

An Interview with
CHESTER IRWIN LAPPEN

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Conducted by Arthur L. Norberg

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Abstract

After briefly describing his educational background and activities prior to the 1950s, Lappen discusses his association with Telemeter, Telemeter Magnetics, and Dataproducts. Through his work with Mitchell, Silberberg and Knupp, Lappen became involved in the management of Telemeter, a Paramount company that developed a precursor to pay and cable TV. He discusses Telemeter's research and development work including: pay TV; a development contract with the Bank of America for a check sorter; a machine for language translation; the construction of ERMA for the Bank of America. Lappen describes the separation of Telemeter Magnetics which manufactured core memories for computer companies from the pay TV operation. He discusses the growth of Telemeter Magnetics and the addition of disk files, buffers, and line printers to their product line. Lappen describes the decision by Paramount to sell Telemeter Magnetics to Ampex and recalls the decision by Erv Tomash, Bill Drake and Lappen to found Dataproducts in 1962. He describes the initial capitalization of Dataproducts and Cliff Helms' development of a line printer superior to any on the market. Lappen concludes the interview with an assessment of the innovations made by Dataproducts and the challenges associated with forming a high technology company.

Some later reflections by Lappen on the subjects covered in the interview have been included as a supplement.

CHESTER IRWIN LAPPEN INTERVIEW

DATE: 10 June 1993

INTERVIEWER: Arthur L. Norberg

LOCATION: Los Angeles, CA

NORBERG: Today is June 10, 1993. I am in the offices of Mr. Chester Irwin Lappen for an interview about the computer industry and related activities. Chet, I want to cover the activities that you were involved in in the '50s and so on with Paramount and others. Then, I know you were associated with Dataproducts and I would like to talk a little about that, and then if any surprises come along the way, we can fill those in as well. The objective here is to get that information, and to do two other things as well. One of them is that when I started this business 20 years ago now, 1973, and began interviewing various people who were either directly or peripherally related to technology industry and technology developments, along the way I've tried to get some personal information about them -- I don't mean intimate but just the usual who's who entry type of things that don't usually show up in very many places. Interviews I have done contain a body of sociological data that is very hard to find elsewhere.

LAPPEN: I would think so.

NORBERG: And the second thing that I have tried to do is to build up information about every type of activity associated with high technology industry. So I've interviewed bankers, CEO's who come from financial backgrounds, from legal backgrounds, and from technical backgrounds, and so on. So there's a whole array of information that I think will prove useful, maybe not in the individual case, but certainly in the overall dimension. So I thought that was one of the reasons why when you told me about Paramount that it was important to get here to interview you. So that's what I'd like to do today.

LAPPEN: Fine.

NORBERG: We'll just make this a free-ranging conversation. If when you see the transcript you don't like it so much, we can change it. So there are no holds barred on that. The intent, though, is to release the transcript for other

peoples use.

LAPPEN: Eventually.

NORBERG: Yes, eventually. We are doing something for the public record. Therefore, I will not be asking you questions that would be confidential to clients and so on, and if I do, just skirt over them. I'm sure you will, but I tell you that I know that that's a necessary agreement.

With this said, let's begin. Chet, can I ask you a little about your personal background -- where you came from, what your early education was, and especially what your parents did?

LAPPEN: I was born in Des Moines, Iowa. My mother was born in Dubuque, Iowa. My father was born in Europe, but came here as a very young boy, went all of the way through school and was a practicing lawyer his whole lifetime in Des Moines. And my mother's two brothers were lawyers. I'm an attorney. Both of my sons are attorneys. My daughter-in-law is an attorney. My granddaughter is practicing law. My grandson's in law school. So we jokingly say, "Nobody in our family's worked for over four generations". [Laughs]. I went to school in Des Moines, Iowa. I was very active in athletics and academic matters, came to the University of California (UCLA) to play basketball. Played varsity basketball there for a year, and worked in an insurance company in the statistical department and . . .

NORBERG: Which insurance company, Chet?

LAPPEN: It was called Guaranteed Life. It's no longer in existence. It was a very small mail order insurance company. Then I went to Harvard Law School and graduated there. I was number one in my class, and editor-in-chief of the Law Review, which in those days was considered a special honor.

NORBERG: What year did you finish law school?

LAPPEN: I completed law school in January of 1943. I was scheduled to finish in June, but was deferred by the draft so that I could attend a summer session in 1942 and finish my schooling. I was married at the time, having married before the war. Following graduation I had a clerkship, potential clerkship, I didn't really have it but one offered to me with a justice of the United States Supreme Court, but I figured it was time that I got into service so I volunteered and went into the Army as a private. After a short time I became a drill sergeant only because I'd had ROTC in college and thus had a couple of years of military training.

NORBERG: Chet, I can't imagine you as a drill sergeant [laughs].

LAPPEN: I wasn't a very good drill sergeant. I knew the various commands and what they were supposed to do, so I did that. I ended up at a prisoner of war camp, an American prisoner of war camp in Missouri. It was one of the duller jobs in the world and I was determined to get out of there. In order to get out of there, I volunteered for the paratroops. I didn't get into the paratroops but I did get into the counter-intelligence corps. And I spent about 36 months in the American counter-intelligence corps. Jokingly we used to say that we counteracted any evidence of intelligence which we saw. I was in civilian clothes much of the time -- occasionally on an army post I'd wear a uniform -- but most of the time I wore civilian clothes, and what we did among other things was apprehend deserters and escaped general prisoners. We'd surround houses and break doors down and all the things you see in the movies. The more interesting thing is that I got involved in the war crimes and we interviewed a number of the American prisoners of war held by the Germans and Japanese. I spent a good deal of time with the Doolittle flyers who'd been shot down. So I got reasonably well familiar with what happened to American prisoners in Japan and also in Germany. Following discharge from service I came to California, because I'd always intended to come back here. My wife is from here. It was a seller's paradise and I was a seller because there had been very few graduates from law schools for three or four years because of the war. I had a very good academic record and I had reasonably interesting practical experience so almost every firm was available to me, or at least appeared to be. I liked the people here at Mitchell, Silberberg very much. I remember Mr. Mitchell kidded me about my original interview with him. He said, "When will you let me know" and I said, "I'm ready to come to work now." He said, "Did you have other interviews," and I said, "Yes, but I'll cancel them." As I got to the door he said, "Don't you want to know what your

going to be paid?" and I said, "You know, I guess I do; I never thought about it. I learned in the army to live on very little money and I can tell you once I'm not happy here I'm not going to be here, but I'm not going to be influenced by what I get as a starting wage. I like the future here." So I joined the firm and it's been a very happy association, and I've been here all the time since then, early 1946.

NORBERG: What sort of law did you expect to practice after the war was over?

LAPPEN: I didn't really know. My original background was economics and I knew I liked business so I figured I'd be doing business law. But my father was a trial lawyer and I had the feeling that in a business negotiation I would be a better lawyer if I knew what happened in the courtroom, so I tried a number of cases. However, I was not a trial lawyer, but I did basically corporate business and real estate work. Our senior partner, Mendel Silberberg, represented a number of people in the movie industry, individual stars and companies, and was doing quite a bit of work with Paramount Pictures. Paramount had a new company they had just started called Telemeter, which was involved in pay TV.

NORBERG: What year are we talking about, Chet?

LAPPEN: Probably 1949, maybe 1950 -- a long time ago. And Paramount's idea was that the signal would go over the air scrambled and there would be a box placed on each television set and the owner would insert cash in that box and that would clear the picture and you would then be able to see it. They were looking for a young lawyer and I was assigned the account.

NORBERG: So in 1949, that period anyway, this was a time when TV was really just being introduced. It had been stopped in 1940 because of the war and took a few years after to get production up and so on. So did they have any arrangements with television companies that you remember to which this device would be attached or was it planned to attach it to any TV at all?

