CHEMICAL HERITAGE FOUNDATION

MELVIN S. DAY

Transcript of an Interview
Conducted by

Robert V. Williams

at

Washington, D.C.

on

15 July 1997

(With Subsequent Corrections and Additions)

Melvin S. Day

CHEMICAL HERITAGE FOUNDATION
Oral History Program
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MELVIN S. DAY

1923 Born in Lewiston, Maine, on 22 January

Education

1943 B.S., chemistry, Bates College

Professional Experience

1943-1944 Chemist, Metal Hydrides Inc.

1944-1946 U.S. Army Corps of Engineers

Atomic Energy Commission
1946-1948 Science Analyst
1950-1956 Assistant Chief, Technical Information Services Division
1956-1958 Chief, Technical Services Division
1958-1960 Director, Technical Information Division

National Aeronautics and Space Administration
1960-1961 Deputy Director, Technical Information and Educational Programs
1961-1967 Director, Science and Technology Information Division
1967-1970 Deputy Assistant Administrator, Technical Utilization

National Science Foundation
1970-1972 Head, Office of Science Information Service

1972-1978 Deputy Director, National Library of Medicine

1978-1982 Director, National Technical Information Service

1982-1984 Vice President, Information Technology Group, Inc.,
wholly-owned by Thyssen-Bornemisza Corp., Netherlands

1984-1986 Vice President, Research Publications,
wholly-owned by International Thompson

1986-1988 Senior Vice President, Herner and Company

1988-1997	President, M. Day Consulting
1991-1994	Executive Vice President, BIIS Corporation
1994-1996	Executive Vice President, GlobeNet Corporation

Honors

1960	Sustained Superior Performance Award, Atomic Energy Commission
1971	Exceptional Service Medal, National Aeronautics and Space Administration
1974	Miembro Correspondiente Extranjero de là Academia de Ciencias Fisicas, Matematicas y Naturales, Republica de Venezuela
1975	Director's Award, National Library of Medicine
1976	Superior Service Award, U.S. Public Health Service
1982	Fellow, American Association for the Advancement of Science
1992	Honorary member, International Council for Scientific and Technical Information (ICSTI)
1997	Distinguished Service Award, ICSTI
1997	Honorary Fellow, National Federation of Abstracting and Indexing Societies

ABSTRACT

Melvin Day begins the interview with a discussion of his family and childhood years in Boston. Day grew up during the Depression and often worked in his father's oil company after school to help ends meet. Day attended Bates College as a chemistry major, receiving his BA in 1943. After graduation, Day immediately accepted a position with Metal Hydrides, Inc. in Beverly, Massachusetts. He enlisted in the U.S. Army in 1944. Recognizing Day's background in chemistry, the Army sent him to serve at Oak Ridge National Laboratory as part of the Corps of Engineers for the Manhattan Project. In 1946, Day was assigned to work for the Atomic Energy Commission [AEC] under Major Alberto Thompson, reviewing newly declassified documents from the Manhattan Project. Day involved himself in all aspects of the AEC documentation program from abstracting and indexing to publishing. By 1947, AEC was producing *Abstracts of Declassified Documents*, which later became *Nuclear Science Abstracts*. In 1958, Day transferred to AEC headquarters in Washington, D.C. to be the Director of the Technical Information Office. Day and the AEC pioneered the use of the computer as a primary tool for document production and searching.

Day joined the newly established National Aeronautics and Space Administration [NASA] in 1960, and developed the plans for NASA's information program. After months of deliberation, NASA chose to contract out the management of technical information, which proved to be very successful. NASA's program became the model for documentation programs around the world. NASA formed a database of unpublished technical documents called *STAR, Scientific and Technical Aerospace Reports*. Later, NASA merged *STAR* with the Institute for Aerospace Sciences' [IAS] database of published literature called *International Aerospace Abstracts [IAA]*, forming NASA RECON in 1965. Day recognized that NASA was heading towards an online system. By 1966, Lockheed developed the software and NASA RECON was available online at NASA centers across the country. Day was a member of many information societies, including COSATI, which was a White House committee. Working through COSATI, other government agencies, like NASA, and AEC, could establish a common ground on formats and standards in information science. Day also headed the U.S. delegation of the United Nations Educational, Scientific and Cultural Organization [UNESCO]. In 1970, Day served as chairman of COSATI. That same year, Day began working for the National Science Foundation [NSF]. There he worked on the funding end of developing information systems. He left NSF in 1972 and became the Deputy Director of the National Library of Medicine [NLM]. There he helped build the Lister Hill Center and to develop MEDLARS and MEDLINE as online systems. During this time, Day served as president of American Society for Information Science [ASIS], from 1975-1976. Day left NLM in 1978 and became the Director of the National Technical Information Service [NTIS], and turned the government-sponsored organization into a self-supporting organization in just one year. Day also was responsible for making the NTIS database available for online searching. In the face of much adversity, Day accomplished his goal of obtaining better computers and successfully training the staff at NTIS. Day retired from NTIS in 1982 and accepted a position with Thyssen-Bournemisza Information Technology Group. In 1984, Day left Thyssen-Bournemisza and became Vice President of Research Publications. After leaving Research Publications in 1986, Day became Senior Vice

President of Herner and Company. Day concludes the interview with a discussion of his communications venture, influential teachers during his career, and the future of information science.

INTERVIEWER

Robert V. Williams is a professor of library and information science at the University of South Carolina. He holds a Ph.D. in library and information studies from the University of Wisconsin, Madison; an M.S. in library and information science from Florida State University; and an M.A. in history from New York University. Before joining the University of South Carolina in 1978, he was an archivist and information services manager for the Ford Foundation, and the Georgia Department of Archives and History. Williams has also been an information consultant for many organizations including Appalachian Council of Governments of Greenville, South Carolina, and Pontifical Catholic University Madre y Maestra, Dominican Republic. He came to the Chemical Heritage Foundation as the Eugene Garfield Fellow in the History of Scientific Information in 1997. He is a member of the South Carolina Historical Records Advisory Board, the American Library Association (ALA), and the American Society for Information Science (ASIS), where he served as chair of ASIS History and Foundations of Information Science Special Interest Group in 1994-1995. Williams is also a member of the Special Libraries Association (SLA) and Chair of the SLA Membership Committee. Williams has numerous publications on the historical role of information science.

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INTERVIEWER: Robert V. Williams

LOCATION: Washington, D.C.

DATE: 15 July 1997

WILLIAMS: Now, Mr. Day, I have that you were born January 22, 1923 in Lewiston, Maine. Is that right?

DAY: That's right.

WILLIAMS: Well, tell me about your parents and growing up in Maine. It's one of my favorite states.

DAY: Well, I was born in the state of Maine. My folks moved to Boston when I was about a year and a half old, and we lived in Boston until I was thirteen years old. Then we moved back to Maine. This was during the Depression. When we lived in Boston, I was privileged to go to the Boston Latin School in 1936. In those days, you could go to Boston Latin School for either a six-year stint or a four-year stint. You could enter either into the seventh grade and then four years of high school, or you could enter as a freshman in high school. I was young enough so that when I went into Boston Latin School, I was in the seventh grade. In 1935 or 1936 I was a student in Boston Latin School. It's a real great classical education. It's a tough school. If you enter at the seventh-grade level, you take six years of Latin, four years of Greek, and two years of German.

WILLIAMS: [laughter] Wow.

DAY: Also two years of French. I mean, it's a tough school. It was a college preparatory school for boys in those days, and now I understand that it is coed. When I was a student there, the school celebrated its tercentennial anniversary. The oldest academic school in the United States, I guess, is Harvard—that has had a continuous history. I think that it was established in 1632. Then Boston Latin School was established, as I understand it, in 1635.

WILLIAMS: Yes. Wow.

DAY: When I moved back to Maine, I guess I was a little bit ahead of the kids that were going to school up in Maine. I skipped my freshman year of high school.

WILLIAMS: Now, what was your father doing that you moved back and forth?

DAY: Well, when we lived in Boston, my father was in the fuel business—coal. When we moved back to Maine, he was still in the fuel business, but it was fuel oil. It utilized a new technology, essentially. People were beginning to convert from dirty old coal to what was in those days a cleaner fuel, which was fuel oil. Up in Maine, we didn't have any gas pipe lines to U.S. gas fields, so people didn't use gas for heating in those days. You would use gas for cooking, but that would be the result of reducing the coal to coke, pulling the gas out, and selling the gas for use in stoves.

It was during the Depression. The whole family worked. My mother kept the books. My father would be out on the truck all day. We had a service station, which was really an office and, I guess, paid expenses on the truck.

WILLIAMS: He owned this small company?

DAY: He owned the company. Yes, it was called Day's Oil Company in those days. My folks never had much money, and we paid our bills. I had two younger brothers. My brother, who is two years younger than I, skipped two years of school. My own personal feeling is that in terms of social development, there could be some disadvantages. Still, he did very well. Although I was certainly academically up with the kids, I was much younger than my classmates. I was okay with the boys, but if you can imagine an eighteen-year-old girl going out with a fifteen-year-old boy; it never happens. [laughter] As a senior in high school, I didn't want to go out with a fifteen-year-old freshman.

WILLIAMS: Right.

DAY: You know, it was that simple. I worked all the time. I'd go to school and get back home around three o'clock in the afternoon and work with my dad until ten, eleven o'clock at night.

WILLIAMS: Now, what was the education level of your parents?

DAY: They were both high school graduates, but they never had any college education. There never was any question when they had three boys that those three boys were going to go to college. It was a given. We never discussed it.

WILLIAMS: Yes.

DAY: When it was time for me to go to college, I applied for entrance to Bates College, because Bates was a very good liberal-arts college and I was a townie. I didn't have to worry about paying room and board. I lived at home and I could still work at night, which I did. I went to Bates for four years and I majored in chemistry.

WILLIAMS: How did you choose chemistry?

DAY: I just liked chemistry. Chemistry seemed a lot more practical than some of the other things that they were teaching in those days. [laughter] I liked the sciences. There would be no point in majoring in physics—back in 1939 is when I entered Bates College—unless I planned to teach or work for Bell Labs. There were very few jobs for physicists. I mean, physics back in 1939 was a lot different than physics today. We studied optics and mechanics and things like that, but we didn't have anything nuclear. It was relatively rudimentary, compared to what we actually have today. I applied for admission in chemistry. I could have either majored in chemistry, in biology, or in physics at Bates College in those days. I really wasn't too crazy about biology. I did all right; I did make good grades. I just liked chemistry.

WILLIAMS: Did you know much about the chemical field, in terms of industry possibilities and jobs?

DAY: Yes. Well, when I went in, I remember the head of the department [Dr. W. Lawrence] talked to me. I was interviewed by him. He asked me why I wanted to major in chemistry, and I told him. He said, "I want to be honest and up-front with you. You're Jewish, aren't you?" I said yes. He said, "Well, I just want you to know it's very difficult for Jewish boys to get jobs in chemical firms."

WILLIAMS: Oh, yes?

DAY: This was before World War II. That's changed. I said, "Well, I'm still going to major in chemistry."

World War II came along. I was allowed to finish college, but I couldn't do any honors work because I had to leave in January or February of 1943. A lot of my classmates weren't allowed to finish. Those in the sciences were allowed to finish. I was interviewed for a job. It was with a small chemical firm called Metal Hydrides, Inc. in Beverly, Massachusetts.

I remember going down to Beverly for the interview. They brought me in the rear entrance. There was a railway express at the loading platform. They had boxes about a foot long and maybe about four inches high and maybe five, six inches across, wooden. There must have been maybe fifteen or twenty of these on the loading edge of this flatbed, and the truck was sitting down low. Being a brash young guy in those days, I said, "Gee, you ought to do something about those springs." [laughter] I didn't have any idea what they were working on in those days. They were producing pure metallic uranium for the fuel rods that would be used in the first reactor at the University of Chicago in Stagg Stadium.

WILLIAMS: Is that right?

DAY: Yes. Stagg Stadium. I worked there for—let's see, 1943—about a year. My job was, you know, not a terribly exciting job. It was primarily in analytical chemistry. It <u>was</u> interesting working there, because I learned what we were working with. It was not radioactive, because it was pure uranium. We didn't separate the isotopes or anything like that. However, we would have metal uranium fires. They would bank those fires with sand, and they would burn and burn and burn. I mean, you just couldn't put them out. It was very heavy, uranium. That's why the truck was out there. Each box for shipment would have a solid uranium core. It was very heavy.

I didn't mind the work. I enjoyed the work. I was living in a small town. Beverly, Massachusetts is a lovely town. I lived at the YMCA. At night, I'd go into a restaurant to eat and somebody would always ask me, "Well, how come you're not in the army?" After a while this became grating. All my friends were in the army. My younger brother, two years younger than I, was in the army. My other brother, the one who was three years younger than him, was in the army toward the end of the war. I just felt that I wanted to go into the service.

WILLIAMS: Did you have a deferment for working for Metal Hydrides?

DAY: I had a deferment. There was an army lieutenant stationed full time at our plant. I went to him, and I explained my problem. I said, "I don't have any social life. I'm an outcast. I'm considered a draft dodger. I want to go into the service. I feel very strongly about what we're doing in the service, and I want to be part of this." He said to me, "I understand. Now, with your background, the Navy's looking for radar officers." I said, "What's 'radar' mean?" [laughter]

WILLIAMS: [laughter] Well, the Germans were asking the same question.

DAY: This is where a physics background would have been better than a chemistry background—although I had strong math, so it helped. He said, "Why don't you go to Boston—the First Naval District is in Boston—and talk to the Navy?" I went in. I was interviewed by some lieutenant commander. He did everything but kiss me.

