

CHEMICAL HERITAGE FOUNDATION

HAROLD EUGENE THAYER

Transcript of an Interview
Conducted by

James J. Bohning

at

St. Louis, Missouri

on

1 December 1994

(With Subsequent Additions and Corrections)

ACKNOWLEDGEMENT

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HAROLD EUGENE THAYER

1912 Born in Rochester, New York, on 3 March

Education

1934 B.S., chemical engineering administration, M.I.T.

Professional Experience

1934-1939 Engineer, Technical Sales Department, American Cyanamid, Calco Division

Mallinckrodt Chemical Works

1939-1941 Sales Research and Development

1941-1943 Coordinator, War Production Board

1943-1952 Project Manager, Manhattan District/Atomic Energy Commission plants

1950-1959 Vice President

1952-1955 Director of Development

1955-1958 Project Manager, Atomic Energy Commission plant

1959-1960 Executive Vice President

1960-1978 President

1965-1981 Chairman of the Board, Chief Executive Officer

1981-1982 Chairman/Director, Executive Committee

Honors

1969 Silver Beaver Award, Boy Scouts of America

1970 Distinguished Executive of Year, Sales and Marketing Executives of St. Louis

1971 St. Louis Award, National Confederation of Christians and Jews

1971 St. Louis Award, National Jewish Hospital and Research Center

1972 St. Louis Globe-Democrat Man of the Year

1974 Silver Antelope Award, Boy Scouts of America

1974 Right Arm St. Louis Award

1974 St. Louis Regional Commerce and Growth Association

1974 University of Missouri Honor Award for Distinguished Service in Engineering

1976 Chemical Industry Medal, Society of Chemical Industry (American Section)

ABSTRACT

The interview begins as Harold Eugene Thayer recalls his family background and growing up in Rochester, New York, during the early Depression. He remembers the strong influence of his mother and his decision to attend MIT, where he pursued a course combining chemical engineering and business administration. As the interview continues, Thayer describes his first job, training in sales at American Cyanamid, and his decision to leave for a position with Mallinckrodt Chemical Works. At Mallinckrodt Thayer became involved in work for the War Production Board and then the Manhattan District, where he managed much of the company's uranium processing. The central portion of the interview focuses on Thayer's long-standing outspokenness in management discussions, his relationship with Edward Mallinckrodt, Jr., and his rise through management to presidency of the company. As president, Thayer was responsible for Mallinckrodt's strong growth, accomplished primarily by structural reorganization, developing the company's niche in the diagnostic products market, and making key successful acquisitions. While the interview highlights Thayer's views on the importance of teamwork, selflessness, and integrity throughout the company's work, it also examines some management mistakes and problems over the years. Concluding comments describe Thayer's community affairs work, his views of government regulation and chemical innovation, and his pride in receiving the Society of Chemical Industry Medal.

INTERVIEWER

James J. Bohning is Professor of Chemistry Emeritus at Wilkes University, where he was a faculty member from 1959 to 1990. He served there as chemistry department chair from 1970 to 1986 and environmental science department chair from 1987 to 1990. He was chair of the American Chemical Society's Division of the History of Chemistry in 1986, received the Division's outstanding paper award in 1989, and presented more than twenty-five papers before the Division at national meetings of the Society. He has been on the advisory committee of the Society's National Historic Chemical Landmarks committee since its inception in 1992. He developed the oral history program of the Chemical Heritage Foundation beginning in 1985, and was the Foundation's Director of Oral History from 1990 to 1995. He currently writes for the American Chemical Society News Service.

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INTERVIEWEE: Harold Eugene Thayer

INTERVIEWER: James J. Bohning

LOCATION: St. Louis, Missouri

DATE: 1 December 1994

THAYER: Is the objective here to record a history of some period in the chemical industry, or some type of management, or some technology?

BOHNING: Not the technology but primarily the management. In this case, we're looking at research and development in the mid-twentieth century, the factors that were taking place in it. I have found that with the people I've talked to so far, it varies from place to place—what's successful in one setting may not have been successful in another setting.

THAYER: Well, Mallinckrodt was a peculiar situation. It never had any giant chemical research or development, but it was a family affair and it was pretty dead on its feet, until pretty late.

BOHNING: Until you took over. You were the one who made the changes in it, as I understand.

THAYER: Yes, that's right, but when you look back at American industry, this was just a wisp in the sweep of things. [laughter]

BOHNING: Well, I taught chemistry for thirty-one years, and I know that when we bought Mallinckrodt reagents, we knew we were going to get good materials.

THAYER: That's a wonderful heritage that company left.

BOHNING: Mallinckrodt A. R. [laughter]

THAYER: Where were you in school?

BOHNING: I taught at a liberal arts college, Wilkes University, in northern Pennsylvania. I said I'd be there for five years and ended up being there thirty years.

THAYER: For goodness' sake.

BOHNING: I know you were born on March 3rd, 1912, in Rochester, New York. Could you tell me something about your father, Herbert, and your mother, and their family background?

THAYER: It's astonishing. They both went to the Kirksville School of Osteopathy. They graduated, after a two-year course, in 1902. My mother came from Pawnee City, Nebraska, and my father from a little town outside of Rochester. It's always astonished me that here were two kids, twenty years old or so, from fifteen hundred miles apart, that wound up in Kirksville, Missouri, in this semi-witchcraft situation [laughter] that osteopathy was a long time ago—and has certainly changed—and then they settled finally in Rochester, New York.

BOHNING: So they went back to your father's hometown; that was Rochester?

THAYER: Near there, yes.

BOHNING: And you were an only child, as I understand.

THAYER: That's right.

BOHNING: What was it like growing up in Rochester?

THAYER: Well, this was during the Depression that started in 1929. I remember coming home one night in October and hearing that City Service stock had gone down two dollars a share, and it was a shock. Eastman Kodak was a big part of Rochester at that time, and they're still very important there.

It was a pretty small town then. I went to kindergarten, grammar school and high school in Rochester, and then left in 1930 for Boston, to go to school in New England.

BOHNING: As I understand, you were quite active when you were in high school. You were always busy with some activity.

THAYER: I guess that's true. Nothing very unusual. I was a shot-putter, a staff member of the school paper, then editor of the paper. Also, social chairman and one thing or another in our class.

BOHNING: You indicated that, at this time in your life, your mother had an influence on you.

THAYER: Well, my father died when I was eight years old.

BOHNING: I see.

THAYER: My mother was a really important personality in my life. I suppose, also, it was because I was the only child, and there weren't all the diversions that there are now. Also, she was a very active person in the field of osteopathy in those days, in Rochester. I guess it was a normal childhood.