LAPPEN: The motion picture industry was opposed to the television industry. They felt that television was basically a competitor of theirs. So the motion picture companies were not making any shows for television. There were a few independent people, one, a client of our firm, Hal Roach and son, Hal Roach, Jr. was making some shows for television but he never got his money out of them -- his thought was that they would own the residuals which would become very valuable. But Paramount's idea was that you would attach a box on a television set, any television set, and then they would arrange to have programs scrambled sent in over the air (whether it'd be fights or movies or baseball games). The T.V. owner would put money into a box which would unscramble the picture. I became quite intrigued with the company and in a very short time, Barney Balaban, the president of Paramount Pictures, asked me if I would go on the board. That is when I went on the board of Telemeter. Shortly after that they had problems with management and he asked me if I would help run the company. Originally I told him I wouldn't but then it seemed quite intriguing if I could do it part time . . . so we set up a three man committee to run it. There was Louis Ridenauer who had been the chief scientist for the Air Corps, Paul McNamara who was a public relations advertising man, and me. The three most unlikely people in the world to work together.

NORBERG: Why?

LAPPEN: Well, we were so different, but we got along very well. We'd basically meet in the evenings because I was at the office most of the day. I'd go out to the company and we'd meet in the evening. One of the problems that developed was how to account for money collected from 10,000 boxes or more which we hoped would be installed around the areas. The money belonged to a lot of different people depending on who owned the product shown. So Louis Ridenauer who was much more interested in computers and highly technical things than he was in pay TV, convinced Paramount that we ought to get into the computer business because we could then read tapes put in each machine and know what shows had generated the money. Bear in mind there were no such things as tape readers in those days.

NORBERG: So this would be in lieu of collecting the cash in the boxes.

LAPPEN: No, you'd collect the cash and then you'd read a tape to find out who put the money in so you'd know it was a picture that belonged to the "X" company or the "Y" company and they were entitled to a certain percentage of the money. It took a great deal of courage on Barney Balaban's part to do this because the movie business was not very much interested in fostering the success of television; but we did go forward and we'd get money literally on a weekly basis. Every week Barney Balaban would send us money to keep operating for the next week. Louis Ridenauer then decided that what we really ought to do is to build a new kind of memory unit which was going to be made out of ferrite cores. I didn't even know what a ferrite core was, but I was intrigued with it when Louie showed me what they were and what they did. We hired a fellow named Joe Katz who knew how to make ferrite cores, but Joe would not tell us how to make them. It was a secret. He'd mix the ingredients at night, moreover he would not move to California, so we set up a plant in Brooklyn for him to make cores. We actually designed and developed and built the first ferrite core memory ever built. It was quite a substantial success and we sold it to the Rand Corporation, which used it to replace the memory (tubes) in their computer. They had a big room with all sorts of vacuum tubes, heat and the whole thing, and we substituted this ferrite core memory and it worked very well. I was amazed that the second one we sold was to the Weizmann Institute in Israel, which obviously knew what was going on in the world. We had an engineer go to Israel and install it.

NORBERG: Now, they would have been building their own machine about that time which would be, what, 1953 or so?

LAPPEN: 1952 or 1953, yes. They had their own machine.

NORBERG: Can we drop back just a little bit? I want to ask you a couple of questions about the distribution system and the collection system. In the case of distribution, how was this going to be done? Through telephone cables, or over the air by microwave?

LAPPEN: Over the air. A regular television set would have a separate channel, and we would send a scrambled signal. And what we were going to do is sell franchises. Somebody could come in and buy, for example, west Los

Angeles, and they would then have all of the units in west Los Angeles. Now somebody else may have the central part of the city, somebody may have Covina, and then visualize each one of those as a needle standing up and run a string through all of them. What you could do is go out and bid for a fight, for example, and tie all these together and send fights right into all these homes scrambled for a fee put into a box. The signal would be scrambled. Same thing for baseball games, or movies.

NORBERG: This is not unlike today's cable business.

LAPPEN: We were the predecessors to today's cable business.

NORBERG: In the case of collections, this would require a large group of people to go around emptying the boxes and so on. Is this based on the insurance company model? In those days at least, people used to trot around and collect a nickel and dime here and there from the people who had insurance policies. Was that a similar sort of thing or was it going to be done some other way?

LAPPEN: In the old days in Chicago, for example, they had pay phones in the homes and you'd put a nickel in your phone, make your call, and monthly a man would come around and collect the nickels. They had men who'd actually go around and collect the cash. It didn't seem very efficient looking back on it, but some of the pioneers, I remember they were saying it's like the old house of prostitution, you've got to pay in advance and you put the money on the mantelpiece. And the theory was that if you charged it, at the end of the month the bill would come in and the wife or the husband would say, "Who's spending all that money -- get that thing out of here." But if you put in the money when you had it and you saw the performance, it would be much more saleable. But we needed FCC approval and we hired a law firm in Washington. We spent a lot of time trying to get FCC approval to send scrambled signals. We never really got that worked out. As a result, we went to cable and we wired -- we, meaning Paramount Telemeter -- wired Palm Springs, and we wired Etobicoke which is a little town outside of Toronto, and we showed movies, because that was the product we could get. We weren't able to bid for baseball games, for example. And I worked on the first contract for cable in California. I think there was one in Pottsville, before this.

NORBERG: Pottsville where?

LAPPEN: Pennsylvania, I think. I'm not sure but I think that's where it was. I ran into an absolute hornet's nest. How do you string wires all over Palm Springs? You need easements; you've got to go across peoples' property, etc. Finally it dawned on me that maybe we could work out a deal with the phone company. And so I got hold of the phone company and tried to negotiate a deal, but the phone company was so loaded with layers of supervisors and this sort of thing that the cost was absolutely prohibitive. So what we then worked out was pole rights -- where we would hang wires on their poles -- and we wired Palm Springs, California that way. The lead antenna was at the top of the hill, but a cable would come down and run all the way into town. We used only vacuum tubes in the many amplifiers and the temperature in Palm Springs can vary almost 100 degrees between daytime and night and the tubes were popping all the time. So we had fellows in automobiles running around changing tubes. One of the fellows in our law office, a fellow named Hilbert Zarky, who was a brilliant tax lawyer, came up with the plan that you bring the cable to a street, and then you ask everybody on the block to make a contribution in aid of construction -- they paid the money to bring our line all the way down their street. The reason that was such a clever system as I recall is the contribution did not become income to us and yet we could depreciate it.

NORBERG: When you say there's no cost, there's no cost to Paramount to run this but there is a depreciation to Paramount because of the lines being . . .

LAPPEN: Yes, and they could sell the system which they did subsequently, for a very large amount. Now Paramount had trouble getting pictures because other companies did not want to make their pictures available to a competitor, but even more than that they didn't want to make their pictures available to television because great pressure was being put on them by the theatre owners. In fact the theatre owners later passed some legislation here in California to make it illegal to have pay TV or to have movies at homes. There were all kinds of fights about it -- but Paramount did make some pictures available. I told Paramount I was sure I could get pictures for them. All we had to do was agree to pay the going price and if the company didn't sell them to us we'd sue them for antitrust.

Well, the last thing Paramount wanted to do was sue all the motion picture companies, but we stumbled through and managed to get some pictures and Palm Springs proved quite successful.

NORBERG: When you say quite successful, what does that mean? How many houses were wired on a percentage basis? 50%? 75%?