I was a young guy. I looked like I was in halfway decent shape. The Navy gave me a physical and I passed the physical. He said, "Now, I want you to sign this application." I signed the application. He said then, "I have to send this to Washington, but you'll probably hear from me within a week." A week later, I get a call from this guy. He said, "We want you to come down. We want to swear you in. We want to get your uniforms, and we want you to get started." I said, "Fine." He said, "Before you do, you have to get a release from the army." I said, "That's no problem." There was a lieutenant; his name was Lt. Batson or something like that. I said, "I'll get the release."

I went to him and I said, "I've got good news. The Navy wants me to come down. They want to commission me as an ensign." He says, "Well, that's just fine, but I can't release you." I said, "What do you mean, you can't release me? [laughter] You're the guy that told me to go to the Navy. What do you mean, you can't release me?" He says, "I have to get this approved in New York." We were part of the Manhattan Project and New York was the headquarters for the Manhattan Project.

I said, "Okay, fine. Then go get the release." I called the Navy and I told them that the lieutenant was going to New York, and in two days, he would get approval from his commander to release me. Then the Army lieutenant comes back and says, "I can't release you." I said, "What do you mean, 'I can't release you?'" I was stuck there. I called the Navy and I talked to this lieutenant commander. He listened to what I said. I was part of his quota, and obviously, he wasn't going to meet his quota. He was livid. He said, "Let me tell you something, Day." I said, "Yes, sir?" He said, "Don't ever get in the Navy." He said, "I'll be looking for you." [laughter] I said, "Yes, sir."

I went back to the lieutenant. There was another classmate of mine who was also at Metal Hydrides. We were very good friends. He was of Armenian extraction. His name was Setrak Kavork Derderian. He was a chemist, too. I was five feet eight and he was six feet three. It was kind of Mutt and Jeff. He was having the same problem I was having. We decided that we would leave. We went to the lieutenant and we said, "Lieutenant, we're giving you notice that we're going to be leaving in two weeks." Well, he wasn't very happy with that. He said, "Well, you can't leave us." I said, "Look, if we have to stay another week or two weeks to train somebody, we'll be happy to do that. After that, we're going to be leaving." He said, "You can't do that." I said, "What do you mean, I can't do that? I'm not in the army, I can do anything I want." We left. It must have been about three weeks later.

I went home to Maine, and I went down to my draft board. My mother wasn't terribly happy, but my father understood. Mothers never understand those things, soldiering. When young boys go off to war, they don't seem to like that at all. She accepted it. I went down to the draft board and I said, "My status has now changed." I think it was 2-B or something like that. "Reclassify me as 1-A." They were just delighted.

I said, "Fine, can you tell me about when I'll be going?" Well, in those days, about every ten days there'd be a picture of four or five guys down at the railroad station going. [laughter] I didn't get anything in that week, and I thought, "Well, it must be a slow week." Then I picked up the newspaper and there's a guy in the group who went to the draft board, and it's not me. I get out to the draft board and I said, "You reclassified me 1-A?" "No, we didn't reclassify you." I said, "What do you mean, you didn't reclassify me 1-A?" "Well, we have this letter from the army saying that we can't reclassify you." [laughter] I was still 2-B. I said, "Well, who signed the letter?" He gives me the name of this lieutenant [Batson]. I called him. I said, "Look, lieutenant, I was just down at the draft board." He says, "Well, I prepared that letter under orders from New York, and I can't retract it; but I'll tell you that I understand why you want to be in uniform. We've got a place for you someplace down south. You'll have a lot more responsible job than you had in Beverly. But we need you and we need your background." I said, "Will I be in uniform?" He said, "Well, no." I said, "Well, I'm not interested."

This went on for three months, this fight that I had with the army. Finally, one day I did receive a letter from my draft board, 1-A, and I went into the army. I was sworn in at Portland, Maine. First I was sent to Fort Devons. After Fort Devons, I was put on a train and we went to Cincinnati; from Cincinnati, we turned south; and I ended up in Fort McClellan, Alabama in an infantry replacement-training center. If I say so myself, I was a good soldier. I didn't have much competition in those days. Let me tell you, the cream of the crop had already gone. [laughter]

WILLIAMS: What time of year was this, then?

DAY: I think it was July.

WILLIAMS: What a great time to go to Fort McClellan. [laughter]

DAY: Oh, I'm telling you! We didn't have air-conditioned trains or anything like that. We'd leave the windows open so everybody was black from the soot. Anyway, we went down to Fort McClellan, Alabama. I remember that we were wearing fatigues. Some sergeant came around, oh, about fifteen or twenty minutes before we were scheduled to be wherever. I guess we were in Anniston, oh, about six miles from Fort McClellan. He said, "We want you in Class A uniforms." "Well, what the hell is a Class A uniform?" We didn't know. We didn't know

anything. We get into these clean, dressy, Class A uniforms. We arrive at Fort McClellan. The train pulls in, and there are officers out there. The train unloads and all these guys—filthy, sweaty, but in Class A uniforms—and we lined up. [laughter] We knew how to line up. They marched us off. I remember that the senior officer welcomed us to Fort McClellan and congratulated us for being in the infantry.

WILLIAMS: Now, this was regular basic infantry training?

DAY: Oh, yes. Seventeen weeks, then ten days at home, and then overseas.

WILLIAMS: My goodness.

DAY: Well, I completed my training. I was probably a little more responsible than some of the other guys and took it a lot more seriously. We had a number of guys in our unit who couldn't read and couldn't write—even though they had been to army schools and graduated from army schools saying that they could read or write. I used to read their wives' letters to them and write their replies to their wives. I mean, it was bad. Not everybody was like that, though. You found either it was real young or older guys. I was more toward the real young, but a little more mature than the young guys.

We were on bivouac, the sixteenth week, out in the field. Some lieutenant in a jeep came zooming up to where a group of us were encamped. He was looking for this guy Day. I was the only Day in the group, so he loaded me into the back of the jeep and dropped me off to headquarters. An army captain [Miller] interviewed me—put me in a small room and closed the door. He said, "What did you do before you came into the army?" I said, "I worked as a chemist for the army." "Well, what did you do?" "I'm sorry, sir, I can't tell you." I was told before I left that I couldn't say anything about it. He said, "What do you mean, you can't tell me?" I said, "I just can't tell you." He says, "Well, I'm ordering you to tell me." I said, "I'm sorry, captain, but I just can't tell you." He laughed. He says, "Well, I'm from the same outfit. I want to show you your folder." He took out a folder on Mel Day that was that thick! [Demonstrates—4 to 5 inches]

The army evidently had decided that if I wanted to go into the army, they were going to teach me what the infantry was all about. [laughter] It's a fascinating story. "Well," he said. He showed me his ID, and he started telling me some stuff that I didn't know—but I didn't want to let on that I didn't know. He said, "Well, Day, we're going to be moving nineteen men to Knoxville, Tennessee. You'll be in charge." You know, I didn't even have one stripe. Most of these other guys had one stripe—but since I carried the service records for everybody, I was in charge. He said, "I don't want you to say anything to anybody. You'll find out more about what you're going to be doing when you get there. Good luck." Then I guess he had to talk to

eighteen other guys. My buddy [Setrak Kavork Derderian] was with a different group, but he was interviewed by him, too.

WILLIAMS: Now, was this your friend from Bates?

DAY: Bates, yes. His last name started with De. Mine started with Da. I guess that's why I was in charge.

They put us on a train. I remember we arrived at Chattanooga. We were a bunch of young GIs. The other eighteen came to me and said, "We want to get off and get a bottle of beer." I said, "Wait a minute. Nobody gets off. I've got to find out how long the train is going to be here—I mean, when we're going to be leaving." I went and looked for the conductor. The conductor said, "We're going to be here for fifteen to twenty minutes." I came back and said, "Okay guys, we're out of here in ten minutes." You know, that's what you have to do. They all tore off the train to get bottled beer—no cans in those days. I'm sitting there with all nineteen military records. All of a sudden, the train starts to move. [laughter] We were in the last car. I ran around trying to find the conductor. I was in danger of losing eighteen guys. The train was pulling out—slowly, but it was pulling out, you see. Evidently one of the GIs saw the train starting to pull out, and he hollered to the others.

All eighteen GIs were chasing me up the track, trying to get on the train. I felt that I had to stop the train. I run—when I find an emergency pull, I pull that damn emergency pull. Let me tell you, the train stopped. I landed on the floor, but the train stopped. Pretty soon, this conductor comes back. He was just furious. "Who pulled the cord?" I said, "I pulled the cord. You told me the train wasn't going to leave for twenty minutes. Here we've only been here seven or eight minutes, and the train is leaving." He said—well, I won't tell you what he said.

Anyway, by that time everybody was back on the train. We didn't know then that while the train was pulling out it was going to back into the station on another track. Well, the conductor didn't tell me that. [laughter] You're right. We were there for another ten minutes.

WILLIAMS: It probably was more like an hour, then.

[END OF TAPE, SIDE 1]

WILLIAMS: You were headed toward Knoxville and Oak Ridge, Tennessee?

DAY: Toward Knoxville. We didn't know that we were going to Oak Ridge. We arrived in Knoxville. It was about 10:30 at night. There were three army trucks there and they loaded us

into the back of the army trucks with our big old duffel bags, carrying gas masks. When we ended up at Oak Ridge, we didn't know it was Oak Ridge.

Oak Ridge at that time was behind barbed wire. It was patrolled by a company of military police, MPs. We had to go through a guarded perimeter gate in order to get there. It was pitch black. The trucks drew up in front of a one-story barracks. The sergeant said, "Okay, go in and find a cot and get some sleep. In the morning, we'll tell you what you're going to be doing here." Well, we couldn't put the lights on because it would wake everybody. [laughter] These nineteen guys file into the barracks. The only way you could tell if there was an empty bed was pound on the bed. [laughter]

WILLIAMS: You had to pound the bed to make sure no one else was sleeping there.

DAY: Yes. You knew that when you hit something, and heard something, the bed wasn't empty.

The next morning, they told us that we were part of the Manhattan Project. We were part of the special Corps of Engineers Detachments. They said, "We're not going to tell you what you're going to be doing. We're going to divide the group up. Part of you will be working for Tennessee Eastman; part of you will be working at K-25." They didn't tell us what it was. "The third group will be at X-10 on another project."

WILLIAMS: You were assigned to the Eastman Project.

DAY: I was sent to Eastman. Tennessee Eastman at that time was a contractor. I remember, we didn't have any air conditioning in those days. The window was open, as it was still the early fall. It was still hot down in Oak Ridge. This army major said, "Well, this is the last time that you will hear this." He's up there, his mouth is going up and down, but at the same time a huge tractor pulls by the open window and we never heard a word he said. [laughter] We never mentioned the word, "uranium." In those days it was called "tuballoy," the code word for it.

WILLIAMS: That's what you called it at Metal Hydrides, Inc.?

DAY: No, we called it what it was. We called it uranium. It wasn't radioactive uranium. All we knew was that we were just making pure uranium. We didn't know why. I really didn't know much about this until after the war.

We were assigned to the electromagnetic separation process. My Bates College friend and I ended up in the same place. We were both laboratory foremen. We worked shift work,

not unusual—sixteen hours a day on rotating shifts. Sometimes graveyard, sometimes day, sometimes evening. We took our jobs very seriously. We handled and checked out the final product. There were eighty-five freight cars that would come into Oak Ridge each day with supplies and materiel. Very few ever saw anything go out. Well, it went out in briefcases.

We were making uranium-235. They wouldn't tell us that we were making uranium-235. We had very few safety precautions whatsoever—except, as a chemist, I would know that there were certain things that you would do and certain things that you wouldn't do. Okay? The chemistry that we used was relatively primitive compared to today's chemistry. This activity was the highest security within the Tennessee Eastman process. We were double barbed wire within a barbed wire enclosure.

WILLIAMS: Were you watched when you went out or ever checked?

DAY: Well, we were on the base. We were on what was considered an army base. We essentially could do what we wanted on the base. We had assignments, and we had to meet our assignments. We lived in little huts. There would be four men to a hut. It was like a tent, only it had wooden walls and a peaked roof. We had a kerosene stove that we could use in the winter. We had nothing to keep you cool in the summer, but we could keep fairly warm in the winter. We had an encampment area. We had a mess hall. We didn't have to stand for reviews or retreats, or anything like that.

WILLIAMS: Was everybody in uniform?

DAY: All military personnel. We had twelve hundred men in our detachment. Ninety percent were Ph.D.'s. Everybody was in uniform. Everybody was a buck private, no stripes for a full year, which was fine. We felt that we were doing something that was important. We didn't know the full details on exactly what we were doing, but the longer we were there, the more we learned.

WILLIAMS: When did you get some kind of picture? Was it not until after the war, or did they give you bits and pieces as you went along?

DAY: Oh, well, you figured it out for yourself. Right, you talked to the other guys. They weren't supposed to tell you what they were doing, and they didn't. Over a bottle of beer sometimes, you heard something and you started putting two and two together. You slowly figured it out. We didn't know much about the bomb, but eventually, we had a pretty good idea what we were working with.

WILLIAMS: You knew enough physics to put some of it together, I would imagine.

DAY: You couldn't find any books with relative information in Oak Ridge or in many of the small towns surrounding Oak Ridge, or in the library. The MPs had a group who went around to the local libraries and made sure that all those books that had mentioned that word were taken off the shelves. We had MPs who were security officers. We had MPs who would be sweeping halls, cleaning restrooms, and watching. You didn't know that they were MPs. The security was very, very high. You train; you would leave your barracks. You had a badge with a picture, and when you went into the plant area, you would have to swap and get another badge. Then we would have to swap that badge and get another badge just to gain entrance to our building.

