CARL RENCH

An Interview Conducted by

Frederik Nebeker

IEEE History Center

16 September 1995

Interview # 414

For the

IEEE History Center
The Institute of Electrical and Electronics Engineers, Inc.

and

Rutgers, The State University of New Jersey

It is recommended that this oral history be cited as follows:

Carl Rench, Electrical Engineer, an oral history conducted in 1995 by Frederik Nebeker, IEEE History Center, Rutgers University, New Brunswick, NJ, USA.

Interview: Carl Rench
Interviewer: Frederik Nebeker
Date: 16 September 1995
Location: Centerville, Ohio

Nebeker This is the sixteenth of September, 1995. I'm talking with Carl Rench in Centerville, Ohio. This is Rik Nebeker.

As we agreed, the purpose of this is to get your recollections of Joe Desch. Why don't we start by your saying how you first encountered him?

Rench Well, when I came back from overseas, I had to have a job, so--

Nebeker Was this '46?

Rench 1946. In fact, I came back in January, and in March I came to NCR to see if they were hiring any engineers. Fortunately they said they had some openings, and so the Personnel Department put me in touch with Joe Desch.

Nebeker Now you had an E.E. degree and experience in radar?

Rench Yes, I had an Electrical Engineering degree from Ohio State University, and I'd had nine months of training in the Navy in radar and radio aids to navigation and communication equipment. When Joe interviewed me he didn't seem to care a bit about the communication or radar. The first thing he asked me was "How would you do some electronic pulse counting?" So I said that I would use a cathode follower with a capacitor on its output. I would send the pulses into the cathode follower, and send the output into another amplifier stage with a bias on it. And after the cathode follower, with a capacitor on it's output, built up the voltage charge on that capacitor greatly increasing the bias on the amplifier, the transmission of pulses through the amplifier would stop, and I would know that I counted so many pulses. He said "Well that isn't the way I would do it, but," he said, "that's O.K. I'll take that," he said. Anyway he interviewed me, and Bob Mumma interviewed me.

Nebeker Yes.

Rench And they introduced me by some quirk of luck to Harry Williams, who was the Vice President of Engineering at that time. So they gave me a nice offer and I accepted the offer.

Nebeker And how long did you work with Joe?

Rench Well, I worked for Joe, let's see, he was sort of off on the side when I first came there, because of his nervous breakdown. And Bob Mumma was running the Electrical Research Department. So in effect, although I saw Joe off and on for several years, and talked to him, I was really working for Bob Mumma at that time.

Nebeker I see.

Rench But later on after four years in Electrical Research, the Korean War was on and I was placed in charge at that time of a Systems Engineering Group to work on the A1A Bombing Navigational Computer system. I believe it was called the K1 system. My organization handled the systems engineering part while the Company was producing that unit for the Air Force.

Nebeker Yes.

Rench But soon after Korean War effort, as I remember it, Joe Desch took over again the active management of the Electrical and Electronic Engineering work in NCR. Although I worked for a couple of years again for Bob Mumma, Joe was much more involved. At that time we were trying to design a programmable electronic accounting machine to give NCR a modern product for the marketplace.
I believe it was in 1952 that the Company acquired Computer Research Corporation. And by 1955 they decided that they wanted to do the production in Dayton of the computers designed by them. So Joe put me in charge of engineering--The Electronic Engineering Department--to do the production design of those computers and to interface with the Dayton manufacturing

organization. And in addition, we were to design peripheral equipment--printers, tape decks, etc. to go with the computer. Joe and I became enmeshed in that program, deeply enmeshed because it was the first time that the Dayton operation was going to be in computer manufacturing with delivery to a customer in the marketplace. Now, during these years, I met frequently with Joe to talk to him. He was always the kind of a guy that seemed to want to guide me, which I loved, because he was so respected in the company.

So that was a profound undertaking. The relationship with Joe was very tight at that time. He and I would exchange a lot of thoughts about the management of major projects.

