that was?

Marcus: NYNEX probably owned it for about four years. It was sold to Keane in 1993.

Grad: Oh, yes. As a practical matter, when you were working for AGS IS, were they independent? Or were they owned by NYNEX?

Marcus: When I worked for AGS IS as a CEO of AGS MS, AGS IS operated independently although they had been bought by NYNEX. And at the time NYNEX bought AGS Computers, a lot of the management that was with AGS stayed on to work with NYNEX. That included Larry Schoenberg, Joe Abrams and Tony Stepanski and me and a number of other guys. But when Keane bought the company, it was with the understanding that they were not going to take over all of the employees. They were going to take over some of the projects. And they were going to take over all of the technical people. But they did not take over the senior management.

Grad: Okay. Did you leave at that point in time?

Marcus: What happened was that NYNEX gave me a very handsome parting package. I was quite surprised, very happy, but quite surprised.

Grad: And so that was the end of your relationship with AGS IS.

Marcus: Right, because it ceased to be a company.

Grad: Yes. It just became part of Keane. Now, at the time you left in 1994, did you have another job lined up?

Unisys

Marcus: No, I didn't. What happened was I went on vacation. I went to visit my brother in California. But I had previously gotten a call from a headhunter who had been retained by Unisys. I turned him down because I was quite happy at AGS IS and MS both and would not have left. But when I saw that we were not going to be retained by Keane, I called him back and while I was on vacation in California, the headhunter called and said, "Mike, we have a fantastic opportunity. It looks like it's right up your alley." And I said, "Well, what is it?" And he said, "Well, I can't tell you until you send me a really detailed résumé because all I have so far is a couple of people who have recommended you." So, I sent the résumé. He called me back and he said, "Yes, this looks like it really fits." I then met with him. We talked for a while and here's the story he told me. Unisys, which was a several billion-dollar company, had been created from a merger of Univac and Burroughs. They were mostly in the hardware business although they did some system integration work, most of which was in the public sector.

Because the hardware field was becoming so competitive and the minis and the micros were now really moving in, but Unisys hadn't quite made that move yet. They decided that their long-term strategy was to get into the system integration business with a lot more software and value added to their hardware, which they felt that they could sell this fairly easily to their existing long-term relationship clients. They hired a fellow whose last name was Chris Mellor, but he is credited by some as the guy who really formed Arthur Andersen's consulting business, which subsequently became Accenture. When Mellor was hired it was with the idea to implement this strategy. And what he did was to try to hire very experienced people in the system integration business, for example, partners in some of the big accounting firms that were still doing that kind of work and in other system integration companies. While he couldn't offer vice president titles or partner titles to people who had previously been partners, he was able to give them the title of Managing Principal.

I got offered a job as Managing Principal because they had a matrix management organization. For example, in any one region, the southwest for example, there was a regional manager responsible for everything, but there also was a functional manager who was responsible for the system integration projects. That's the way he set things up. Unisys had previously been a fairly straight line, typical manufacturing company. Matrix management was sort of new, the system integration business was pretty new, and it was pretty rocky for a while. So anyway, I got hired there.

Grad: This was 1994, I believe, when you went into Unisys.

Marcus: Yes, that's right.

Grad: And did you get hired as an employee or as a consultant?

Marcus: I had been an employee of AGS IS and became an employee of Unisys. And one funny thing that happened was when I was interviewed for the job by the head of the system

integration group at Unisys, at the functional level, he told me, "You get two weeks' vacation, if you've been here more than two years you get three weeks' vacation, et cetera." And I said, "Well, let's see, Sperry Gyroscope Company once owned Univac so will you credit that to me?" He said, "I don't know. I have to ask the HR department, but if it's okay with them, it's okay with me." He came back to me and he said, "Mike, those records only go back so far so they do not know. They don't even know where some of those records are." I said, "All right, Ron, I hope that you're going to go along with it anyway it." He said, "Yes." I said, "Thank you." He said, "If this is your way of negotiating contracts, I like you." So, I got three weeks' vacation.

Grad: You added three years to your service record right away. Was it a specific project you were hired for at Unisys, or just for general work?

Marcus: Well, I was hired for the position of being the Managing Principal of system integration jobs in the northeast of the United States. And so there was the regional manager who was responsible in that area and the functional manager responsible for system integration projects nationwide. Now, I got along pretty well with both of those people, but those two people didn't get along very well with one another, which made it a little rocky.

But another interesting thing that happened there was when I got hired by Unisys I was on vacation and I was still on vacation and I was going to stay on vacation until such time that I had to report to work. I was supposed to report to work on a Monday. But on Friday, my wife and I were driving home and I got a call from Ron Jenkins, my functional system integration manager, and he left a message for me and he said it was urgent that I call him back. I said to my wife, I think they may have retracted their offer. I couldn't imagine what else it could be. So, he called again and I missed it again and he left me his home number and I called him back on a Saturday. And he said, "Mike, do you have a passport?" I said, "Yes, sure." He said, "Can you be in New Zealand on Monday?" "Why?" "Well, we have this project there and I just found out about this thing and while it looks like it's a wonderful opportunity, it also looks like it can be a massive headache. I need somebody with your background to go out there and assess this situation and let me know what you think is to be done." I said, "Okay, but I don't think I can be there by Monday, but I can be there Tuesday." He said, "Fine, be there Tuesday." So that's what happened. That's how I started. And the next week I was working in New Zealand with the guys and I loved it.

As I was winding up, the head of the New Zealand operation said, "Would you move here and take over the system integration part of our business in New Zealand." I said, "Well, let me talk to my wife." So, I called her. For me it was a reasonable time. For her it was like two o'clock in the morning. And I said, "What do you think about moving to New Zealand?" "Forget it. I've traveled enough." At this time, of course, I was married to Alejandrina who had moved from Argentina to the U.S. and didn't really want to move back to the southern hemisphere, but I really enjoyed working in New Zealand. I found the New Zealanders a wonderful mixture of the manners of the British and the camaraderie of the Australians.

Grad: What kind of project were you working on there, Mike?

Marcus: That was a job for the government having to do with a system to collect tolls on highways. And the structure of the deal was not a straightforward payment for services. It was a fairly complex mix of that plus some future part of the revenues, I believe.

Grad: So, you were there for a while?