BOHNING: Where did you develop an interest in science or engineering?

THAYER: I don't really know. I remember being involved in making crystal radio sets when I was a Boy Scout. This was an unbelievable thing in those days—to get music out of the air in a little crystal of galena. I don't know whether that had anything to do with it or not, but my mother heard of MIT, and it turned out to be a good place to be from. [laughter]

BOHNING: You went there in 1930?

THAYER: Yes. I was a graduate in the class of 1934.

BOHNING: That was the Depression. How was your education financed?

THAYER: Well, my mother had a little money, and I borrowed a lot of money for tuition, which was three hundred dollars a semester in those days, as I remember. In my second or third year, it was raised to eight hundred dollars a year. I worked summers. I traveled across the State of Ohio one summer, selling flower seeds.

There was a company in Rochester that used to send out packages of seeds to drug stores and grocery stores, and then they'd send young fellows out around the country in the summertime to collect the money for the sold seeds, pick up the unsold seeds, and take an order for the next year. That was no way to get rich, but I guess I got sixty dollars a month or so.

I must have borrowed some money from MIT. I'm pretty sure we did. Then I started to work for a division of American Cyanamid in 1934.

BOHNING: What are your remembrances of your education at MIT?

THAYER: Well, I learned there were a lot of bright people in the world. I knew that I'd never be a Nobel Prize winner, so I took a combined course—chemical engineering and business administration. A lot of the people who were in my classes, I remember, had been to other schools first. I was fresh out of high school, and it was quite a jolt to me. But anyway, I graduated. It's a good place to be from. [laughter]

BOHNING: Well, you've indicated that you had a marketing professor who influenced you while you were there.

THAYER: Yes, this was a fellow named Elder. He was just an "old shoes," common sense, very bright person, it seemed to me. He used to say things that sounded sensible, and he would get to the core of the subjects that we were talking about.

BOHNING: How did you combine business and chemical engineering?

THAYER: Well, it was just a regular course that was given at MIT. It was called Engineering Administration, and there were three categories. One was civil engineering; one was mechanical; and one was chemical. My recollection is that perhaps three-quarters of the course that I had was all pieces of the chemical engineering course, but another quarter of it was business administration that had to do with marketing, production, statistics, and so on. It's a good combination.

BOHNING: You had decided pretty early on about going into the business side?

THAYER: Right, yes.

BOHNING: How did you hook up with American Cyanamid?

THAYER: Well, even back in those days, companies would send around interviewers, and there were several who came to MIT whom I saw. I was invited to Bound Brook, New Jersey, where the plant was located that I wanted to work in. I finally took a job with them at ninety dollars a month. [laughter]

BOHNING: Thirty more than selling flower seeds. [laughter]

THAYER: Just about the same category. [laughter]

BOHNING: Did you have any other offers, or was that basically your only choice?

THAYER: Well, there weren't many. I vaguely recall that there was another. Maybe not—I don't remember.

BOHNING: What was your first assignment there?

THAYER: Well, they had started, for the first time in their history, a technical sales training course, which had three pieces to it. The first couple of years were spent working, literally, in all of the company's divisions, from the different crafts in the maintenance department up through production, the laboratories, accounting departments, sales departments, and sales records departments. That lasted for a couple of years.

Then there was another year of working in customers' plants. American Cyanamid was a dyestuff manufacturer, and one of the larger consuming districts of dyestuffs was that of Clifton,

Patterson, and Passaic, New Jersey. We worked in a couple of plants in that area for a while, to learn something about the mechanics of the dyeing operation before we got out to sell the goods. Then the third step was to get a group together to sell dyestuffs for textiles.

BOHNING: Did you have a particular territory that you covered?

THAYER: I was a young kid on the block, and in that area of Patterson and Passaic, there was an old-time salesman who was really good. At that time, I had a piece of territory that went from New York up the Hudson to Albany, then over to Bennington, Vermont, then west through Amsterdam and Gloversville and finally down to Binghamton and back around.

But I finally came to the conclusion after a couple of years that I was always en route six hours a day and talking to people two hours a day. That seemed like a waste, so I went back to MIT to talk to my old department head and his secretary, who was a much older woman. They had requests for people to take jobs around the country, and they recommended that I interview with a man in New York. I went to Mallinckrodt as a result of that interview.

BOHNING: With whom did you interview?

THAYER: Well, I interviewed with a consultant to the Mallinckrodt Company. It was a man at Sanderson & Porter, an engineering company. He was a consultant at Mallinckrodt and had recommended that the company take on three or four young people who had graduated in 1934.

This was a good thing that happened to the company, so three or four of us went to work, and I moved out to St. Louis in 1939. The training course at Calco Chemical, which is a division of American Cyanamid, was pretty boring, and I figured I ought to do something constructive, but many years after that, I was so glad I'd had the experience of working in the maintenance shops, and then getting involved with labor relations. That was good experience to have.

BOHNING: What were you doing the first couple of years at Mallinckrodt?

THAYER: I was trying to find new places to sell Mallinckrodt chemicals and some way to increase the sales that the company had in 1939. Then along came the draft and the war, and for a year or so I ran what we called the War Production Board relationship with Washington. Then in 1942, through friendships of Mr. Mallinckrodt with Arthur Compton and then-president of Harvard, [James B.] Conant, we got involved in the Manhattan District in 1942. In 1943, I took

over the management of the purification of uranium and ran that business until 1960. That period included the construction and operation of a large uranium processing plant here in the St. Louis area for the Atomic Energy Commission.

But during all of that time, I was inquisitive and learned a lot about the rest of the business. Some of the things that were going on were awful then and appalling now. When you think that in 1930—I think this is the correct statistic—Merck and Pfizer and Mallinckrodt all had sales of nine million dollars, and both Merck and Pfizer started during the war and right afterwards, with antibiotics. As you well know, now they are billion dollar companies. Except for the uranium processing work, where I spent most of my time, we did almost nothing until 1960 when I became president of Mallinckrodt.

BOHNING: Who selected you to be the War Production Board coordinator?

THAYER: Well, I guess a lot of things happened to me because many of the people running the company were growing old. Along came a need for somebody who was more of an eager beaver to try new approaches. I don't know. I hate to use the hackneyed expression, "I fell into it," but there were obviously lots of things that needed to get done. There was a shortage of materials. Then very soon we started to build this first uranium purification plant, and I secured a lot of the construction materials for that. It just happened.

BOHNING: Somewhere along the line, I understand you also secured a steam engine for power at one of the plants? Were you involved in that?