Nebeker How many people did you have working for you?

Rench Oh, I think I had about 70 or 80 at that time. The project management he and I discussed was about managing resources, including personnel, finances, and equipment, so that you could get the results you needed. The Company had never really used any professional management techniques to manage a product development project. From simple bar charts to applying Pert techniques or whatever you may have, we introduced all of that to NCR. Joe worked very closely with me to make sure that I wouldn't be a darn fool in overdoing the job and not use practical judgment.

Nebeker Had he used those techniques himself?

Rench No, I don't believe so. Well, if he applied them during the Bombe program--I don't know. But the way the product engineering activities were organized in the Company prior to my undertaking the Electronic Engineering Department activity was more on an inventor program basis. In fact, when I worked for Bob Mumma in the forties, we had a very lovely setup where an engineer like myself and a technician would have a little laboratory of our own. We would, with assignment

from Bob, try to invent and create something that was patentable and be a precursor to a product for the Company.

In addition, the mechanical engineering people--those developing the cash registers and the accounting machines--used what they called the inventor process. The key man would be the manager of a department and he would also be the lead designer or engineer. In essence he would control all of the technical activities of the people under him. As a result, the manager would be the top inventor on everything developed in his department. I believe the Company had used this system for a long time.

Anyway, we set up project management. And, as I said, Joe and I became very close. Then Joe would tell me about his experiences prior to my joining the Company. This included talking about his nervous breakdown. He talked about Navy Captain Ralph Meader driving him crazy by living in his house during the life of the Bombe project. He almost said it with a vicious feeling at times, because it was apparently a terribly nervous period for him.

Nebeker Do you think it was the relationship with Meader that was the largest factor in that breakdown?

Rench Well, he told me, and I'm sure you've heard this, that Ralph essentially told him that people were getting killed because he wasn't doing his job on schedule, or right, or something. And Joe was a very patriotic and dedicated person, and that really hurt him. And he told me about having bad nights, and nightmares, and so forth, during that period of time.

He also told me, "Well gee, right after the war, in my living room was where the ERA organization, the disk computer business set up in Minneapolis, was formed". He said "I could have joined those guys, but 1 decided not to because I there was going to do other things here, and, in addition, I was worn out."

Nebeker Do you think he was also much influenced because, as I understand, he was under suspicion because of relatives who were Nazi sympathizers in Germany?

Rench The answer is, I don't know. He never talked about that. Maybe his name being Desch and my name being Rench, maybe he understood we were both of German extract, or something like that. No, he never talked about that to me. But he certainly felt a terrible pressure.

He told me that subsequent to the Bombe program and while I was being hired, which would have been '46 and '47 I guess, Mr. Allyn and he were talking about setting up a subsidiary of some kind to develop electronic machines or computers. He said he thought it was a good and exciting idea but that he and Mr. Allyn could not agree on who should be on the board of directors and who would run the operation of the subsidiary. So he said nothing really came of that. He told me that he wasn't sure that he was very upset because he was tired and had wanted to rest.

In addition he pointed out that he believed Mr. Allyn, who was a real driving person, was just a little jealous of him having received that Medal -- I can't remember its name -- the Medal of Honor or Freedom -- or whatever it was.

He also told me, I don't know if it's true or not, that the Navy Department was very interested in him moving to Washington D.C. to work for the Navy in advanced programs. Maybe you've heard about this. He told me that he responded to them by saying they couldn't afford me since he was making more than civil service would pay. But, he said "You know what, they made arrangements to solve that problem". He said that Congress passed a resolution of some kind so that he would get special pay to go down to Washington DC. Now how true that is, I have no idea. But I definitely remember him telling me about this.

Nebeker But he still decided against it.

Rench He still decided against it. Joe and I also talked about our -- our social beliefs, our moral beliefs, and so forth. The next thing you know, we're talking about the New Testament. We discussed the Bible and specifically the New Testament. We discussed Luke, John, and Mark and the wonderful story of Jesus.