Marcus: Yes, I was there for a while because Ron told me that when I came back he had to make a decision; Mellor told him he's going to make a decision on that project. Actually, it wasn't a project. It was a bid and the bid was accepted, but only with certain reservations. It was that kind of thing. And I was to come back with a recommendation as to what they should do there. I hope I was constructive in New Zealand. I guess I was since they made me a job offer. I did go back and I gave Ron a report but I then got involved in the northeast United States.

Grad: How does New Zealand fit in to the northeast?

Marcus: It didn't. It's just that Ron needed somebody that had some big system integration experience and contract management and contract negotiation experience.

Grad: So now you were back in the United States.

Marcus: Yes, I was back in the United States and working for Unisys. And one of the jobs was for a state motor voter system. Do you remember that? This was where you could register for voting when you went for your driver's license. And that job ran into a lot of problems. It turned out that a lot of the problems were due to one of our subcontractors which turned out to be Oracle. We had a pretty rocky time trying to get those problems straightened out, but we finally did.

I continued at Unisys. Ron [Jenkins] left. [Chris] Mellor left. And I stayed on. Then I was asked if instead of doing the northeast job, would I form a risk management group worldwide for Unisys, to review every system integration project proposal above \$5 million. So, I did that. I had the ability to hire some people and I did. I hired people I had worked with at AGS, some of them lived in Pennsylvania, some in New Jersey. Working for Unisys was not an issue to them or to me.

Grad: Did you set up any formal procedures for doing this? Or was this just sort of seat of the pants?

Marcus: No, this was not seat of the pants. I set up guidelines, not rules for what was reasonable. I set up guidelines for penalty clauses, no consequential damages, and a whole raft

of other things, including were we really competent to do this job because in the past I had seen people bid on jobs that they were not competent to do. If you want to do this job, how are you going to staff it? And what technologies are you going to use? And how many subcontractors are you going to need? Are you going to be the prime or the sub? If you're the sub, how do you have enough control over what happens to make sure you get paid if the prime screws up; all of those are things that you think about. By this time, I had been in the business a long time and so I had lots and lots of scars and dents in my head from the learning process. Somebody told me something really good: experience is a very, very tough teacher. It gives you the test before the lesson. And that's true.

Grad: That's a nice statement. I have a question about that. In setting up these procedures, you were worried about the technology as well as the financials, not just the price and what they were going to charge. Is that right? So, you had to use some of your project management skills to estimate how much time it was going to take to do the job and whether the bid was reasonable for the cost, is that correct?

Marcus: On a high level yes, but I was not competent to judge a lot of hardware stuff. I was not competent to judge certain kinds of software. And so, I had people I could go to. I think we wound up having about 12 people in that group. I had people to give me advice when I needed it.

Grad: That was my point. You created a team that had those skills to enable you to make those kinds of decisions.

Marcus: Yes.

Grad: Did you have lawyers on your team?

Marcus: No, but we worked closely with the legal department.

Grad: Because a lot of these items you're mentioning, would be things that a good lawyer would have advised, regardless.

Marcus: Oh, the lawyers got involved anyway, but before we ever went to the lawyers, the operating groups had to use the guidelines to know whether it should consider a bid and the lawyers got involved only when it looked like there was some substantive stuff on the table.

Grad: One thing, Mike, maybe I'm misremembering. I seem to recall there was a 911 project or something for New York City at one point, and I thought that was related to Unisys. Am I incorrect on that?

Marcus: That was not related to Unisys. That was another police command and dispatch system. And it was during the period before I joined Unisys, when I was a consultant for Systemhouse.

Grad: So, you're doing the risk management work at Unisys. What happens next?

SPL WorldGroup, Inc.

Marcus: Well, I stayed with Unisys for a while. I was happy in that job. But I was a little concerned about what was happening in Unisys because so many senior people had left, and other top-level management changes. And anyway, one day I had to be out in California and my wife, who was an independent consultant at that time, was also out in California, but in a different situation. She didn't do any Unisys type stuff.

And we took a vacation up in Sonoma and we both said this is God's country. We should really move out here. My wife, coming from Argentina, had no family here. My folks were gone. My brother lived in California. So, I said, yes, let me see what I can do to find a job to do out here. So, I called some of my friends. One of them was working for a company called SPL WorldGroup located in San Francisco. I sent him my résumé. They invited me in for an interview. I met with the CEO. We had a lengthy discussion. I then got interviewed by at least five other people. It was a small company at that time. I don't remember how many people, maybe 100, 150 but it was dispersed. They had people in San Francisco where it had its headquarters. They had people in Israel and people in Australia. They had people in Europe. For a small company, they were spread really thin. And I joined them in 1997.

And at first, I was hired to work directly for the CEO as sort of a consultant without portfolio. He had me do all kinds of things. I remember when we ran into cash flow problems, I would sit with the accounting department and try to understand what was going on and help him with that. And then I was asked to get involved in some specific projects that were in trouble and I did that. And then the person who was responsible for all of the work in the U.S. left and he asked me to take that over. So, I still reported to the CEO as a Vice President and was responsible for all of the SPL systems work in the U.S.

The interview with the president of SPL was an interesting one because as we were winding it up and he's making the job offer, he said, "You realize, by the way, Mike, our product is a mission critical system. Actually, the system is a very large, complex system for a customer information system for utility companies." When he told me that I laughed." And the CEO's name was Moshe More. I said, "Moshe, after air traffic control, submarine navigation, police command and dispatch, I think I understand." He said, "Okay." So, I joined SPL.

Grad: You said you were responsible for the U.S. work. Did you actually manage the projects? What were you actually doing?

Marcus: No, each project had a project director. There was also a senior vice president, Julian Brandes. But each project had its own project manager. And the project managers reported to me in the U.S.

Grad: That's my point. You were responsible, now, not just for risk management, but for actually making the proposals and then managing the projects at a senior level.

Marcus: Yes, that's right. And I did that for quite a while until I actually retired as an employee. SPL went through about four or five presidents in about ten years. But I really enjoyed SPL. Julian and I are still friendly. I see him when I go to California. He visited with us when he was in Florida.

Julian is very smart, very reasonable, and just a very nice guy. I became friendly with him, of course, and became very friendly with the corporate attorney, Richard Zolezzi. I worked very closely with both of those guys because they were the management team and they were on the Board. That was very enjoyable. But after Moshe left, they hired a number of different presidents, each for a couple of years or less.