THAYER: Yes. We were short of steam to run one of the plants. I don't know who got the original idea—this was in the 1940s—but we got an old steam engine, mounted it on blocks, and used that for a while to produce steam.

Everybody wonders whether the United States could successfully mount such an effort again if the need arose. It is wonderful to think of the things that got done back then, just by energy and quick creativity.

BOHNING: Is part of that being young and energetic and enthusiastic?

THAYER: I think so. Plus the fact that it was a time of national crisis! I think that people had a lot more freedom to act in those days than now. There weren't so many questions asked, either by government or by organizations, and the job got done.

Just think about the Manhattan District! It had approximately a quarter of a million people who knew something about what was going on, but the project remained a well-kept secret. There wouldn't be a chance of that these days, I don't think. If it hadn't been for President Roosevelt and a fellow named General [Leslie R.] Groves, of whom you may have heard, there never would have been an atom bomb in this country. They were two more [laughter] eager beavers on a big scale.

BOHNING: Let me go back to your Manhattan Project work. You started out there expediting, as you had been earlier. That was your original involvement. How did you go about expediting? How did you find these things that were needed to get the job done?

THAYER: Just kept at it and at it, and asked questions, called people and got a hint, and called somebody else. That goes on everyday at most any activity that works.

We had a very high priority—as I recall, a triple A; there was only one thing higher than that. Anything the Manhattan District wanted, they got, if there was any chance of its being available.

BOHNING: So you could get doors open very quickly?

THAYER: Oh yes. And, oddly enough, people didn't know what this was all about. That was another thing. Remember, Harry Truman never heard of the atom bomb until it was almost ready to go.

BOHNING: Right.

THAYER: [laughter] The President of the United States and high-ranking people in the Navy and the Army didn't know. I hope such a feat could be duplicated, if it's ever necessary again.

BOHNING: It's an amazing feat. But your uranium production went on; from the day the agreement was reached with Edward Mallinckrodt and the government until you started producing uranium, it was a very short period of time.

THAYER: Yes, that was really a remarkable job. The agreement with Mr. Mallinckrodt was made with a handshake in April. Less than two months later, production had reached one ton per day of purified uranium oxide. On the day before terms were agreed upon and the contract was signed, the first 60 tons of purified oxide was shipped.

BOHNING: That went to the pile in Chicago, didn't it?

THAYER: Yes. In December 1942, the first self-sustaining nuclear reaction occurred under the stands at Stagg Field at the University of Chicago. It contained uranium oxide purified by Mallinckrodt and uranium metal that others had produced from Mallinckrodt-purified oxide.

[END OF TAPE, SIDE 1]

BOHNING: When did you first meet Edward Mallinckrodt, Jr.?

THAYER: You got a few minutes?

BOHNING: Sure, sure.

THAYER: [laughter] I was very unhappy at Mallinckrodt along about 1942—it was before all the uranium activity started—and I figured Mallinckrodt was really a dull, dead place. In 1941—I'd only been there a year or two then—I wrote a report to tell what the company ought to be doing and how it should be preparing to conduct business in peace time [laughter]. I sent it to the president and to a very close associate of Mr. Mallinckrodt, who headed up plant research and operations. I never heard a word about it.

So, I changed the name from Mallinckrodt in my story to the Eco Chemical Company and sent it to *Chemical and Metallurgical Engineering*. I don't know whether the journal still exists or not. It was a big fat book—quite a publication in the thirties and forties. And what do you know? They accepted it, published it, and paid me two hundred dollars. [laughter] The fellow who was close to Mr. Mallinckrodt in production and laboratory operations used to talk with him every afternoon from about 3:30 until 6:00 p.m. One day, I was walking by this fellow's office in the laboratory. He called me in, and there sat Mr. Mallinckrodt, whom I hadn't met before. Can you imagine that? Now, this fellow's name was [Henry] Farr, and he introduced me as the young fellow who had written this story and had it published in *Chemical*

and Metallurgical Engineering. [laughter] Mr. Mallinckrodt looked me right in the eye and said, "You know, Mr. Thayer, a certain amount of anonymity is a great thing." [laughter]

So that's the answer to your question of how I met him. But it was fifteen years later before I really started to spend time with him and get to know him pretty well.

BOHNING: You stayed in the uranium business, as it were, for some time. I have a quote here attributed to you; "For a couple of years, the only reason the company showed a profit was because of the uranium division" (1).

THAYER: That's right. It's a sad story that there sat a company that had been in business eighty years by then. They had the best reputation in the world for high product quality, and the integrity of the people was just high. They had a huge back log of good will and a great basis on which to grow. And, of course, we became involved in the uranium business early.

We were first in the purification part of the operation, and two other plants in the country were built around this technology. There were three companies—DuPont, Mallinckrodt, and Harshaw Chemical, plus Linde, which did a part of the job. The three principal manufacturers had parallel operations, and Mallinckrodt was plenty good at it. This is one of the reasons that we stayed in the business so long after the war. I think there wasn't any doubt about our quality always being high. Comparisons were made monthly among the three manufacturers. Uranium was conserved strictly at the time, and Mallinckrodt had high quality as well as high yields of the product, with very little loss.

At the end of the war, all the plants were shut down except ours. Then, as late as the fifties, the Atomic Energy Commission approached us to build and operate a large plant at Weldon Spring. I'm finally going to get around to your query about the company's profits.

Up until that time, we had a fixed-price contract. Now, there's a big difference between a fixed-price contract and a cost-plus-fixed-fee. It was a very profitable operation for Mallinckrodt all during the war and until we got out of the business in 1967. But we built this plant at Weldon Spring, and we went on a cost-plus-fee basis. For a number of years, the uranium business was responsible for the company making a profit, because nearly everything else was a loser. That's a true statement that you've got there. It's a long story to answer your question, but that's how it happened.

Finally, I guess there were some twelve hundred people involved at Weldon Spring, and instead of making several million dollars, we were on a fee of seven hundred thousand dollars. The Atomic Energy Commission had built another plant in Ohio, which was essentially a copy of the Weldon Spring complex. By 1967, they were ready to close the Weldon Spring operation

and let us out. We were happy about it. We used a lot of the people for prime things at home base.

BOHNING: In 1950, you became vice president, so you were still involved with the uranium production. Is that correct?

THAYER: Yes. And I had charge of this uranium project until 1960, and gradually took on other chores around the company.

BOHNING: Who appointed you as vice president?