Nebeker Was he a religious person?

Rench I think he was very moral and religious, but he was not the kind of one to go around and talk about it openly.

Nebeker Was he a regular churchgoer?

Rench I believe so but I really can't answer that. Me, I went to church about two/thirds of the time so I wasn't a regular. But we got into those kinds of debates and interesting discussions. I always revered the way he thought and analyzed things, because it seemed like he had such a practical approach to the real world.

Two other things occurred during this period of time. Joe had a very close relationship with the Vice President of Engineering, who was Chuck Keenoy at that time. Chuck and he felt very rigidly about how they wished for the computer program, that we were working on, to be successful. And they were deeply concerned that the Computer Research Corporation on the West Coast, which was providing the basic central processor design, was not going to be able to do a job that would satisfy NCR's marketing needs.

Apparently at the beginning, when the Computer Research Corporation acquisition was being considered, Joe told me that he had been involved with Colonel Deeds and Mr. Allyn, and whoever else was involved in that action. And he was a key influence in NCR proceeding with the acquisition.

Nebeker Yeah. He went out and learned about the Company and then?

Rench I think so. I don't know what all he did at that time, but apparently he was the one who advised them to proceed. And I think that it was Colonel Deeds, as I understood Joe, who actually congratulated him for having an open mind about

acquisition versus doing something in-house. To me again, that meant, for my feelings, that Joe was open minded and realistic about how to obtain technology. Our Electrical Research activities had not been on stored computer techniques. They were on applying electronics as the replacement, if you will, of super-mechanics like that in our cash registers and accounting machines. And we were fairly good at that, but we had not used programs and data stored in a memory system like computers use.

Well, anyway, during that period, the late '50's, while we were working on getting ready for production of that computer system in Dayton, the politics became nasty between Chuck Keenoy and Bob Chollar who was Vice President of Research at that time. In addition, it became obvious about that time that the computer being developed by the Hawthorne, California Division (formerly the Computer Research Corporation) would not be a success. Whether it was the product or the politics, it didn't matter.

By that time Mr. Allyn had met with the top man at General Electric and he came back to Joe and talked to Joe about G.E. designing and producing NCR's computers. Then Joe sat down with me and we discussed NCR's capabilities in electronics and computers. Finally, we had to recommend that we were short on electronics and that CRC (Hawthorne) wasn't moving fast enough towards a good computer system that was going to satisfy our market requirements.

Nebeker Your computer project was largely independent of the CRC work?

Rench My job was to take the CRC design and make sure it was producible in Dayton, and to add the necessary peripherals to it. Joe was advising me and counseling me on the kind of technologies that I could apply and helping me on any kind of product or model or design acquisition. We did buy the printer design and several other peripheral product designs. Joe was very close to me in making sure that we didn't waste our resources.

Unfortunately, the group on the West Coast at that time was not able to support us towards what -- what the Company considered to be a machine -- a computer that would handle business accounting.

Nebeker So you, well, besides the logistic problem, you couldn't talk with those CRC engineers to make these changes that you wanted?

Rench The politics wasn't working. I wasn't involved in that level of the management at that time. But the two vice-presidents and Joe were just not working out too well. So the GE thing came along and Joe urged me to pick up the General Electric contract management. General Electric agreed to design and produce for us, to our specifications, a product in Phoenix and we would do -- continue to do -- the peripheral equipment in Dayton. Joe then made sure that I carried out the technical management relationship in that contract with the G.E. organization in Phoenix.

In the late 50s, I don't know, '59 or '60, in that time frame, Chuck Keenoy left the engineering vice presidency job and Chollar took over. Joe didn't care to work with Chollar. I didn't know what that was all about. I had no idea, and I never wanted to get involved in it. The result was that I ended up working for Chollar. Bob Chollar then gave Joe another job that was the management of Advanced Development. As a result, I no longer worked for Joe.