At one point, after I was reporting to the third or fourth president they hired, he wanted me to report to him for risk management and I did that. And that was a very interesting situation. One day he had announced that he wanted to have a senior staff meeting off premises at a hotel. We would have a dinner. Following the dinner, we'd stay over and the next day we would have a discussion. All right, fine. So, I went there and prior to the dinner there were drinks. And he came over to me and he said, "Mike, I'd like to talk with you." I said, "Yes, sure." And he said, "I'd like to talk with you privately." And I thought, wow, what did I do that he did not like? He was also a very smart guy, but you've got to be really careful with him because he was also-- I wouldn't say he was unforgiving. -- I would say he had his own ideas of what was the right thing to do. So, I figured, well, we'll see what happens. He called me in and said, "Mike, I want to tell you something absolutely confidentially. We have an opportunity to sell the company. One of the terms of the deal will be that all of the vice presidents will continue to stay, but they will not be able to exercise their stock options. I know that you're in your sixties and I don't know how long you want to work. So, if you want to get out, now is the time. You can't continue to have a vice president title. From my point of view, you can continue working for the company as a consultant but with no title." I said, "All right, fine." So that's what I did. I resigned as an employee and was paid as a 1099 guy after that, but was able to sell my

On two occasions, I made money on stock. I made money on the Realtime situation when it was sold to Levin-Townsend. And I made money on this one also. It was not \$1 million, but it was a few hundred thousand dollars; that was significant money to me, but I continued to work for the

company. A little while later, the VCs that had bought the company sold it to Oracle. And after working there for just a short time more, I retired.

Consulting for Oracle

Marcus: I did enjoy retirement for about four months until one day when I was visiting with my friend Burt Grad in Massachusetts, I got a call from somebody at Oracle SPL. It was a guy I had worked with before, asking if I could do some consulting work for them, because they had some projects they felt should be taken a closer look at. So, I did that. And I ended up doing consulting work from about 2006 to early 2012 with Oracle SPL

Grad: And this was all with Oracle SPL during that period of time?

Marcus: No, although almost all of it was with Oracle SPL. And the jobs with Oracle SPL were very interesting. I actually enjoyed them. It was a lot of international work, again.

Grad: You may not be able to mention some cases in detail, but I think there's some interesting things for you to discuss there. What were some of the more interesting projects with Oracle SPL?

Marcus: Well, I did one job in a South American country for Oracle SPL, actually in Argentina, for a major company that we were putting a system in for. We developed that system according to the specs. This was in a regulated utility industry and they had rules for how their reports were to be submitted to the regulatory agency. The CFO wanted us to calculate the reports in the same manner that the company had been doing, and it was not the way the regulatory commission required. I said, "No." He said, "Why not?" And I said, "We can't be responsible for that. We'll develop the system based upon the regulations. And then if you want to change it that's up to you." He started cursing and I said, "I'm not going to jail for you!"

Grad: Tell me, what happened afterwards.

Marcus: There were a number of discussions but no, we did what we did and we were not going to get involved in not following the regulations.

Grad: Did they pay you?

Marcus: They did, yes. They paid us for the work that we did. And then we negotiated out.

Grad: Now, in these cases, the contracts had obviously been set up by somebody else because you weren't the Oracle SPL employee. So, what was your role, Mike?

Marcus: My role was essentially representing the CEO of Oracle SPL at that time. It was owned by Oracle, but Oracle allowed it to operate pretty much as an independent company.

Grad: But had you negotiated the contract?

Marcus: No, no. When I got involved, the job was already in process.

Grad: Were you managing the process?

Marcus: I was doing three things. I was assessing the situation, I was making recommendations for what had to be done, and I was helping the project manager get some of those things done. I spent a fair amount of time there.

Grad: Was that a technical job, was that a management job, was it a negotiation or a relationship role?

Marcus: It was a management job. It was also to a large extent a relationship job because my feeling was that the project manager had to live with the client, so I offered to be the bad guy.

Grad: I see. So, if there was bad news to tell or some negotiation where there could be some tough decisions, you would be the representative doing that?

Marcus: Yes, with the project manager there, but I was doing that.

Grad: What were some of the other projects?

Marcus: Well, we had an incident in a South American country. We had an opportunity to bid on a job in which we would be a subcontractor to one of the Big Eight accounting firms. A number of accounting firms were doing system development and implementation work at that time. I met with the partner in charge and with a couple of their technical people and a couple of our people. Their partner explained the timeline they wanted to promise and the amount of money they wanted to propose, and I said, "No, you just can't do that. Forget the money for a moment, but we cannot deliver the system in that amount of time with the amount of modifications that they want." But let me go back for a moment. This partner was a woman and in South America you fairly often will hug or sort of kiss a woman that you meet in business. It's totally cordial; it's no problem. Here in the U.S. you get into a lot of trouble if you do that, but that's the way it is down there so that's the way I met her, got a hug, everything was nice. Then we got into this discussion and she said, "Well, look. Instead of telling them whatever this date is, we're going to tell them this other date." I said, "You can't do that because we're going to get screwed." Anyway, we discussed it for a while. We just could not come to an accommodation so

we said, "No. Forget it. We won't bid on this." But promising what the client wants and not what you believe you can deliver, that's not unusual in some of these countries. One thing I learned down there-- of course individuals are individuals--but there are customs and traditions and ways of doing business in countries and it is very different in some countries from others.

Grad: Is that a common characteristic that people would overbid or everyone sort of understood that you're lying about the dates and you're lying about the money, but it'll all be straightened out at some point in time?

Marcus: I think it is quite common. Here's my take on the way things are done in some countries. On a personal basis, people are very nice, very helpful, pretty honest, pretty straight forward. But when it comes to business you have to really be careful, much more careful than here.

Grad: Mike, was this just true in South America or did you find the same thing true in Europe?

Marcus: I found this true in South America and in Europe. But I spent a fair amount of time among the Dutch and I found them the other way. They were very smart, very tough negotiators, but you could pretty well trust what they told you. They were really straight shooters.

Grad: Interesting. Just as an odd question, did you ever get involved with anybody asking for money, bribes, that kind of thing?