THAYER: Probably Mr. Mallinckrodt, but he was pushed into it. Please don't take that wrong. He probably wouldn't have thought of it himself. It was by a fellow named Joseph Fistere, who was president then, and a fellow named Charlton McVeagh, who was very close to Mr. Mallinckrodt and an important fellow in the company.

BOHNING: Do you know why they selected you?

THAYER: Well, I was getting older, I guess. [laughter] We had a very good record in this uranium business, and then I became very outspoken about the company in meetings. Remember, I got to be a director some time along there, maybe that was in 1950 or soon after.

That ties in with one of your comments a minute ago, here. When the company lost money, there were eight people on the board. I thought, before that board meeting, that I had at least two other directors who were going to vote with me. It turned out I didn't. [laughter] I wanted not to pay any dividends. Almost all the dividends went to Mr. Mallinckrodt, because he practically owned the whole place.

I've often thought this was the turning point of my career at Mallinckrodt, when, in front of Mr. Mallinckrodt, I suggested, "Don't pay any dividends." I said that would do two things: It would leave money in the company, but it would also give people around town and in the company a jolt that we must do something about this situation. Anyway, I lost it, and they paid their dividends.

Even though Mr. Mallinckrodt was a very quiet person, he must have appreciated me because of my outspokenness. Although one person told me about three years ago that he figured I was probably going to get fired almost any time during this period when I talked so

much and didn't seem to have anybody on my side. I never will understand this. I guess those people thought Mr. Mallinckrodt wouldn't like it and therefore didn't do what they must have known quite well should be done.

BOHNING: That's interesting, because you may be right. He recognized something needed to happen, but he couldn't find anybody who was willing to take that on. Had you thought about looking elsewhere for a job?

THAYER: Yes indeed. And I tried. It must have been in the late forties, maybe, or early fifties; but that never got very far. I guess something would happen to stimulate my interest again in Mallinckrodt. It just seemed as though something had to happen to that place, because of the integrity of the people and the quality of their products. Everybody was so honest. Mr. Mallinckrodt was a person who figured he was going to preserve rather than build on what his father left him. Anyway, it's a sad thing when you think that of the three companies who were all in the same competitive business, two of them made such a giant success of their world.

There's a fellow who's a real eager beaver. Did you know the people at Pfizer, by any chance? They had a fellow who graduated from Brooklyn Polytechnic Institute in 1934, the same time I graduated from MIT, and he went to Pfizer. He was a tough little Irishman, and he rebuilt that place. I guess it was not a conservative place like Mallinckrodt.

BOHNING: It was more of a one-product company at one time, wasn't it? I mean, they had a couple of things that were their big sellers.

THAYER: The biggest part of Mallinckrodt was the narcotics business. Merck, Mallinckrodt, and a company named New York Quinine were the three licensed opium processors in the United States. If it hadn't been for that, Mallinckrodt would have failed, I think, down through a number of years. They still have a business based on opium and certain of its derivatives. It's a major part of the business still.

In 1970 we had a very bright guy named [August H.] Homeyer. He and I would have dinner once a month. Now, he foresaw a shortage of opium, and he was right as could be. He got involved with India and Turkey, and then—have you got a minute here for a short story?

BOHNING: Sure, sure.

THAYER: In the early seventies, it was believed that, worldwide, approximately a thousand tons a year of opium went into licit use and an equal quantity went into illicit uses. Most of the leakage, historically, had come from Turkey, and some from India. When good governments would seize some illicit opium or a derivative like morphine passing through the country, they'd put it up for public auction. I took three trips around the world. If you look on the map you'll find on any globe that New Delhi is almost opposite St. Louis, and if you go one way, you might as well come back the other way the same distance. We used to have the Indians over here once in a while. We'd go to New Delhi and Bangkok and Saigon and the places that were near these sources of illicit opium. The government would seize it, and then we'd buy it for licit processing. The English would bid, we'd bid, and the Germans would bid. I got acquainted with a number of people around the world and saw a lot of the country. But this was a very important piece of Mallinckrodt for years and, I guess, still is.

BOHNING: During that one year that you were vice president, did you take on any additional responsibilities, in that you were still running the uranium plants?

THAYER: Well, I started to work more actively with the research laboratories, trying to stimulate a greater output, the same as I tried to do when I first went to Mallinckrodt. That was never a very fruitful operation; we just didn't have the kinds of people who were inventors and entrepreneurs. If we did have any, they probably felt they were never given a chance to follow through on their ideas. We did have some successes, however.

Mr. Mallinckrodt was a very good friend of a surgeon at Barnes Hospital named Dr. Evarts A. Graham. This happened back in the thirties. Mr. Mallinckrodt and Dr. Graham worked on the first diagnosis of a gallbladder problem by a chemical that sought out the gallbladder. This worked, and the principle has been working ever since but with different materials that are less toxic. We were at one time the major supplier of barium sulfate, which is an inert, innocuous material for visualizing the stomach and the rest of the gastrointestinal tract. It's astonishing. This was a real scientific discovery that Mr. Mallinckrodt and Graham made. It was a success, back in the thirties or forties.

And finally, there was a research man named [Vernon H.] Wallingford who developed a very successful compound called Urokon. It was followed by Conray. They were used as the major materials for diagnosis of blocked arteries. As you know, you inject the material through the arterial system, and then take X-rays. Have you ever seen these pictures? It's just unbelievable how clear it is, where that lump is in your artery. These were products developed from just a spark of research. That is the only reason I mention this. It worked, and these products are still working—not the original products, but variations of them.

BOHNING: You said that in the one year you were vice president, you worked at research.

THAYER: Nothing much happened.

BOHNING: How big an operation did they have for research?

THAYER: I'm not sure I'm reliable on this statistic, but I think there were probably eight to twelve Ph.D.s and helpers, but there was never any definition of a goal or what they were really after. Finally, this fellow Wallingford developed this very successful X-ray diagnostic medium, by himself almost, just puttering around and keeping at it, and it was great. Very fortunate.

BOHNING: Were a lot of these people involved in quality control as opposed to doing developmental work?

THAYER: There was nothing really fundamental done, like what goes on today in research, but they would make compounds that they had some reason to believe would not be toxic. This is just the old-fashioned way, which is still going on, in a lot of ways, as you know, in health care products—products that people hope will work and do the job.

BOHNING: During this time period, I also noted that you spent a few years as a development director.

THAYER: Mostly, I worked on trying to get the salesmen to increase sales of existing products.

BOHNING: Okay.

THAYER: This wasn't a very creative job. I didn't do much good for anybody on that.

BOHNING: Did you become discouraged during this time period?