But Joe and I stayed in touch. We talked together frequently. For instance, I know that somewhere along the line, I can't remember the exact year Xerox was put into place, Joe showed me the letter where he could have been chief engineer of Xerox. And I urged him to take the opportunity. I found out later that the people who took those opportunities with Xerox became very wealthy because of their stock growth.

Nebeker Yeah. And why did he decide against it, do you know?

Rench I think he didn't want to pick up a responsibility that could possibly give him a nervous breakdown again. That was always my feeling.

Nebeker That he was wary of--

Rench very wary of--

Nebeker --managerial responsiblity.

Rench The story I heard from Vince Gulden, Lou Sandor, Jack Kern and others that I worked with after the war was how Joe, during the war, would jump up on a table and raise hell about not getting something done on schedule. And how up-tight he was, and how he was driven in the job.

Nebeker Yeah. And he wasn't like that--

Rench And that's not his normal nature, I don't believe. Very creative -- as you know, in the forties. You probably know from Debbie or someone that in the '40s, in order to calm his nerves, he went back to one of his first loves and set up a laboratory to design thyratron tubes.

Nebeker Yeah.

Rench I was brought up on hard vacuum tubes, in all of my training, but when I came to NCR I found out that they had these little miniature thyratrons all over the place, counting pulses and doing all sorts of tricks with them. And Joe was the guy that had put them into that business. I guess Bob Mumma helped him -- and they were actually blowing their own glass and doing everything else to make these tubes. And Joe had the dream of making a ten-step counter in one glass envelope, and he used that laboratory for designing that particular tube.

Nebeker Do you think that was his first love, tube design?

Rench Absolutely -- neon, argon, glass blowing -- I think he absolutely loved that kind of thing. And when he would come back from those laboratories I think he was refreshed.

And, by the way, he did beautiful work. It was lovely stuff that he did. In fact, as you probably know, their miniature thyratrons were then picked up by Sylvania after the war, or somebody, and manufactured by them.

Nebeker Did you do any tube work with him?

Rench No, I did not do that. I worked on designing counters and signature recognition systems, multiplication circuits, and that kind of thing, for Mumma during the forties.

Nebeker And you told me about the managerial advice and collaboration you had with Joe -- what about Engineering work? Did you in a technical way work with him?

Rench Well, when I became the head of the Electronic Engineering group I then pulled away a little bit from doing technical work. I had to manage others doing that work but, typically, neither he nor I could stay out of looking in on that stuff (laughter) and so obviously he would give me his advice and counsel about what he thought was right or wrong or good or bad. I would cover test results with him, and he would always, very positively, help me. Joe was never negative in working with me. Now, I don't know how he was in working with others. By the way, his relationship, as you know, with Bob Mumma goes way back and those guys loved each other. But, one of Bob's aspects, and you know I love Bob as much as possible, because the guy's so human, was his wonderful intelligence. And Bob was so good at technical things. But Joe finally pulled me away from under Bob Mumma to work for him. And then later Bob Mumma worked for me, because I became, as you know, an officer of the Company and had all of Engineering under me at that time. Then in 1970 I took over Research also, all of R&D -- and had that for four years until Anderson came to town and decided to reorganize the whole company. Decentralize it. Which --- strangely enough --- I helped plan that decentralization which cost some of our jobs.

Anyway, Bob Mumma worked for me and we got along fine, and when I worked for him we got along fine. And today Bob and I are the greatest of friends. But the closeness between Joe and Bob was phenomenal for years. Except that, when Joe started laying off from active management because of his nervous breakdown, Bob became the predominant character for, I'd say, about seven or eight years. Then Joe stepped back in again. Bob liked to work for Joe.

Nebeker Had he regained some of his drive?

Rench Well I never saw it evidenced the way the guys talked about it during the Bombe project. I never saw that much. He was dedicated to accomplishing the results. And I think he was using his senior citizen status to make some wise decisions. You know, when you say NCR's electronics isn't adequate for computer development and it is necessary to acquire, or we're not going to be able to produce a computer as well as G.E., and we need some help, you're stepping beyond just saying "I'm an engineer."