Marcus: No. No.

Grad: You talked about these couple of South American projects. What are some of the other projects you did? Do you want to talk about the Netherlands project? I know you were deeply involved in that for a period of time.

Marcus: Well, yes, there were a couple of things we did. Actually, at PictureWare I worked in Holland. I called it work because what I did was I went over there to sell and I actually retained a distributor in Holland and he sold a fair number of systems for PictureWare. This Oracle SPL project was a job for the Dutch tax office and it turned out to be a successful project for everybody, but it was tough. It had the usual big project issues, delays on both sides, but again, as far as I knew, all the business relationships and personal relationships were fine. It was just such a large project -- these large projects run into problems; that's all there is to it.

Grad: Without disclosing things you shouldn't, you've told me at times about some of the negotiations that you had to do with the tax authority and with the project management

people from Oracle to try to solve issues in which the contracts weren't clear, in which there were differences of opinion on how to interpret them. Can you describe something like that as an example?

Marcus: Well, here's an example. This did not happen at Oracle; this happened before Oracle. The company had a contract to install a court system to manage the dockets and all that sort of stuff for the court for a large city in the U.S. The project ran into trouble. I was asked to go there and see what the issue was. Well, I went there and it turned out that the client was actually the chief judge for the city court system and I was shocked. The guy was wearing a T-shirt, not even a dress polo shirt, just a T-shirt, chinos, had a pigtail, was sloppily dressed, and it was just a shock. Anyway, we could not come to an agreement. One of the major things that they wanted was to get rid of our project director. Now I would agree that our project director was a very straitlaced guy. He wouldn't take anything from you that he shouldn't but he wouldn't give you anything that he didn't have to; he was by the book. And in this case, it was fine because some of the people on the court side were essentially the same way so we argued with the judge about that for a long time and finally I said, "Look. You do not have it in your contract that you have the right to tell us who our project director is. Joe stays here. That's it." We adjourned and set up a time to meet again. I went down there then, but the judge was gone, they had a new guy in there so I said, "What happened to the old judge?" "Oh, he's in jail. He was arrested for drug dealing" <laughs> and he showed me a newspaper clipping.

The new judge was a very smart guy, very businesslike, not brusque but brisk if you know what I mean. He was not a technical guy, but he clearly had a lot of administrative experience, and we argued and we essentially put up on the board what the major problems were. The major problem on our side was we did a turnkey system. This was the first time this big company had gotten involved with any kind of hardware. It was really a software company; that's it. It was a software company, software services company, and they bid on this turnkey system, and so they didn't have a clue. On the court side, their employees just didn't do what they were supposed to do. So, there were problems on both sides. One day as we were winding up discussions with the judge he said, "Mike, are you staying nearby?" I said, "I'm at the hotel a few blocks away." He said, "Well, look, let me drive you there." He drove me over and then he stopped and he looked at me and he said, "Look, I know what you're doing. You know we can't live with Joe. I think you want out of this contract, but you don't want to be the one to say so." And I said, "Judge, you're absolutely right. I can't afford to walk off the job and if I suggest that we want off, I'm in a bad bargaining position." He said, "I understand. Let's see what we can do." I said, "Good." We then worked out a deal so that they were going to allow us not to subcontract the deal, but to assign the deal to somebody else they could bring in and we would be absolved of any responsibility. We settled up on what the finances should be and I agreed that we would leave a staff of knowledgeable people on site for six months and charge them only what our direct costs were for those employees. After that, if they wanted services, then we had the right to re-negotiate. He said, "Okay." So, I called the guy to whom I reported and told him, "There's a big deal on the table. There's a big deal I want to do, big enough that I want your

okay." He said, "Sure, that's going to happen." And I was able get the company out of the contract.

In general, when we talk about these things, one lesson I've learned is people don't walk away from potential or actual problems even when they can, unless they can't find a way to do so and minimize their exposure.

Grad: Some of these things sound like they're very complicated tradeoffs though, aren't they?

Marcus: Yes, they are because you get down to the nitty-gritty. You get down to "Well, we spent three months teaching you guys how to do this, that and the other thing and all that knowledge has to be transferred; if you get off the project what are we going to do?" Well, you tell them, "We'll give you some credit toward that. I can give you names of people to call. If you're talking about projects of interest, here's one that I'll call." Well, you can call it whatever you want; I call it influence peddling.

I worked for a company that had a project for a state in the U.S.; it was a state contract to set up a computer system in a call center for a particular function. And this was the first time that company y had tried to set up or had any experience with a call center and we were having problems. But there were problems on the other side too, because the state employees, at least some of them, were very, very reluctant to get involved in a new system. They didn't want to get off the system they had, which from their point of view was fine, thank you even though it was really antiquated. We just could not easily come to an accommodation about what we could do on this thing. Well, it turned out that the CEO's wife had a good friend of the governor who was an independent consultant, essentially a lobbyist, and with his okay the state people got the okay to come up with a means of negotiating out and we did.

Grad: So, in some cases the best solution is not to try to finish the job but to find a way to get out of the job is what you're telling me.

Marcus: I think you have to do a calculation based on the finances and your marketing image as to what you choose to do. You don't want to ruin your reputation so you have to find a solution that will let you save face and your client has to have a solution that will allow him to save face. That's always a big deal in contract negotiation.

Grad: That makes sense. I understand that. Mike, I think we've come to maybe an end OF this discussion. You basically stopped working for Oracle in about 2012?

Marcus: Yes.

Grad: And what was the reason?

Marcus: Well, the work I was doing at that time was almost exclusively overseas and the traveling was getting to me. I wasn't feeling very well, so I figured it was best for me to not take on any additional assignments; I didn't want to ruin my reputation in the business and I didn't want to represent a client if I couldn't give it my best. And so, I just didn't take on any additional assignments after that.

Grad: But you actually ended up working for Oracle as an independent consultant for almost five or six years then, didn't you?

Marcus: Yes, I think that's about right. Maybe it wasn't quite that long...

Grad: People who you knew found you very useful in a lot of these fairly complicated contract settlement and assessment situations where you could bring them back an independent point of view.

Marcus: Yes, that's right.