THAYER: No, I don't think so. Let me see. It would be in the fifties. I think we started construction of the uranium processing plant at Weldon Spring about 1954 or 1955, and we ran it until 1967. Until 1960, I was pretty close to it.

BOHNING: In 1960 you became president.

THAYER: Right.

BOHNING: Had you become closer to Mr. Mallinckrodt at this point?

THAYER: Oh, yes. Much closer.

BOHNING: What kind of a relationship did you develop with him?

THAYER: I told him everything I knew about each situation, and who thought things were good and who thought things were bad. We would get together every day on something, while he was in St. Louis. One interesting story, it's got nothing much to do with anything, except that this fellow John McKean, whom I mentioned earlier at Pfizer, called me up one day, said he'd like to have a chat, and invited me to visit him at Pfizer's New York offices. He wanted to buy Mallinckrodt, and I assumed that was to be the subject of our meeting. So, I went.

When I got home, Mr. Mallinckrodt said, "Where were you the last couple of days?" and I said I was with Mr. McKean at Pfizer. He said, "What were you doing there, for goodness' sake?" He had been looking for me. I said, "Well, he wanted to talk about buying Mallinckrodt," and he said, "What?" I said, "Mr. Mallinckrodt, this will double your net worth or more." He said, "I don't want my net worth doubled." [laughter] He said, "Don't waste any time on that."

[END OF TAPE, SIDE 2]

BOHNING: As I understand, he had one son. George, was it?

THAYER: He had three sons, and they all died tragic deaths. Just the saddest thing. To think that here was a family with all the money they needed and more. And no one left to carry on the management of the company.

BOHNING: So, in your election in 1960 then, as president, you were really being groomed by him at that point, is that correct?

THAYER: I don't really know. There was another fellow there who was close to Mr. Mallinckrodt for a number of years. Everybody thought he was going to be president, except me—and, finally, Mr. Mallinckrodt.

During this directors meeting, two or three years earlier, that I told you about, I really don't know what happened, but I got awful specific with Mr. Mallinckrodt, and told him what I thought ought to happen and why.

So, Mr. Mallinckrodt and I had an arrangement. There wasn't anything secret about it. It was just an understanding that I was going to be appointed president.

BOHNING: What vision did you have when you became president? When you knew this was most likely coming, what was your vision of what you were going to do for the company?

THAYER: One of the company bylaws, historically, was that everybody ultimately reported to the president, and this was always a wasteful procedure. It wasn't a big company. So everybody had somebody else to blame, except the president, and there was no responsibility down the line. I wanted to divide the company into three pieces. One was our analytical reagent business, second was the medicinal chemicals line, and third was the industrial chemicals business.

Then our sales people would go out and sell the products in their part of the business. This worked. Our sales started to go up, and it was due to a bunch of guys who were really good people. The only explanation I can offer is, as I mentioned, that it wasn't a miracle. They just went out and did what they would have liked to do anytime, maybe. Anyway, that worked.

BOHNING: But you gave them the freedom to do that?

THAYER: I think that was a major factor. Of course, I also was criticized for picking into everybody's business. One of the major things that I also wanted to do was to grow in the pharmaceutical business. Some people in the company were very concerned about insulting our major customers, which were such companies as Lilly, Parke-Davis, Merck, and so on, in the pharmaceutical industry.

My position was that we had a niche, and that was diagnostic materials—a couple of which I've mentioned. Then radiopharmaceuticals came along. In 1966, we bought a company

here in St. Louis, and it was the beginning of a whole junior empire. It's still in existence, and it's grown a lot.

I figured that the pharmaceutical industry couldn't care less whether we were in the business—that it wouldn't affect our sales to them, because we were so pitifully small. We got in the business and developed the diagnostic products niche, and it's still one in which the company is engaged and is improving its position. That was a major change that I thought we ought to make. It turned out to be a good one.

Another of our businesses that we thought we were great at was the photographic chemicals business. I guess this was because we were involved very early, but when you think of Eastman Chemical—Eastman was then just Eastman Kodak—how could we compete? What could we do?

Another thing we tried that worked out pretty miserably was that I figured that we had so much experience in handling uranium that we ought to be in the fuel element business. In the fifties, we were the first producer of fuel elements for the first nuclear submarine. That was a claim to fame we had for a while. And I think there was a ship.

BOHNING: The U.S.S. Savannah.

THAYER: Is that the one?

BOHNING: Yes.

THAYER: Well, we had made the fuel elements there. Another customer was Commonwealth Edison. We made the fuel elements for their first big-time nuclear reactor.

We had a little plant down in a small town, here in Missouri, that handled the enriched material. I figured that this was no place for little old Mallinckrodt. There was General Electric building a hundred million-dollar electrical generating plants, and here was little Mallinckrodt supplying half a million dollars' worth of fuel elements. We weren't going to be in that business long and successfully, and we got out of it.

BOHNING: I'm quoting from one of the company histories. It says that you "set about quickly coaxing, cajoling, and, sometimes, muscling the company into the modern era" (2).

THAYER: Well, I don't know who said that, but a junior step was that article I wrote when I first went with the company. Doing things like that and getting money to make acquisitions was

part of it. Mr. Mallinckrodt died in 1967, but before he did, we would talk about an acquisition. I'd have all the numbers—columns of figures, graphs, and so on—but the only thing he was interested in was, "Are the people honest?"

The guy was just so honest, with so much integrity. He didn't care for the trainloads of facts, but he had trust. That's what was very important to him. He was right.

Then we tried to look for acquisitions that would fit with our business. I figured we should never buy any company which, if it got into trouble, we couldn't help them to get out, either technically or in sales and marketing. Sometimes, [laughter] I guess, I was accused of stretching that some, but that was a good, obvious point of view to have.

We also had a very bright guy who was Chief Financial Officer, and he was a real help in a lot of things. He had very good judgment; we didn't spend money before we had it. We had one fellow in the company who said, "You've got to spend money to make money." We used to set up budgets for the year, by quarters, and then I would announce in the beginning of the year that we're not going to spend any of our appropriated money for the first quarter until we could see whether our sales were developing. This is probably not a very fair thing to do, but it worked. We had so much reserve, apparently, and unutilized skills in the company, that it did work. We never needed a large amount of money, maybe, but it helped to build a good financial record.

BOHNING: As you said, these people were probably capable of doing this before, and all of a sudden, they were able to produce more. What was your approach to getting them to do that? How did you encourage that? What was your philosophy?