After gaining entrance, we would go into a change room, take off our military uniform, stow our military uniforms in a locker, and change into a white shirt and white pants. Then we went through a turnstile, like in the subways, but a high one. You know, not where you had to put in any money, but if you went in one way, you couldn't get out that way. After working, we would leave the white lab uniform in the laboratory change room, and go through another one-way turnstile back into the military change room. Then we would dress in our military uniform. Everyday the white lab uniforms would be sent to a specialized laundry, where they would try to recover from the wash water any uranium-235 that might have been on the lab uniforms.

The uranium-235 produced in Oak Ridge was used in the first atomic bomb. You worked with the best technical people in the country. Anybody the Manhattan Project wanted, it got! It didn't make any difference whether the individual was president of a company, a professor, or a military person. If they wanted him, they got him. They moved him down, they put him in government housing or what have you, and so forth. There were eighty-five thousand people behind this barbed wire here at its peak. Many of those, of course, were construction people.

WILLIAMS: There were <u>eighty-five thousand</u> people there? Wow.

DAY: Oak Ridge itself must have been about, I suppose, between thirty and thirty-five square miles. Each of the major plant areas was built in a different valley. In case one of them blew up, they didn't want to blow everything up. [laughter] They didn't know what was going to happen; they just didn't know. There was a lot of blasting for construction purposes, so for a while much of the plant construction area was called the Kingston Demolition Range. The natives would hear the blasting and say, "Well, you know, it's a demolition range."

WILLIAMS: [laughter] Speaking of the natives, you must have overwhelmed the little town of Knoxville.

DAY: Well, the population of Knoxville in those days was about one hundred thousand people. I couldn't go into Knoxville, I don't think, for about three or four months. I finally got a Class A pass, which would enable me to go into Knoxville for a day and turn around and come back.

WILLIAMS: Well, now, you were only allowed a limited amount of liberty? You had to be back by night?

DAY: Oh, yes. Had a Class A pass, and had to be back that night.

WILLIAMS: Here you were in uniform, and still no social life. [laughter]

DAY: No. Well, I didn't really care. I mean, there were twelve hundred other guys who had exactly the same problem I did. In Oak Ridge, there were ten women for every man. Ninety percent of the workers in the plants were women. If you wanted a social life, you could have a social life.

Uranium-235 is an alpha emitter (radiation). As an alpha emitter, the alpha rays do not penetrate the skin. Beta, yes. Plutonium, terrible. I had no problem handling uranium-235. The danger is ingestion into your system. Occasionally, you may take a shortcut and you get a little acid in your hands, or you might inhale some stuff being burned in the laboratory exhaust hood. Whatever it was, it doesn't appear to have been that terribly harmful to me. I've managed to last a little bit longer than some.

On the electromagnetic separation project that produced uranium-235 (U-235), they needed copper to wind around the magnets. During World War II, there was very little available. A detachment of MPs took a small freight train to Fort Knox, Kentucky; they loaded three hundred million dollars in silver bars into the freight cars, and then took the train to a wire factory in Cincinnati. The silver bars were melted down and silver wire was produced to wind around the magnets. After WWII, the plant was dismantled, the wire was remelted, formed into silver bars, and put it back into Fort Knox, Kentucky.

It was an exciting experience, especially because of people with whom one worked. You didn't mind working sixteen hours a day. Hell, that was not a problem. You were happy to do it, because the alternative would have been far worse.

My brother was an infantryman with the 84th Division. The 84th was assigned to the British Ninth Army. He fought all the way across France. Then just before that last German offensive—

WILLIAMS: Was this the Battle of the Bulge?

DAY: The Battle of the Bulge. His company was told to spearhead an attack. They moved out at 4:00 that morning. There was no barrage or noise of any kind. They were supposed to move to a certain area, dig in on the side of the hill, and wait for the rest of the battalion. Well, in the army, things often get messed up—more often than not. That's the military. The attack had been called off, but nobody had told these guys that the attack was called off. When the sun rose, his company found out they were completely surrounded by the Germans. His company was "dug in" on the side of a hill.

My brother was a Browning Automatic Rifleman [BAR man]. Since the BAR man has an automatic weapon, he was positioned on one flank, another on the other flank. They held out against the Germans all morning. Then the Germans called in their Tiger tanks. The Tiger tanks would just sit out there in the field and just start picking off the foxholes. Fortunately for my brother, they started on the other flank. When only the first lieutenant and five men were alive from the whole company, the lieutenant surrendered.

On the dog tags of each U.S. serviceman or woman was either a C, P, or H—Catholic, Protestant, or Hebrew. My brother's dog tags were imprinted with an H, and he was separated from his buddies and shipped to a slave labor camp. Wasn't supposed to be, but that's the way they did things in those days.

We didn't hear about him for a long, long time. I went to my commanding officer and I asked for overseas assignment. I wanted to go to Europe. He says, "You can't go." He informed me that nobody on the Manhattan Project could go into a war zone. He wasn't afraid that I would get killed; he was only afraid that I might get captured. We didn't find out about that for quite a while, what had happened to my brother.

It is a fascinating story about him, because the Germans made a slave laborer out of him in violation of the International Rules of Warfare. There were several other U.S. soldiers of the Hebrew faith who were captured like him. They were all forced to work in the fields during the day and then were marched back into the camp at night. He said that he had very little to eat and that his weight dropped to 95 pounds. Towards the end of the war, the Allies controlled the air. Anything that moved down on the ground that wasn't theirs, U.S. pilots would machine gun. Several slave laborers were killed in this way. He and another prisoner decided that if they were going to get killed, they weren't going to get killed by U.S. pilots. He would rather take a chance on being killed by the Germans. He hated the Germans at that stage. My brother and his friend crawled under the wire one night and they escaped.

He told me that they hid in the fields and slept during the day. My brother and his buddy would go out on the roads at night, heading west. The Germans were moving east on the same road. There were no lights and they kept bumping into German soldiers, but they couldn't see you and you couldn't see them. It was just mass confusion. He said one day, during the day,

they saw tanks that weren't American and weren't German—they were British. The British picked them up. My brother had no identification because the Germans had taken everything. The British troops gave him a rifle, a British uniform, and a jeep. My brother and his friend were now behind British lines. He said that he was almost like an animal, and he hated the Germans when he'd see them. They'd go into a farmhouse at night and they'd sleep. Then in the morning they'd leave.

Towards the end of the war, the Germans started infiltrating the British and American lines with German soldiers in British and American uniforms. He said that they were sleeping in a farmhouse one night, and there was a banging on the door. The door came crashing in followed by a bunch of American MPs. They grabbed my brother and his buddy and threw them into an American POW [Prisoner of War] camp because they didn't have any identification. [laughter] They were wearing British uniforms. You could tell by the way they talked that they weren't British. The MPs figured that they must be Germans. They remained in an American POW camp for three or four days, until the MPs could verify who they were. Then they flew them back to this country to an Army facility in Lake Placid, New York.

WILLIAMS: Wow. What a story.

DAY: He had an amazing story—an <u>amazing</u> story. I want to tell you how I got into the information business.

WILLIAMS: That was my next question.

DAY: Fascinating story.

WILLIAMS: Now, you were in the Corps of Engineers until 1946, if I have heard correctly.

DAY: Until 1946. In January 1946, the war was now over. Well, the war was over in August, and almost immediately, the government instituted a program to return servicemen to U.S. military bases in this country for processing and discharge. We Americans were mustered out of the service. You were given points, depending upon what your service was and where. If you were overseas, you got more points than if you were in this country, which made sense. In my outfit, we didn't have any overseas assignments, so we weren't the first guys out.

In January, I did get a leave and went home for ten days. I came back and checked into the company headquarters. The first sergeant was sitting there and says, "Day!" I said, "Yes, Sarge." By that stage we were all non-commissioned officers, but this guy outranked us. He said, "Don't unpack your bag." I replied, "I beg your pardon?" He said, "Don't unpack your

bag." I said, "Why?" He said, "You're shipping out." I said, "What do you mean, I'm shipping out?" He said, "See your name up on that list?" I then read the notice on the bulletin board. There was a notice that had asked for thirty-eight volunteers to go to Bikini [Island]. My buddies decided that it would be kind of interesting, so they figured I ought to go with them, too. [laughter] They volunteered me to go with them, you see. My name was on the list. Those were orders.

The next day, or the day after that—I can't remember, but it was very shortly thereafter—we were put on a train. Thirty-eight of us were shipped to the West Coast. The day that we arrived in California, President [Harry S.] Truman postponed the Bikini nuclear test for six weeks. I had to sign a waiver on my discharge, as did the other thirty-seven men before we left Oak Ridge. We were assured that we would be back—all of us wanted to go to graduate school—in the spring. [laughter] I thought that would give me enough time to get placed in graduate school.

WILLIAMS: Now, this is 1946.

DAY: January of 1946. We went out now to the West Coast. Because of the nuclear weapon test postponement, they didn't know what to do with us. Our guys were not stupid. They were all educated guys and were technical experts. We didn't know what we were going to be doing out there. They put us aboard the USS Haven—fascinating story. USS Haven was a hospital ship—a spic and span, white, beautiful ship. We were to be quartered in an ambulatory ward, which is down on the bottom of the ship.

Before we went on board, some second lieutenant comes around and says, "You men shipping out?" "Yes." This is January 1946. "Follow me." He takes us and gives us all a complete issue of winter gear. Well, we had this big duffel bag. It must be this long, okay, stuffed with all of our gear. [demonstrates] Now we had additional overcoats, jackets, boots, pants, shirts, gloves, et cetera. [laughter] We've all got extra winter gear for a South Pacific assignment.

A Navy enlisted man has a locker that is one-foot square. Everything he owns is in that one-foot locker. Well, there's no way that we could get all of our gear inside a locker. [laughter] We had clothes of all types hanging all over the place. It really looked messy. Off of our ambulatory ward, there were the toilet facilities and a separate facility with showers. Hot water was provided by shooting live steam into cold water. When the thirty-eight men showered, steam would billow out of the showers into the sleeping area and then condense on the metal walls. We had no ventilation because our ventilation system was inoperative as long as the ship's main propeller was not turning. The USS Haven was moved to a new anchorage out in San Francisco Bay. My detachment of thirty-eight men had no assignment. We only left our quarters to go to the mess hall. We would lie in our bunks, we would read, we'd listen to the radio, play cards.

WILLIAMS: You were supposed to be heading for Bikini, is that right?

DAY: Well, we knew that the test was postponed for six weeks. We saw it in the newspaper. Nobody told us, but we'd seen it in the newspaper.

We were aboard this ship and they didn't have anything for us to do. The ship was captained by a Navy captain. He reported to an army colonel, whom I'll come to in just a jiffy. We were there, out in the bay, about a week.

Enlisted men can act like a bunch of pigs, if I must say so myself. It's peer pressure that can work for or against this behavior. One day there was a notice on the mess hall's bulletin board. I think it was Wednesday. There was a notice that said, "Captains' inspection on Saturday." When we came back I said, "Hey guys, I think we better clean this place up. It's captain's inspection." You can imagine what happened. "Hey! Day wants to clean this place up." Well, I was the only guy going who was willing to do it. I'll be darned if I was going to clean up for thirty-seven other guys. I said I wouldn't do it. Nobody did it. In the meantime, the steam was continued to condense on the walls. [laughter] It was a mess.

Saturday morning, I was lying in my bunk. I was reading. The bulkhead opened up and in came a Chief Petty Officer, "Hit the deck." "What's this 'hit the deck' business?" [laughter] He is followed by a Navy captain, a full commander, a lieutenant commander, and half a dozen junior officers. I could see all of them from my bunk. Except for our quarters, the ship was spotless. During the day, the Navy crew was always busy washing the decks and chipping paint. That's how they kept the crew busy. We didn't report to the Navy captain, so he couldn't tell us what to do. We weren't washing decks and chipping paint. I could see the color just drain from the captain's face. This was his ship, his pride and joy. Then his face turned red as a beet. He'd walk around without uttering a word. Nobody stood at attention; nobody even bothered to stand up. I closed my eyes. [laughter] I could hear guys dealing cards. Not a word, not another sound, except the shuffling of cards!

[END OF TAPE, SIDE 2]

DAY: There was an army lieutenant who was in charge. There was an army lieutenant who took us out to the West Coast. He had received a battlefield commission through the wire. He had never been to the West Coast. They were doing him a favor. He went with us.

The second lieutenant comes down, and the Navy captain just reams him out. Finally, he turns away from the Navy captain and he says, "Men, 'hit the deck' means 'attention.' Attention!" You know, we kind of unraveled. If you've ever watched a bunch of GIs you know were not Germany, they kind of unravel and get into a vertical position. Everybody was up

standing at attention—as much at attention as a bunch of GIs will stand. Not Marines—these are GIs. The Navy captain stormed out with his staff behind him.

We knew that we now had a major problem. We formed a delegation of four master sergeants. They got permission to go ashore to the Colonel [Stafford Warren, M.D.]. They told the colonel that our morale aboard ship was very bad. They were kind of worried that because of the delay in the Bikini test schedule, it might become necessary to ask all of us to sign another waiver on our discharges. "The men are unhappy," they said. The colonel replied, "I'll take care of it and get you off that ship." The orders came through right after the delegation came back. "We're going off the ship." We stuffed everything that we could into our duffel bags. Everything had to go into those bags. The USS Haven was in the middle of the San Francisco Bay, which is rough. That wind comes roaring through the Golden Gate [Bridge]. Carrying our overloaded duffel bags, we climbed down the side of the ship and dropped 5 feet into a launch that took us to a pier at the Oakland Army Base.