Project Management

Grad: Because of your breadth of experience, I'd like to ask your opinions and your thoughts about some fairly broad topics and see how you want to handle those. I'd like to start with this. You've observed a lot of projects that have failed and a lot of projects that have succeeded, and I was wondering if there were any principles or concepts that you saw as to the common denominators in the ones that failed and the common denominators in some of the ones that succeeded. Any thoughts on that?

Marcus: Yes. Let me just put it in a context for you. I think that there are three kinds of situations or relationships, win-win, win-lose, and lose-lose. Of course, win-win is the best. Win-lose in the long term is very rare because almost all win-lose situations turn into lose-lose; both parties lose. If you can't come out with a situation that both people can live with, then there is little chance that both people are going to be willing to live with situations they didn't want. Now, you could go to arbitration or litigation, but the problem in almost all these cases is that nobody's skirts are clean; there is fault on all sides. So, I think you have to look for win-win situations whether it's in a sale situation or you're in a project and you're having difficulties. I think that's a basic thing.

Grad: Let me ask you a question on that just for a moment. When you say "win-win" it means you're saying "not lose, not lose," is that correct?

Marcus: Yes, because if you assume what I said is correct, namely that you're going to have some fault on your side and the other guy has fault on his side, then the only thing that you can do reasonably is try to minimize your loss based on the things that you think you screwed up and the other guy should do the same. If you can both come up with something that's a win-win, that you can both live with, that's great.

Grad: Okay. That's what I thought you meant.

Marcus: But you're right. It's a less lose-less lose. Okay.

Grad: Let's go back to my question. Do all projects get into trouble and all projects end up failing in some way or are there many projects that succeed from the word "go"?

Marcus: There are some where you succeed from the word "go" and some that get screwed up and then get put back on track. You see, there needs to be some general rules and general context first. I think the major problem for projects that go bad is a set of mismatched expectations, people on each side either don't say or don't know what they want, because what a client wants and what he says he wants, what he needs and what he says he needs, what he says he can afford and what he can really afford are all different things. As a vendor you have to understand what it is your client is saying; what he's telling you that he wants, or what he actually needs. Sometimes they just don't know.

Grad: Does that mean that the contract itself is the issue in terms of what it says or is it the individual understandings among the people?

Marcus: Well, what that depends on is the way you write the contract and also this other thing, which is documentation. I think when you write the contract, and as you are managing a contract on both sides, you have to keep up the documentation and put into words on paper what people have said. This does two things. Later on, you can go back to the guy and say, "Look. Here's what we agreed to." The other thing is it reminds you of what you committed to because if you're going to be on this big system integration job that's going to last for three years, you're going to forget some things and so is the other guy so you have to document up front as clearly as you possibly can in the greatest detail you possibly can.

And you separate the proposal and/or the contract into two portions: first the business side and second the deliverables: the requirements, what is required from the deliverables, what is required in terms of schedule, what is required for progress in terms of payment, what is required in terms of the client's rules for the kinds of employees you can have on site. For example, do all the employees that come to the client's site have to have a background check, do they have to have security clearance, all of these things-- I mean even how tall is that typesetter and how big is the elevator you're going to put it in. You have to try to figure out as

much of that as you can and get it down on paper. You're not going to get everything written down, but there has to be a real attempt to make it as specific and non-ambiguous as possible.

Grad: Mike, let me ask you a question here. In my mind, in putting together the kinds of custom contracts that we're talking about, there seem to me to be three fundamental elements in each one of them. One is the functionality: what is a system supposed to do. Number two has to do with when do you have to make deliveries, and three, is how much is it going to cost the client for the system.

Marcus: The fourth one is operating considerations like what are the rules for employees, can they work weekends, because what you're trying to do is get up on the table all the assumptions you are making when you make your bid and the client should get up on the table all the assumptions he's making when he buys.

Grad: Mike, the thing I was going to get to was that I was told that in many cases, when you contract with the federal government, the bidders would purposely low-ball the bid with the assumption that the federal government people would have to make change after change after change during these fairly long development projects, two-three-year projects, and that the bidder could add on money for all of those changes and any delays in schedule could always be blamed on the changes. Did you have that kind of experience?

Marcus: That does happen sometimes because what you try to do when you bid a job is try to determine how many changes there are going to be for which you will not be compensated. Now you can't always do that, obviously, because you don't always know, but I'll give you an example. If you're dealing with a system in the utilities business and you know that there is legislation being considered to change the utilities rules, then you've got to take that into account; both parties have to take that into account. So, you, as a vendor, know this thing is coming down the pike and you have to include that and the client should know that it's coming down the pike and he should include that in what he's willing to pay.

Grad: Yes. That's my point. There is always in these large projects a ton of unknowns.

Marcus: Right.

Grad: Here's what you know; here's what you think you know. You couldn't imagine the problem with the elevator because you didn't have all the exact sizes of every one of the devices you had to carry up. Did you purposely low-ball on pricing because you said, "Hey, look. We're going to make it up on the changes?"

Marcus: No, let me rephrase it. I didn't purposely low-ball, but whenever I came up with an estimate I put in a risk factor that depended upon the situation.

Grad: Are you talking ten percent, twenty percent, fifty percent?

Marcus: No. If you're going to put a risk factor on a job in a country that has a significant inflation rate and they're paying in their local currency, you better put on something that is reasonable for what their inflation can be. Some countries have inflation of twenty percent every year.

Grad: Can't you hedge the currencies?

Marcus: You can buy insurance against it, but those things become awfully complex. What you try to do, of course, is to get paid in dollars and then the client has to hedge. But somebody has got to identify the risks and with the best knowledge at the time, try to put a number associated with each of the risks. I don't think there's a formula for it. But certainly, on a large, fixed-price project I'm going to put in a risk factor of at least fifteen percent.

Grad: Okay. That gives me a ballpark.

Marcus: But that's a minimum. That's after all the expenses you can think of.

Grad: Did you put a cushion on delivery dates as well?

Marcus: Absolutely.

Grad: That takes a lot of judgment because you always have the pressure from the client of wanting a particular delivery date and you're saying, "Hey, that's not realistic. I can't do that."

Marcus: Well, as I told you about the South American deal that we walked away from, they wanted us to commit to a schedule I knew we couldn't deliver to.

Grad: You weren't willing to take that risk?

Marcus: If it's a matter of a couple of weeks, okay.