LAPPEN: Oh yes, I'd guess about 50% of the houses. I don't know the number. There were a lot of them. Paramount then sold the company to Carl Lesserman who was one of the founders of Telemeter and Carl sold it to somebody else and that fellow sold it to somebody else. There have been three or four different owners but it's still in existence and operates very nicely. And as Louis Ridenauer explained -- he was a very, very imaginative thinker -- once you've tied into all the houses, you have a wire contact for all the houses, you can also set up a very inexpensive television station. All you do is put a camera at the head end, in those days for \$40,000 or \$50,000 you got a studio and you could generate local programs. Also it was his idea, once you've tied into a home you could read the gas meter, you could read the electric meter, you could send in shopping news, all these things which are coming about today. He foresaw all those 40 years ago.

NORBERG: But never did in the Paramount system.

LAPPEN: Never did.

NORBERG: Now in the case of royalties, were there any models for how royalties would be distributed, something like ASCAP where there's somebody keeping track of what music is played and then royalties are collected on the basis of that. Is this the same sort of model and was something like ASCAP used as the model?

LAPPEN: No, it wasn't ASCAP although they might need an ASCAP license, but I think what they did is negotiate for a picture where they give the owner of the picture a certain percentage of whatever was taken in. Pictures were normally sold on a percentage basis, and our main competitor in those days -- and it was a plan which I must say a

couple of the directors of Paramount thought was better than the one we had -- (it was, I think, in Bartlesville in Oklahoma) and what they did is made a monthly charge. They wired the place and they charged you, say \$15 -- I don't remember the exact amount, and they would play a great number of movies and you could see all or any of them for a month for the single \$15. My economic background was such that I didn't think that would work because everybody would want to give you their worst picture so they could get part of the pot. If I have a picture that's going to do very well I don't want it in with somebody else's on a flat rate. But if I turn it in and say, "Look, if 50 people watch your picture, we're going to know that 50 watched it and you'll get the money. So we thought we had a better deal, but there were lots of competition, there were many hearings by the state legislature to see whether they should declare this illegal or whether it was improper to do this. The money to fight pay T.V. was basically coming from the theatre owners because they could foresee the day when people would be staying at home and seeing movies. They didn't foresee the day when people would be watching movies by video the way they are now -- and as you know that's a bigger business than the theatre business.

NORBERG: How many towns were actually wired? You talked about Palm Springs and you talked about Etobicoke. Were there any more?

LAPPEN: Those were the only ones Paramount did. A number of other people did. We had drawn a very elaborate franchise where we tried to get people to buy the franchise to own our pay T.V. system for an area. We were fairly close at one time to getting the fellow who owned the LA Rams, who was a client and friend of mine, to take the franchise in Los Angeles and play the Ram games here, but he had problems to work out with the league and he said, "Look, if I prove your system I want options to end up owning San Francisco and San Diego," and Paramount wasn't very excited about that.

NORBERG: Why not?

LAPPEN: I don't know. The fellow at Paramount who was in charge of that phase of it at the time was trying to keep everything for the company, which I thought was not a very good idea; but it was his decision and we certainly all

lived with it. But it then became fairly obvious that we had separate businesses -- the pay TV business and the computer business -- and we separated them and we took the other business (the computer and core business) and organized Telemeter Magnetics. That was a separate company -- pretty much the same people on the board and pretty much the same stockholders. But that went it's own way and that company also made buffers. Erv Tomash later joined us. He was not the first president. When he later joined us, it gave the projects a major impetus. And then of course we took over Telex, they had a printer . . .

NORBERG: Let's back up a minute, please. The Telemeter Company you said a few moments ago continued on but was sold and has been sold again and again and now still exists in the cable business. Telemeter Magnetics was separated out about when? 1958?

LAPPEN: I think a little earlier than that, but yes, in the late 50s, I don't know exactly.

NORBERG: And was it separated out to be a manufacturing organization, to manufacture computers and buffers and whatever other peripheral equipment might be designed?

LAPPEN: Yes, although we didn't have the buffer yet. What it was doing was making cores, making core memories, whatever we could make.

NORBERG: And who were the potential customers?

LAPPEN: Well, we had a whole line of equipment that we could sell to people who were putting in community antenna systems, for example. We thought computer manufacturers would buy the memory and make our memory part of their computer selling to major manufacturers. But you see Telemeter was much bigger than Palm Springs and Etobicoke. What they wanted to do was franchise and sell equipment in boxes all over the United States and all over the world.

NORBERG: And did they?

LAPPEN: No. They did manufacture boxes and they did have franchises but they never really got it going. It was the usual problem, it doesn't go until you have programs and it's hard to have programs until you have sets with unscrambling boxes out there. Somebody's got to say, "Look, I'm willing to tie up the baseball games," and to pay a million dollars (in those days that was a lot of money) "even though I can only take in a hundred thousand because I know a number of people will start getting boxes." Recall when you go to ask a customer to put a box in his house and he wants to know what program he's going to get, so it took quite a bankroll. We had a programming company and they tried to line up programming but they never got it going in a major way. We worked a lot on unscrambling boxes because they wanted the boxes to be foolproof. We had one group working on them and one group trying to break the code all the time, you know, so they'd be sure because we knew there were a number of these young people particularly in electronics who would figure out how to get the signal without paying for it. So we tried to make it as foolproof as we could and we were always improving it and we had a very efficient box.

NORBERG: Do you recall at its peak what sort of income was coming in, not its net, but what sort of income they were taking in?

LAPPEN: I remember at one time Balaban was sending out about \$15,000 a week which was what it was taking to operate it, but I don't know what the income would be. It was pretty small. Telemeter was a small company, but it had some magnificent engineers. There was Dr. Louis Ridenauer who had been the chief scientist with the Air Corps, Dr. George Brown, Dr. Gil King who later became in charge of all research and development at IBM, and a couple of other fellows all of whom went on and did big things in the computer field. The company did a number of other things. They had had a machine they designed for the Bank of America to clear checks, and I don't know if you ever saw . . .

NORBERG: Who's "they" now?

LAPPEN: Telemeter.

NORBERG: We're talking about Telemeter or Telemeter Magnetics?

LAPPEN: Telemeter, before they broke it up.

NORBERG: Now, was that system before ERMA?

LAPPEN: Yes. Although we did work on ERMA, we did this before ERMA. We had a major contract, we, meaning Telemeter. We had a major development contract for the Bank of America and they were very interested in what we were doing, because they had just about reached a point where they were at a breakdown. They could not handle, they could not clear in one night by hand the number of checks that were coming in. And Louis Ridenauer had a lot of thoughts on magnetic ink, etc. But the first machine we designed for Bank of America was a machine that would take checks, affix a little tab on the bottom of the check and they would punch holes in the tab thereby encoding the information they wanted. The machine would then handle the checks by the tab so it could handle different size checks. It would clear the checks and then it would heat up the tab and the tab would come off.

NORBERG: Well, that's interesting. Now was this tab like a decal on the bottom of the check or did it actually hang below the check.

LAPPEN: It hung below the check. It was like a little 3M stickum thing. The fellow who designed that was Dr. George Brown and we used to . . .

TAPE 1/SIDE 2

NORBERG: So what other products did Telemeter develop then? This sounds like the company began to expand in the mid `50s.

LAPPEN: Oh, yes. Gil King had the idea of a large photoscopic disk, a big glass disk which would spin. Gil concluded that instead of just dots if he could use color on those dots he could get a lot more information on the disk. He designed a machine to use these colored dots. A machine was actually built -- the memory was these dots. Gil and I went back to sell a version of this machine, to the Army or the Air Force, one of the intelligence units in Rome, New York.

NORBERG: Air Force, probably.