Nebeker Yes, of course he had to make many difficult decisions early on and--

Rench Yes. That's true.

Nebeker When he would talk to you about the Bombe project, how did he seem to look back on it?

Rench Well, as I told you, he talked about how he was accused of killing people for not having things done on time, and he talked about the tremendous need for whatever it was, but he never told me any details about the project.

Nebeker I see.

Rench But since I had been in the Navy, and had been in the Pacific war zone and all that sort of thing, he did tell me somewhere along the line that "Hey, that Battle at Midway, we had something to do with making sure that that turned out in favor of the United States." So, you know, hell, I'd heard about the U .S. breaking the code somewhere along the line so I put two and two together -- so I said well, they

must have had something to do with breaking the codes. I think I told you in the auditorium at the Museum that Joe told me about a guy disappearing. (laughter) He told me about this guy disappearing and he told me "We were scared to death. They threatened to shoot people and everything else."

Nebeker What was the explanation of that?

Rench Just the fact that it was a super secret project, and the security so high, and classified so tremendously, that people just couldn't be trusted.

Nebeker Did he seem to be bitter about that experience?

Rench No, I think he felt very grateful that he finally accomplished his objective. I think he felt only -- not bitterness, that's not the word -- I think he felt rather put out by having somebody live with him all the time and following him around. I think those things bothered him and he couldn't get over that as easily as he would have liked.

Nebeker And you say he was able to talk with you about his nervous breakdown?

Rench He only mentioned that he had the breakdown. He wouldn't talk about the details of that. No, he wouldn't talk about the details of it.

Nebeker But he'd accepted that you knew that under those circumstances it was too much for him.

Rench He told me, of course, about their relationships with M.I.T., the relationship with Harvard -- what was it, let's see, some guru up there, I can't think of his name --

Nebeker Vannevar Bush?

Rench No, Bush -- he talked about Bush but there was another guy that was more of a computer type -- well, anyway, he talked about him. He also told me about the early programs they had with the naval research lab, or whomever it was with in the Navy, where they actually developed pentode-type tube counters that would count at the megacycle rate. They could measure the speed, the velocity of a shell. He talked about those programs that they'd had before the war that led to

being considered, I'm sure, for the Bombe project. I think he was very creative at that period of time. Because when I went to college, about the same time he was doing all that work, we never heard of anything like that. The most I ever got into in complexity was electron optics. We didn't have any circuits or studies like he was talking about. So he was on the leading edge.

Nebeker Can you summarize what you learned from him about management style?

Rench Yeah, I think I can. One is to have a balance towards the people and the technical part of the work. Don't drive the guys to death against some project schedule, but on the other hand expect them to accomplish their objective. And for heaven's sake, be out on the leading edge and know what you're doing with new technologies. He read a lot on technology, he read a lot on electronics. I had great faith in his judgment related to how to deploy technology and to use the human resource but not to overdo the human resource bit. I think that, in a way, he perhaps felt that he had to drive his people too hard during the war and therefore he was trying to be more rational in his later life.

Nebeker Yes. Well that must be one of the most difficult tasks as project manager to judge what is feasible with the given resources and time

Rench Yes. Now by 1960 sometime he was primarily only handling Advanced Development at the Company because Mr. Chollar and he weren't exactly friends. Chollar had become Vice-President of R&D, taking over all the research and the development work. Joe, on the other hand had apparently told Chollar that I was a pretty useful guy, because Chollar then grabbed me and promoted me into very responsible positions. And, I think it must have been the middle sixties sometime, while Joe was still in charge of Advanced Development, before I took it over later, that Chollar came to me one day and said, "look at all the advanced technology that's coming out of Europe, Switzerland, Zurich." He named a lot of places over there, universities and the like. He said "I need someone to go over

there and look into this and tell us how to take advantage of it or what we should do about it."