At the Oakland Army Base we were assigned to a Military Police barrack. The MPs were spit and polish, with white leggings and white gloves. They were impressive-looking soldiers! Then we arrived in Army fatigues. We did have a shoulder patch that showed a bolt of lightening splitting an atom. Outside of us, nobody knew what the patch meant.

Right beside the MP barracks was an army overseas post office, which had been converted to transient troop barracks. Thousands of troops were coming back from the Pacific. They would be processed through these temporary barracks to camps across the country in order to get discharged. They all had different patches. The MPs didn't know what all those patches meant. The transient troop was on its way out of the army, and they figured, if we're on our way out of the army—no ties, no hats, sleeves rolled up. They didn't worry about dress code. It didn't take us long to figure that out. Off came our hats, off came the ties. [laughter]

We didn't have any assignments. We'd sleep, or we'd play baseball or softball or something. There wasn't anything to do—go to the PX [post exchange] or do something. I mean, <u>nothing</u> to do. There was a post library, so we'd go there and read books to do something. One day—we were there about two weeks—one guy said, "I'm going to see if I can't get out, get a pass." He was one of the first sergeants. The master sergeant then called the Major [Geiger], who was evidently an executive officer with Colonel Stafford Warren, who after the war became the first dean of the medical school at UCLA [University of California, Los Angeles]. I understand that there was no medical school at UCLA until after the war. He was a colonel. He outranked the captain of the USS Haven, so he could tell him what to do. Major Geiger said, "Yes, I'll give you a Class A pass."

While he was making out the pass, a secretary came in and told the major that he was needed in the colonel's office. When the major left for the colonel's office, our master sergeant discovers where there's a bunch of these passbooks. Into his pocket go the passbooks. [laughter] Major Geiger came back and signed his pass. That's all we needed. I mean, we had the major's signature. All we needed was one signature, because we could trace the signature. [laughter] We still didn't have any assigned duties. Pretty soon some of us went to Yosemite or

to San Francisco, and then some of our group went to Hollywood. Others went to Mexico, and some even went up to Canada. [laughter] It was unreal. These guys never got into any trouble. They always had passes and they behaved themselves.

One day there was a notice on the bulletin board announcing that on a Saturday—this was the beginning of the week—we were going to be taken over to the radiation lab at the University of California. All of us got the word out to those out on passes. Every one of those thirty-eight GIs was back in time for the Saturday meeting. We were taken by bus to the University of California Radiation Lab in Berkeley, and then led into a chemistry lecture hall. In the front was a laboratory bench and on the laboratory bench there were four Geiger counters. The lecture hall door was open and a strong breeze was blowing into he hall.

In attendance were thirty-eight medical officers and our group of thirty-eight enlisted men. The officers were talking among themselves and we were talking among ourselves. We didn't know them and they didn't know us. Major Geiger came in and said, "Okay, take your seats." Everybody took a seat. He said, "Well, I'm now going to tell you what you're going to be doing." He explained that they planned to explode a nuclear device at the Bikini atoll. The Navy had assembled there a group of surplus Navy ships, and the Navy wanted to see what would happen to these Navy ships during and after the explosion. I can remember the pictures of a destroyer just standing right on end like this. [demonstrates]

At this point in the major's briefing, an extra strong breeze came through the chem lab door. The door started to shut, then picked up speed and picked up more speed, and then bang! It slammed shut. Every one of those Geiger counters went haywire. The major explained that after the explosion, they were going to send thirty-eight PT [patrol torpedo] boats into the test area to check the radiation. In each PT boat would be an enlisted man (one of our group) with a Geiger counter and also a medical officer to interpret the meaning of the Geiger counter reading.

After it was over, Colonel Warren came in. He said, "Okay, men. Now you know what you're going to be doing. There's an outside chance, although very, very slim, that we may run into the monsoon season. If that's the case, we are going to need another waiver on your discharge." One guy who had more guts than the rest of us raised his hand, "Colonel, sir?" "Yes, sir." "Sir, what if one does not sign the waiver?" The colonel got furious. He said, "Under those circumstances, we'd have no choice but to send him back to get discharged." Well, let me tell you, there were thirty-eight of us there, and none of us would sign another waiver on his discharge. [laughter] That's all it took. They loaded all of us onto a train and sent us back to Oak Ridge, Tennessee. The commander of our detachment looked bad. He had sent thirty-eight guys out there, okay. Now they were all coming back.

By the way, when we were out on the West Coast we never got a paycheck. We were well-fed on the base. Since we didn't have any money for food, when we went off the base traveling around, we would just go from one USO [United Service Organizations] to another USO, and we'd exist on coffee and doughnuts. Our Special Engineer Detachment commander had found thirty-eight other guys in Oak Ridge who did not have the right to waivers on their discharge. Meanwhile, while we were out there in California, many of our friends in Oak Ridge

were discharged and had to be replaced. They were replaced with young guys, just recruits who were going to put in a couple of years of service. The commander then sent thirty-eight non-volunteers out to California and they went on to Bikini. We never went to Bikini.

Well, when we finally arrived back in Oak Ridge, the commander was just beside himself. He decided he was going to give all of us punishment detail. I've got an easy name to remember: Day. The detachment's first sergeant hollered, "Day?" "Yes, sergeant?" "You get your posterior over here." You know the language that they use. He used that ugly four-letter word for everything. Seven o'clock the next morning I received my assignment. My job was to paint the commander's office. I said to myself that if I could find a way out, I was going to avoid painting the commander's office. I had been a good soldier and the war was over. That's the way guys felt in those days.

I wanted to go back to school. I had to find a good graduate school that would take me. I wanted to go into a Ph.D. program. In those days, if you were a chemist, you had to get into a Ph.D. program, otherwise you were destined to wash test tubes for the rest of your life. Then there was the GI Bill and it was a good deal. I wanted out, as did everybody else. I reported for my assignment at seven o'clock in the morning. The First Sergeant snarled at me and gave me a paintbrush and a bucket of paint, and shouted, "I want you to go paint the commander's office." Well, the commander wasn't there, obviously. He didn't come in until eight o'clock in the morning and the commander was no favorite of any of us.

Our commander had a huge map of the U.S. on the long wall in his office, and he had all kinds of pins in this map. I pulled that damn thing off the wall and I rolled it up, pins and all. I took his desk and pushed it out into the middle of his office. I put his chair and waste paper basket on top of his desk. Then I sat down and I opened up the can of paint. I painted a great big "X" on the wall, and I sat down. Now, I admit that my action was quite out of character for me and it was downright mean. It was also terribly risky for me. Thinking about it now, fifty years later, it was funny, but it was also stupid.

Pretty soon I heard this truck outside. I waited until it pulled up in front. It was the "sick call" truck that came every morning at the same time. I went out and I said, "Hey sergeant, do you have any aspirin?" He said, "What the 'f—'," using the "F" word. I said, "Listen, I have a splitting headache. Do you have any aspirin? I can't paint the captain's office unless I can get rid of this headache." He said, "Get your 'f—' posterior on that truck, get it back here fast, and get that office painted." "Okay, Sarge." I climbed into the back of the truck and off we went to the army hospital. An army major examined me. "What's wrong with you, sergeant?" I said, "Gee, I'm not sure, but something happened to me on a painting detail. I have this splitting headache and I see double." He says, "It's simple—you're allergic to paint. I'll have to give you a pass that excuses you from paint details. You probably ought to take it easy for two or three days." [laughter] He wrote this up and he gave his written opinion to me. I climbed back on the truck and it took me back to our detachment headquarters.

In the meantime, the commander had come into his office and had seen what had happened to his office. He just went through the roof. Well, he doesn't holler at me; I'm not

there. He went after the First Sergeant. He was all over that First Sergeant. I finally came back, and I knew what to expect. The First Sergeant starts swearing, using that four-letter word from the time that I got off that truck until I got into his office. He never stopped. Up and down and back and forth. I just stood there and looked him straight in the eye. I never moved, and just looked him straight in the eye. When he was finished, I gave him the army doctor's note, and I knew that he couldn't touch me. [laughter]

I went back to the barracks. Some of the guys had been digging ditches, cutting grass, trimming hedges, policing up the area. Others were painting, but they weren't painting the captain's office. They got somebody else over to paint the captain's office. I knew that I would be in trouble when my "convalescent" period was over.

I called up the Lieutenant Colonel who was in charge of the plant where I had served during the war. I knew him. I told him what had happened. He laughed. He thought that was the funniest thing that he had ever heard. He didn't like our commander; I had heard him make remarks about this young major in the past. He didn't like him at all. He laughed again. I said, "Colonel, you may laugh, but if you don't get me out of this, I'm going to be digging a hole from here to China." He says, "Don't worry about it, sergeant. I'll take care of it."

He called and had me assigned to his office, under his protection. I was safe! Then he had me transferred to headquarters. That was even safer. I was finally assigned to a Major Thompson—Alberto [F.] Thompson was his name. He was in charge of organizing the thousands of Manhattan Project documents being declassified so that they could be made available to the American public. Another group was declassifying material so that a new civilian agency, the U.S. Atomic Energy Commission [AEC], could assume management responsibility for the nation's atomic energy program beginning on January 1, 1947. During the war, all information about the project was classified—whether it was technical or otherwise. On the Manhattan Project there wasn't anything unclassified. Now it was necessary to review all of this information. I was a technical guy, so I could review technical stuff. You know, I was the one-eyed man among the blind. I mean, compared to the rest of them, I knew something.

WILLIAMS: What was Thompson's background? Did he have a degree?

DAY: Yes, a Ph.D. in chemistry—Alberto Thompson. He reported to a lieutenant colonel; I can't remember what his name was. Anyway, he told me what he wanted me to do, which was to start reviewing declassified materials. At that stage of the game, my conscience really bothered me and I wanted to show that I could really produce results. Until I was shipped to the West Coast on the Bikini Project, I was a top producer. I worked hard and I was reviewing information faster than anybody else was doing it. I was Thompson's prized staff assistant. I was only an enlisted man, and he was just delighted.

One day I received my orders to go to Fort Bragg, North Carolina, to be discharged. I went in to see Major Thompson. He said, "You can't leave. We need you." I said, "Look,

major, I want to go to graduate school. If I don't get out and start getting around and being interviewed, I won't get into graduate school and it's going to cost me a year. I don't want to spend another year down in Oak Ridge." He said, "Well, look, we need you. I'll bring you back here for the summer." I said, "Look, you'll only bring me back here for the summer, but I still have to go out." I wouldn't come back there until I found out where I was going to go to school, or at least until I had started my interviews.

He begged and he pleaded. He finally said, "Look, what can we do to get you back?" I was only a young guy. In those days, I said, "I want a P-3." Well, a young professional in my grade, with my experience, you would have got a P-1. Well, I figured P-3, no way in the world. He said, "Get back to your work. You know damn well I can't get you a P-3." I said, "Major, you asked." I went back to work. I worked. I mean, I enjoyed what I was doing. At least I was getting some self respect back after just goofing off. I was really in the information business on the ground floor, so to speak.

He came in about two hours later and said, "Okay, you're back here. I got you as a temporary appointment. You'll be back here as a P-3." I said, "Okay, but it's only for the summer, period." He said, "Okay." I wouldn't have any trouble getting into a graduate school. I knew that. I started filling out applications to graduate schools and I continued to work. One day he came to me and he said, "Day, what are we going to do with all this stuff?" I said, "Look, major, I'm a chemist. I don't know what you do with all this stuff. I'm not a librarian."

WILLIAMS: "All this stuff" means all the declassified documents?

DAY: All these documents. He said, "We're setting up a library. The head librarian there is Bernie [Bernard M.] Fry." Many years later, Bernie Fry became the Dean of the School of Library Science at the University of Indiana.

WILLIAMS: Bernie Fry?

DAY: Bernie Fry. Bernie Fry was the nicest guy in the world. A real worrier, but the nicest guy in the world—wouldn't hurt a flea. [laughter] He was a librarian. He was the AEC Head Librarian and his assistant in those days was Bill [William] Simpson.

During World War II, everything was classified and highly compartmentalized. There were no rules covering the preparation of technical reports. Some were written in longhand. Some were typed. Some were even mimeographed. Some had titles, some didn't. Some had the names of authors, some didn't. There was no room to write a classification number on the spine of the report because they weren't that thick. You just addressed your report from you to whomever you reported. That was the extent of the distribution. Now that much of this

material was being declassified, what were they going to do with it? They felt that they had to make the declassified materials available to the public.

WILLIAMS: This was all documenting the Manhattan Project work at Oak Ridge?

DAY: The documents that were undergoing declassification review covered Manhattan Project-wide activities. Major Thompson asked if I had any ideas on how to best organize and process these newly declassified documents so that the public could access them. I said, "Look, major, I'm a chemist. All I know about is *Chemical Abstracts*." Every chemist subscribes to *Chemical Abstracts*, which does a good job of abstracting and announcing published chemistry articles. In those days it was twenty-five dollars a year. You didn't get the index until two years later or eighteen months later.

WILLIAMS: Right.

DAY: All you got was the subject index then. In the 1940s, all of the abstracting and indexing for *Chemical Abstracts* was done on a volunteer basis by chemists around the world.

WILLIAMS: Had you already joined ACS [American Chemical Society]?

DAY: Yes, I joined ACS in college, in 1943.

WILLIAMS: All right.

DAY: So, I said, "Why don't you send somebody out to talk to the director of the Chemical Abstracts Service [CAS], E. J. [Evan Jay] Crane?" They did go talk to E. J. Crane. The first thing that Dr. Crane said to them was, "Has this material had peer review?" Of course it hadn't had peer review. [laughter] E. J. Crane wouldn't touch the stuff. When the Army team came back, the members said, "It looks like you will have to set up an information program." The Corps of Engineers decided to set up a documentation center to process, announce, and distribute the flood of "reports" being declassified. A key element in the program would be an announcement service.

