An Interview with

RICHARD CANNING

OH 338

Conducted by Jeffrey Yost

On

23 August 2002

Vista, California

Charles Babbage Institute
Center for the History of Information Processing
University of Minnesota, Minneapolis
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Richard Canning Interview

23 August 2002

Oral History 338

Abstract

In this oral history Richard Canning begins by discussing his work at IBM on computer
reliability, and his research and publishing in the field of operations research. The
majority of the interview focuses on his role as an early data processing management
consultant in the 1950s and early 1960s, and his founding, and leadership on *EDP*

Analyzer, an influential publication offering guidance to corporate data processing managers.

Keywords: Software Industry, EDP Analyzer; Computer Reliability, Data Processing Digest; Operations Research; IBM; and Canning, Sisson and Associates.

 TAPE 1 (side A)

Yost: My name is JeffreyYost, I am here today with Richard Canning in his home in Vista, California. It is August 23rd 2002 and this interview is being conducted as part of CBI's NFS sponsored project, "Building a Future for Software History."

Yost: In looking at your career it seems like there are three main areas you focused upon: computer reliability, electronic data processing management, and providing a leadership role in publishing on the computer business and data processing management. I would like to concentrate this interview on the latter two areas, but address all three. After graduating from the University of Cincinnati with a degree in mathematics, and serving as a radar officer in the war, you took a job at IBM. What led you to take that position? How did that come about?

Canning: I had come back to the states from India in 1945, for training on a new radar bombing set and was then to go on to Tinian to serve with the 20th Bomber Command, where I had been in India. While I was home, the atomic bomb was dropped, the war ended and very shortly I was out of the service. Peggy, with our brand new daughter, had come East, from Arizona. I went through R & R in Atlantic City, so she met me there

and my folks in Cincinnati took care of our daughter. After Peggy went back to Cincinnati, I went to New York to look for a job. I had worked in New York for about a year, mid 1940 to 1941, before WWII, so I knew the city. I looked at Bell Labs, since I'd had training at Bell Labs on one of the radar sets they designed. I was looking all over for something appropriate and Peg's uncle had a connection at IBM. That got me an interview with Walter Lemmon, who was an executive with Globe Wireless Limited. IBM was selling to Globe Wireless, their Radiotype division (Radiotype was a teletype-like system). Globe Wireless needed a representative to go to Endicott, and be their person there, their contact, while the Radiotype machines were being built. It was part of the sales contract, so that's the job I got. I liked that idea because it made use of some of my engineering training. My degree was in Math but all my radar training was electronics, electronic engineering, and so forth.

So I went to Endicott, Peg joined me there, and for about a year that was my job- to be the contact. If problems came up, I had to find out how to get them solved, get those Radiotype machines produced. They were based on the IBM electric typewriter, and it was a Teletype type of service. The problem from IBM's standpoint was that if they continued to market Radiotype, they would be in competition with AT&T Teletype, and AT&T was one of their largest customers for punch card machines. So obviously they wanted to get out of that because Radiotype was never going to be a big deal. As the production of that first number of machines—and the number forty comes to my mind, I don't remember exactly—was completed, then I either had to move back to New York

City with Globe Wireless or I was given the option of staying with IBM. I chose the latter, and was put in the production engineering department.

One of the projects I was on at Endicott was the vacuum tubes being used on the IBM Collator, which is a machine that would merge and/or match two decks of IBM punch cards. IBM had found, some years earlier, that the speed of the machine was such that the normal operation of a wire brush dropping through the punched hole in the card and making contact with a metal drum, the normal operation of picking up relays, activating a relay, wasn't good enough. So they just used a very simple solution, which was power amplifier radio tubes, the ones that would drive the loud speaker in a radio. When a brush would drop through the hole in the card, it would activate a radio tube, and a lot of current would go through the tube, and it would cause electromechanical relays to operate in the collator, and things would work pretty well. Suddenly the tubes weren't doing their jobs very well and I was put onto that project. What we found was that the tubes were not designed for that kind of service. They were amplifier tubes, current was always flowing through them, to a greater or lesser degree, maybe it was only the background noise, but there was something. However, in the IBM collator, they were completely cut off, no current would flow through the tube, until the brush dropped through a hole in the card. It turned out a chemical action was taking place, inside of the tube, on the cathode, that was poisoning the cathode because of this cut off condition. After some contact with the tube manufacturers we found the solution to that, and the collator was back in business.

I joined IBM in late 1945, and somewhere around 1947, I guess it was, Dause Bibby,

who was the general manager of the IBM plant in Poughkeepsie—now that is a little

unusual, I think he's the only man in history, as far as I know, who was an IBM general

manager of a plant. After that, and at other plants, they didn't have a general manager.

He was something special. They set up a vacuum tube plant in Poughkeepsie….but do

you want to get into how and why Bibby got me to move from Endicott to Poughkeepsie?

Yost: I think that with the detail you went into that on the Smithsonian 1973 interview,

I'll jump to a course you took on production control. Can you tell me what got you

interested in that, and how many people took that course? What was production control

like at IBM at that time?

Canning: IBM was offering quite an educational program free to employees in the

evening and one of their courses was manufacturing control. They had a lot of courses

on the machines: how to learn how to plug up the plug boards. For some reason I was not

interested in learning how to plug up the machines, in much the same way I've never

been too keen on learning how to program computers. I love to use computers, and I can

program, I've done some, but not…happily, let's put it that way. So of the courses that

were offered at the IBM school at Endicott, the only one that caught my eye was the one

on manufacturing control, using punch cards. So I learned there that you'd have a punch

card representing each step in the manufacturing process of each job that was sent into

production earlier. I talked about the role in the collator where a wire brush drops

through the hole in the card and makes electronic contact with a roller. To make a roller,

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it would have to go through a whole bunch of machining process, and they might be making—I'll pick a figure—500 rollers at a time. So here's a bunch of trays of these rollers—total of 500 rollers—and they would go through several machining steps. Well there would have to be a punch card for each step for that job of 500 rollers.

That course caught my interest. I was much more interested in the use of the machines rather than how do you design the machine, and how do you plug up the plug board. I found that I was fascinated by the course and took copious notes. At the beginning of the course the instructor said, "Sorry, we don't have a text book for this course yet." So at the end of the course I sat down and wrote a textbook based on the notes and submitted it, hoping that I could move out of production engineering over into manufacturing—well at least in training, maybe in manufacturing control itself, or in the training department on manufacturing control. That was going against the current at IBM, and they wouldn't let me move out of production engineering.

Yost: They valued your background in electrical engineering too much?

Canning: I think, yes. If you worked in electronics, it was very difficult to get out. I tried once, later, when I tried to move from Poughkeepsie to the West Coast. But no, you could move from the West Coast back to the East Coast, but going from East Coast to some of those nice spots in the West, that was no deal.

Yost: In 1950 you left IBM to join an Electronic Engineering Company. What brought about this change?