LAPPEN: I think it was Air Force. Now what we were selling -- what this machine could theoretically do is translate from Russian into English at 1,500 words a minute. And people didn't have to know what they were doing, they just typed in the Russian and the English would come out. Gil and I flew to Rome, New York and the Air Force intelligence people were reasonably skeptical about the whole idea and they hired a philologist, an expert in languages, from someplace in Oregon, who came to convince them that we didn't know what we were talking about and that you could not translate -- this is in the early '50s long before we had Telemeter Magnetics -- that you couldn't translate from any language into any other language and that was just nonsense. And I was trying to make the presentation and Dr. Gil King said, "Let me ask this fellow a couple of questions." It was about the most brilliant cross examination I had ever seen outside of a courtroom. Gil said to him, in effect, "Professor, what's the single most important thing you must have in order to translate?" The fellow says, "That's simple. It's vocabulary." And Gil said, "Well, do you know what scan means?" "Oh, yes" he said. "Scan means to go over quickly." Gil said, "You know, it also means examine in minute detail in a different context; and the fact that you don't know that could cause you to mistranslate something. Do you recognize that my machine could have, in theory, the total vocabulary, the total idioms of both languages which no human could have." Well, this was kind of sobering. And he said, "In fact, my machine could scan a full page before it went back and decided what to put in there based on what else was on the page."

NORBERG: Could the machine do that?

LAPPEN: No, no. In theory. No, it couldn't do that at all, except in theory. The expert said, "Oh yes, but you know the problem is you need the emotional component." And Gil said, "By that you mean, you've got to pick up the emotional component of the author." The expert said, "Exactly." Gil said, "By that you mean that you know what the emotional component of the author is, and if you do, my machine could be programmed, to have exactly the same emotional component as the author and no human being could have the same one." The expert threw up his hands and we got the contract, and we were -- I don't know, it wasn't a lot of money in those days, a hundred thousand dollars maybe -- and we were going to design and build this machine. Subsequently Gil left and he went to IBM and he delivered the machine from IBM. I was told it made some wonderful translations, such as one that I recall . . . "the whiskey is available but the meat is rotten" . . . from the . . .

NORBERG: From the "spirit is willing but the flesh is weak."

LAPPEN: Yes, that kind of thing. It would, you know, theoretically, it could do that. There was so much material coming out of Russia that the American experts weren't able to keep up with. With the machine they could go through material quickly and then decide what should be refined, but in theory it could translate totally.

NORBERG: This sounds like the origins of the machine translation project which went on for ten years after that at some tremendous cost from the Department of Defense.

LAPPEN: That's right. Well he was at the forefront of that. And let's see what other machines they made . . . of course they did some work on the ERMA for the Bank of America . . .

NORBERG: Actually built the design that was produced by Stanford Research [Institute]?

LAPPEN: Yes, it was done by Stanford Research, but we built the memory for the machines. And the machine performed better than the bank had anticipated.

NORBERG: In the meantime, Chet, while all this was going on with Telemeter, were you doing other things for the law firm?

LAPPEN: Oh, yes.

NORBERG: So that was, in a sense, a sort of a part time arrangement.

LAPPEN: Part time job.

NORBERG: Was the company billing your time?

LAPPEN: Yes, the firm was billing my time but much of the time I was a lawyer. I actually ran the company for about a year and then Paramount wanted me to come there full time and give up the practice of law but I didn't want to do that.

NORBERG: Now, why did they ask you to come and run the company? What was going on that necessitated such a decision?

LAPPEN: They suddenly decided they had a problem with Louis Ridenauer and they terminated his employment rather suddenly and they had nobody to run it so they put in a three-man committee.

NORBERG: Was he running it essentially?

LAPPEN: Yes, although there was a three-man committee Louie was essentially the chief operating officer. But I was there all the time as a vice president and as a member of the board of directors, and as somebody who was very interested in what they were doing. I'd go back into the back room to see what was going on because a couple of times people said to me, "Are you an engineer" because -- of course I'm not only not an engineer, I'm totally illiterate

in the field -- but I picked up enough of the buzzwords.

NORBERG: Now, how large a company was Telemeter, in terms of personnel?

LAPPEN: It probably had eight or ten people.

NORBERG: Oh, that's relatively small.

LAPPEN: Very small company. We had a small office and factory on Stoner Avenue in west Los Angeles.

NORBERG: And how many of these were technical people versus distribution, accounting?

LAPPEN: Almost all were technical people. Raymond Stewart Williams was there. Do you remember him? He's one of the pioneers in the field.

NORBERG: In which field, computing?

LAPPEN: Computers. All of them were in computers. They were kind of dragged into pay TV and they really didn't have very much interest in it. They didn't even like the movie industry. As kind of an interesting aside, you know Dr. George Brown don't you?

NORBERG: Yes, I know about him and from what I've heard from you and Erwin.

LAPPEN: Lovely and very bright man. He came out from the East and of course he was looking down his nose at everything about California. I drew his employment contract. George always had a lot of nasty remarks about the movie industry and the movie people, and so in his contract I provided that we had the right to use his likeness for advertising, etc. George for years went around saying, "These people know nothing about this. They're such movie

people. Even my contract is a movie contract." And I'd never drawn a movie contract in my life. I just took a movie star's contract and put it all in the fancy rights of exploiting the star's name and likeness. It went all the way through the hierarchy and George signed it and everybody signed it. We could send him on tours to promote the products and we could use his pictures and we could have merchandise with his name and picture on it.

NORBERG: Was that common then, to have merchandise with peoples' names and whatever?

LAPPEN: In the movie industry. Well, you wanted the right. It wasn't common to do it but they got all sorts of rights. They were even getting television rights and nobody was making . . . they didn't even know if the movies would ever be shown on television.

NORBERG: Because I don't remember a lot of that in the 1950s when I was growing up.

LAPPEN: No, there wasn't.

NORBERG. All right, now you started to talk about Telemeter Magnetics and talking about some of their products. How much did that company grow in those years in the late `50s?

LAPPEN: That company grew a lot and became quite successful. That was the one that was subsequently sold to Ampex. Telemeter Magnetics became quite successful and had some very good products. They had these disk files, you know, whirling disks with the arms that would come in. They were making the memories for Control Data, for a whole lot of other people. They had buffers. Buffers were one of their big products. They also had a printer.

NORBERG: When you say "growing quickly" can you give me a sense of what that means?

LAPPEN: I can't. Erv would have a better feel for that. I've probably got some papers around that would show but I didn't pay much attention to it.

NORBERG: Was your relationship there just as a board member?

LAPPEN: Yes, and as vice president.

NORBERG: Still, so you had both of those arrangements going on?

LAPPEN: I was active in both companies -- Telemeter (the pay T.V.) and Telemeter Magnetics (the computer company).

NORBERG: Simultaneously?

LAPPEN: Yes. Paramount owned them both, but then they went public with Telemeter Magnetics and they had public stockholders as well. I may have something on the company, but there weren't a lot of companies in the field then.

NORBERG: In the field of computing?

LAPPEN: Yes.

NORBERG: Do you remember who the competition was then? If there weren't a lot of companies, who was actually serving as the competition of Telemeter Magnetics?

LAPPEN: No, I don't know. Of course many of the companies were making these parts themselves, memories and things, and we became one of the large suppliers of memories and buffers to computer companies. The theory of the buffer, of course, being instead of keeping your computer tied up you'd store information on the buffer, run it in and pull it out of the computer quickly.

NORBERG: Do you remember the board meetings at all for Telemeter Magnetic, what sorts of issues came up?

LAPPEN: One of the main things that always caused problems is that the technical people and the engineers wanted to go faster than the money people. In the days, going back away, when Louis Ridenauer was very active and imaginative, he didn't care what things cost. He just wanted to build the fastest and the best of everything. They used to complain a little bit that these users just wanted to go to their cocktail parties and talk about this fast unit they owned. And I remember Paramount brought in an expert from Booz Allen and they said the problem is that people don't recognize they're building railroad cars and not just wheels, so they make the fastest wheel in the world but its no good because the railroad car won't go that fast. The core memory is so fast but the information is so slow going in and when it comes out there's so many delays that you haven't gained enough by having the memory so much faster than anything else. But technical people always want to go forward more quickly and the other people would like to build something more resembling a bottle cap on which they could make money -- just make it more like bottle caps was an expressed view.