Bernie was a librarian and he had us issuing a set of twelve to fifteen catalog cards for each report that we processed. Tens of thousands of catalog cards were being sent to each AEC and contractor installation across the U.S. Unfortunately, the catalog cards swamped the

libraries and most weren't files. In their place, Dr. Thompson approved the publication of an abstract journal to announce the availability of reports and produce supporting indexes.

WILLIAMS: Now, you'd sent your applications off to graduate schools?

DAY: Oh, yes. I decided, "Well, they convinced me to stay for a year." I thought that I could save most of my salary because it didn't cost me very much to live there. Of course, at the same time, back in 1946, our salaries were also quite low. We hired a lady who cooked and cleaned the house for us. She'd come in every day and cook. We all put on too much weight from all those biscuits and all kinds of southern cooking.

WILLIAMS: Now, was this in Knoxville?

DAY: No, this was in Oak Ridge.

WILLIAMS: Yes. Oak Ridge is about 20 miles away from Knoxville.

DAY: All of the housing in Oak Ridge was government owned. I lived in a three-bedroom, two-bathroom house with five graduate engineers. Our total rent was ninety dollars per month, including utilities. The house was completely furnished and included furniture, linens, towels, dishes, and kitchenware. You couldn't miss. It cost us fifteen dollars apiece for rent, then fifteen dollars apiece for the lady who cooked for us and cleaned the house. It was a great deal. I said, "Okay, I'll stay for a year." I liked what I was doing, because the job had become exciting and challenging.

WILLIAMS: Now, Thompson was still there in Oak Ridge?

DAY: Yes, Alberto Thompson was still there. When the U.S. Atomic Energy Commission was moved to Washington (January 1, 1947), Dr. Thompson was moved to Washington to head the AEC Technical Information Office. One of the limiting problems that you had in Oak Ridge was that you were in the field office. When you're in the field office, you may be king of that area there, but let me tell you, you have very little influence on what was going on at headquarters.

WILLIAMS: Right.

DAY: That's just the way it works. You have to accept it. He went up to Washington and he reported to Morse Salisbury. Reporting to Salisbury was the Public Information Office and the Technical Information Office. He was on that job eight years and he had a fatal heart attack. Dr. Mortimer Taube was his deputy.

WILLIAMS: Oh. I thought Taube was at the Library of Congress [LC] .

DAY: He was, but then he transferred to the AEC as Dr. Thompson's deputy.

WILLIAMS: This happened in 1947.

DAY: No, I believe that it was closer to 1950. Alberto hired him, and he became his deputy. I was still down at Oak Ridge. Every job there, I learned. I worked every job. Then I became the assistant to the chief [Brewer Boardman] down there. The Technical Information Extension [TIE] office in Oak Ridge was assigned a major publishing responsibility for all of the AEC, and an experienced senior editor, Dr. Boardman, was selected as the chief.

WILLIAMS: Now, Fry was at Oak Ridge?

DAY: Fry was at Oak Ridge. He transferred to the Technical Information Office (AEC headquarters) as the head librarian.

WILLIAMS: That was not until the 1950s.

DAY: Yes. That is correct.

WILLIAMS: All right. He was at AEC headquarters, then.

DAY: At AEC headquarters. He headed all of whatever centers we had in information. He had that responsibility, widely, across the board.

WILLIAMS: Had he been doing this in the army also?

DAY: I've never known. I can't give any background.

WILLIAMS: Was Jack [Cassius] Morris also at your location?

DAY: No, I believe that he headed the Technical Information Office and central files office of the Oak Ridge National Laboratory [ORNL].

WILLIAMS: I thought he would have worked directly with you in AEC. Not so?

[END OF TAPE, SIDE 3]

DAY: You mean the headquarters library?

WILLIAMS: No, I mean in Oak Ridge.

DAY: Well, the only library we had in Oak Ridge was out at X-10 at DuPont, at Oak Ridge National Lab. That's where he was.

WILLIAMS: Oh, really? He was at Oak Ridge at ORNL?

DAY: At ORNL. That's where he was, yes. He did a good job.

WILLIAMS: Did he come there in the 1940s? I can't remember.

DAY: I don't know when he came. I just don't know. I remember him. You're absolutely right. He did a good job. He did a very good job.

WILLIAMS: In 1947, you had decided that you loved the job and you were going to stay there.

DAY: I was going to stay there for a year. I was having fun because I was building something. I purposely got myself involved in working on every job, whether it was indexing, whether it

was cataloging, whether it was publishing—I did everything. I mean, I would spend time learning each job. I enjoyed doing it. I always felt that there was a better way to do things. During the 1950s, I enrolled in graduate school at the University of Tennessee and took courses at night in industrial management. I completed all my course work. When I started writing my thesis, I was transferred to Washington to be Director of the AEC Technical Information Office. I never did finish my thesis.

WILLIAMS: Well, now, at Oak Ridge, you were first reading the materials and then setting up the systems. Who made the decisions about setting up the systems? Was this what Bernie Fry was doing?

DAY: Bernie Fry set up the first systems down at Oak Ridge.

WILLIAMS: When did you start microfilming for the AEC reports?

DAY: Gosh, the time goes by so fast. It's been so long ago. It had to be in the 1950s—probably in the early to middle 1950s.

WILLIAMS: You were still working on a paper-based system in the 1950s.

DAY: We had a big printing plant down there. We operated the main printing plant for the Atomic Energy Commission. We printed *Abstracts of Declassified Documents [ADD]* there. *Nuclear Science Abstracts [NSA]* replaced *ADD*. We started printing AEC technical reports in 1946.

WILLIAMS: Right, but wasn't that later? Actually, I don't know the beginning date.

DAY: Well, I can't give you the exact beginning date for *Nuclear Science Abstracts*. I remember that when we went to *Nuclear Science Abstracts*, its coverage went beyond reports. That's when we started picking up open literature so that *NSA* coverage would cover the world's atomic energy literature.

WILLIAMS: This would be the journal literature. Right.

DAY: We contracted with the Department of Agriculture to cover part of the open literature for us. I remember that they gave us a whole bunch of material on nucleic acids. Well, those articles didn't have a thing to do with nuclear energy, but that's the way it was. [laughter] In those days, most people didn't really know the difference. We soon found that it was more cost-effective for us to cover the world's published literature ourselves. Accordingly, we assumed that processing responsibility ourselves.

WILLIAMS: What kinds of information-handling techniques were you using at Oak Ridge?

DAY: A great deal was manual. But we did use punch cards, IBM [International Business Machines] sorters, and IBM proportional-spacing electric typewriters to give us a book typeface for the body of our indexes as well as for the body of the abstracts.

WILLIAMS: You were not using punch cards or anything like that while you were at Oak Ridge?

DAY: We started with punch cards. I'll come to the punch cards when I talk about putting indexes in each of the issues of our abstract journals.

WILLIAMS: These issues then became *Nuclear Science Abstracts*.

DAY: You are right. *Abstracts of Declassified Documents* was replaced by *Nuclear Science Abstracts*. Bernie Fry probably deserves most of the credit—he and Alberto Thompson—for expanding beyond just the reports that came out of the Atomic Energy Commission and the old Manhattan Project. Initially, we followed the library cataloging approach. Everything was traditional—we even started by printing and distributing an average of fifteen catalog cards for each of the thousands of reports that were being declassified and distributed each year. We literally flooded all of our AEC laboratories with thousands and thousands of catalog cards for them to file and maintain. When the library and information professionals at our labs and AEC contractor labs across the country started complaining, I was sent out to troubleshoot the problems. The card catalogs weren't current. There were huge backlogs of cards to be filed.

WILLIAMS: They sent you to the place for the AEC deposit centers?

DAY: Yes. Each of the centers at each of the labs. We were sending out thousands and thousands of catalog cards. Nobody could get all of them filed. I mean, I found all kinds of shoeboxes filled with catalog cards that could not be filed.

WILLIAMS: Where were these places?

DAY: Our labs and contractor labs.

WILLIAMS: Were these located just at Oak Ridge, or were they located around the country?

DAY: All around the country. There was the Los Alamos Scientific Laboratory; there was the Brookhaven National Laboratory; there was Argonne National Laboratory; there was the University of California Radiation Lab; there was the Sandia Corporation; plus dozens of other major contractors.

WILLIAMS: Was no one filing these?

DAY: Well, some were filing, but they just had this huge backlog. They couldn't keep up with the influx of cards because there was a growing flood of atomic energy literature that had started coming out. Remember, this was in the 1950s. It was an exciting time. I had good teachers. I learned a lot. I even learned a lot about the book-publishing business. We published the *Manhattan Project Technical Series* (1). That was really done at the request of Alberto Thompson, my boss. He put that thing together. We didn't have any experienced technical book editors who could edit. Initially, we didn't know very much about publishing, so Dr. Thompson set up a cooperative arrangement with a big publisher. Who's the large book publisher in this country now, who hasn't been bought by the Brits?

WILLIAMS: McGraw-Hill?

DAY: McGraw-Hill, right. McGraw-Hill sent a team down. I reported to Dr. Brewer Boardman, who was a senior editor who Alberto Thompson hired to be the chief of the AEC Information Division. To Dr. Thompson, the big thing was getting out these books. The *Manhattan Project Technical Series* was the technical history of the Manhattan Project. They were great books.

I remember coming into Dr. Boardman's office one day. I was standing on the outside waiting to get in, because a senior McGraw-Hill editor was in there. This was during the summer. We didn't have any air conditioning. We had fans going. Every person was hot as hell. The door opened up and out came this guy in shorts. Our office was a government office and this guy was wearing shorts. I kind of got a shocked look on my face. Boardman saw this

shocked look and he said, "Come on in, Mel, and take off your pants." [laughter] The editor never wore shorts into the office after that.

WILLIAMS: Well, you said that you started using punch cards, but not until the 1950s?

DAY: Yes, we had started using punch cards. We bought thousands and thousands of IBM punch cards, eighty-column. One reason that IBM settled on eighty columns was the availability of large numbers of high quality die-cuts that the U.S. Treasury Department declared surplus. The U.S Government discontinued its large one-dollar bills in favor of the smaller-sized bills that have been in use, now, for more than forty years. The U.S. Treasury had all these surplus die-cuts around. It worked out fine.

In the late 1940s, we did not have any operational computers but we did have card sorters. We would type the individual index entries on the top of the IBM punch cards in proportional-spacing typeface. The typeface looked like bookface type. We called our typewriters PSM—proportional spacing typewriters. Then we would sort and resort the cards around the clock. We finally got the thousands of cards in the right kind of order. For our abstract journals, we came out with a report number index in each issue; an author index in each issue; a subject index in each issue; and a corporate author index in each issue. We had four indexes in each abstract journal issue, which was unheard of in those days.

WILLIAMS: Now, these were IBM sorters?

DAY: Yes, the sorters were IBM sorters.

WILLIAMS: Well, Sperry-Rand [Corporation] had some.

DAY: I see. I'm sure that they were IBM sorters. That's how we put out our abstract journals. We would cumulate our indexes on a quarterly, semi-annual, and annual basis.

WILLIAMS: Yes. Now, were you attending ACS meetings in the late 1940s?

DAY: No, I was down at Oak Ridge. I didn't go to any ACS meetings at that time.

WILLIAMS: You didn't go to any ACS meetings to learn what the chemical people were doing with all these cards?

DAY: Oh, I saw some of the stuff they were doing. Yes.

WILLIAMS: Did you know about [J. Malcolm] Dyson's work? What about [James Whitney] Perry and those people?

DAY: Oh, I knew all those guys. Yes. Absolutely right. We were more the operational side in Oak Ridge, not R&D. The headquarters and overall program direction still came from Washington. I was down in Oak Ridge until 1958. In 1958, I was transferred to Washington.

WILLIAMS: Before this, you had been first assistant chief and then chief in Oak Ridge. Then you became director in 1958, in Washington.

DAY: I reported first to Dr. Boardman. Then I reported to a fellow by the name of A. G. Abdian. When he left, then I was in charge down there. Then they moved me up to Washington.

WILLIAMS: You had heard about Taube's work, and you had also met him. When did you first meet Taube?

DAY: I first met Taube when he became Thompson's deputy in Washington. I reported to Thompson and to him. He came down to Oak Ridge for a meeting. We had a backlog. In those days, we didn't have any automated equipment to speak of. He said, "Well, as of today, we don't have a backlog." I said, "How do we take care of that?" He said, "We now have an arrearage. We don't have any backlog." [laughter]

I remember, Mort Taube was always coming up with stuff like that. Mort Taube, was a very bright guy. He fell in love, of course, with his indexing—matching—which was good. I mean, it was a contribution. There's no question about that. He and I were very, very good friends.

WILLIAMS: Now, later, were you responsible for his getting the contract for Documentation Inc. [Doc Inc.]?

DAY: I was not responsible, even though it was my contract. He came in with a proposal that was evaluated by an evaluation board and was selected as the best. Doc Inc. got that contract.

I stayed at the Atomic Energy Commission until 1960. In 1960 a member of the Atomic Energy Commission, one of the commissioners, was appointed by [Dwight D.] Eisenhower to be the first administrator of NASA [National Aeronautics and Space Administration]. He had heard about the work that I had done at AEC, and he liked it. AEC was the leader in those days.

WILLIAMS: Before we go to NASA, can I return to some facts in the meantime? Now, we were talking about *Nuclear Science Abstracts*. As I understand it, it started about 1947. However, there were other such publications before that. Correct?

DAY: *ADD*.