Nebeker Yes.

Rench And I said, well, you've got a gentleman that's in charge of advanced development and advanced technologies in the corporation and he's highly respected -- I think you ought to send Joe Desch over there. Well, unfortunately, I ran into Joe later on and he said "G-dam *11##*%% I won't go overseas for him for anything or any amount of money." (laughter) I didn't know if I should tell Debbie that or not. But he just wouldn't --

Nebeker Did you get sent then?

Rench Yeah. I didn't go on that particular project, but I traveled to Europe so much that I got tired of it finally. But, yes, we had people look in on it. But unfortunately, that seemed to be one of the leading causes for Joe to be pulled out of the Advanced Development and be put in charge of the Military Program that the Company then tried to start up again in a minor way. But I would still see Joe frequently and talk to him and we had a lot of comradeship and the like.

Nebeker And how did his attitude toward work go during the latter part of his career in the sixties?

Rench Well, I told you earlier that he didn't have much love for Bob Chollar. In fact, he had just the opposite. He had predicted to me in the early sixties that the Company would run into great trouble under Bob Chollar, and I hated to agree with that because I was trying to help the Company move forward into electronics. And so I wouldn't enter into a discussion with him on that subject, but I heard several times from Joe that Bob would probably take too many risks. We tried to talk Bob out of some of the risks and late in the sixties we did have major problems. Chollar had turned loose the west coast organization and it came up with -- well, they had different projects out there that were way out on the leading edge with

no proof they would ever work. And you probably know about the Century family of products with -- we had short rod memories with magnetic flux flying around in all directions and not in the middle where it should have been. Instead of a magnetic core we used those things that they developed out there. They also had multiple tracks on a flying head on a disk which didn't work out very well. So the Company lost a lot of money at that time and Bob Chollar decided to leave the Company in 1970. I swear he -- Bob was a good friend, Joe was a good friend and there I was right in the middle of all this. But on the other hand, I had to agree with Joe in one regard. Bob was not handling risks well, and Joe seemed to know that. He had that knack of knowing where the risks were going and that Bob was going to stick his neck out too doggone far, and he did.

And my estimate was that the Company lost in real and implied profits at least half a billion dollars because of the problems with the Century computer family of products. And that is pretty heavy. Of course, then as you know in 1973 and 4 -- '73 we wrote off a lot of money. Think it was '73 if I remember right, '72 to '73. But Joe had a judgment about him, he had a capability of evaluating, but I don't think he wanted to use it anymore after 1960 when Bob Chollar took over. Before that, there in the late '50s, Joe was in there driving. Not in the same sense he was with the Bombe project, don't get me wrong, but he was willing to manage, he was willing to work, and he liked working with Chuck Keenoy. Keenoy depended on him, and he was making what I considered rational judgments about the capability of the Company versus the technology we had to pursue.

But when Chollar took over he didn't care for that anymore. However, strangely enough, when he would see me, and I was running the Engineering operation at the time, he would bolster my spirits, he would give me some advice -- Joe never let me down. He was always my backer. I would go to him with either a technical problem or a personnel problem and say "Hey, I need some advice."

And he'd give it to me because, of course, in my heart and soul he was top dog when it came to making good judgments. The only judgment I wish he had never made was not liking Bob Chollar so much. Cause I could see the switch turning in 1960. Ah, from then on he just enjoyed life, I think.

Nebeker Pulled back a little bit

Rench Pulled back a little bit I think. Then he took on that military operation and he had some nice successes in that thing. You know they came out with thermal printing. The company became the leader in thermal printing and Joe did that, he and his staff did that. I remember they espoused that as the quiet printer that could be used in aircraft. Quiet, meaning electrically quiet. And for quite a while NCR remained the leader in that.