Canning: The mainreason was our daughter, who was five years old. She was in kindergarten. That winter of 1949-1950, she was actually out of school more than she was in. It would snow, but it wasn't real cold, so the snow was real wet. She would go outside in her snowsuit to play, get soaking wet, catch a cold, stay home for three days getting over the cold, and then the whole process was repeated. Peggy and I said, "This is no way to live." We both had come from the West, she from Arizona, me from Seattle, so we knew there were better places. I got a book from the Department of Agriculture called "Climate and Man" which had the history for fifty years of all the counties in the fifty states, of the climate in all the counties. We searched all the way down the East Coast, Florida, Gulf States, Southwest, New Mexico, Arizona, California, Oregon, Washington, probably even included Utah. And found that from a climate standpoint there was nothing to compare to right here where we are in Southern California. So, somewhere around December of 1949, I started writing letters trying to find a job in Southern California. Finally, in about February, I got in touch with EE Company, The Electronic Engineering Company. I can't remember exactly how it came about, but I did. Had an interview and was hired to come out to Point Mugu Naval Air Missile Test Center to be in charge of maintenance on a new computer that they were expecting to get, that Ratheon was building. That's pretty much the story. I wasn't overly enamored with my IBM job. They always treated me nicely. I have no objections, but I found that I really didn't like working for a big company. I found that I much prefer being in small

organizations. I must say, in my time at IBM, I don't think I ever saw a manager who I thought was not pulling his weight. I thought that all were competent. If somebody did mess up and he was a manager, he was not fired; he was just moved sideways into a non-managerial job. I think I knew several of those people and they were always appreciative, they had a good job from then on, but they knew that their rise up the ladder at IBM had stopped. As I say, I think all the managers that I met at IBM were very satisfactory managers, which wasn't true of many other companies I visited where I saw people that I wasn't impressed with, that was not the case at IBM. So anyway, that was something of a background.

Yost: A couple years after you joined Electronic Engineering Company you also began work as an associate research engineer on a project that UCLA had, a project that extended from a doctoral student, Melvin Salveson's dissertation work on operations research. As I understand it, that project resulted in IBM's interest in donating an IBM 709 computer?

Canning: I'm going to break this up into stages.

Yost: That's fine.

Canning: The first stage is what came to be known as the Management Sciences Research Project. Using computers and operations research to improve methods for productions control in job shop manufacturing—aircraft type manufacturing—not huge quantities,

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lots of variation, almost the opposite of an assembly line in an automobile factory where things are pretty well laid out and things just flow in (supposedly) smoothly. In aircraft manufacturing there are, in a big plant, literally tens of thousand of job orders in the plant at any one time. And they are going all different directions within the plant. Some go to drilling first and something else second. Others go other routes. Trying to get the parts manufactured and the parts through to assembly on schedule is a constant battle. It was, and I suspect it still is a huge, huge problem. I use an anecdote; I guess you'd call it, of how big a problem it was back in those days. If you filled up the whole universe as far as the Mount Palomar Telescope could see with computers the size of a molecule and that would able to do the job of an IBM 709 at that time, in a hundred years you could not compute out, list out, all of the different possible schedules that faced a production plant at any moment in time. That gives you some idea of the magnitude of this huge problem. Office of Naval Research, ONR, sponsored this project at UCLA to find if operations research and computers could help in some way in this massive problem. And I was brought in to work in this type of role, this manufacturing role, that IBM had not allowed me to get into. But I could get into a research project working on it—this was great.

Yost: Your textbook had come out at that time?

Canning: Now lets see… I joined UCLA in 1952… No. My textbook was several years after that. I started teaching a course of night school probably in 1953. I taught it several times at UCLA at night school. Then the University of Chicago had me put it on

for one week, the one-week version.   And it was after that I got the idea of writing a textbook. So the book came out in 1956 I think.

Yost: This project led to IBM's interest in donating a computer?

Canning: Oh, yes. Western Data Processing Center.

Yost: Yes. Can you characterize the impact of that computer, in that Center, on operations research, and more broadly computing on the West Coast in the 1950's?

Canning: Not really. I can't answer your question. Roger Sisson and I had started our partnership Canning, Sisson and Associates in late 1954. I still continued on the UCLA research project part time. My prime function was to do consulting under Canning Sisson and Associates. Roger joined the UCLA project on that same basis, to augment our income. So we each put in some time. And that's about the time that I heard that IBM had approached UCLA about donating a computer, and it was falling through the cracks—no one was picking up on it. So I went to see the Dean of the business school and check, "Could I work on this?" The answer was, "Sure." So I wanted to find out where we could put the computer, considering floor loading and all that. The IBM representative came out from the Los Angeles regional office and I showed him what was available. And I could tell he was not impressed. He was frowning the whole time. And I said "You know, we also may be able to put up a building out here" "Oh!" he said, "Now your talking, Now your talking" I heard that Dick Hill, who was assistant to the

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Chancellor, knew something about this. So I got together with Dick and he'd had much the same experience   He knew that IBM didn't go for putting a nice computer in a second-class space that we might have. So we talked about putting up some sort of a building out near the business school. As I say, I was really Canning, Sisson and Associates at that time, so I didn't spend much time beyond that. Dick picked up the ball, and carried through the whole idea of getting the Western Data Processing Center funded with gifts from IBM and getting the computer in there. So most of my activities from then on were Canning, Sisson and Associates and not the Western Data Processing Center. So I can't really answer the question. It clearly had a big impact. It was not to be used for University administrative. It was to be used for research projects. I think IBM did a great service to do that. So it had a big impact, but I can't spell out for you what it was.

Yost: Moving on to the consulting that you and Roger were doing at this time. Was it for the aeronautical industry? What were some of the industries you were consulting for?

Canning: As I mentioned a little while ago, I started giving this class in evening school on using computers. And based on the research project, I was trying to apply some of the things we'd learned on the research project for use in aircraft manufacturing. So clearly the aircraft companies, and there was a number of them, were interested. Before long, they had me coming into their plant to put on the course. And that led to consulting. So when Roger and I set up shop we already had some consulting assignments. Neither one of us knew a darn thing about consulting. We didn't know what to charge, there was a

whole bunch of things we didn't know, but we were really the first firm on the West

Coast to specialize in business data processing consulting. We weren't doing

engineering, we weren't doing computer science type of things, it was business, and it

would be, as I said in the beginning, aircraft production control. We had decided early on

that we would not work for competitive firms within the same time period. So if we had

a job with Lockheed we could not work for North American at that same time. This

clearly limited us in the number of jobs we could have in the aircraft business. So we had

to broaden our options. And certainly one way to broaden them was to expand toward

the East Coast. The one-week class that I did for University of Chicago was a learning

experience for me. They charged much higher fees than I would have expected to

charge. So Rog Sisson and I, we started out offering one-week courses in New York

City. Five-day class: $200 dollars. $200 dollars for the full five days, gave them lunch,

and we'd hold it in these nice hotels in the Madison Avenue area. It was nice. And the

same thing happened there that had happened in Los Angeles. People would come to the

class to hear what I would have to say. I was pretty careful not to sell my consulting

services. For some reason, I figured they were paying their money, and they didn't come

here to hear me give a sales spiel for myself as a consultant. So when questions came up

about consulting I would usually refer them to the main accounting firms: Lybrand, for

instance, and Haskins, and Sells. A number of the accounting firms offered consulting

services in data processing. And of course the major consulting firms, McKinsey for one.