WILLIAMS: Right. You started *Nuclear Science Abstracts* after that?

DAY: Yes.

WILLIAMS: We have discussed your role, set between *ADD* and the startup of *Nuclear Science Abstracts*. Now, there was a meeting in 1953 of the Welch Medical Library at John Hopkins [University]. Were you at that meeting?

DAY: No. I was located at Oak Ridge, which is a field office. In government, field offices receive very little in travel funds.

WILLIAMS: You would not have heard, then, about the work that they were doing with the IBM 101 machine.

DAY: What were they doing?

WILLIAMS: Well, this involved work with medical subject headings and other similar functions.

DAY: No. I didn't get into medicine until I went to the National Library of Medicine [NLM].

WILLIAMS: The reason I mentioned that meeting is, from what I have heard, approximately three hundred people attended that meeting. Apparently, it was at that meeting that people first realized how many people were working in documentation. Also, they decided at that meeting that ADI [American Documentation Institute] ought to become an open membership organization.

DAY: I see. Well, Mort Taube was active in getting ADI set up, too.

WILLIAMS: Yes. Now, I believe you joined the Special Libraries Association [SLA] at some point in this timeframe.

DAY: I joined all of the professional societies. I just believe, as a professional, you ought to support your professional societies.

WILLIAMS: Were you active in SLA in the late 1940s or early 1950s?

DAY: Not too active. I would go give talks and what have you, but not like I was with ASIS [American Society for Information Science]. I gave a lot of talks, sure—but I did a lot of other stuff, too. I can show you some personal checks, where they were nearly bankrupt and I made personal checks out to pay bills.

WILLIAMS: Is that right? I know they had hard times, financially, in the early days.

DAY: I won't go into that. We don't publish this stuff. I can tell you what happened on that.

WILLIAMS: Yes, I would like to hear about that. When did you first become aware that there was a documentation movement? Did people like Bernie Fry and Alberto Thompson start talking about those things?

DAY: Well, it was obvious that the librarians—at that particular point in time, as a community—were not going to take the leadership.

WILLIAMS: Now, are we referring to the American Library Association [ALA] community at this point, or are we talking about the Special Libraries Association?

DAY: Both communities. All I'm saying over here is that when we started with the Atomic Energy Commission, okay, we started with the traditional library tools. We duplicated what had been done for many, many years.

WILLIAMS: Would this have included Library of Congress subject headings, for instance?

DAY: No, we didn't use Library of Congress subject headings. Bernie had worked out a different system.

WILLIAMS: You were using regular catalog cards and those sorts of things. Now, to get back to what you were discussing—if I heard you correctly, you had been saying that you didn't think the special libraries community was able to handle the technical information.

DAY: Well, many technical librarians at that particular point were very, very conservative. Whenever you came up with a library problem, they forced it into the successful systems that already existed. This is the way it was. Certainly, not all technical librarians were like this. Bernie Fry and Al [Israel A.] Warheit were two top-notch technical librarians who led the changes in the Atomic Energy committees. Both advocated "modification" when required, and if that didn't work, they would try a new approach.

WILLIAMS: Do you mean that they still used Anglo-American cataloging rules or subject headings?

DAY: We used subject headings. It isn't that everything we did was bad. All I'm saying is that this huge avalanche of literature that came out was non-book literature. We were distributing thousands of technical reports each month. We had to handle individual reports differently than one would handle a book. You know, the number of subject entries one would expect to have for a three-hundred-page book would only be a small part of what we would normally have for a thirty-page technical report. We were using subject headings; it was completely different, that's all. Many technical librarians hadn't been trained to do things this new way. They were very comfortable in doing what they were doing. There were still books coming out, and many were comfortable doing things exactly the same way.

WILLIAMS: What about the users at Oak Ridge? Were <u>they</u> finding the systems inadequate? I'm assuming that you had people coming in.

DAY: We did not have an operating library at our facility at Oak Ridge. The AEC headquarters library was up in Washington. The woman who ran that library was Jean O'Leary. Jean O'Leary had been the secretary to General [Leslie R.] Groves. When the civilian agency took over (USAEC), they had to find a job for Jean O'Leary. Jean became head of the headquarters library. That's one reason why they brought Bernie Fry up there. He was a top-notch technical librarian.

Jean was not a librarian. She ran a very good shop and she knew everybody. As General Groves' secretary, she knew everybody worth knowing, whether or not the person was in the legislative or executive branches of government. That was valuable in the early days for getting things done—getting support.

WILLIAMS: Now, since there wasn't a library where you were at Oak Ridge, were the scientists going elsewhere for their information?

DAY: No. Oak Ridge National Lab was the main R&D group in Oak Ridge. The gaseous diffusion plant was a production operation, as was the electromagnetic separation plant.

WILLIAMS: Are you saying that all the researchers were over at ORNL?

DAY: No. There were researchers in the AEC program across the country—at AEC National Laboratories, at AEC contractors, subcontractors, and grantees—as well as at other government agencies, their contractors, subcontractors, and grantees.

WILLIAMS: They opted to go either there or to the other sites.

DAY: Most R&D types went to their own organization's technical library to use the bibliographic tools produced for them by the AEC central information publishing and bibliographic organization in Oak Ridge (my organization). We also automatically provided to the technical libraries copies of all reports announced and covered in *Nuclear Science Abstracts*. See, remember, we never went through development; we didn't have time. Normally what you do is, you develop something at the laboratory stage. Then, you'll have a mark-up—a small mark-up. You won't be using laboratory equipment. You try to set something up so it can be like an industrial operation—but it's not a full industrial operation, okay?

Well, we skipped all that because we didn't have time. We were doing a lot of development work right there where one would normally do production work. A lot of that development was just skipped. Now, the Oak Ridge National Lab was a research and

development facility, no question about that. They were working with different reactors, not just doing R&D work for the huge Hanford facility.

WILLIAMS: Now, when you went to Alamagordo or Sandia Labs or the other places where the AEC centers were, how were they handling their reports? If I heard you correctly, you had said they weren't filing their cards.

DAY: They were trying to file their cards; they just couldn't keep up with the tens of thousands of cards being shipped to them. Our abstracting and indexing journal precluded the need for issuing and filing the cards. The journal, *Nuclear Science Abstracts*, was not only an announcement tool, it was also a highly effective searching tool.

WILLIAMS: Who was doing the analysis, the indexing, and those kinds of things? Was that your responsibility? Did your section handle that?

DAY: Yes, our group in Oak Ridge did that. I did some of the abstracting and indexing myself. I worked at all of the technical jobs. I wanted to understand, fully, the details of each. I learned from some great people, there's just no question. I can give you names of some. Al Warheit was a librarian. After Bernie Fry left, Al Warheit was the top librarian at our central facility in Oak Ridge. Al left the AEC after I moved to Washington. He went to IBM. Al was a highly capable professional. There's just no question about that.

WILLIAMS: Yes, he did some nice work at IBM.

DAY: Al deserves a lot of the credit for the indexing system that we developed. It was a dictionary-type indexing system for the nuclear science materials.

WILLIAMS: Would this have been the indexing format that was used in the *Nuclear Science Abstracts*?

DAY: Yes.

WILLIAMS: Now, I would like to go back to the special library community for a minute. There was a saying around in the early 1950s. The special librarians used to make fun of the documentalists by saying that documentation was special library work done by amateurs.

DAY: Oh, yes. Well, we were information science amateurs. In the early days, as Director of AEC Central Technical Information facility, I had to give talks. When I talked about the new technology many would laugh at me. When I was at the National Library of Medicine in 1976, I had to give a talk down in Nashville, Tennessee. Vanderbilt University is in Nashville. The university has a fine medical school and a good medical library—a fine medical library. We had tied them into the MEDLARS system in those days. I wanted to see how they were using MEDLARS to do searching. The librarian says, "Okay." He reaches into his desk. He pulls open a drawer and takes out a key. We go back into the stacks someplace where there is a little room. He unlocks a door and goes in. There is the terminal. Okay? [laughter]

WILLIAMS: It sounds as if it was not exactly accessible.

DAY: Well, he did the searching, or one of his people did the searching. Hands-on access for others was greatly restricted. In those early days, the new technology was considered by many librarians to be a threat. It was perceived as a threat to the way that they were doing things. It wasn't a threat at all; it became a threat to them in how they interpreted it. They didn't see it as giving them a significant capability to do a lot more. Many saw it as a threat to what, in the past, had been a good, comfortable way of doing things.

WILLIAMS: By new technology, I am assuming you meant, first of all, punch cards. Then what other kinds of technologies did you have in mind?

DAY: Computer tapes. We started doing computer searching. Then there were many things that we could do with tapes. You'll hear me talk about this again. When I went to NASA, which had a great impact on our field, we started producing a biweekly abstract journal with four indexes using computers. From receipt of an R&D report until its announcement in our abstract journal across the country was a six-week processing cycle—a record for abstracting and indexing journals in those days (1961). The journal issue was beautifully photocomposed in book-face type and each index was in matching book-face type. The computers were used initially just to produce a journal. The justification for our computers was not to search the database. The database became a byproduct. We had to get out this printed journal. The printed journal, in 1961, was our primary objective.

WILLIAMS: Are you referring to *STAR*?

DAY: Yes, I am referring to *Scientific and Technical Aerospace Reports [STAR]*. Well, we could do batch searching on our mainframe computer. Then in 1965, almost thirty-five years ago, we could do online searching. That was small potatoes. I mean, the big thing was doing

the printed project. What we were doing is, we were using the computer as a printing press. It was helping us put out our journals in a record-setting timeframe.

[END OF TAPE, SIDE 4]

WILLIAMS: Now, before we get to NASA again, I'm going to ask a little bit more about the time period when you were still at AEC—in terms of the effects on the scientific and technical information community, again. I know about the [Vannevar] Bush report, the [John R.] Steelman report, and the various presidential orders (2). How did all of those kinds of things affect you? What you were doing at the AEC, particularly after you became director of AEC technical information in Washington?

DAY: I was really not impacted too much until I went to NASA.

WILLIAMS: Really? Was the AEC treated differently?

DAY: No. It's just that the AEC information program, in its way, was a very successful program at that particular point in time. Not that I claim any credit for it. There were an awful lot of talented people who made that thing work.

WILLIAMS: The AEC seems, to me, to be the beginning point. You had the most reports, the most technical information—really, you had the <u>beginning</u> of handling scientific and technical information in the federal government in the most systematic and effective ways.

DAY: There's no question about that. You're absolutely right. The NASA program was built on the AEC model.

WILLIAMS: Let's talk about that transition, then.

DAY: People say, "Why did you leave the Atomic Energy Commission?"

WILLIAMS: I have that question also.

DAY: Okay. Do you want me to talk about it now?

WILLIAMS: Yes, go ahead.

DAY: Okay. I left the Atomic Energy Commission for two reasons. One, I liked developing things. The problem I had at the Atomic Energy Commission was, when I left in 1960, that program had been operational for fourteen years and the excitement and challenge of 1947 was beginning to de-energize by 1960. The high preponderance of the users of the AEC information program was satisfied with the quality of the AEC information products and services.

WILLIAMS: Essentially since 1946 or 1947.

DAY: It was a pacesetter. A lot of the people who developed the program—working types—had been there since the beginning.

WILLIAMS: These were mostly scientific types of people, I take it?

DAY: We had some, yes. The policy-making authority that controlled the AEC information program was totally in the hands of the scientist-user. Our advisory group (Technical Information Panel) was made up of high-ranking scientists representing all of the major AEC laboratories.

WILLIAMS: That is, except for Bernie Fry and a few other people whom you mentioned.

DAY: Mostly scientific types. In 1960, the Atomic Energy Commission was not the real exciting program that it was in 1947. I mean, the real exciting program at that time was the space program, which was established by the U.S. Congress in 1958, after Sputnik.

WILLIAMS: Right. Yes. Now let's talk about that. I don't yet have a good overall idea as to who did this development work. I know you were in charge of these various units. Were other people involved in this? Who were the other people involved in the development of the AEC technical documentation program?

DAY: Well, remember now, a lot of this was developed by the AEC team. Okay? You have to also understand that Alberto Thompson was bright enough to recognize that the system should be user-driven. He told me this, "The system we built is for chemists." Okay? He was user

oriented. The first thing he did was to set up a technical information panel. The technical information panel had as its members senior people—scientific types from each of the major labs. He was bright enough to do this. He said, "Whatever we develop should be developed in accordance with what they say they need."

Now, each of them set up an information program, one, to use the products and services that we provided. They also had a capability to fully represent their user community, because they were primarily R&D types. They thought R&D. They were very capable people. At the University of California Radiation Lab, there was a man by the name of Dr. Ray Wakerling. Now, he was a scientific type, but he was also an information type. At Argonne Laboratory was Dr. Hoylande Young, a woman. She was a scientific type, world recognized, but she was also an information type.

WILLIAMS: Now, who was making the decisions to hire these people?

DAY: I don't know. These people were all part of the program as technical people.

WILLIAMS: How did they come to do the various things for which they were later known?

DAY: They got into the information type as users. They were principally chemists. Chemists are users of information. You find more of them if you know. People would say to me, "Gee, I thought you started as a chemist." "Yes. I guess I wasn't a very good chemist." [laughter]

WILLIAMS: Well, are you giving Thompson the majority of the credit for getting it set up and setting up the technical information panel? Where did these people meet?

DAY: I give Thompson the credit for organizing it, and for putting together the team that initially developed into a program that I was in charge of. I mean, I don't claim the credit for developing it, because I didn't have enough background then. From NASA on, that's different. From 1960 on, that's different. I had something to really offer. I was not only in charge, but I had something to draw on. I had all the experience that was developed in the AEC program—the good and the bad.