Grad: Hear my question. Here was a case that everybody knows there are going to be changes, changes, changes, and you could say every time there's a change, "Oops, now it's two weeks later. Oops, now it's two weeks later."

Marcus: Well, you do that anyway because when you're writing a fixed-price contract you specify what you're going to deliver in detail, as much detail as you can, which is of benefit to

you and the client. And you say if there are any changes from that, they're to be negotiated and work will not begin on them until agreement is reached. So, if the client really needs it, he'll negotiate and if he doesn't need it, he ain't going to get it.

Grad: Let's go back to my question about projects succeeding and projects failing. I mentioned three of the factors; you mentioned a fourth. Do the projects typically fail because they overpromise functionality, because they promise too quick a delivery date, or they promise too low a cost? Is there any pattern that you discovered over time?

Marcus: No. It ranges all over the lot. There are more nitty-gritty reasons that they fail. For example, personnel: do both parties have all the requisite people, all those competent to do the jobs that have to be done for all the jobs you've identified and specified, and the numbers of people that you need? That's it; that's key. The other thing is sometimes a project fails because one of the two parties really doesn't want to be in it. For example, there are situations where a company will buy a product with attendant services and it's the IT guys who make the decision, but the end-user departments really don't want it, they want a different product, so they're not very cooperative at all. What happens is you can't successfully negotiate a contract or complete a project if the other guy doesn't want it done.

Grad: That makes sense. Listening to your experience, it seems to me that you would have a high likelihood that any project that you proposed or bid would be successful because you know where a lot of the pitfalls are and you know how to work with the client to make sure the expectations are matching. Do you agree with that assessment?

Marcus: Yes, we try for that, sure. I think there's something else on a more nitty gritty level. If you sit at a negotiating table with somebody for a fair amount of time and you go through a number of issues that are contentious, you learn this guy's operating style, his reasonableness, et cetera. If you feel you're dealing with a guy who is reasonable and straightforward and has the power in his group to do what he says, that's one thing. If you have a fuzzy feeling about it, then you've got a real potential problem. The situation with the New York Daily News was a great case in point. When I first got involved with that project, I was warned by people at Mergenthaler that my counterpart, Alan Flaherty, is a very, very tough guy. He's just a pain because he's used to negotiating labor contracts and is very tough.

And yet, Alan and I worked it out. We became friendly. I trusted him and he trusted me. And the reason was that he and I got together, just the two of us, before there was a joint project management meeting, so that we were both on the same page. And that's what a project director has to do. And the guy who manages a project director has to understand that the project director should have some money in his back pocket. He should have a little bit of a slush fund because you don't know what's going to come up.

Grad: He's got to have some flexibility there.

Marcus: That's right. And what a good project director does is he trades. He says look, I feel I don't really have to give you that but, okay, you got it. And then next time around, hopefully it works the other way. If it doesn't work the other way that's the last time the first guy gives anything away.

Grad: Let's go ahead with some other things because we're going to be running out of time here in a bit. You had a tremendous amount of experience in contracts. We talked a lot about that off and on as we've gone through this interview. Were there major differences between negotiating and contracting with private companies or corporations, with the federal government, with state governments and with local governments?

Marcus: Yes, I think we covered some of that. The federal government rules are very straightforward. They're very well known. And both parties understand those rules and for the most part they act accordingly. State governments also have rules, but I think that the federal guys are interested, actually, in getting a job done and looking out for the federal government's interest. On the state level, I think it's a lot more political, because they're in the local papers. And they don't want anything and the governor of a state doesn't want anything to come up that's going to be an embarrassment to him or his party. And the appointees that run the departments know they better protect their boss's rear end as opposed to the state's rear end. And when you get down on a local level it's even more so. The last thing a governor or his appointees want is a reporter picking up on a big project that cost \$22 million and was supposed to be in for \$5 million.

Now, in the private sector it's a different business. In private companies, for the most part, people are interested in two things: time and money. Yes, prestige and some politics and some of that is there too, of course, always. But that's not the preponderance. The preponderance is does this make financial sense for this company? Or is this something that's going to make sense to our board of directors? So, when you negotiate the contract, whether there are written rules or not, you know how to be guided in your negotiation.

Grad: Okay. You discussed a number of these things about contracts. Is there anything else you'd like to add, in general, about either negotiating contracts, renegotiating contracts, those kinds of things that you haven't discussed up until now?

Marcus: No. There's just one or two nitty gritty things. For example, most people will shun penalty clause contracts. My view is if you have a contract with a lot of risk, you're better off with a fixed penalty clause than not having it because if the clause says you have a penalty up to this and such for a certain period of time and that's the top and you're absolved of any other risk, you're better off. Because then you have a known risk that you can budget, at least budget partially for, as opposed to an unbounded risk. I think most people who negotiate contracts don't view it that way.

Grad: That's a cap on the risk whereas most people think, "Gee, why do I want to have to name that number?"

Marcus: That's right.

Grad: You said there were some others nitty gritty items.

Marcus: Well, sometimes you find a client who isn't ready to accept a system. And what they'll do is if you're delivering the system in stages, you run an acceptance test on stage one, they'll find the bugs and you fix the bugs. Then you deliver stage two, et cetera. But what they'll do is they'll find the bugs on stage one, not say anything, some of them anyway. Then you deliver stage two, then they'll tell you about the bugs in stage one. Well, had they told you about it earlier you could have done something when you're developing the stuff of stage two to take into account the impact of correcting those bugs in stage one. So, you try to get a contract which says, when we deliver a deliverable to you, you find everything you're going to find. Anything that you don't find now, you can tell us about later, but it can't hold up the acceptance test of the whole system. And yes, if it's our bug, we'll fix it anyway. It won't cost you anything. So, we're not talking about money here. But this precludes clients who aren't ready to accept systems either deliberately or for lack of personnel or for whatever reason. And it puts the onus for the final delivery for some things on the client and not you. You narrow it down to details. It's hard to get these things into the contract, but you can if you insist.

International Contracts

Grad: You've spoken about the specifics in some international contracts, as against some U.S. contracts. You were involved in a lot of those. Is there anything else you want to add about the international scene, things to beware of, things that you learned?