I think I made a tactical error on that one. Jack Kilby, you know, the co-inventor of the integrated circuits, came to me one day and said, "Hey, I can do thermal printing commercially." Bill Puterbaugh, a friend of his and my Technical Assistant, had brought him to me. Jack said, "For fifty grand I'll do an integrated circuit type of a head for doing thermal printing." So we found fifty grand and gave it to Jack to use down at Texas Instruments (laughter). I thought I was going to help Joe, " Well, I'll give this to Joe for military purposes and I can use it for commercial purposes."

But doggone it, Jack Kilby came back and said, "I'm almost there but I need another fifty grand," and I didn't have another fifty grand. So I said, "I can't do that, Jack." Anyway, he went ahead, as you probably know and put thermal printers on a lot of their little calculators. They used a lot of thermal printers using a type of integrated circuit design that came from my first fifty grand!

Nebeker Oh, so you got him started on that.

Rench We saw Kilby quite frequently in those years. Puterbaugh, my technical assistant brought him in quite a bit.

But anyway, Joe was doing thermal printing and some kind of a rescue beacon for the Air Force. I think it was one of these things that you drop or take in your pack with you--

Nebeker I see--

Rench --when you're parachuting. And Joe had quite a few successful projects there.

Nebeker Did he seem to gain new energy with those military projects, would you say?

Rench Well, I think he was enjoying life a lot more than (laughter)--

Nebeker --earlier. (laughter)

Rench Well, let's talk about the other problem with Chollar. Of course, that military group reported to Chollar, but they didn't pay any attention to each other. I'd say Joe was not pushing it very hard for growth. Joe did talk to Chollar and others, I remember, about needing more systems ability -- system capability. I don't know what exactly he meant in that, but he said they needed more. Well, Chollar and Laing, who was president at the time, did a weird thing. They bought ECI in Saint Petersburg, Florida -- Electronic Communications Incorporated for about sixty or seventy million dollars, and I don't think they ever asked Joe, and they never asked me, or anybody whether they should buy that outfit. And that purchase turned out not to be very successful for NCR.

If you ever want to know the history on that one, I can give you some of that. Sam Bishop was the chairman of that outfit, and Sam knew what he was doing when he sold out to NCR.

By the way, Sam was the only pilot that, one of the only guys that got off of, I believe it was Hickam Field, with a, what was it, a P-40 in those days, '39 or something. When the Japanese came in he got shot down though, and fortunately someone rescued him. But Sam knew the Air Force well -- and he also knew how to sell that business to us.

Nebeker (laughter)

Rench His products were primarily air-to-air and air-to-ground communication equipment. Now I thought that Joe was going to step in possibly and meld these military programs together. That never happened.

I'm not sure why, because that wasn't my main stream activity at the time. I was in commercial products all the way. We tried to evaluate anything that ECI had for commercial work, which wasn't very much because the specs were so different. We did look at their modems and some other things like that.

Nebeker Yes.

Rench But in the meantime, Joe was still going ahead with his own work -- I don't know how much they tried to tie ECI work and theirs together.

Nebeker Did you stay close to Joe?

Rench Yes. Well, I didn't see Joe as often then, as you can imagine in those later years, but, well, two strange things happened, Rik.

My wife's mother, after Joe retired, was in a nursing home out by Miamisburg, and I went out there one day and there was Joe. He was in the place too, and apparently, he told me, he was there because he'd blacked out one day. This was because -- and Debbie knows all this, I don't know the details of this at all, he blacked out and they put him out there to recuperate.

Then in 1987, in the fall, a good friend of ours, a guy we'd sent to the West Coast to be chief engineer out there, Frank Laub, came down with bone cancer. This is a cancer which is usually terminal. When a friend of mine and I heard that Frank was coming back to visit the people he worked with before moving west, we arranged a big picnic for him at Old River Park. Now at that time he was in remission and feeling pretty good.