And I would tell them, as far as I knew, here are the strengths of these consultants at the

accounting firm and at the management consulting firms. Generally, before the one week

was over, somebody would come up to me and say "We'd like to have lunch with you."

Or "Let's have a drink after this session is over this afternoon." And generally they'd

say, "We'd like to have you stop in and take a look at our situation. See if you could

provide services to us." So very suddenly I was getting consulting jobs for me and for

Roger in the East Coast. Mostly East Coast, there was not much in the Midwest at the

time.

Yost: Was John Diebold doing consultant work in this area at that time?

Canning: Yes, John Diebold, he operated quite differently from us. He'd build up an

organization. And I visited him once in his office. You know he had helped invent the

term "automation." He claimed that he invented it, but there's somebody else who did at

the same time, so the two of them get credit as far as I'm concerned. And he was trying

to make maximum use out of this, that he had invented that word. Nothing wrong with

that. He did it. I never did run into competition from John Diebold. Not to say that he

wasn't there, he clearly was, but our method of operating was different from his and I just

didn't encounter where somebody said "Well Canning, we're giving the job to Diebold."

He would tend to take bigger jobs. I wanted to do consulting; I didn't want to manage a

team of consultants. And so John Diebold would have more people to put on a job than

Roger and I would.

Yost: Did the two of you put on these workshops together, or were *you* doing this? What

was the division of labor in consulting?

Canning: I was a better teacher than Roger. He was a far better electronic engineer than I was. I think there were times when Roger and I shared a teaching job, but you know, travel expenses were high enough that we didn't want two of us to go back to New York together to put on one of those courses. I can't remember if he did any complete course by himself, but I think the ones we would share would be out on the West Coast. There was a man, Felix Kaufman, that I had met when he was working for RCA in the computer division. I was very much impressed with Felix. After he left RCA, for a time he was the Eastern Representative, if you will, of Canning, Sisson Associates. Which never did amount to much business for him or for us. He would help me teach these courses; Felix was a pretty good teacher, and would help put on the course in New York. But as I say, from a consulting standpoint, I'm not sure that we ever got a job where Felix had sold the job, or conversely, I don't think that we ever had something that we passed on to him. So I don't think it ended up being income for either of us that way. But we were helpful to each other—quite a bit of discussion about what's good, what's bad, pass along tips on what's happening in the field that as consultants we should know.

Yost: The retail industry was one other major industry you did some work in?

Canning: Yes, this had to be in the late 1950's, I'm going to take a guess and say 1957 or 1958. And I'm sure that because of one of these courses, we were contacted by Associated Merchandising Corporation. AMC is the buying organization for many large department stores throughout the United States—at that time, examples were, Dayton's in Minneapolis; Lazarus in Columbus, Ohio; I could go on. Top department stores in major

cities. To get the best price breaks, they had found a way that they could combine their

buying functions, certainly for staples, and even fashion merchandise. So instead of

orders coming from one store, you'd have orders coming from dozens of stores

combined. They also had figure exchange. They would report—now this was all

proprietary information, it never got public, I didn't get to see it, but I knew it existed—

for men's suits, for example. There would be a figure on what the sales were, what the

markdowns were, number of hours worked, on and on. For each section of the store, you

could get figures for all of the stores. And again, the report was coded, and once a store

dropped out of AMC the codes were changed. So even if somebody got the figures book,

after that, they couldn't tell what were the Bullock's figures (in Los Angeles), and so on.

AMC had done something very unusual. Computer manufacturers were pounding on

their doors telling them how great computers would be for department stores.

Department stores are very conscious of costs, very conscious. This is where they make

their money: buying as cheaply as possible and controlling costs, and controlling

markdowns if possible. So instead of someone rushing out and buying a computer they

decided, "Let's get together and do a cooperative project, and let all of the AMC stores

jointly support one computer project."

  They picked the store: Higbee's in Cleveland, Ohio. So each of the stores would have at

least one representative go back and spend most of his or her time—mostly men doing it,

but some women—at Higbee's. And they chose a RCA 501 computer as I remember.

Because, I'm sure, they got a much better price on that than IBM would offer. They buy

by price to a great extent. So they actually did a number of unusual things. They actually got accounts receivable up and running, that was the big project. That was where lots of clerical dollars were being spent, doing the posting of charge sales each day and sending out the bills and collecting the money. And they had accounts payable, payroll, and other accounting applications. One was sales analysis, the sales dollar figures for the day.

They clearly wanted to get their hands around fashion merchandise. If they could detect a trend in what customers wanted in fashion merchandise, even a couple days ahead of the competition, get their re-orders in quickly, they would be ahead. So they actually got all these things up and running and they got the first (that I know of) point-of-sale transaction recorder in men's fashions. If something was sold in men's fashions they could actually enter in to the computer exactly what was sold, what was the price, and the rest of it. They could get excellent reports on that particular part of the store.

AMC had set up this project at Higbee's and they'd had some months, maybe a year of experience with it, and now some of the stores wanted to find out what would a computer cost them now with the advance of computers since this project started. So they received bids from IBM and Honeywell and RCA and NCR and probably one or two more. As you might expect, AMC had tried to specify the workload, but it was very difficult for them to compare one bid against the other because one bid had left out things that the other bids didn't. So AMC hired Roger and me to come in and audit these bids. We did so, and got them into fairly reasonable state, adding missing factors that the

manufacturers had chosen not to include. For instance, there's always a certain amount

or re-runs, of down time, of maintenance time. There has to be program development

time, a scheduled time on the computer to test out programs. So you just go on and on

with these things and the manufacturers, in general, had not included those or had

included them differently in each of the bids. So we said " There has to be a way to

compare these and make it apple to apple. We'll have to have one standard set-up."

Now if there were something particular to a computer that would invalidate one of these

factors or that would cause an adjustment, we'd have to take care of that. But to the best

of our knowledge, we applied the same cost factors on all the bids. And what we found

was that they wanted a representative size store, and I think it was $50 million dollars

gross sales per year at that time, with 500 thousand charge customers. These figures are

sort of vague in my mind, but that's the best I can remember. The stores wanted to know

what computer would be required, what size of computer and which computer, for that

size workload.

The upshot was that the costs were significantly higher than the manufacturers had bid.

And I had to report this at their annual meeting. I guess the word had gotten out before

that. Some of the stores were furious. They had put all this money in, and the computer

was not going to be the magic wand that was going to solve their problems. Some of the

stores such as Lazarus in Columbus, Ohio; Dayton's in Minneapolis, had been keyed to

this ahead of time. Their representative had said, "Hey dollars aren't working out. I

think there's hope there, but the initial look here is not good." So these stores decided

they would keep on going. Other stores just threw up their hands and decided, "Uh, it's too early for us". Then I was called in by several of the stores to do consulting work because they were proceeding even after this sad experience with the Higbee's Project.

Yost: Was that your experience that the manufacturers were leaving certain costs out in other industries during the fifties when they were making bids?