NORBERG: Was there interaction then, between board members and say the principal technical people to try and get better systems design into the activities as opposed to the best buffer or the best memory or whatever?

LAPPEN: Yes, there was a lot of talk about that and trying to come up with the kind of product that would sell, what it would cost, for example, to get a buffer designed and built, what was our potential market, (who would we sell to) and how many of them could we sell? How much money could we make? How long would the product life be? There was a period of time when everybody was accepting everything we could make, you know as quickly as we could make it. Then the business slowed up and customers started to send products back. They began to find fault with the buffers or with the memory. And I remember there was a problem at Control Data. The unit met all the specs, objective specs, but it didn't work right. Erv Tomash is a man of great principle. He said, "We're going to fix it." And we sent engineers to Minnesota and they just lived there. It cost the company a fortune, but they actually got the machine working. But after they fixed it a half a dozen times they realized that it would have been cheaper to totally

redesign it but you don't know that at the time. Their quality was good. We had a fight with GE about some machines, but we felt what they were trying to do is get manufacturing rights from us. They were threatening us with lawsuits, and we put GE on C.O.D.

NORBERG: What does that mean? Oh, cash on delivery.

LAPPEN: GE just went wild. Nobody does that to GE. We did because we needed the money, we couldn't afford to deliver a machine and then fight. Each time we were a little late on a delivery they would want the right to something -- more of the know-how etc. so they could build the memories themselves.

NORBERG: This would be about the time they were going into the computer business, too, 1954 and on. Telemeter Magnetics was sold to Ampex in 1960 or 1961 is my recollection?

LAPPEN: I think that's about right. I don't know, I'm not too good on those dates.

NORBERG: Well because Erwin was there as a vice president of Ampex for a year or year and a half before founding Dataproducts with a group of people in 1962.

LAPPEN: Right.

NORBERG: Do you remember what led to the decision to sell Telemeter Magnetics to Ampex?

LAPPEN: Yes, I think so, at least part of it. I wasn't privy to all of it. Basically the whole computer business was never of any great interest to Paramount. They were interested in pay TV and various forms of entertainment. Telemeter Magnetics had gone public and it had a value. Paramount had a chance to make some money. I suspect they got everything they'd put into Telemeter and Telemeter Magnetics from the very beginning when they sold this. Plus a profit.

NORBERG: I see. Was Ampex using cores? They were making magnetic tape I remember for distribution.

LAPPEN: Magnetic tape. I don't know if they were making cores. Maybe they wanted to expand into that field. They were one of the biggest manufacturers of magnetic tape.

NORBERG: Okay, were there other potential buyers for Telemeter Magnetics?

LAPPEN: I don't remember. I assume there were but I just don't recall that.

NORBERG: When it sold, did that terminate your relationship with it?

LAPPEN: It terminated my relationship with Telemeter Magnetics.

NORBERG: Telemeter was still around?

LAPPEN: Yes.

NORBERG: So you were still associated with Telemeter?

LAPPEN: They weren't doing much but they were still around.

NORBERG: Did it require the same sort of effort that it had, say in the middle '50s?

LAPPEN: No. There was a very limited period when I was part of a three-man committee where it required a great deal of my time, but except for that it didn't. But I was still working with Erv but I don't know in what connection, whether we may have represented Ampex on a few things because we were deeply involved . . . I just don't recall.

But Erv and I remained friends and then we talked about forming a new company.

NORBERG: I don't want to go into that quite yet. I'd like to ask you about what other high technology company activities did you become involved in as part of Mitchell, Silberberg and Knupp? In that same period now, 1950s.

LAPPEN: Yes. Did a little work for a fellow who had Reeve Soundcraft. He was one of the first ones who had a little tape that you could speak into, a little tape recorder. I went out and looked at what he was doing there, and what he ultimately did was put that magnetic stripes along the edge of a film to carry sound. He won an academy award for that. Before that there were just holes along the edge of the film and light shining through it lead to the sound. As the film got dirty the quality of the sound deteriorated.

NORBERG: Now, we're talking about the quality of the sound.

LAPPEN: Quality of the sound. And he put the magnetic tape along it and the sound was much better so that it would run simultaneously as the projector was picking up the picture, the sound was being picked up from the tape and it was always in sync and the quality was much better. I was having great difficulty understanding what anybody would ever do with the magnetic tape before he came up with the idea of combining it with film. And I remember I spent a long time with him and he showed me around and finally he said, "Well, we've got one nut here who corresponds with his parents that way. He's got a bunch of these small tapes and his parents have a machine and they talk into it." And I said, "Gee, I'd like to meet that nut because he sounds like it makes a lot of sense." And I did and became intrigued and I bought two machines and, I don't know, 30-40 tapes. And for about 10 or 15 years almost all the correspondence with my parents was on those tapes. My oldest son is pretty close to 50 and he was probably four years old, five years old, he'd be singing songs for his grandparents, we'd get them to send them back and then we'd snip them, we made a master tape. So for each of our four kids we've got master tapes of their talking, and that was the only use I could find for it. It was all voices. The only other one I knew who had a personal recorder was a client of ours, Howard Hughes, who had a wire recorder before tape. And Howard would bring it when they took his deposition and put it down because he didn't trust the reporters and so he'd make his own

recording of it. I'd never seen a wire recorder.

NORBERG: But what sort of camera was necessary, getting back to the, what do I want to call it, video tape here with the video frames plus the magnetic tape for sound frames. What sort of camera was being used then? It's not the sort of camcorder we have now, is it?

LAPPEN: No, no. I think it was a regular camera they used in the movie business and no different. They just made their pictures and then later on superimposed their sound. They would record the sound when they were shooting but I don't know whether it was going on the tape as it was made or if whether that was added later on during the mixing of the picture sound, including talking and background music, etc.

NORBERG: Any other examples?

LAPPEN: No, I don't recall anything else of a technical nature. Probably was, haven't turned my mind to it for many, many years.

NORBERG: Sure, sure, and you might come up with some more before we're done. Let's turn to Erwin Tomash, then, and let me ask you two questions about your relationship with Erwin. First of all, how often did you see him after Telemeter Magnetics was sold to Ampex? Was this socially? Families together?

LAPPEN: Oh, yes. Our children were friends. Our wives were friends. We were neighbors. I was his personal lawyer. I would say -- I'm guessing -- a couple times a week, maybe more often. In the evenings we often would walk and talk about plans, what we could do and what we could do in the computer field and where we ought to go.

NORBERG: So he was still living down here although he was the vice president for Ampex?

LAPPEN: Yes.

NORBERG: What other circle of friends did the two of you have at the time that would be associated later with Dataproducts?

LAPPEN: Dr. George Brown. A fellow named Tom Taggart. Tom was with Ampex and when Erwin joined it he became friendly with him. He later joined Dataproducts. There was Raymond Stewart Williams, although we weren't really social friends we knew each other. There was Milt Rosenberg. Milt had worked for us before Erwin came. He worked for us at Telemeter in the old days. And there was Trude Taylor. Trude later was very active in the computer field. He was in the sales field for Telemeter Magnetics, one of our salespeople. A redheaded Englishman, I can't remember his name. But I was closer to Erv than any of them.

NORBERG: How did the subject of Dataproducts come up, as a concept now, not a firm idea?

LAPPEN: It was pretty clear to me and to Erv that Ampex wasn't where he wanted to be the rest of his days and he wanted to start a company, and so we talked about starting a company. He was very friendly with Bill Drake and we talked to Bill Drake about starting a company. And Tom Taggart wanted to join us, too. We didn't want to have a company that would compete with Ampex so we determined that we would not be in the core business even though we knew a lot about core memories and that other type business. The original name of Dataproducts was Ladratoma which was Lappen, Drake and Tomash.