THAYER: I think that I did it unwittingly. We used to have what was called an operating committee. It was in operation all the time I was there, since the beginning of the 1960s. There were five, six, or seven people who would get together every Monday morning and say anything that popped into their heads that was going to be good for the company, bad for their business, or whatever. Perhaps this was naive of me, but I think there were six or seven people who were real selfless. They would take all this conversation and come out of the meeting with better ideas and plans than any one person had to begin with. They'd give up their own contributions to the original argument if they saw something else happen. I think that was unwitting on my part, but we did the kinds of things that one way or another developed a spirit of what I'd call selflessness. Maybe that's naive, but it surely fostered teamwork.

Another philosophy I used to preach was, "Look, let's try to understand this thing," whatever the thing happened to be, a project or some sort of expenditure or new business. "Let's

develop such a sameness in our understanding of what this is all about that if somebody asks one of us a question in Paris and another of us in New Orleans, he gets the same answer from two different people, on the same subject." I think this led people to really try to be participants. I think that was an important byproduct.

BOHNING: Yes, I've noted that you were a strong believer in teamwork.

THAYER: You understand, anybody who's been through this tells you the things that they think were great, [laughter] and maybe in any other situation, they wouldn't have been. That's a novel thing about this world of ours, and there are two major schools of thought on this, still. One group of people says that once a manager always a manager. It doesn't make any difference whether you're a manager of a shoe store or a chemical factory. I just don't agree with this. I think if you don't have a background of pretty good knowledge of whatever it is that you're dealing with, you don't know how to evaluate what you hear. But companies are run by lawyers, [laughter] so I guess that's not always right.

BOHNING: I want to come back to that point. I was at Monsanto this morning and that topic came up, that today's chemical companies are not run by people who have some technical training and can understand what's going on at a lower level, especially in development areas. That leads me to ask you again: when you became president, what did you do with research and development?

THAYER: Mallinckrodt never produced any great innovative accomplishment, technically. All of our works in the uranium days, for example, were product improvements. Now, some of it was pretty good, but we never did the kind of work that Merck does today, or anywhere near it. Most companies don't, for that matter.

I think the bigger the company gets, probably the less important it is to have somebody around who really knows the business inside out. I mean, a lawyer can run a company, and he doesn't know anything about the technology. But maybe the problems that get to be important to an eighteen-billion-dollar company are more of a financial-judgment-of-people kind of thing than they are knowing enough of what your research department ought to be doing.

What do you find on this subject among the people you interview?

BOHNING: I've not heard that thought expressed before; that's a new one. It's very intriguing.

In your term as president, how did you nurture new ideas? You didn't have much of a base to build from, evidently.

THAYER: That's right. I'm sure you're an authority on the difference between fundamental research and what goes for research in most organizations, which probably is mostly product development that people call research. We did some of it in the radiopharmaceutical business, but this was taking scientifically proven things and adapting them to something that we understood. When you talk about research, I don't know the meaning.

[P. Roy] Vagelos, this fellow who made such a success at Merck, was from Washington University, as you probably know. Now, there's a fellow who probably always guided the principles of their research, because he was so bright in that field. But he also had many other attributes.

The people at Monsanto—do you know Charlie [Charles A.] Thomas?

BOHNING: No.

THAYER: Or a fellow named [Carroll] Hochwalt?

BOHNING: Oh yes, we have an interview with Hochwalt (2).

THAYER: You do?

BOHNING: Yes, it was done a long time ago.

THAYER: He used to be almost a personal consultant to me after he retired from Monsanto. He was instrumental, as I understand it from him, in working with [Charles F.] Kettering on the anti-knock compound, wasn't it? Then at Monsanto with this Roundup or some other agricultural products that they had which were extremely successful.

BOHNING: I think it was before Roundup.

THAYER: That was with Kettering when he was with Thomas & Hochwalt laboratories in Dayton, or wherever it was. But those are real researchers, and Mallinckrodt really wasn't big enough to get close to the real fundamentals of things.

Well, is there anything else I can tell you?

BOHNING: I'm not sure when you said this, but it was very early in your presidency. You had a slogan of seventy by seventy, seventy in sales by 1970. How did the company react to that? I think you were only at thirty-some at that time.

THAYER: Yes. It turned out that we made that goal two years early, I think, in 1968. But that's something I really don't understand to this day. We had thirty-five million worth of sales and people laughed when we said this, including me, I guess. [laughter] But it sure worked and things kept going well. We also seemed to have a knack of being able to get hold of a young company—like in the radiopharmaceutical business, it was started by a fellow named [Wilfred R.] Konneker here in St. Louis—and developing more compounds from that. We bought that business when the sales were two or three million dollars, and before the Japanese joint venture was sold, sales of the Japanese unit were one hundred and twenty million, and the German part of the venture had sales of about half that amount.

Then we bought a catheter company, which nearly frightened me to death, up in a little town north of Mechanicsburg, New York. Their sales were something like five million dollars. I can't imagine my doing a thing like this, but we paid twenty-five million dollars for it. Sales in that organization now are over a quarter of a billion dollars.

I guess we just fell into a tub of butter a number of times and were able to handle this kind of growth by really getting to understand what was going on. Those were two or three things that were really lucky in the course of this Konneker purchase, called Nuclear Consultants when it was purchased. It was a blooming industry, and it was based on a new technology. I think it started in 1958. Now it's accepted and growing.

[END OF TAPE, SIDE 3]

BOHNING: Your comment is similar to what a number of other people have said too, which relates to luck; that's not the major part of it, but it plays a role, and being at the right place at the right time, that kind of thing.

THAYER: The kinds of rewards that people get by luck or chance, unwittingly, have to do with good work ethics, believing that honesty is a good thing, and keeping their nose to the grindstone instead of finding good excuses not to go to work next Thursday. I think that those are attributes that prevail probably, no matter whether you're a good lawyer or a good salesman or something else.

BOHNING: This seems to be a trademark of Mallinckrodt—integrity, honesty, and good work ethics.

THAYER: I wonder if it isn't a trademark of any successful individual or company. You don't find crooks getting along for long, I guess. On the other hand, you can have all the desirable attributes and still not wind up very well either.

BOHNING: Do you think that this integrity characteristic of Mallinckrodt was instilled by both Edward and his father?

THAYER: Yes.

BOHNING: That he didn't want to sell because he really wanted to keep his independence.

THAYER: Yes. He didn't want to sell because he was scared, and unwittingly maybe, because he was scared, he wanted to preserve what his father left to him.

BOHNING: And that's why he didn't work on growing it?