So I called Joe, and tried to get him to go to this picnic. By this time, he was back home in Kettering. Unfortunately, he wasn't very interested. So the very morning of the picnic, I dropped in to see Joe and I said "I'll take you out, drive you out,

come on, Joe, you know, you're the father of a lot of this stuff that's going on out there. And Bob Mumma's going to be there and all of your, a lot of your old gang." I couldn't talk him into going. It broke my heart. Well, later that fall, Frank died, and Joe died.

Nebeker I've taken more of your time than, than promised, but any, any other recollections that come to mind?

Rench Well, I can't gave a specific one, I mean, any other thing other than all the warm feelings we had for each other, I guess that's the key.

Nebeker You told me before that you regard him as your mentor.

Rench Yes, absolutely. Well, you know, it's interesting -- I worked for Mumma first, and Bob was good to me. I had no complaints; in fact, you know, he just treated everybody great. But somehow or the other, when I took over management, that's when I was scared. And Joe guided me and helped me and I consider that my greatest time of moving ahead in the company. I had a lot of fun, though, in that research group with Bob. You know, we were allowed to work on our own projects that he would assign us and then get patents and two things came out of that, that were remarkable.

Well, one thing that came out of it: the Postronic, you probably know about that old balance pick up system on the ledger card. That came out of that group of Bob's. And I had designed a multiplication set of circuits which could be on one of the accounting machines. And later on, they actually produced that too and named it the Computronic.

We had a lot of fun in that program with Bob Mumma, and a lot of patents came out of it that became very useful for NCR. Some of those patents, later on, became great trading vehicles with other people that felt they were going to come in and get a lot of royalties out of NCR's hide. NCR could say, "Hey, buddy, you've been using one of our patent too, you know," so . . .

Nebeker More, then, for the royalties you'd get the patents?

Rench Yes, NCR wasn't deeply interested in the royalties.

Nebeker But in protecting itself--

Rench --protection, yes. Well, we had a couple of things that turned out, later on, to be very successful, from an advanced work there that I had when I was in Engineering. We did early work in PROMs, or EAROMs as we called them in those days. That stands for "electrically alterable read only memories," and PROMs stands for "programmable read only memory". We were one of the pioneers in that stuff, and, as I remember, we actually sold royalties, sold the rights of that to some Japanese firms for royalties, and then, the other one was, uh, what was the other one? I can't think of it now; I was going to give you two of them. Isn't that awful -- well, I can't think of the other one. Anyway . . .

Nebeker You'll have a chance to add it later.

Rench We had great pioneering in Bob Mumma's organization when I joined NCR--we were sending video signals around for remote viewing. We were doing all kinds of calculation and they were miniaturizing, trying to come down to a small adding machine or a calculator of small size. Jack Kern built one of the smallest ones himself, just before we went into the Korean War. Jack was very creative and so were Lou Sandor and Vince Gulden and others. Ahh! we had a lot of fun.

Nebeker Good, good crew.

Rench But, you know, literally, they were all great respecters of Joe. I couldn't hear anything bad about Joe Desch from these guys because he was sort of the hero at that time. Oh, they would grumble about how hard they had to work. (laughter)

Nebeker You were just telling me about this, this ERA . . .

Rench John Coombs and all the gang were excited about, you know, setting up ERA and I just couldn't believe that Joe wouldn't have taken advantage of that, because it was a golden ripe opportunity. But since he was worn out from the work I can

understand why he didn't. But then later, the disappointment about Allyn not going ahead with the new division and computers was also, I would think, a very big disappointment. He didn't act like he was disappointed in that, but he thought it was probably a mistake for the company though. And I believe that's the reason why then in '51 and '52 the CRC, the Computer Research Corporation takeover was a natural for his consideration.

By the way, they were very creative and ingenious with what they were doing at CRC at that time.

Nebeker But there wasn't a perfect match with the market?

Rench No, their computer was O.K. for solving differential equations, or doing some scientific computing work, but not very good for handling files. It wasn't a good file system at all and business needs files.

Nebeker Thank you very much.