Marcus: Negotiating with one client in a South American country, I said, "Well, let's not argue about it anymore. We're not going to come to an accommodation. We're going to have to litigate over this thing; so be it." And he looked at me and he said, "I will tell you that the speed with which our legal system works is slower than a jellyfish on the sand." And I know that as a fact. So, there are some countries in which they have a reasonably robust judicial system like here in the U.S., in many of the English-speaking countries, and in some of the northern European countries that I know of. And in some countries, they just don't.

Grad: It seems to me that that puts the seller into a very, very impossible situation because in fact he can't rely upon litigation to resolve intractable issues. And secondly, if it's litigated within that country, I would think there would be a very strong bias against the U.S. company that's doing the work.

Marcus: Yes, what you say makes sense. And what you try to do as one company I worked for did with a deal in Russia. It was for about \$50 million and they had half the money in a U.S. bank before they started.

Grad: I see. Yes, because my guess is if you ended up with a difference of opinion with one of the Russian bureaucrats, your chance of winning might not be very great. And as far as relying on the legal system there, the judicial system, I wouldn't want to bet on it.

Marcus: And, there was one job that a company that I was doing consulting work for, had in Russia. This was the time when Russia was really lawless; it was right after the change [when it became Russia and not the USSR]. What they did was the company either leased or bought an apartment building for themselves, and they essentially fortified it. That's where their employees slept every night. In the morning, cars drove them to work and afterwards they drove them back. That's the story I was told. I was not there myself but I had every reason to believe it because in the headlines you could see that things were pretty lawless.

Grad: You've spoken at times as we've talked here about business ethics and how they may vary with different suppliers, with different customers, with different countries. Did you want to comment on that any further?

Marcus: I found that you have to be exceedingly careful in some of the Latin American countries, not all of them, but some of them. That's true of some of the European countries as well. I think if you're dealing with countries like the Netherlands and the U.K. and Germany, or the English-speaking countries, the ethics and the legal systems are about the same as here in the United States in terms of what you can do and what you can expect. However, in many, many other places, the legal system is somewhat different. Over here we have judges and juries and the judge's role is really well defined and the jury's role is well defined. But in other systems, the judge can have a much more active role so that the judge, for example, can ask questions of witnesses which they don't do here as far as I know. And I think in certain European countries there is much more of a legal bent to be fair and understand the situation, whereas to a greater extent here, if you get a sharp enough lawyer you're going to have an advantage.

Grad: So, the adversarial system in a sense, may work against you in the United States.

Marcus: I think it might, it depends. Yes, I think it might. But it's just that it's different. A lot of these countries have what is called Napoleonic law as opposed to our system.

Grad: Let me ask a different angle, did you find that the ethics of the people in terms of honesty, in terms of hands out to get things, the attitudes or such were less trustworthy in certain countries or in certain industries and you found this to be a problem?

Marcus: Let me put it this way. I was a lot more wary, a lot more skeptical of some things I was told in some countries than in others. Now again, it comes down to the exact person you're dealing with. But I think that there are some national ethical characteristics.

Grad: So, in some cases you would not trust what you were being told as being the full truth or a completely honest position?

Marcus: Well, as a negotiator, I don't feel that you must tell the exact truth. Let me rephrase that. I don't think you have to tell the full truth, but you shouldn't say anything that is not true. It is perfectly reasonable for each party to withhold certain kinds of information, like what they're willing to pay or what their costs are. So, the idea in honesty here and in integrity here as opposed to in a personal life is different. If I tried telling you something less than the full truth, you'd get pretty pissed off at me and vice versa. But in the business world if you and I were negotiating it's okay to omit but it's not correct to say something that that's untrue, that's a lie.

Grad: You're separating errors of omission and errors of commission.

Marcus: Yes.

Grad: Is that how you operated?

Marcus: Yes, I believe so. I also tried very hard to establish some kind of personal rapport with the guy I'm negotiating with. I didn't always succeed, but I usually did. The other thing is I think, when you're involved in a project, the two project managers get to know one another very soon and pretty well. And they either hit it off okay or they are out to kill one another. The best situation, particularly on difficult projects, is if the two project managers want to get the job done and they're willing to make trades and they'll do what they can within reason to protect one another. Let me put it this way: they will try not to embarrass their counterpart.

Influential People

Grad: That makes a lot of sense to me. All right, let me try another area. You had some people that you felt were mentors to you or were very influential in your life. And I would appreciate your going back over some of those names that you had mentioned earlier and where you felt they contributed to your learning process. Peter Quint was one of your early ones.

Marcus: He was the earliest. He was with Sperry and then he was at CUC. And then, as I said, I actually hired him. He was my mentor. He taught me programming. He taught me to think out of the box. He was just very bright and very helpful. He ran into some problems when he got married. When he split up with his wife he was pretty devastated and we had him move in with us for several months until he could sort of get back on his feet. Peter was a dear friend.

And then there's George Trimble whom I've described. George and I worked together for so many years. He was a devout fundamentalist and I'm Jewish and yet we could discuss religion. There was never a hard feeling. I once said to him, because George liked to drink wine, I said, "George, how come you drink wine?" And he looked at me and he said, "Do you think Jesus drank grape juice?" That's the kind of guy he was. And there was one period when I was doing consulting and so was he. We were both teaching in Chicago at the same time coincidentally and he came up to my room before we went out to dinner and he said, "You look a little worried." I said, "Well, I am. For the first time, I don't see any work on the horizon after the next couple of months." And he was walking around, I was sitting down and he said, "Well, Mike I don't worry about that." I said, "George, you've got seven kids, how could you not worry about that." And he put his hands together and he looked up and he said, "I do my part and God does the rest." And I said, "George I wish you'd say a word for me." And he said, "Mike, I pray for you. I often do." And I believed it. As I said, that was a wonderful friendship.

Grad: Were there others later on?

Marcus: Peggy Gordon. Peggy was not a mentor, but Peggy and I worked together for many years as you've heard. We were friendly and she became very friendly with my second wife and that was a very good relationship also. Julian Brandes. He was not a mentor but, again, he became a personal friend as was Richard Zolezzi, the corporate attorney at SPL. A lot of these people have become and are still personal friends for many years and I think that is one of the most rewarding things about my career; I worked with really good people, made many friends in several countries and did the kind of work I liked to do.

Grad: I think you'd come to a point in time, maybe by Unisys, SPL and later on, where you're the mentor rather than the mentoree. Do you think that's true?