THAYER: After I got to know him, I knew he was happy with everything that I wanted to do to grow the business. He used to tell stories about me around town that once in a while would come back to me. He was happy with what he had, but why he didn't get it forty years earlier is too bad for society. If I had been brighter, maybe we could have built another Merck. On the other hand, we got a late start, by twenty years or more. That's an excuse I'm giving, you understand.

BOHNING: No, but your record was still a good record. The growth was phenomenal during your time.

I have a quote here, attributed to you. "One of the principal challenges to management is to avoid being surprised" (2).

THAYER: Well, I'm sure a believer in that.

BOHNING: Did you have surprises?

THAYER: Yes, I learned about surprises. We used to have a group dubbed the "Holes Committee." Did you ever hear of that?

BOHNING: Yes, I read about it.

THAYER: Its purpose was to avoid surprises, to plug holes before they grew big, or to detect holes and set up accounting controls that would warn us early when something was going bad. The Holes Committee developed out of our wish to avoid surprises.

A major surprise occurred as the result of some awfully dumb actions on our part. It involved our columbium and tantalum business. Mallinckrodt was the largest producer of columbium or tantalum, or maybe both, for a company located up in Boston.

Anyway, it was one of these materials—tantalum, let's say—and we became the largest importer of tantalum in the United States, unfortunately, for about six months or a year. Oh, this was so dumb. This was about the third year I was president of Mallinckrodt. The guy who did this—I knew it was going on—signed a contract with some big-time metal people in New York. We contracted for large amounts of tantalum in the expectation that we would need it for this outfit in Boston. And what do you know, they finally decided that they didn't want it. We got this material for ten dollars a pound or some big number, and it was worth three. Little old Mallinckrodt, in 1962 or 1963, lost a million and a quarter dollars, which was almost all of our profit for the year. Oh, this was so dumb!

One of the things that I wanted to do was to write it off; don't hide it, tell the world we did it. We came out with it finally and didn't suffer much except we lost the money. [laughter] But the stock kept going up. Some things that people do are awfully dumb, and that was one of them.

BOHNING: Didn't you also have Penn Central stock?

THAYER: Yes. We bought a million dollars worth of their paper.

Now, this was awful. Penn Central failed. There was a guy from a big-time New York financial underwriters operation on the board of Penn Central. He attended a board meeting on a given day, let's say the 28th of March. At the meeting, he heard that Penn Central was headed for trouble. He went back to his office and wrote a note to a brokerage outfit, which our lawyers found in this company's files, that said, "Dump all this." We bought our paper on the 29th, after this note had been sent around this organization. These were big-time honest guys. We bought the paper, then Penn Central failed, and we sued them.

Then, of course, there was the discovery procedure in the suit. In the course of discovery, we found that note and other items, but nothing as damning as that. And what do you know? Before the trial, the head guy of that underwriting outfit came out and talked to this smart financial fellow at Mallinckrodt named Harold Brinner. He wanted us to withdraw the suit, and he offered to pay us a certain amount to do it. We told him no. Then he offered more money. I think it was perhaps as much as seven or eight hundred thousand dollars of the original million. We took it.

Then Brinner said, "And we want the stock in Penn Central along with it." His hope was that the stock might eventually be worth something, and ultimately, that's what happened. We got about a million and a quarter dollars back [laughter] for our million dollars. But this is such an awful thing, for a company to get caught in that trap!

BOHNING: We've talked about your acquisitions. I have here that there were three things that you wanted to do when you started out. One was decentralization; we've talked about that. Second was acquisitions; we've talked about some of that. The third part was going international. Was that your emphasis?

THAYER: Oh, yes. One of the key people in this effort was August Homeyer, whom I mentioned earlier in connection with Mallinckrodt's narcotics business. He had worked closely with Harry J. Anslinger, who was the first commissioner of narcotics in the United States, sometime in the twenties or early thirties. Gus used to travel with Anslinger to attend international narcotics meetings, and he was the only guy in Mallinckrodt who had been outside North America—a couple of us had been to Canada—so we figured Gus should take on the international business.

Gus is the guy who made the arrangements with the Germans to handle radiopharmaceuticals and Conray X-ray contrast medium. Then the same thing went on in Japan, and out of that came—for our size, at least—a substantial growth point of the company. The power of the Mallinckrodt name was astonishing. Of course it's a German name, and

whether they knew this Mallinckrodt or not didn't make any difference. Mallinckrodt was known all over the world to a much greater extent than you'd ever expect for a company that size.

BOHNING: You were also very active in community involvement, and you encouraged company employees also to be active in community affairs.

THAYER: Yes. That's very true; I was very active, and this used to bother Mr. Mallinckrodt. He said, "You're doing enough pro bono."

He'd read in the paper that I was head of the United Way or something. I'm not sure why I did that, but I liked it very much. I liked the activity, and the feeling of accomplishment that one gets when running a United Way organization or the Boy Scouts. It works, and people get some benefits from it. I was very active around town in lots of things. I also got to be a director of a number of companies. It was good experience. It probably helped Mallinckrodt—I like to think it did—because I spent time in these activities.

BOHNING: The Mallinckrodt's were somewhat philanthropic, here in the city.

THAYER: Yes indeed. They built the Mallinckrodt Institute of Radiology here, which is a world leader in X-ray diagnosis and treatment. They gave, in the twenties, a chemical laboratory to Harvard University. Mr. Mallinckrodt, Sr., who died in 1927, was more of a real philanthropist and a student of the subject than the Mr. Mallinckrodt I knew, but he himself did a lot. At the time he died, he left fifty million dollars to Harvard and twenty-five million dollars to Washington University.

That's another measure of the company's change. In 1960, the company had five hundred thousand shares of stock, at thirty dollars a share, and that's fifteen million dollars. We sold the business to Avon for seven hundred seventy or eighty million dollars, and that's one obvious example of the change, just in a short time. I don't know what the stock was when Mr. Mallinckrodt died, but the seventy-five million dollars that he gave to Harvard and Washington University in St. Louis must have been worth eight or nine times what it would have been worth in 1960.

Anyway, I was active around town in a lot of things.

BOHNING: I'm intrigued by the fact that he was critical of your doing that. I'm assuming then that while he was philanthropic, he didn't participate in anything himself.

THAYER: He'd never be a front man, or an organizer, or a leader, or even a semi-front man.

BOHNING: We've talked about the Holes Committee. You also created something called the "Office of the Chairman."

THAYER: Well, it was just a smaller operating committee. It included the chairman, the vice chairman, and the president of the company. The three of us were pretty close to everything that happened. You gave total knowledge of the company to three people, rather than one person, and the operating committee gave most of the same kind of thing to seven people rather than one person.