Canning: I would be surprised if they aren't doing it today. Bids like that are just not the way to make a computer buying decision. I think at the tail end of this job—or while I was doing consulting for some of the stores—I guess it was AMC that said, "Hey, you ought to take a look at SCERT (Systems and Computers Evaluation and Review Technique)," a software system developed by an outfit called Comress, Inc. down in Virginia. The men in Comress had worked for RCA and got this idea and proposed it to the RCA computer division, who turned hands down on it, very understandably. They could not send their representatives out with this software, and run a customer's workload, and show what it would cost on RCA equipment, IBM equipment, Honeywell, and so on. They just couldn't do it. So these guys split off from RCA and set up their own company. Now they could market it as an independent company. These were the days when IBM still bundled its software and its hardware, and it's a service that IBM would probably never offer. They were in the same boat. They could not come up with a program that would show that IBM equipment was less expensive. In almost all cases, it would show that IBM equipment was more expensive, so this would do them no good. Even so, they would not want to come into General Motors and say "Here's how your

workload looks on our equipment and RCA's, and the rest of them." Clearly it had to be someone independent of the manufacturer. So here was a perfectly valid software product where the customer got the use of it—they didn't lease it—they got the output results of the software product.

Yost: So were they consulting, or using Comress as consultants?

Canning: Yes, yes. This is about the time I started *EDP Analyzer*. I got the idea for it on September 9th 1962, I remember the date vividly! Got the idea; advertised it; direct mail went out early November; got our replies in before Christmas; made our decision by a few days after Christmas of 1962; and the first issue came out the first of February 1963. For the next year I had to continue to do consulting because the *Analyzer* was just starting out. We started with zero subscribers. We had to mail some issues before people would really even start paying us for it. So it wasn't until mid 1964 that the income from the *Analyzer* would pay for our food in the refrigerator, and that's when I stopped consulting. From then on there was no more consulting.

TAPE 1 (side B)

Yost: About a half dozen years before *EDP Analyzer*, you got into publishing by starting *Data Processing Digest*?

Canning: Yes.

Yost: Can you describe that endeavor?

Canning: Yes, that was Roger Sisson's idea. He said, "You know there's a lot of material in magazines—not so much books. Books, by the time they came out were sort of out of date, but magazines articles were fairly current—a lot of material in magazine articles in the field that we really ought to know. And I think the people we are selling our services to - the business data processing departments in companies - would like this also." And he said, " I happen to know someone who could do the job: Margaret Milligan." He had come from NCR and knew Margaret there. She had done something similar to this at NCR. So we broached the idea to Margaret and she was interested. We screwed up our courage, started *Data Processing Digest,* and started soliciting subscriptions by direct mail. As with the *Analyzer*, subscriptions came in slowly. I think you were wondering if we looked at that as a separate business. I really think that we looked at that just to help us keep abreast of the field, and we figured that data processing managers needed the same information. I don't think that in our minds it was ever a separate business, like " Hey, we're going to go into the publishing field in a big way." It was just something to supplement our consulting.

Yost: In 1955 there weren't all that many "data processing" departments were there? Just large firms at that time?

Canning: Well, almost all the major companies—even down to midsize firms—had

punch card systems. And these people were all looking to get computers. So really there

was a fairly good-sized market. There were some thousands of possible customers or

subscribers. And if we'd had a good fraction of those—if we'd had ten thousand

subscribers that would have been wonderful. Well we didn't have anything like that.

Yost: Did you have any experience with the data processing managers using *Data*

Processing Digest as a tool to go to their executives to sell them on the idea of investing?

Canning: To get more money, more budget?

Yost: Right. Exactly, to get more budget for potentially going into the computing field?

Canning: I never did hear of such cases, but I wouldn't be surprised. Of course one of the

things that Margaret tried to do—and Roger and I would sort of be peeking over her

shoulder—she was doing the reviewing of the magazines, finding the articles that were of

the most interest, and then digesting those. The criteria for the most interest would largely

come from Roger and me. "Here's what we think you ought to be looking for in articles"

and if there were articles about problems companies were having installing computers or

success stories, doing things right, these are ones that she would digest. Those might

have been used by data processing managers to go to top management. They possibly

could have gone back to the original article and passed that along.

Yost: As I understand, in the late 1950's Roger wanted the firm to grow more and potentially bring on programmers or other professionals to expand the business, but you wanted to keep it smaller and not move into a managerial role so much as be a hands-on consultant?

Canning: That is close to the situation. I think Roger always wanted to be an executive. He was an excellent electronics engineer, yet he didn't really want to be an electronics engineer. As a consultant, I know his clients liked him, that they felt he was doing a good job. We did bring in one employee, Bruno Chiappinelli, and he was primarily going to do marketing, but we were too small to have just a specialist in that. He had a computer background, so actually he could do some consulting. He was out on a job for us over in Phoenix, Arizona, and came down with Meningitis and died there. That really shook us up.

I had come in contact with the support consultants of the large accounting firm, and their life was miserable, as far as I was concerned. They would leave home—maybe they lived in Chicago or the outskirts—they'd leave home on Monday morning and drive to the airport, climb on a plane and go somewhere and spend the rest of Monday, Tuesday, Wednesday, Thursday, and come home Friday evening. And then the next week do the same thing, summer or winter, no matter. I could tell it was a miserable existence. These guys weren't making all that much money, but their companies were charging pretty high fees for them. And I said " First of all, I don't want to be a salesman for selling consulting services; and I don't want to have to manage a bunch of consultants that are

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out there and make sure their work is good; and thirdly, it's a miserable existence that I wouldn't want. So I don't really want to build up a group of consultants if we could make a living, the two of us. *Data Processing Digest* was taking a fare amount of what we were earning at first. Roger said "Why don't we open a New York office, I'll manage it." And I thought, "Oh, dear god, now we would have two things, two thousand, almost three thousand miles a part. If we had problems now, we multiply them by some big factor by having two sites." Plus the fact that I just wasn't confident that either one of us was that good of a manager of consultants. So I said "No, that doesn't appeal to me." Roger and I then agreed, "O.K. We're going to give it X amount of months to see if it works out the way things are now, and if it doesn't, then we'll each go our own way." So we gave a certain amount of months and decided, "Hey, a two person firm is not big enough." And I wasn't willing to have it grow because of what would happen if it did. So Roger decided that he was going to get a job at Aeronautical division of Ford Motor Company. And I decided that our family would move out of Los Angeles and go south somewhere." I switched to being an individual consultant. That was in 1958. And by early 1959 we had moved down here to Vista and Roger had moved on to Aeronautics division of Ford.

Yost: About the same time you participated in, I think it was 1959, the Department of Defense meeting that led to COBOL.

Canning: Yes.

Yost: Can you describe your role in that meeting, and more generally, as an advocate of business oriented program managers?

Canning: When I was putting on these courses in New York City—the one-week courses—they were from nine to five each day and I was a primary teacher, but I needed a break. So I'd generally hire, or offer honorariums—that's a better word—to selected people to come in one afternoon to talk for several hours. And one of the people I had come in was Grace Murray Hopper, who was then working for UNIVAC, to talk about Flowmatic, which was a forerunner of COBOL. And I got to know Grace because of that. I was impressed by Grace, always was. So that when that Department of Defense meeting came up—and I think I had her more than once in my courses—she certainly would be on the list of attendees and apparently she had recommended my name, so I got an invitation, and I was glad to go. I wanted to hear, I wanted to participate.