As I started to say, the problem that we actually had in the Atomic Energy Commission was that middle age was starting to set in. Okay? Remember, when I went to NASA, I did away with the microcard. "I don't want any microcards. I want something else that will give me a reproducible master, with higher quality and is cheaper to produce." That's what I said I wanted. I'll tell you how I set up that particular program, okay?

WILLIAMS: Yes, we'll get to that.

DAY: The point I'm trying to make is, I tried to do some of that at the Atomic Energy Commission. People said, "Well, you know, we've got all this stuff," and gave me all these reasons why they didn't want it. That's all I'm saying, that the real developments in the energy program were developed later, primarily by NASA, and then were given back to the Atomic Energy Commission.

WILLIAMS: Now, who made the decision to go with microcards?

DAY: Probably Alberto Thompson.

WILLIAMS: Now, he was at NSF [National Science Foundation] by 1953 or 1954, I think.

DAY: He died after joining NSF. Burt [Burton W.] Adkinson took his job. Burt's made a major contribution.

WILLIAMS: Thompson switched, left AEC, and went to NSF. Had these things had been set up before you became director? Then when you became director, what did you do?

DAY: You've got to remember, why does a man like Alberto Thompson leave the Atomic Energy Commission when he's developed an outstanding program?

WILLIAMS: Would it be because it was a new challenge?

DAY: First of all, it was a new challenge, and he was the type that would accept a challenge. Secondly, it was getting more and more difficult to get things done at the Atomic Energy Commission. That's all I'm saying.

WILLIAMS: Yes. They were perhaps a little set in their ways.

DAY: It didn't start with the AEC. The same thing happened with NASA. I can show you exactly the same thing that happened with NASA. The NASA information program used to be the world leader. They were out in front on everything. Today, you can hardly find them.

WILLIAMS: Interesting. All right. Well, let's move to NASA. We know now why you left the AEC. Now, this is starting to fit within the realm of my own memories, because I finished college in 1961. In 1960, when you started with NASA, everybody in the world wanted to work for NASA. I assume this was part of your motivation for going there.

DAY: Well, part of it was that. Part of it was an opportunity to start from scratch. My budget the first year at NASA was seventy-five thousand dollars, in 1960. The agency was set up in 1958. They didn't have much then. The NASA information program, when I took over, was the old information program of the National Advisory Committee on Aeronautics—NACA—a very traditional program.

WILLIAMS: What was it like? What are we talking about, in terms of automation? Were they using any kind of automated equipment at the time? They'd been putting out an index, as I recall.

DAY: They put out an index, but the amount of documents that they had in their index was relatively small. I mean, it was a small database—very small.

They had a big publishing program. They published a NACA technical memorandum series, technical reports, and technical translations. We followed the same pattern at NASA, but the NACA program itself was a very, very conservative program. Well, I'll wait till I get to NASA.

WILLIAMS: No, that's all right. Now we're at NASA. You came in as deputy director of technical information. Who was in charge?

DAY: No, I came as deputy director of OTIEP—Office of Technical Information and Educational Programs. It was much broader than information. Management was wise enough to recognize that education was very, very important. I mean, this was a whole new age. This was the space age. NASA recognized not only the need to do something in the education area, but also the political advantages of doing something in the educational area. [laughter]

WILLIAMS: Right. Now, who was your boss then?

DAY: My boss was a man by the name of Shelby Thompson. Remember, I came from the Atomic Energy Commission. I moved up to Washington and I reported to Morse Salisbury. He had two divisions reporting to him, a Public Information Division and a Technical Information Division. I headed the Technical Information Division. Shelby Thompson was Morse Salisbury's deputy. In a way I worked for Shelby as well as for Morse.

Shelby came over to the space program. When he came over, he wanted me to come over and join him. That's how I came over. I came over because he offered me the opportunity to build a new program, to do things that I couldn't get done in the Atomic Energy Commission. He knew all about the major problems in the Atomic Energy Commission. The big problem then was the radiation fallout from the nuclear weapon tests—you know, all the political hubbub.

WILLIAMS: Yes. Now, you were director of the program by 1961. How did this happen so quickly?

DAY: They split off the educational program. The two programs were separated.

WILLIAMS: Were you in favor of that switch?

DAY: Oh, yes. Well, I could then concentrate on one thing. I was concentrating on two things. Let me explain. When I first went to NASA, they had this little rinky-dink program, which was way behind in everything. They had been doing things since they set up NACA back in 1906—before World War I.

WILLIAMS: Now, are we talking about catalog cards again here?

DAY: Catalog cards. You know Miller—Gene [Eugene] Miller. He became the Vice President under Mort Taube at Doc Inc., and he really ran the day-to-day operations at Doc Inc. He was a librarian at NACA before I went to NASA. Gene was a traditional type of librarian. Mort was more bang, bang type. Mort was never satisfied with what was.

My biggest problem with Mort is that he had a great deal of trouble differentiating between a production operation and an R&D operation. I said, "Your problem is that if I put you in charge of a production operation over here, you'll never get it into production. You always will find ways of making it better and improving it. We'll never get into production." [laughter] To him it was always development. That was a problem I had with Mort. That was

the only argument that he and I ever had. That's the reason that I did not go with him for a NASA online system and instead developed the online system with Roger [Kent] Summit.

WILLIAMS: Now, let's back up just a little bit before we get to that. You formed the scientific and technical information facilities program at NASA.

DAY: Yes, but let me explain what happened. Okay, when I came to NASA I had a selling job because NASA was trying to find its own identity. Let me explain. The biggest portion of NASA was NACA. Okay? Langley [Research Center], Ames Research Center, a Cleveland Research Center. NASA was made by taking NACA, a little bit, from the Navy—not very much—and a bigger piece, but not anywhere near the size of NACA, from the Army. That was the Werner von Braun group down in Huntsville. On the outside was the U.S. Air Force. The U.S. Air Force was fighting NASA for control of the space program.

NASA was different than the Atomic Energy Commission. At the Atomic Energy Commission, the weapons program was run by an army general, and he reported to a Presidentially-supported civilian commission for policy direction. The AEC had overall responsibility for the federal government's atomic energy programs. In the space area, NASA has responsibility for R&D. DOD [Department of Defense] has responsibility for military applications of space technology. The NASA space program and the DOD missile program both used much of the same technology. The Air Force had its own intercontinental missile programs—two programs. A lot of the technology that NASA uses, the Air Force also uses. They both use basically the same type of launch vehicles. As you might expect, there was a lot of bureaucratic maneuvering back and forth.

When you look back at it now, things just look like they all fell into place. Well, they eventually did—but let me tell you, it was interesting in the beginning. It was really interesting in the beginning.

WILLIAMS: You had the job of setting up the technical information facilities in these places.

DAY: Well, let me explain. In the early days of the U.S. space program, NASA had a number of launch failures. The early NASA shots were disasters. You can remember seeing the launch vehicle rise a couple of feet and explode, or actually launch and then have to destroy the launch vehicle in flight because it was going off course. Disaster, absolute disaster. I remember one that blew up on the pad. I went into the NASA document files. I found a report that predicted some of these things would probably happen. Evidently, NASA technical engineers were not using this information and probably were unaware of its existence.

I took my findings to my immediate boss, who at the time was Shelby Thompson. We both took it to the NASA administrator. I said, "Look, there's stuff that has been developed.

There's information that's developed that is in the holdings of the component that the military has given over to NASA. Well, we've got to get this stuff organized. We've got to get these and related reports into the hands of the NASA engineers who need them." It's just that simple.

The head of NASA said, "Well, develop me a plan." I developed two plans. I sat down and designed the NASA information program. I set that whole program up, based on what I learned at AEC. I mean, these things didn't just come out of the air. I knew the limitations as well as the strengths of the AEC information program. I tried to build on its strengths, and I tried to do something about the limitations of the AEC information program. I designed the NASA program first, as a contractor operation, and an alternative, a government operation.

Now, in 1960, all federal government scientific and technical information programs were government operated. I designed the NASA information program in detail. I wrote out all the specs for every product. I costed all elements as a government operation and as a contractor operation. I costed them in terms of dollars and in terms of time to achieve full operation. I sold top management on buying the contractor operation plan. My colleagues among other government agencies were looking sideways at me, because they viewed the NASA precedent as a possible threat that their own top managements might adopt.

At that time, most of the employees of NASA were NACA employees who had been transferred to NASA. They were imbued with the NACA management philosophy that they should operate everything in-house, including their information program. Mel Day, a new NASA employee, comes along, okay, and he proposes this. The NASA administrator bought it. The Deputy Administrator was a man by the name of Dr. Hugh Dryden, a great man. He was the former director of NACA. He told me later that he was the powerful NASA official who fought me. Now, I'll come back to this. Remind me to tell you the Hugh Dryden story. That was a big revelation to me. I didn't know at that time a lot of the back and forth occurring in the NASA front office. I had an idea, but I didn't know all the details.

WILLIAMS: Now, who was the Administrator at this time?

DAY: It was Jim [James E.] Webb.

WILLIAMS: Where did you get the idea to go with a contractor?

DAY: I had managed government operations. If I were going to start up a brand new government operation, it would have taken me over a year just to staff-up, fully. Never mind doing anything.

WILLIAMS: It was because of the red tape, you're saying?

DAY: It was because of the red tape. You're absolutely right. I said, "Let's establish a partnership, okay?" It would be a unique information program partnership between the government, the private industrial sector, and the professional society. Nobody had ever done that before. The old Institute of Aerospace Sciences [IAS], which became the American Rocket Society, and then later became AIAA [American Institute of Aeronautics and Astronautics] had been publishing the major aerospace journal. This journal had a section that abstracted aerospace open literature. I said, "In the beginning, it will be a triumvirate. The government will provide the resources and the overall planning and policy direction." A government facility would be a contractor, operated by a private-sector information company. It would process the aerospace gray literature—the non-published literature. It would collect, abstract, index, announce, and distribute these unpublished materials. The professional society would abstract, index, and announce the aerospace published literature. Both would use the same standards, systems, indexing terms, and rules. Both would use the same computer programs, and their databases would be merged and available for searching on a NASA mainframe computer. The IAS was already covering the published literature. Politically it was to my advantage because a professional society could do things for NASA that I couldn't do as a government official, and it could also contribute in ways that for-profit companies couldn't.

WILLIAMS: All right. Now let's talk about the selling job for each one of those. Let's go back to the story of the fight with the Deputy Administrator.

DAY: Well, I didn't have any fight with him. I didn't know that he was fighting me until later on.

WILLIAMS: How long did it take to sell this approach throughout NASA?

DAY: I'd say maybe seven or eight months.

WILLIAMS: This involved lots of memos and reports that you were writing?

DAY: Yes. My job was to develop the plans, which I prepared in detail. I explained the technical and the political advantages of what we were doing, and why this would appeal to the Hill [Capitol Hill]. I learned the political advantages of trying to put together a team that essentially had these three sectors involved. It worked, if I must say so myself.

Now, I went out for proposals. The best proposal, selected by a NASA proposal-evaluation committee, came from Doc Inc. The NASA solicitation was based on the AEC model. Dr. Mort Taube, President of Doc Inc., knew the weak points and the strong points of the AEC model. There's just no question about this.

WILLIAMS: Did Taube help you produce the plan, or were you doing it based strictly on your experience?

DAY: Strictly my experience. It would have been wrong if he had helped me work up the plan. In fact, there was an appeal by an unsuccessful bidder who tried to get a court injunction, because both Taube and I had worked at the AEC. Look, I've been around the government long enough to know there are certain no-nos that must never be violated.

WILLIAMS: Who was the competition at the time? Can you talk about who the other bidders were?

DAY: It has been thirty-seven years, I can't remember most of them. There were some small information companies. There was also a storage and van company that submitted a proposal.

WILLIAMS: A storage and van company. [laughter]

DAY: Well, we said, "Storing information." Storage and van. I'll never forget that. The proposal was something like three pages, maybe. The theme of the proposal was, "We're storage experts. We can store anything."

WILLIAMS: [laughter] Talk about the selling jobs then with AIAA.

DAY: I dealt with Bob [Robert] Dexter. Bob Dexter initially was leery about working with me, only because he had developed the IAS information program and a good library at IAS. He was afraid of what this juggernaut, NASA, might do to his program. The advantage of the IAS and the American Rocket Society, later the AIAA, is that the vice presidents of all of the major aerospace firms as well as all senior NASA officials were the leading members of the professional society. Wearing the professional society label, these officials could lobby for our NASA information program. In addition, these officials also dominated the many technical committees of the technical society and they enabled me to utilize these expert committees to evaluate the scope, coverage, and effectiveness of the NASA information services and products.

[END OF TAPE, SIDE 5]

DAY: The professional society brought me this technical user expertise that I could tap into, that I couldn't tap any other way.

WILLIAMS: You went to these committees and talked to them?

DAY: I went to Bob Dexter. Bob Dexter would do it on our behalf. He was an old aeronautical engineer and he knew everybody worth knowing in the aerospace business.

WILLIAMS: Now, Dexter was the executive director?

DAY: Bob Dexter, at that time—yes, he was the executive director.

WILLIAMS: Were the headquarters here in D.C.?

DAY: D.C.? No, in New York City.

WILLIAMS: Oh, in New York. How long did this take to convince them?

DAY: A couple of weeks. Bob and I became very good friends. We worked together. He knew people, and he knew about people. He could steer me the right way. I would go to Bob and ask for advice, "Bob, how can I get this thing done on such and such? Bob, how can we get some support of the congressional committee on this thing?" He would do it. I couldn't do it in my capacity as a government official.

WILLIAMS: Do you mean a committee in Congress?