Marcus: I think it was true in a lot of situations.

Grad: I think you taught a lot of people a lot of things, Mike.

Marcus: Yes. And a number of times I've been told I taught people a lot about how to negotiate these contracts and how to deal with a client. I think I did. And I think that that's why I got called back to some places, after I stopped working there, either as a consultant or an employee.

Grad: You were very careful, Mike, not to burn your bridges with people.

Marcus: That's right.

Grad: With the exception you mentioned, the separations were amicable.

Marcus: Even my separation with Joe Herberts was OK because we just saw things differently. And that was alright. I was not happy about it. I was pretty angry about it and so was he, but it was still cordial; if it wasn't amicable, it was certainly cordial. The relationship with Howard Levin was not.

Grad: So, that was one that was different. Would he have hired you back again?

Marcus: I would not have worked for him again and he would not have hired me again.

Grad: But my point is that you have done what I think is a very wise thing throughout your career; you felt, if we're going to separate, we'll separate pleasantly. We don't get mad at each other. When there are issues, they are issues of substance not issues of personalities in a sense. You're not saying it's because you're a bad guy and I'm a good guy.

Marcus: Right. I'll give you one small example of something that's a little different. When I was working in Brazil, we were a subcontractor. The lead person for the prime contractor, was a fellow named Javier, I don't remember his last name. And we had a lot of big differences, but we also got along personally quite well. I went to do a job in Argentina, and the second or third time I got there, I walked in the room and Javier was sitting there. I said, "What are you doing here?" "Well, they hired me to be a consultant. Your company has you on your side, and they got me on their side." I never expected to see this guy again and it did help that we had built a personal relationship

Concluding Remarks

Grad: I'm sure it did. Let me try and bring this to a close, Mike, with lessons learned, advice you give to other people doing the kind of work that you're doing. You've had such a broad range of experiences, and maybe there's something you'd like to share, to sort of bring this to a close.

Marcus: Well, I think I've really told you everything I've learned already. Say what you mean, mean what you say. Expect the other guy to do the same. And the first time he doesn't, then you know you don't have to behave the way you were before. You run a project, and either both project directors are going to do everything they can not to embarrass one other or each one is going to try to throw the other one under the bus. There are very few cases where you

have a really tough, contentious situation and are not clear where things stand. But it becomes clear very soon. I think that's a key issue. And basically, the technology changes, changes, changes. Project management is all about people relationships and that doesn't change, except maybe on an evolutionary scale. It doesn't change. Accounting for different culture groups, knowing, for example, how things are done in certain countries as opposed to others. But basically, you're dealing with people. I think all of the other bits and pieces I learned I've already mentioned in this thing. Yes, I guess one thing I would have done differently, I would have probably paid -- I mean, now that I'm 75-- I probably would have paid more attention to earning more money. I could have and I didn't because I basically did what I felt like I wanted to do.

Grad: But you certainly put yourself in some situations where if they had become successful when starting their businesses, you could have picked up quite a bit of money. It's just that none of them hit the jackpot.

Marcus: That's right. That's right.

Grad: But as a consultant, you get paid for your time. As an employee, you're getting paid for your time. And it's only in our industry, at least, if you have significant stock positions that you have a chance for a home run financially.

Marcus: Right. And that happened a couple of times, once because I was the founder of a company. And I earned some significant amount of money, but nothing that let me have a couple of million-dollar mansion, which is fine.

Grad: I was going to say, every time I've talked with you over the many years, you enjoyed what you were doing. You had really significant experiences. You enjoyed the work. And I think it was a hard thing for you to stop working a few years back.

Marcus: It was. When I retired I really thought I was going to retire. But what I found was that my identity was so wrapped in what I did for a living that to some extent I was without an anchor when I retired. Now my wife has continued to work and maybe if she had stopped work and the two of us had spent more time together, it would have been different. I remember that almost all of the jobs I've taken I've worked with people I knew. That wasn't always the case, but very often. I knew all of the people when I went back to work for Oracle. I knew a lot of the people at AGS prior to going there. I knew a lot of the people for whom I did consulting because I knew them in prior relationships. So that's different from having to go out and look for a job. Other than when I got out of college, I never really had to look for a job.

Grad: A lot of the work came to you. And you virtually had no periods of time when you really didn't have major work that you were doing.

Marcus: That's right. I was very fortunate.

Grad: And part of that was the industry we were in. And that you were able to keep honing your skills and having skills that were of special value to people. So that's an achievement, for sure.

Marcus: And having friends like you and George and some of the other guys. My introduction to SPL was through a fellow I met named Richard Huntley. I met him at AGS. He had left AGS and he was working for SPL. So, when my wife and I decided we were going to try to move to California, Richard was one of the guys I called. And he said, "Oh yes, let me talk to the CEO." And people relationships were very important to me.

Grad: And I think in your case it certainly worked. Let me just close by asking a bit about your hobbies. What are the things you now do with your time?

Marcus: I build model ships. That's a key. I do some volunteer work for the Orlando Philharmonic Orchestra. That's about what I do. Somehow or other the time goes, I get involved seeing my kids and grandkids.

Grad: Yes. You have three children and how many grandchildren?

Marcus: Four.

Grad: Now I gather you actually have two homes at the moment, one in Orlando and one in Cocoa Beach and you've been doing quite a bit of traveling when Alejandrina can get away from her job.

Marcus: Yes. She was an independent consultant while I was an independent consultant. And what happened sometimes was she was in one part of the country and I was somewhere else. We always knew where each other was. And on two occasions it turned out she was arriving from some place and I was going to be leaving and we would be at the airport at the same time so we met for a drink and then we each went our own way. That happened twice.

My wife has been very helpful to me in my career. We worked together. And I've been helpful in her career. She's done some very interesting biomedical software and when she was a consultant I helped with some of those contracts and contacts. And she's a very sane and sensible person. And she's helped me figure out certain conundrums when they occurred.

Grad: That sounds like that part of your life is all working well. Mike, is there anything else you want to add? Otherwise, I'm going to close the interview.

Marcus: No. Okay, Burt, thank you.

Grad: Thank you for all of your time and your interesting stories. I've heard some of them before, but you told me a lot of new ones and I appreciate your time.

END OF THE INTERVIEW