Why was I interested in high level languages? One of my consulting clients prior to that—probably in 1958 or 1957—based on a computer manufacturer's proposal had signed up with that computer manufacturer to buy their equipment. The manufacturer promised them a high level programming language of the Flowmatic type. It was not Flowmatic, it was something else. And they were going to use it for programming their whole manufacturing control operations. When I was called in as a consultant, the deal was signed, sealed, but not yet delivered. The computer was on order and going to arrive by a certain date. Manufacturing control was the main application. They were going to use this as yet not completed high-level language. I thought, "Dear god, this project is so

big, the chance of success is very low!" The only chance of success that I could see was if the manufacturer delivered the high level language on schedule, and it worked, then there was a chance. Also, I noticed that there were no accounting functions that had been included in the project. And I thought, well, it's going to be tough enough to get the manufacturing control going and running smoothly. If and when they get that far, then they can take on the accounting. But, dear God, don't take on both of these at the same time. But if they had a high level language, I figured, O.K., they can change the data definitions fairly easily and then add the modules for the accounting functions and maybe there is a chance of success.

This company's approach was the opposite of Jack Jones down in Southern Railway, who was probably the outstanding data processing manager in the country, as far as I was concerned. Jack took small steps at a time, each step with a high probability of success, and you just keep on moving forward, and you never bite off a great big chunk. That's the way Jack did with Southern Railway and he went on to be the Vice-President of the Norfolk Southern Railroad. Anyway, these people were just the opposite; they started with a huge project. The upshot was that the high-level language was never delivered. The computer manufacturer turned over all of that high-level language to the COBOL people to use in any way they wanted. My client's programming had originally been done in the proposed high-level language, and when it became obvious they had to program in an assembler code because the high-level language was never going to arrive, their efforts were not wasted. The fact that they had laid out all the logic in the high-level

language greatly simplified the assembly language programming, it really aided them. But it would not have been easy to add the accounting functions at a later date.

So I was a supporter of higher languages, I wanted to see them occur, but those were early days and there was a lot more promise than was being delivered.

Yost: Jumping forward a bit, about a decade later, IBM unbundles their software. Did you notice much immediate change in EDP management opportunities and practices with the emergence and growth of software products companies, firms such as ADR and Informatics?

Canning: From the standpoint of the software product companies, the unbundling was a major event. And I have thought about this many times recently in preparation for this interview. During this period of time, let's say from 1967 through 1972, 1973, in that period, where unbundling was right in the middle, I was never asked to do an issue of the *Analyzer* on unbundling, or what the impact of unbundling might be, or what problems are going to arise, or what problems have arisen in the user companies. Every time I was out interviewing companies I was trying to find out what problems they wanted addressed in future issues. Nobody ever suggested that we write an issue on unbundling, ever. I did issues on the independent software companies and some of them did have significant changes after unbundling. They could bring out packages that IBM probably would have offered free, but now would be charging for. So I recently went back through all of the titles of the *Analyzers*, in preparation for this interview, and looked at a number

of them. I wrote one in November of '67 and pointed out that the software companies

that I had discussed, I think there were three of them, already had fairly good-sized

incomes. Auerbach Corporation did system design, programming, data management

system design, and then publication of EDP reports and communication reports, so

publishing was a big part of the business. They were privately held so they didn't discuss

their income, Computer Applications Inc., in '66 had gross revenues of $17.5 million,

earnings of $517 thousand. And Computer Sciences in Los Angeles, fiscal year ended

April first, 1967, had gross sales of $38 million. These are not trivial amounts, so there

was a fairly healthy software business in existence. There was contract programming

included in revenues, and there was maybe service bureau operations, so there were other

things besides packages. But I think each of these companies had at least some packages

where it wasn't likely that IBM would come and offer something for free.

I had been searching for companies that were using application packages successfully.

And I remember going to a bank in Arizona that decided this is the way they were going

to operate. They wouldn't do any in house programming. They would find a package

that came close to their needs, and if they could get the developer to modify it a little bit,

that would be great. I'll pick two examples: accounts payable, they'd find an accounts

payable package; and then they'd want a general ledger package. Now the general ledger

package might be from a completely different outfit. So it's input might be very different

from the output of the accounts payable package. So this company was then willing to

take the output of accounts payable, and with a fairly simple program, make the data

compatible to what the general ledger had to have. So this is the way they were doing all

their applications. They were buying or leasing packages that were pretty close to what they wanted, getting them modified if necessary, finding some way to use the packages, and then modifying the outputs to be compatible with the next package that they would go to. I remember writing that up, but I couldn't find the issue. It's hidden somewhere in my list of back issues.

So I was really trying to find users of application packages.   In the July 1967 issue, I discussed some West Coast companies and their rather limited use of applications packages. In July of 1971, four years later, I found acceptance of application packages had moved forward very slowly, not much progress. Even in 1971, most of their programming was done in house, custom programming; or they may go to a software company to do programming for them, but it was all custom made.

Yost: Can you discuss the process you used to stay at the forefront of the issues that would be important to *EDP Analyzer*? Were you going on the road much and meeting with people or was it conferences, and did they write to you much? What was the process?

Canning: I was asked this question by one of the writers for *Computer World*, "How did I find my subjects?" and I honestly don't have a secret formula for this! The answer to your question is, yes, I traveled a lot. This is travel that I was initiating and on my schedule, as opposed to consulting. I enjoyed consulting, but in that year of 1962, I was so overworked…first of all, some jobs had disappeared on me in April or May, and then

June, July, and August I was almost a full time, every day, consultant, seven days a week. And I was having a bad insomnia problem, and that's why I remember sitting at home on September 9th, 1962, "What can I do? If I keep doing this I'll be in the insane asylum", and I got the idea for the *Analyzer*. Once I got the *Analyzer* going and I was in control of the travel, then it wasn't so bad. I could do it under my limits. So, yes, I traveled a lot; I went to all the major conferences. After 1970, '71, somewhere in that area, Barbara McNurlin (our daughter) would attend some. We were both on the lookout for subjects; at seminars we attended, at conferences, visits to companies, finding out what they were doing and usually then asking them "What would you like to hear?" I had trips overseas: Europe, South America, Australia, New Zealand, and a couple to Japan, and generally would ask questions like, "What would you like me to write up?" The general answer I got was "Oh the subjects you are writing about is fine, but…" Down in Brazil, for instance they'd say, "Would you please write in Portuguese. Give us a Portuguese edition." Or I'd go to Argentina and they'd want a Spanish edition, that's the way it went. And I never did find a solution to that. So the answer was, we seemed to have picked subjects that readers were interested in, but there was no simple answer to the question "How do you find these subjects?" its just constant asking, and going to all these meetings.

Yost: In a 1970 editorial you suggested the ACM has an obligation to help society adjust to changes brought about by the use of computers. Do you remember any response to that editorial? Did the ACM do much?