NORBERG: I see [laughs].

LAPPEN: And we used that silly name for awhile and then we ran into Telex which was ready to sell out part of their business. They had a couple of things. They had a disk file they were making and I think a buffer -- and we bought Telex.

NORBERG: Now, had Telex been a competitor for Telemeter Magnetics?

LAPPEN: Not to my knowledge, but they may have been. I don't think so. I think Erv wanted to get somebody who wasn't a competitor. We liked the buffer they were making, I think, and I think they had plans for disk files, you know these disks that spin with arms that come in and read them. And in the back room they had an old printer that they were fooling with and that came up later on after we got the company. Cliff Helms -- that name probably has come up in your inquiries -- Cliff had gone to school with Erv, and Cliff joined us early on. Cliff was a brilliant engineer and he designed some changes in the printer so that we made a line printer that really was far superior to anything in the marketplace. It would type a whole line at a time. It would spin and stop, and spin and stop and it was very good. It later was printing as much as 2,000 lines a minute. It was mainly the design of Cliff Helms.

NORBERG: Now, what did it take to start a company in those days, in terms of legal issues, the financial questions, and personnel?

LAPPEN: Well, I think we had three or four people as total personnel. Legal issue -- we had to organize a company. We had to buy this thing from Telex. We had to raise a little money, and I don't know, we all put in a little money. Not a lot of money was raised. I remember the first budget we had that was taken to the bank was done in a restaurant on one of those paper doilies, and at the 25th anniversary of Dataproducts somebody found it and they printed it up.

NORBERG: What did the bank think about this?

LAPPEN: Well, it was interesting because in those days the banks had organized what they called SBIC's -- Small Business Investment Companies -- and Bank of America had one. The fellow who was running the one for Bank of America was Tom Clausen who later became president of Bank of America. Tom got interested in it and gave us some money and people up in San Francisco gave us some money, some capital company up there, Frank Chambers' Continental Capital.

NORBERG: When you say "a little" we talking about \$20,000, \$100,000?

LAPPEN: I'd say in the neighborhood of \$100,000.

NORBERG: Each?

LAPPEN: Each, yes. But I'm pretty vague on that. I do remember however that I was on the advisory board of the Bank of America and at a board meeting and I was sitting on the side and Clausen was giving a speech on how well he was doing with his best investment -- Dataproducts. Tom had been telling us how marginal the investment was so when he looked up and saw me in the audience he had kind of a silly look. He called me one day much later and said, "You know, Chet, we have more money in that company than you guys have." I said, "Tom, you had more money in from day one." [laughs] He hadn't realized that -- we naturally had very little money in the company.

NORBERG: But that's not untypical.

LAPPEN: Well it was in those days. They wanted us to have some money in it. We had some money in it. It wasn't very much because we didn't have very much. But they were good partners and they did well with it. We tried to get some money from Lehman Brothers later on. They were all ready to go and the market fell out of bed at one time. Another time we were there to see them and Ed Weisel who was one of the main partners at Simpson Thacher, and was the attorney for Paramount Pictures and MCA and a lot of very powerful people, and he arranged for me to come to see the people at Lehman Brothers to make a presentation. They had a fellow there who was really a tough German and he gave me a bad time because he didn't want us to go public. He wanted us to sell a big piece of it to Lehman and to some of them personally, and then we'd bring this company forward and after we did that, then we'd go public and we'd all do well.

TAPE 2/SIDE 1

LAPPEN: Manheim wanted us to let them invest and I explained to him that we had had a situation, we came out of a background with a company that was owned by a large company and when we formed our own company we decided we were going to avoid that. We wanted to be publicly held, widely held stockholders, we didn't want a big stockholder. And I remember saying to him, "Well, probably somewhere along your career you've made a mistake and we may be making a mistake, but it's a mistake we're going to make."

NORBERG: Doesn't it take association with some company to bring stock to market?

LAPPEN: Well, we were all ready to go to market and the underwriter pulled out. So we did a rights offering, giving our shareholders the right to buy more stock at a good price. That was one of the first times it was locally done.

NORBERG: Now, who was the underwriter to be?

LAPPEN: The underwriter was going to be Crowell Weedon, I think, here in Los Angeles.

NORBERG: Okay, how did the company grow, as your perspective now as, (A) owner, and (B) board member? You mentioned the early products and getting this printer going and so on.

LAPPEN: The company grew principally because I think it had great integrity. Their products were good and they worried about their products being good. And they went around, Erv and other people, and contacted manufacturers of computers and told them we could make a better memory unit for them. We could also make a buffer for them, and a printer better than theirs. We could deliver on schedule and the quality would be good. And we would get our product designed into their product, but it takes awhile. There's a lag time. You don't come in and they start using your product. It takes awhile before your product is designed into theirs. But there's an advantage because once you get in, they don't change quickly because they don't change the design quickly. They'd design a machine and they'd get your buffer designed into their product and you're in pretty good shape. So ultimately we were the largest supplier of printers other than IBM in the industry. We were supplying to most of the major manufacturers. Our

people knew everybody in the computer business.

NORBERG: In the beginning my recollection is that Dataproducts was an original equipment manufacturer and did not market products of its own directly to the end user. Is that true?

LAPPEN: Yes.

NORBERG: Do you know what contributed to that decision?

LAPPEN: Yes, I think the main reason was we were always looking for a niche and the niche was that we could make a very good memory unit, but in those days ultimate users weren't buying memory units. They weren't putting their computers together, they were buying a finished unit, turnkey job. So the only way you could sell memories was to sell them to a manufacturer and we had to get manufacturers to buy our products.

NORBERG: Okay, maybe I'm a little confused here then. What were the original products of Dataproducts?

LAPPEN: The buffer was certainly one of the original ones as was the disk files memory. We got sophisticated enough so we set up our own clean room, did the application of the ferrite material on the disks which spin. Formerly we bought them from 3M or somebody. And we were making some printers, and were selling those three products principally to original equipment manufacturers. In those days as I recall, it was almost unheard of to go and buy a memory one place, a mainframe someplace else, a printer someplace else. It was all designed together and you bought them all as a machine.

NORBERG: All right, then who is it that Dataproducts expected to be selling to, which manufacturers?

LAPPEN: We'd sell to Control Data, we'd sell to DEC, to all the major manufacturers.

NORBERG: So was this a sort of a continuation then of Telemeter Magnetics in terms of customer relations?

LAPPEN: Yes, I think so. I think they were people that we knew. And the main designers in these major companies were people that our people all knew. They dealt with them for years. Graham Tyson knew them; Erv Tomash knew them. Graham joined us early on, too -- I had forgotten to mention him. They would go around and they had access to all these people -- they all knew them. You know it wasn't a very big industry and the people knew we had a good product and they'd buy them and they knew we'd stand behind our product. If it didn't work, we'd send out engineers and get it to work.

NORBERG: You were associated with Dataproducts from the beginning to essentially the sale. Reflecting back on that 25 years or 30 years or so of that company, what did you see as important changes for Dataproducts as a company?

LAPPEN: You mean positive or negative changes?

NORBERG: Either one, or both preferably.

LAPPEN: They never were, as I saw it, a very good cost conscious manufacturer. They were a quality manufacturer, but they couldn't turn out volume at low prices. That wasn't their strength. They had very good products and, with Cliff Helms as their engineer, they were leaders in the field. They were the first one with important changes in the early day printers.