BOHNING: I'm not sure now if I have the dates right for when the patents expired on the paraminophenol and other players got into the market for acetaminophen.

THAYER: Well, right now, the situation is this. We are, by far, world leaders in the manufacture of the material. We have plants in Germany, England, and Ireland, and a couple in the United States. The biggest one is in Raleigh, North Carolina.

BOHNING: As you approached the end of the seventies, you were looking at retirement.

[END OF TAPE, SIDE 4]

BOHNING: There was some question about your successor, and then you had someone lead the company at one point.

THAYER: We hired a potential replacement for me through a head-hunter, but he just didn't work out. His philosophy and style of management were completely foreign to Mallinckrodt. He was with us for only about a year. Then we wound up with [Ray] Bentele, the fellow who was Brinner's second in command. Ray led the company while it was owned by Avon and later, after it was bought by IMC.

BOHNING: But earlier, before Avon, National Distillers made a move, and you told the stockholders that you wanted to continue the independence of the company rather than have a hostile takeover.

THAYER: Right. I think, my recollection is that some other companies had shown some interest in buying Mallinckrodt.

Selling Mallinckrodt to Avon, I believe, was a good move for our stockholders. If it hadn't been sold, I think that somebody would have found a way to take it over. I believe that as things have turned out, which certainly weren't planned, it's a better situation than if a hostile takeover had occurred. But who knows for sure?

BOHNING: Was Bentele involved in the takeover, or were you playing a role in that?

THAYER: He and I were doing it, and there were lots of things involved. The company had to be run in the meantime, while it was being taken over or talks were going on, and those had to be handled. Then there were lawyers who got into the deal. Then we sort of parceled out the different activities.

I was on the board of Avon for twelve or fifteen months, after they bought Mallinckrodt, and I guess Bentele was on it until the business was sold to IMC.

BOHNING: In your fortieth anniversary with Mallinckrodt in 1979, each guest received a pamphlet entitled, "A Short Chronicle of Thayer's Contributions to Mallinckrodt." If somewhere along the line, we might be able to get a copy of that, we'd appreciate it.

THAYER: Okay. I saw one of those the other day.

BOHNING: I'm now quoting. "In less than two decades, Thayer had rekindled in Mallinckrodt the spirit of determination, persistence, and performance that characterized the company in its earlier days. His cultural revolution has succeeded." I was intrigued by that comment. You had "preserved and enhanced Mallinckrodt's values of quality, integrity, and innovation" (2).

THAYER: [laughter] Sounds great; who said that?

BOHNING: It's in the company's 125th anniversary history.

Let me just finish up with a few things. We've covered most of my original agenda, but one of the things I noticed when you gave your talk, when you received the Chemical Industry Medal, was that you focused on government regulations (3). What changes have you seen since that time?

THAYER: I was complaining then, but it's increased so much in the years that followed.

BOHNING: Bill Wishnick of Witco Chemical (4) told me that his father, who founded the company and who came in to do something in the office until the day he died in his late eighties, in his later years complained to his son. He said, "You've got all these lawyers and all these environmental people, and they're not selling anything." [laughter] They're non-productive people, in terms of the product of the company—all brought on by government regulations. Was that true also at Mallinckrodt? Did you have to bring in people like this?

THAYER: Sure. Of course, that was when I was closely involved with that in the middle seventies. It was just a mild dose compared to what's going on now.

BOHNING: Let me ask you one more question. We've been talking about innovation in research and development, in some respects, throughout the afternoon. What do you think is important for the future of chemical innovation in research and development?

THAYER: I may be stating the obvious, but—bright people. I don't know. It seems to me as though there's so much compartmentalization of knowledge now. Some guy gets to be an authority on some little piece of chemistry, then another guy over here becomes an expert on something else. How do you keep these things together? This must be an important thing in understanding how people knit together all the things that are useful to them, to study a particular problem.

BOHNING: This is a standard question I'm asking of everyone. What did it mean to you when you won the SCI medal from the Society of Chemical Industry?

THAYER: Of course I was proud as could be! I don't know what else I can say that's meaningful. You become part of a kind of elite-ness that is very satisfying. What's your normal answer?

BOHNING: Some people say it hasn't meant anything, which is a surprising answer; I never expected that. You and John Franz from Monsanto (5) are the first two people who felt differently than that.

THAYER: Do the people who gave you those answers have a string of medals they've won?

BOHNING: Some have others.

THAYER: Well, maybe that's it.

BOHNING: John made the point that, for a researcher—a person who spends his entire career doing research rather than moving into administrative responsibilities—there are very few rewards and recognitions, so, when they come from your peers—as does the Perkin Medal or the SCI Medal—then that has considerable meaning.

THAYER: Yes, that must be true. Unless a guy gets a Nobel Prize, he doesn't get much recognition. A patent never gets any publicity. Also, I think that things are getting so complicated. We read about the Genome project, and about the biochemical business, and Amgen coming along, and Genentech—and they're all such complicated things, just in themselves, that it's hard to understand what they may mean. So, if a scientist is involved in any one of those things, it's such a big job, a big scope of activity, that it's hard to get any recognition for it. Maybe that's the trouble.

BOHNING: Well, is there anything else you would like to add that I haven't covered?

THAYER: I don't think so. I think that you must have done a lot of homework before you got here. [laughter]

BOHNING: Well, I did a little bit.

THAYER: I'm reminded of a number of things because of it that I never would have thought of. I don't think that there's anything else.

BOHNING: Well, when you see the transcript, if there's anything else you might want to add, go ahead.

I appreciate your time very much; thank you for spending the afternoon with me.

THAYER: It's been very nice to talk with someone whose work covers such a broad scope.

[END OF TAPE, SIDE 5]

NOTES

1. "A New Era," *Mallinckrodt 125th Year Anniversary* (St. Louis: Mallinckrodt, Inc.: 1992).
2. Carroll A. Hochwalt, interview by Jeffrey L. Sturchio and Arnold Thackray at Clayton, Missouri, 12 July 1985 (Philadelphia: Chemical Heritage Foundation, Oral History Transcript #0024).
3. Harold E. Thayer, "Business in an Era of Legislation and Regulation," *Chemistry and Industry*, (19 March 1977): 225-227.
4. William Wishnick, interview by James J. Bohning at New York City, 13 May 1991 (Philadelphia: Chemical Heritage Foundation, Oral History Transcript #0093).
5. John Franz, interview by James J. Bohning at St. Louis, Missouri, 29 November 1994 (Philadelphia: Chemical Heritage Foundation, Oral History Transcript #119).

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