Canning: What I found in the next six years, I became less naive about ACM. I became quite active and I got the Distinguished Service Award in 1976. And I gave a brief one-minute message at the award ceremony. They usually didn't encourage Distinguished Service Medal winners to say any words at all, but the year before I heard Saul Gorn, the DSA winner, give an excellent one-minute talk, so I injected with a minute or two minute talk, something like that, nothing like the Turing Award Lecture. The message that I tried to give, and didn't do particularly well, was that saying words like this, suggesting to the ACM that they should do such and such, was a complete waste of time and breath. The way the ACM worked, if you think that something should be done, then you darn well better volunteer and get busy doing it. Don't ask somebody else because each person active in the ACM is there only for one reason, to do what they think is important to be done. I ran for ACM president, I knew I wasn't going to win, but the second place runner up, at that time, became automatically the ACM representative to AFIPS. And I thought, "That's the job I would like! I would like AFIPS to have more business data processing sessions in their two computer conferences each year." That is what happened. And of course, I was active with SIGBDP, Special Interest Group Business Data Processing, at that time, and we got more sessions going on that. So, yes, other people in ACM didn't do it. It was those of us who were interested and active that caused these things to happen.

Yost: Defining professional status of data processing professionals or workers and programmers was an issue that both the ACM and the Data Processing Management Association (DPMA) were involved with, and was of interest to both of them. In 1965

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you expressed high hopes for the DPMA certificate program but a decade later indicated that the professional status for systems analysts and programmers was no closer than the previous decade. Can you comment on what difficulties there were with the certificate program and defining professional status, and what obstacles had to be overcome?

Canning: When the DPMA Certificate Data Processing was announced, I decided I better take the exam just to find out what its all about, and did so.   And wrote it up in one of the *Analyzer* issues, and gave some questions that were not copies of questions, but very much like questions that were on the exam. For the exam that I took, there were no prerequisites. I did not need to have a college degree, I didn't have to have this or that skill, I think just some years of experience was all that was needed. And they had a pretty good-sized turn out for the first two or three years while there were no prerequisites. What I found from the exam was that it was quite broad and very shallow. There were a few questions on programming, but I could answer those and I was not a programmer. There was nothing that tested my depth of knowledge on anything, just a breadth of computer knowledge. But I thought it was perhaps a good start and maybe there was another exam that would have to follow. Shortly thereafter, I was asked by DPMA to participate on the certification council that makes up the exam, and I did for a couple years. And yes, the guys on that council were really trying, but it became apparent that this second or third or fourth exam that I was thinking was necessary, wasn't going to occur, at least I didn't see a glimmer of hope right there. I wasn't sure that the CDP really had a lot of value from a hiring standpoint. Some organizations put a very high value on it and would make their first choice to hire somebody with a

certificate. And I wasn't sure that this - well, it wasn't worthless, I would never say that, because it was quite broad - you had to have a sense of the larger picture. I think programmers were always accused of having a very narrow focus, not knowing what else was going on in the field. They were just working on their specific jobs and that was the limit of their horizon. You would never pass the CDP with that kind of a view. So it did have value, but I just couldn't see that it was going to lead to something equivalent to an MD or a Ph.D. or something that society says, "This has value," or "This tells me that this person has certain capabilities that I can depend on." Like the person who says, "I go to the doctor and if he's got an MD, I'll pay attention, if he's not an MD, I don't pay attention", that type of thing. I never did pay too much attention to ACM's efforts in this area. Most of ACM's major efforts were in computer science. Those of us who were interested in business data processing were strictly the minority. I was active in SIGBDP when we started the quarterly magazine *Database*.

TAPE 2 (side A)

Canning: I didn't pay too much attention to ACM's professionalism efforts. As I say, most of the interest in ACM was on computer science. We in business data processing were not making any efforts, like DPMA was, to define professional level skills. I'm not sure that ACM ever got to that point where they said, "Here's something that defines a programmer, a certificate in programming." I don't think they've ever achieved that, to my knowledge.

Yost: I wanted to ask you if you could comment on Simscript and other simulation

programs? Were those influential in your company's consulting?

Canning: I should be able to answer that better than I can since my work on the UCLA

research project was largely simulation; trying to simulate the flow of work through a job

shop. And in those days, well, the first efforts we made were to get Rosalyn Lipkis to

program on the SWAC (Standards Western Centomatic Computer, of National Bureau of

Standards) in machine language, not assembler. She did a little simulation job that

showed us something, but very limited. So I never did get much exposure to that. I think

I mentioned this in the Smithsonian interview.   Al Rowe, who was on the UCLA project,

went back east to work for General Electric and while there probably used Simscript, or

there might have been another language, I don't know. They did job shop scheduling by

simulation. Then he came back out west, and the last I talked to him he was at USC. So

I never did follow up on Simscript to any great extent. It never came up in our

consulting. And it never came up with the *Analyzer*. I think if I had come across a

company who was doing a really outstanding job of scheduling their job shop, the flow of

hundreds or thousands of jobs in a variety of paths through a manufacturing plant, I

would have written it up at the drop of a hat. I knew the problem, and if someone had a

good solution, I would have written it up. But anybody had a good solution, I suspect

they would not have talked to me, they would have kept it a proprietary secret. I did talk

to Mobil Oil Company, had to be some time in the '70's, and found that they were using

linear programming to do some of their work. When they were bidding on a job, the

customer said "We need so many tons -or whatever unit of measure—of refined oil, refined to certain specifications, at such and such location by such and such a date." And these would be tankers full of oil. They used linear programming to create their bids. They were running these programs very heavily. I think they were around the clock type of thing for a week at a time, some huge amount of computer time, to prepare a bid, because there was so many millions of dollars involved. But I don't ever remember any interview I had where they were using Simscript, and using simulation for solving their management problems.

Yost: I'd be interested in hearing your comments on similarities and differences between electronic data processing systems in the 1950's and 1960's and Enterprise software in the '90's. How they compare and vary in terms of marketing, getting companies on board, initial enthusiasm, problems in development and implementation?

Canning: Back in the 50's, I worked as a consultant on three projects where management was willing to go along with the idea of study and design a system, but was not willing to go so far as to implement it and install it. Burt Grad would know one of these much better than I do because he worked on this project, and it was outstanding as far as I was concerned. I'm enough removed from it so I could say, I just don't see how it could fail. Well, management was scared that it would fail. They said, "You're not going to do something that gets at the very guts of our business. We can't ship product if your system doesn't operate," and "It's so different from what we do now, we just don't know. We don't have any faith in it." In another case in the department store field. I suggested

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something that was immediately rejected. You can hear all sorts of horror stories about stores running out of something they should never be out of. I thought that they could set up within a city, a central warehouse and with computers they could detect that they were out, or going to be out of something at store A and had better get some more out there in short order. Department stores management said "Absolutely not. We tried that and it doesn't work." Well, they tried it in the old days before computers and, sure, it wouldn't work. But they were not willing to try it. And there's a third one but suddenly it has slipped my mind. I'm pretty sure it was a case where they said, "This is fundamental to our business and you can study it and propose all you want but we're not going to use it."