Dataproducts came out with very new, innovative designs. Our line printer was really the state of the art, better than anything else. But then other people, other than Erv, became head of the company and they never came out with really new products. We had a laser printer but it was a "me too" laser printer after most others had a laser printer. We just didn't have anything new, any innovative stuff. We were very big in the ferrite core because Erv located an innovative fellow. In the old days they'd make cores, little tiny cores, and they'd bake them -- each one. This fellow

developed a technique of having a whole sheet of baked ferrite material and then cutting them out, like cookie cutters. We organized a company in Ireland -- got large grants from the Irish government and went over there and we were probably the most successful core manufacturer in the country -- in the world probably. Everybody else was making them individually and we were making big sheets and cookie-cutting them out. We had a big plant in Ireland. We trained Irish engineers, we got money for training, we got money for plants. And I think we were the first company that helped Ireland stop the brain drain. Formerly, there were no jobs for young engineers who graduated in Ireland. There was just nothing they could do there. And we set up that plant. We assumed it would be easy because we thought we spoke the same language. We use the same words but we learned we didn't speak the same language. We had an Englishman running the plant originally and of course he and the Irish didn't get along very well -- they're a little laid back -- and he finally said to them, "You know, working over here is like working in Mexico. Do you people have any word in Gaelic equivalent to the Spanish word mañana?" And this Irishman without batting his eye said, "Oh, yes we have several but none create the same sense of urgency." [Laughs]. And you know, that was kind of their attitude. But they did a good job for us and from Ireland. We were able to sell into the Common Market. We had a big plant there.

NORBERG: So this suggests that the international distribution was one of these important positive events.

LAPPEN: Yes, and we were very big, and in addition we had this one employee who was very active behind the iron curtain. We sold a lot of things in kind of a barter technique. I guess he'd get furs and then he'd turn the furs in for something else. Ultimately we'd get dollars.

NORBERG: Is this the fellow from Vienna?

LAPPEN: Yes. Todd . . . I haven't thought about it for years. His wife's a doctor, very nice. He now has his own company. Hitachi sold it to him. He had all the foreign operation . . . he was in Vienna, been there for years.

NORBERG: So you've mentioned the, let me call it the technical decay or shortcomings, which would be a negative

problem associated with Dataproducts. You mentioned the positive one of international distribution, manufacturing, and new markets. You mentioned another positive one being quality products. You've mentioned a negative one on the cost manufacturing. What else? Are there other things that come to mind?

LAPPEN: It was a highly competitive business and we had expanded pretty quickly and had some financial troubles. That's when Graham Tyson took over, and Graham was very good in cutting down expenses and getting the thing into the black. But that isn't how you grow long range . . .

NORBERG: Isn't that relatively late?

LAPPEN: Yes.

NORBERG: In the 1980s?

LAPPEN: Yes.

NORBERG: Because Erwin stepped aside, what, 10 years ago roughly, 12 years ago now.

LAPPEN: Yes.

NORBERG: I know that Dataproducts played a part in the founding of Informatics. Did you have any long association with Walter Bauer before that event?

LAPPEN: Well, not before that event, but at that event. One of the things we talked about in the very early days when we started Dataproducts, was that we should have had a software company. Erv Tomash and some of the fellows were more knowledgeable than I am and recognized early on how important software was. It turned out it was much more important than they even thought it was. The idea was that if we had a software company we could have

people out doing advance software planning for others and they could feed back to us what products were needed -- so it would be kind of a product research.

NORBERG: Product in terms of hardware?

LAPPEN: Yes, hardware. They had the software but would say, "You know, what they really need out here is a lot of buffer but something that does this and that. That's the real link problem." Because we weren't out in the field like they were. So in conception it was a brilliant idea. We brought Walter Bauer in; we formed a wholly owned subsidiary and I represented them all the time. What happened fairly soon after it was formed was that they wanted independence. They were interested in building the software company. They were interested in having their own business and they were interested in having stock in their own company. They wanted to make money, and they didn't want stock options in a company manufacturing hardware. They could do very well with their software company and they could be dragged down because Dataproducts wasn't doing well. So we spun the software company off as a separate company and ultimately went public with it -- Informatics. Bauer and his chief people had quite a bit of stock in Informatics. I represented them and we ultimately sold it to Equitable -- we went private.

NORBERG: Do you remember why that was the case, why the sale to Equitable?

LAPPEN: Yes. We, meaning Informatics, had designed some very useful programs for Equitable in the insurance field and Equitable became interested in what we were doing. They put some money in Informatics and put some people on the board, and they saw it as something they could diversify into. The public market wasn't very good so the people running Informatics, Walt and those people, could make some money by selling out. So they sold the company to Equitable. Subsequently they bought it back from Equitable and later it became a public company again.

NORBERG: I guess I don't understand why one would do all that. It sounds like buying and selling stock and just making money on the sales as opposed to building the company. Is that a wrong impression?

LAPPEN: Well, there is that element of that, but what happens is, I think at some point it seems like it's a pretty good idea to get quite a bit of money by selling to a major company. You then have a rich company so you don't have to worry about the daily monetary problems. You can go out and bid contracts and spend money developing a program and life is much simpler. After that happens for awhile you realize you're being controlled by a big company and you would like to have your own show and you could make more money if you owned the stock so you buy it back and do it yourself again. There's a difference in view as to how a company should grow. It would be normal for Equitable to be much more interested in having developed programs which would help people in the insurance business as distinct from other types of programs.

NORBERG: But why would Equitable in this case be interested in selling it back again if it's a profitable company doing well for them?

LAPPEN: It wasn't working out that well for them and the main people . . . see, it's a business where your assets go home every night -- they put their hats on and they go home, you don't have anything. The people working for Informatics, owned by Equitable, weren't too happy working for them, they wanted the company themselves. Moreover, Informatics wasn't something that was very important for Equitable. I remember when we sold out to Equitable it was a big sum of money for us, for Walter and me. Walter had had a little exposure to lawyers, so he wanted to see the resolution of their board authorizing them to sell Informatics. It turned out the purchase price -- I don't know, 20 million or something -- did not meet the threshold to go before the board of Equitable. You know, just a little committee handles it. So we weren't major for Equitable is what I'm saying.

NORBERG: Now in the meantime, while the company was with Equitable, did you have any association with the company?

LAPPEN: Oh, yes. I was still attorney for them.

NORBERG: Still. So in a sense you were working for Equitable at that point.

LAPPEN: I guess so. I always thought I was working for the company but I knew the Equitable people, that's right. Oscar Ribbouser was a lawyer in New York who was Equitable's main lawyer. He would ask me things from time to time, but we knew more about the company and its problems that they just let us continue to do the legal work.

NORBERG: Sure. Now, to your knowledge, Chet, was there ever any contribution to Dataproducts through Informatics? You mentioned that there was some thought that if a software company were associated with Dataproducts that there would be some feedback to hardware. Do you remember if that ever was the case?

LAPPEN: I don't remember it ever being anything, no. There may have been, but I don't remember anything, certainly nothing major.

NORBERG: Yes, that's my sense that there probably wasn't.

LAPPEN: I think there wasn't, but I don't know that. Erwin and Walt would know that. I know they talked a lot. Dataproducts didn't come up with a lot of new products. Mainly it was refinement of their own products. When you get by the buffer and the disk file and talk about the printers, you know, that's basically what they had -- different kinds of printers, they had all kinds of printers, but their main one was the line printer. Later on they bought the rights to and were developing this ink jet printer, which I understand is still not yet totally at market. I don't know that, though.

NORBERG: One of the things that I neglected to ask you about Telemeter Magnetics and the question now comes up with Dataproducts as well, who was handling the patent work for the company?

LAPPEN: Originally Lyon & Lyon, a very large patent firm here. Lyon & Lyon got into it because they were the patent lawyers for Paramount Pictures. I'd worked with Lyon & Lyon a lot in the early days. Later on Dataproducts asked one of the lawyers in my office for a recommendation and he gave the firm that Stu Lubich was working with.