Now, that's fairly similar, I would think, to what was happening between 1995 and 2000, when it was being proposed that commerce over the Internet would supplant going to the stores, you'd buy it over the Internet. So we were finding the same resistance. Some companies picked it up and that's what happened back in the 1950's with computers, some few did it. But a lot of companies just put their toe in the water. They would put a catalog on the Internet on a Web site, and you can see what's available, but you better go to the store to buy it. You know, that's still true to a fair extent. I come across these every once in a while. I buy a fair amount over the Internet actually, not dollar wise or volume, but every once in a while I'm buying something like a book or a watch. Now in the case with this watch, which resets itself every night based on the radio signals from Colorado, as I remember I couldn't buy this on the Internet, they gave me a telephone number to call. They described it on the Internet but did not sell it there. One other thing I bought lately was like that, but I could get specifications on it over the Internet and that

was all right, I was willing to phone in my order. In these cases, they were just not willing yet to put the ordering function on the Internet. So there is a similarity. But you know, in the late 1950's and early 1960's we didn't have the present economic situation, the stock market situation. In other words, companies were more willing to go ahead because business looked good, and right now business doesn't look all that good. So they might not be willing to gamble on the Internet like they might have if the bubble hadn't burst.

Yost: As something very broad, you did engineering work in computer reliability consulting, EDP management, operations research, and publishing. How rewarding were each of these? Can you compare and contrast these different stages and activities of your career?

Canning: When Roger Sisson and I were consulting, Charlie Martin, an executive in Executone Company (they made intercom equipment) one day said to me "Dick, when you're a consultant all you have to sell is your time, at most you've got 2000 hours a year, probably less. You've got to find a way to amplify that." So this is the message I've tried to convey to our four kids, that you find something you like and then you find a way to amplify it. Well of course, one solution would have been, I enjoy consulting, so if you want to amplify with consultants, all you have to do is hire more consultants and you sell their services. I've explained why I didn't like that. But there is another solution, turns out, that I stumbled on, and that was to publish *EDP Analyzer*. So this was sort of a consultants report to our subscribers. That is, when I was doing consulting, in a middle

of a job, a manager would say, "Hey by the way, what's going on in…" and he'd name some subject area, and I'd think, "Holy Mackeral what do I know about that?" So I thought that the *Analyzer* would help answer this question. What's more, I always had in mind a particular - I'm hesitant to say data processing manager, he was above that, now we'd call him chief information officer, I guess—at one of the major aircraft companies. And I always had him in mind. And I would say to myself, "Now what do you think Jack—and that's not his name—what do you think Jack would want to know about this subject?" And that helped me a great deal. I knew a fair amount about what his systems were like, not in detail, but a pretty good idea. For instance, there was one young lady who wanted to write an issue for us on data communications, I said, "O.K., don't make it too introductory because our subscribers are fairly knowledgeable." And dear God she came in with 12 pages of introductory material and I couldn't use it one bit. I thought maybe she could sell it to a magazine—it was pretty well written—but this Jack would have been insulted if I had sent him an issue on data communications at that level. So anyway, to answer your question, the *Analyzer* was a way of magnifying my efforts, or duplication, or increasing my record in consulting without the need to hire a bunch of consultants. That was far and away the most enjoyable job I ever had, as opposed to working for a company, working for IBM, working for Electronic Engineering Company (which was very pleasant and I enjoyed that), and my work on the research project at UCLA, and the consulting; these were, most of them, fun occupations. IBM, I liked quite a bit about it, but working for a big company was not my thing. So clearly, the publishing of the *Analyzer* was the most satisfying to me.

Yost: Most issues of *EDP Analyzer* were not signed. Did you write all, or nearly all the articles?

Canning: From February 1963 until February 1977, fourteen years, I wrote the issues. And in February 1977, Barbara McNurlin wrote an issue and her name is on the end of it. And from then on, everyone she wrote had her name at the end. Also, in the '80's we started soliciting commentaries written by other people. It would be the last two pages of the issue. It would be on subjects that the author would be an expert on and we always included that author's name and affiliation. But as I say, from '63 up through January '77, I was the author!

Yost: That's what I assumed, but I just wanted to verify that.

Canning: Yes. Now I did have help. Our son Arthur took a trip to Europe—as far as I can remember it was around 1970 or 1971, he was in college.   And in the summer he did a study for us, that is, he traveled around several parts of France, Spain, and Germany - I think that was primarily it - and gathered information. A slight digression for a moment. We had a subscriber in Dusseldorf, I think it was, who had something like forty subscriptions. So we mailed forty copies of the *Analyzer* to this address in Dusseldorf every month.   And, Art stopped in to find out about them. When he saw the office, he thought, "My god, what are they doing there, they want forty copies!" So he goes in the little office, and asks the guy about it and the guy starts to laugh and says "Oh they're for our Russian customers; we just forward them on to Russia." I think that was because at

one time we were being very patriotic or stupid or something, and we had some request

for some subscription in Russia and we wouldn't honor it. So anyway, if I had been

wiser, when Art made that trip, I would have used the term research assistant. "Research

assistant for this issue: Arthur Canning." And looking back, I'm sorry I didn't.

[Canning discusses use of information technology to run his publishing business]

Let's see, there was something else I had in mind, since we dealt with the computers

field, I was anxious to use computers, and in 1977 we signed up with a time share system

in Oceanside—no, Escondido—about 12 miles away from our office. I think we used

dial up to contact them and it was a pretty slow modem in those days. We went in to see

them and told them we wanted to put our subscriber file on the computer so we could get

mailing labels, send out renewal notices, and things like that. And as I remember, we had

a very nominal initial payment, like a thousand dollars, and then it was in a couple weeks

time, they had something to be tested on part of our subscriber file. So in about a month

order of magnitude, we actually had something workable. That thousand dollars was the

only case we had to prepay, from then on it was our monthly charges. And our monthly

charges eventually ended up being non-trivial, you know, quite a bit. We kept

expanding, by the time we finished, and I saw how big the total system was, I was

amazed. Here a small company—we had about ten employees, something like that. I

just didn't expect we'd have that many programs. But we were really doing quite a bit.

We started out doing word processing on their time share system, so instead of writing

my issues on the typewriter, I'd write them on the terminal, and then fairly soon, we got

to the point where once I had the issue finalized, as far as the editorial content was concerned, then I would go through and imbed type setting commands. We'd set this up with a typesetter up in Los Angeles where I'd use pound sign, dollar sign, and then some symbol and they would translate that into the typesetting commands. Very soon we ended up with automatic typesetting, which made life a lot simpler. And we bought an accounts payable package, and Mrs. Canning ran the accounts payable package, which she hated, hated!   If she were here she would emphasize that. She was almost steered away from computers for life. It had none of the characteristics of "Quicken" for instance. You had to remember the codes for the different suppliers, it was just complex. And then I bought a general ledger package and this is when I really learned accounting. I had taken accounting a while back, but it wasn't until I put the general ledger package in that it really started to sink in, this is what debits and credits are, this is what you have to do. I meant to ask Peggy how we handled payroll, I can't, for the life of me, remember. Accounts receivable was all at the time sharing service, and sales analysis was on the time share system. So we really made quite a bit of use of computer processing. Then I told this to Margaret Milligan with *Data Processing Digest* that we had this.   She didn't have as many subscribers as we did, so her budget was more limited, but she sort of wished she had computer aid on this. Roger Sisson was out from the East and talked to her and said, "Oh, I can do that for you. I can set that up on an Apple" - now this was Apple II, I don't know if you remember Apple II, a little 40-character per line computer?

Yost: Yes, in fact, that was the first computer I ever used.

Canning: Roger seriously underestimated, just seriously underestimated, and the result was that he never got it running. I don't know if Roger was that good of a programmer. I knew I wasn't that good of a programmer so I would never have tackled it. The person over at the time share system, Rich Baldwin, he was good! Man, when he sat down to write a program, in Basic, he whipped it out. We were getting usable code in a couple weeks' time. I was getting something we could test our subscriber file on. And in probably order magnitude a month, we might have been running our labels. Not much longer than that it would be unearned income, that is how many issues is each subscriber yet to get and how much do we earn on each issue from them, at all sorts of rates. But Margaret just couldn't afford that kind of service and Roger just underestimated, which I was always sorry to hear because that hurt Margaret's operation. That was money she really didn't want to spend that way.

Yost: Can you give me some idea of the growth of circulation of *EDP Analyzer*?

Canning: When we first started out, I told you, we mailed in the first direct mail in early November of 1962, and by Christmas time we had 400 reply cards which said to send each one of those people an issue, and if they liked it they'd pay us and if they didn't like it they wouldn't pay us. Our policy was we'd send them three issues, bill them, and if they hadn't paid us by the third issue, well then, tough luck Canning. We set up a corporation and the accountant wanted to know, how much money did we put into this corporation and I said we had 400 reply cards. That was our capital contribution. Well

luckily the February issue was good enough, knock on wood, that enough of them started paying us that we decided, "O.K., let's go. Let's do it!" By the time we finished our peak got up to 10,000 subscribers. It may not sound like a big number, but when you consider that our subscribers were companies and not individuals and mostly they were larger companies. I always figured $100 million dollars a year gross sales was about the bottom limit (with regard to the size of company that) we could sell subscriptions to, and maybe it was higher than that. And there weren't a lot of companies around the world with 100 million dollar a year gross sales at that time. But we had subscribers in over 100 countries. There was one accounting firm, that decided they wouldn't do photocopies, so they actually got 400 copies from us each month, so we shipped them 400 copies and then they re-shipped out to their offices. Another accounting firm, we got a phone call, our office did, and the woman at the other end said to our subscription manager, "Where's our February issue, we can't make our copies." "You can't do what?" "We can't make our copies." "How many copies do you make?" "Well, we make 40 or so" "You're not suppose to do that!" So we wrote them a nice letter and pretty soon they sent in an order for more subscriptions and we tried to price multiple copies so it was somewhat more competitive with photocopy costs if you would count the time that people would spend running these copies and collating them and stapling and all that.

Yost: But making copies obviously was fairly widespread?

Canning: Oh yes. Something that triggered off action on our part was a trip over to Japan in '72, I think it was, to the USA Japan Computer Conference. We exhibited there and also they had tours. One of the tours was to their information center. Anyway, I went. Here was a nice building, and in one room was a whole battery of photocopy machines. In some other rooms here were stacks, like magazine stacks in a library. I looked and sure enough here was *EDP Analyzer*. I looked at the issues and they were ragged! They never went out of the building so it was obvious that their trip was from the stack to the photocopy machine and back again. And most of the photocopy machines were XEROX 920's or some number like that. When we got back from Japan, I said, "We have got to do something about that." So I got together with the printer who was printing the *Analyzer*, and we tried various things. And finally came up with the idea of taking the white paper and printing on it gold dots, and then on top of the gold dots we'd print the text in blue ink. And it absolutely destroyed the XEROX photocopy. You couldn't read it, nothing. But every other photocopy machine could photocopy it fine. But since at that time the XEROX 920, or whatever it was, was the popular photocopy machine, we figured we'd do something. So we did that for six months, and finally my brother-in-law, who was a professional photographer, says, "Dick, I can't read those issues, all I see is the dots." And a subscriber wrote us and said, "all I could see was the dots." And other subscribers would send in photocopies with the words "Ha Ha" written on it, showing that they could make photocopies. So after six months we just quit, and that was our attempt to control photocopying.

Yost: You also became involved in computer conferencing didn't you?

Canning: Yes, we decided we would open up a computer conference, a worldwide computer conference. It was a conferencing system, I don't know what's happened to it, it was a forerunner of the Internet. It was to be moderated by Paul Strassmann, it was to be opened to all subscribers from February 13th through March 31st, 1985. And the subject was problems with getting payoff with computer investments. And we did have subscribers from Europe and Australia, and the guy in Australia had to phone in, something wasn't working out and I had to get it straightened out that he would know how to get on, or whatever. My conclusion at the end of that—now we didn't have a lot of participants where they were all contributing information, we might have had a bunch of lurkers. Computer conferencing was such that you could see what other people had submitted, but you didn't have to submit something yourself. So we might have had lurkers, but my feeling was that we never had much come out of that. I thought maybe this would be a good way of getting information out to subscribers, but no, it wasn't all that good. I'd been active, as I said I was an officer of AFIPS at one time, and that led to my participation in IFIP (International Federation of Information Processing) and a sub group, the Automatic Data Processing Group, ADP, headquartered in Amsterdam. I would go over to the ADP meeting two to three times a year, and I would also tour around and talk to subscribers or to companies that were doing something that I thought subscribers would be interested in. So I'd make double use of the trips, and I'd get quite a bit of foreign feedback that way. I found their interests were very similar to the information systems people in the United States. They always felt that the U.S. was ahead of them, but it wasn't that obvious, they were doing pretty well in Europe,

Australia, and New Zealand. They were on a tighter budget but maybe that meant they didn't waste money as much, maybe they got more results for their money.

I certainly thought that we would get some information out of that computer conferencing that we didn't get. So I went to one of the IFIP/ADP meetings, and I think this was in Australia. I sat in on the business meeting after all the technical sessions were over and I found that they were spending about 90 percent of the meeting time on what I considered rather routine subjects. Somebody wanted budget to do such and such, and they would have a cursory discussion and pass the budget, or not as the case might be. And then they'd finally get down, when there was about ten minutes left, to the real gutsy subject area that they should have been discussing, which was "What subjects should we be having in our programs of these conferences? What's the real meat? What's our goal? Why should we even be in existence? What are we doing?" And my suggestion was, "Why don't you guys use computer conferencing, or even email, to work out all this routine stuff ahead of time. You're taking up all your time with trivial stuff. And spend your meeting discussing what should the content be of these conferences that you're having."   Well it went over like a lead balloon, and I should have anticipated that because anything that would threaten the possibility of the Dean saying, "No, you can't have travel expense, you've got all the work done by email, you don't need to go." They said, "no way are we going to adopt this principle." So something like that was occurring, I guess, in this computer conferencing that we had. I was always sort of disappointed that there may have been a way to make it work that we didn't figure out.

One other thing I will say is from a popularity standpoint, if popularity is equal to somebody bringing it up year after year, after year, and referring to it, then clearly the standout issue of all these *Analyzer* issues—the hundreds that I wrote—was the October 1972 issue, called "The Maintenance Iceberg" and pointing out the cost of keeping the system running, how much of the total cost, after it had been first developed, how much later followed on. And people are still bringing this up to me and they still refer to that October 1972 issue. So it must have touched a nerve, I guess. Nothing else that I wrote ever had that response where they're saying, "You know, we still got this with us." And of course with all the legacy systems in data processing, I'm sure they do. So I think that pretty much covers the things I had here.

Yost: Thank you very much for your time.

Canning: Sure.