That firm then took over from the Lyon firm. But in the old days it was Lyon & Lyon who did all of it. Much of what Dataproducts had was based on "know how."

NORBERG: That's where I was coming to, actually, with the question trying to understand what sort of new technology was being developed at Dataproducts that would be of concern either to protect it against the future and against others developing it for their own use and also as a way of cornering a certain aspect of the market by getting a group of patents which would protect market share. Do you sense that there was any of that concern in the company?

LAPPEN: Yes, yes there was. There was something very unusual that Cliff Helms came up with that enabled the line printer to work quickly and go and stop accurately but I don't remember what it was. And obviously on the disk file there was more knowhow but there was some patent on how you mix the ferrite coating and how you spin it on and get it absolutely flat because as I understand it in a non-technical sense, the reading heads ride on the equivalent of a couple molecules of air. They don't really touch the disk and if the disk is not accurately done, the heads crash. I have a curiosity about some of these things.

NORBERG: Okay. Let me ask you the same question I asked you about Telemeter Magnetics, and that is what other companies were you associated with during this very long period? I realize that we're talking now about three times as much time as was associated with Telemeter Magnetics, but other companies in the sense of high technology. I'm looking for networks here; what sort of people you knew and how you became associated with their firms and so on.

LAPPEN: I mentioned Reeves Soundcraft. I was on the board of directors of City National Bank for 25 years, and before that I was on the advisory board of the Bank of America, so I was involved in the financial world network. And I was active with Arden Mayfair that owned Gelson Markets and Teleautograph. Teleautograph was one of the early distributors of fax machines. Teleautograph started out in 1870-1880 and they had the handwriter where you write with a pen one place and it's hooked electronically so that it writes the same thing someplace else. I was interested to realize that the heart of the fax machine is the same thing as a copier or the same thing as a laser printer,

you know the engines all the same in those.

I was active in the organization and development of Data Card -- a company that Bill Drake established to make credit cards with input from electronic tapes. This company totally obsoleted the business of Addressograph-Multigraph in the manufacture of credit cards.

I have spoken to an engineer consultant to Telemeter in the old days and he tells me that: (a) the core memory which we developed was way ahead of the industry; (b) the large glass spinning disk with data in three different colors was probably 10 years ahead of the field; and (c) our line printer was the best in the field.

I dealt extensively with Al Zipf of Bank of America with whom we had a contract to develop a machine to clear checks. (This pre-dated the machine later designed by Stanford University for Bank of America.) This machine was designed by Dr. George Brown and was actually built and operated. It could handle checks of all sizes and shapes by affixing a small adhesive tab to the check punching the information on the tab and having the machine handle the check through the tab. When the information was entered the tab was heated and taken off.

NORBERG: I'm just trying to make sure I didn't miss anything that makes me think about the particular companies that you were associated with. Now, let me sort of bring this to a close with the following question. That is, given that you were associated with at least what could be considered to be frontier companies in the 1950s, early 1960s, what did you pass on in the 1970s and 1980s to people who were interested in establishing new companies here in this area that might have sought advice from you or the company, from the law firm?

LAPPEN: You mean in the way of advice?

NORBERG: Yes, in the way of advice. Let me be more specific, I guess, and that is has the organization of new companies changed markedly over that 30 year period since 1960?

LAPPEN: In one respect, yes. It takes much more money to start a company now. I was deeply involved with fellows that had a system of security cameras -- put them in the banks, in the markets, into all kinds of places where you can watch things remotely from a camera -- and we used to jokingly say you could get into that business for very little. But today it's pretty close to a million dollars before you get any product you are able to do anything with. The main thing I've learned is that if you want to stay alive you've got to design something that will be readily accepted in the marketplace or you must have staying power. It may be the best thing but if it's too far out and not really accepted it doesn't do you any good. We made a lot of money at Dataproducts for many years after everybody said cores were totally obsolete. The integrated circuit was there but the cores continued -- we didn't put anything further into research and development -- it was a cash cow. Money was just pouring out of there. Fewer and fewer people were making cores, but manufacturers were suddenly using them for inexpensive products like toasters, etc. And these things keep finding a place for themselves, a need for themselves. I have learned from my own point of view, I only bet basically on people -- the people running the business. If the company has bright people and people of integrity, they'll solve their problems. They can't sit down and tell you how we're going to get from here to here. Those people who have every step fully planned along the way, usually, in my opinion, never get anywhere. It's the fellow that says, "Where is it I want to go" and he goes and says, "My God, I've run into this obstacle" and he either goes around it or does something else, but he sits down and keeps an open mind. He's imaginative. He doesn't work with blinders on.

NORBERG: Well, would you say that the people at Paramount then were not really very perceptive in trying to bring something to market before its time back in the 1950s?

LAPPEN: Well, I'm not sure it was before its time. I don't know if you ever knew Joe Rosenberg. You ever heard of him?

NORBERG: No.

LAPPEN: Joe had been the top executive at Bank of America, retired because of age 65 mandatory retirement, and

then became a leading financial man. He headed Lehman Brothers on the West Coast and backed a number of companies. Joe and I talked about it a number of times. He said, "If Paramount had had the courage" -- they had a pretty old board in those days, they were men who were, you know, kind of caretakers -- "they could have been another Litton Industries." Joe was active in Litton and saw them develop and saw that Telemeter didn't go anywhere with equal or superior technical talent.

NORBERG: I guess what I was trying to pressure you on a little bit there is that if today it's necessary to know what the market will accept, wasn't it also true that you had to know what the market would accept back in the 1950s?

LAPPEN: Yes, yes. But I think the market would have accepted for example some form of pay TV because they have accepted it. But what they had to do in my mind, what they had to do is line up programs and thereby create a market for pay T.V. You don't sell franchises until you've got programs, and the way you get programs you've got to put some money, and you go and you tie up programs.

NORBERG: You weren't the only one who didn't have any courage if you want to define it that way, but it seems to me that the television people had seen that problem in the 1930s and they had established their own programming areas in order to provide the kind of shows that they thought people would watch. Now, why didn't Paramount just mimic that style and either go out and buy up the rights or develop some programming of their own, as cable companies are doing now, companies like HBO and so on?

LAPPEN: Well, don't forget that their main customer were theatres and companies were very reluctant to do anything that would cause their customers to be unhappy -- they couldn't offend their principal customers. Their principal customers were dead set against television, the competition was television. In some of the studios you couldn't mention the word television. They didn't make any shows for television until television became very successful. I was on the board of Columbia Pictures for a number of years. They set up a separate company called Screen Gems and made a lot of shows for T.V. but that was much later. In the early days when Roach was making it, nobody was making anything for TV. It just wasn't happening. Dr. Louis Ridenauer came up to our office once and went through

our library -- I'll show it to you if you get a chance, we have three floors of library -- and he looked at all those books and he said, "What does that cost you?" And I gave him some guess. Louie said . . .

TAPE 2/SIDE 2

LAPPEN: " . . . quit what you're doing and you and I will put all these books on computers" -- I'm talking about 1951 and 1952 -- "and we'll get all the lawyers signed up, and a lawyer goes to court, he needs a case he'll have a little modem and he'll tie into the phone and we'll give it to him there."

NORBERG: That's awfully early to be talking about modems.

LAPPEN: Well, he didn't call it a modem. There was something that would do it. And, you know, I thought he was crazy but that's exactly what we do now. We have access to 80 million books that we can get on a screen in our office. You can get it right in there now. But when you think of the money it took and the number of people who went broke. It didn't happen easily because first you've got to get all this information on computer and do you know what that costs? Well you know, it's astronomical.

NORBERG: Just the indexing problem is fierce to be able to recall it. Well, Chet, this has been very helpful. Thank you very much. I appreciate it.

LAPPEN: Well, I hope so. I've enjoyed it.

[END OF INTERVIEW]