DAY: Yes. I couldn't brazenly lobby Congress by bypassing NASA management.

WILLIAMS: What was the financial advantage to the professional society to do this? Were they getting a certain amount of money to help them process and complete this?

DAY: The professional society, with NASA support, expanded into an abstract journal, *International Aerospace Abstracts [IAA]*, which covered the world's aerospace published literature. NASA was supporting the publication of two abstract journals that complemented each other. *STAR* covered the world's aerospace report literature and *IAA* covered the world's journal literature.

WILLIAMS: Now, are we talking again about the AEC?

DAY: No.

WILLIAMS: I'm sorry. We're talking about NASA, aren't we?

DAY: NASA, through its contractor, Documentation Inc., set the specs for the major portion of material going in at that time, which was report literature—non-published literature. Bob Dexter expanded his society's library group to cover all the literature to produce the abstract journal—to produce a database that looked identical in format, in indexing rules, and subject coverage. They followed essentially the same processing rules that the industrial contractor, Doc Inc., followed. We merged the databases. That became the NASA database, which then covered both the world's unpublished and published aerospace literature.

WILLIAMS: This became the *STAR* database.

DAY: The *STAR* database is *Scientific and Technical Aerospace Reports*. The *IAA* is *International Aerospace Abstracts*. You could use the indexes in each one exactly the same way—the same indexing entries, the same thesaurus, the same indexing rules.

WILLIAMS: Well, now, you're talking about the first editions of *STAR*, right?

DAY: The first editions of *STAR* did not. All editions of *STAR* only have the report literature to this day. Okay? The society had its journal. It only covered open literature. The computerized database had them both.

WILLIAMS: All right. I thought the *STAR* printed version had the open literature, but you're saying it did not. The printed *STAR* was just the technical aerospace reports from government facilities, contractors, subcontractors, and grantees around the world?

DAY: To this day.

WILLIAMS: Right. Then the *IAA* had just the open literature, and the database contained both types.

DAY: In fact, it even went beyond that. Bob's people would abstract, index, and keystroke the abstracts and indexes. They would send the tapes to the Doc Inc. facility. The facility would phototypeset the pages for them—the abstract section and the indexing section.

WILLIAMS: That meant they were saving time and money.

DAY: Absolutely right. The software program they used to set *IAA* was essentially the same program that was used to set *STAR*. Then we merged the databases. That's the merged database that we used for searching, and that's the database that went up online in 1965.

WILLIAMS: That's what NASA RECON then became?

DAY: Oh, yes.

WILLIAMS: How well did the contract work with Doc Inc.?

DAY: Very well. I'll tell you something that I don't want to be public record. I worried about that contract. I know operations. I knew operations. I knew costs because I had essentially done most of the things at the AEC facility in Oak Ridge, Tennessee. I knew all the details involved in setting this operation up. I knew Mort Taube. I knew that Mort had the right motivation and would want to do the right things. I knew that he'd put together a good team because I carefully examined the proposed members of that team when they were listed in the proposal. I saw who they were. I checked into their backgrounds, checked everything. I was still worried, because I wanted that thing up and operating. Okay? You can ask some of the old guys that were there from the beginning. I can give you some of these people here in town. I met with these people every week. Every week I met with the Doc Inc. people and we reviewed what they were doing. We decided jointly what they should be doing that could be improved.

We were operational and we had a journal out in thirty days. *STAR* was the pacesetter in the abstracting and indexing field. I had to be careful how I influenced Doc Inc.'s management role.

WILLIAMS: You shouldn't have been doing it?

DAY: I was in government. I wasn't supposed to be running the contractor.

WILLIAMS: Oh, right, yes.

DAY: I'll tell you this right now. They'll tell you. If there was a problem, they explained it to me. They explained it to the Doc Inc. management boss, but they had to justify to me. I approved everything they did. Bing, right then. We'll do this. Bing, bing. That's why we were up and operating so damn fast. We had the whole program operational in everything. We were producing microfiche in thirty days. We had already set the format, you know, ninety-eight pages at a twenty-four-to-one reduction. That was the reduction we actually started. Had all of it set up. I'll tell you, if I must say so, setting up that operation probably was the high spot. That NASA operation was so far ahead of everybody. The NASA facility program became the model for large documentation centers around the world.

The European Space Research Organization [ESRO, now ESA, European Space Agency] wanted to set up a small documentation center that mirrored the NASA documentation facility. I shared our know-how and software with them, in return for which they promised to provide us with a database of all the European, unpublished, aerospace literature—abstracted, indexed, and microfiched in accordance with our NASA standards and practices. It helped reduce some of our processing costs and we were also able to access European report literature that heretofore had been unavailable to us. The ESA output became direct input to our systems with no processing costs to NASA.

WILLIAMS: Oh, yes, ESA. Why were you worried about the contract? You knew Taube was always off trying to improve things?

DAY: Because I knew that—because I had made a commitment that in sixty days I would be up and fully operated.

WILLIAMS: Made it to whom?

DAY: To the Administrator and Deputy Administrator of NASA.

WILLIAMS: Sixty days from the time the contract started?

DAY: From the time the contract started.

WILLIAMS: You would have *STAR* produced and the microfiche ready to go? Now, who in the meantime had set up the NASA deposit system so that libraries got copies of these? Did you set this up?

DAY: Well, we set up the distribution list, yes.

WILLIAMS: You decided who qualified to be a NASA depository?

DAY: Yes. We also tied that program to the NASA technology transfer program.

WILLIAMS: What about the standard for microfiche? How did this happen?

DAY: Well, I went out and I talked with people and I found out that there was somebody that had developed some kind of fiche, they called it fiche, and what it would do. I had tests made and everything run before I made that a requirement in our facility contract with Doc Inc.

WILLIAMS: You went to the National Microfilm Association [NMA] and talked with them about it?

DAY: Yes, I talked with them, and I talked with a number of other people in the business. I did a lot of work to get that requirement set up.

WILLIAMS: No one had used that ninety-eight page, twenty-four reduction?

DAY: Not on a mass scale.

WILLIAMS: I was trying to remember when the NMA standard came out.

DAY: I don't know, I think it probably came out after us.

WILLIAMS: Yes.

DAY: It did come out after us. We just produced so many that it became the standard. It became the standard, and for many years it was a very effective medium. It served its purpose for what it did. There are other things we can do better now. For many things, it's still cheap and satisfactory.

WILLIAMS: My first job, ever, in a library was when I was in graduate school in 1964. I was working in government documents and it was filing AEC reports. Those were on the standard microfiche. AEC switched after you left and, I guess, after NASA, you started using microfiche, the AEC must have switched to the standard microfiche also.

DAY: They did. I convinced the other agencies. Initially, I convinced the AEC and Defense. You see, I was very active in COSATI [Committee on Scientific and Technical Information]. I'm a past chairman of COSATI. I convinced them both to convert to our microfiche standard so we could exchange microfiche copies back and forth.

WILLIAMS: You're the guy who made my life miserable. [laughter] Just kidding. I remember it so well because it was my first job ever in a library and it was filing those; and I thought the AEC reports on microfiche would never end. They just kept coming in and piling up. Well, Doc Inc. had this contract and you worked on a weekly basis with those folks. That meant going out to work—from where was the contractor actually operating?

DAY: Out here in Bethesda.

WILLIAMS: Who made the decision about the automation?

DAY: What automation?

WILLIAMS: The automation that you were using, that Doc Inc. was using.

DAY: I made the decision. I designed the overall system. I won't say that Doc Inc. didn't make improvements on things I designed, I'm sure they did. Don't misunderstand. I drew up the specs for the products, the services, the time schedules for getting all these things done, the costs, so I had to know what technology they were going to be using. We were using—when we first set up we were using second-generation computers.

WILLIAMS: The [IBM] 1410.

DAY: The [IBM] 1401.

WILLIAMS: 1401.

DAY: Then 1410.

WILLIAMS: Right.

DAY: Then 360-40, and then 360-50.

WILLIAMS: Right. Well, let's go back just a minute. When did the contract start with Doc Inc.? Do you remember the year for that?

DAY: I think 1961.

WILLIAMS: 1961? All right. What was the automation that was used when they started? The 1401, had it come out?

DAY: 1401, yes.

WILLIAMS: Had it come out then? They were using that?

DAY: Yes.

WILLIAMS: You specified that it all be computerized?

DAY: Oh, yes.

WILLIAMS: That a database be formed?

DAY: Yes. I knew what the capacity and limitations of the 1401 were in those days. We upgraded later on to a 1410. We started with a 1401.

WILLIAMS: How did you know about—?

DAY: Let me explain. The big advantage—you have to understand this— is that under a contract I could get a contractor and dump a machine tomorrow and get another one. In the government, to get a new computer, when I started in 1960, it was two to three years. I mean, it took all the approvals, with OMB [Office of Management and Budget] and GSA [General Services Administration] and all. You couldn't get it. There was no way to get it. Here, there's a new technology developed, dump the old one and get a new one. That's all. Just upgrade it. That's all we did, was upgrade it. We never bought anything. We just leased them, and you upgrade them. We were so successful, I was able to sell IBM on giving us special service and to use us as a model.

WILLIAMS: For the Doc Inc. folks to have it?

DAY: Yes. If there was ever a problem with that 1401 or 1410, bang, there was somebody there just like that. Bang. No question. We didn't have an IBM service man there all the time, but for all practical purposes he was there when we needed him. We had top priority.

WILLIAMS: Talk about how you learned about automation. Describe this. Now, it must have happened to some extent when you were at AEC.

DAY: Well, you know, at AEC we had primarily sorters. We didn't have any computers when I was there. That was one of the reasons that I was unhappy. I wanted to put computers in down there but I had this two- to three-year approval cycle, besides all the battles to get dollars. That was one reason why NASA was much more appealing to me. I took a gamble because maybe I couldn't sell anybody on doing anything at NASA, but at least I was starting with a

clean slate. I didn't have something that was working that they'd have to get rid of. Many management officials don't want to change. "It's working fine. Leave it alone. It's working."

WILLIAMS: Was this Taube's first contract using the second-generation computers? Or any kind of computer?

DAY: Probably.

WILLIAMS: He was just using punch cards.

DAY: Well, he was using the computer. I think he was playing with the 1401 and his book-type indexes where you match half pages and all that.

WILLIAMS: Right, I remember that.

DAY: What do you call that?

WILLIAMS: Oh my goodness, I was afraid you'd say that. It's coordinate indexing but there's another word for it. All right, we both know what it is.

DAY: It was good. I mean, matching the pages, there had to be a better way of doing it than that, but that's all you could do in those days.

WILLIAMS: Yes. I remember using those myself. They worked, but they worked really slowly.

DAY: Those were fun days, let me tell you.

WILLIAMS: Yes.

DAY: We got a lot of great things done in those days. [laughter]

Let me come back to your question about Hugh Dryden. Two months after we became fully operational, I had a call from Hugh Dryden, the Deputy Director of NASA. He called me up to his office and he sat down and he says, "Mel, I just want you to know that I was really against contracting out your information operation. I want to take my hat off. We're very happy in how it's turned out." He said, "I don't know if anybody ever really told you, but if you hadn't had that thing up and in full operation in sixty days, you would have been out of a job." Nobody ever told me anything about that. [laughter] It was a damn good thing that I had it operational in thirty days, not sixty days.

WILLIAMS: Why was he opposed? Did he tell you?

DAY: Well, he was conservative. Nobody else had ever done what I had proposed. I was proposing that we operate a major information program on contract. Look at the man's background and what have you. He was Director of NACA for many years and NACA was very careful of what it made public. The program that I set up attempted to maximize public access to information coming out of a major government program.

WILLIAMS: You had both the outside contractor and the computerization aspects that were risky.

DAY: That's right.

WILLIAMS: What did you say to him during this conversation?

DAY: That it was the only way to get the job done within the time constraints under which we had to operate.

The space program and the missile program broke around the same time. The only way that we were going to have a successful missile program in this country was with the assistance of computers with a lot more capability than second-generation computers. The government set up specs that it needed for its missile and space program. That was the third-generation computer. That led to the IBM mainframe.

WILLIAMS: Right.

DAY: That's the 360 series. Dr. Dryden still wanted to be shown because he was conservative, but very good. Solid as they come. Fair as they come. He lifted my spirits when he met with

me and said, "I was wrong." Jim Webb, the Administrator, just loved my programs. He took me over to the White House and took me around and introduced me to everybody.

WILLIAMS: Oh, yes?

DAY: We went through the White House offices and Mr. Webb told everybody we met, "You know, we couldn't put a man on the moon without this guy." Well, that was just an overly generous overstatement. You know that and I know that, but that's the way this guy generated support. [laughter] He would do this, not just to me, but to all the guys he considered key guys. You were just as loyal to him as you could possibly be. There wasn't anything you wouldn't do for Jim Webb. He was politically astute. He was the best administrator that NASA ever had.

WILLIAMS: You were getting good feedback from the technical information facilities at all these various places and from contractors?

DAY: I set up an advisory group the same way that the Atomic Energy Commission did. I set one up inside the government, because I had to take care of the government types. I also used the professional societies and their technical committees to help by providing user feedback.

WILLIAMS: Did that work well?

DAY: That worked out fine. There was no jealousy between those two contractors. They worked together fine. That's a credit of both of them.

WILLIAMS: What was in your head at the time, at the beginning, when you started drawing up these plans? Was there enough known about the tremendous benefits of building a computerized database and all of the spin-off products that one could generate?

DAY: No. Frankly, I was so busy setting up the system and selling it to our user communities that, initially, I just did not have time to fully exploit our database.

WILLIAMS: Were you using the terminology?

DAY: Remember now, when we started in 1961, I was using a computer to produce a photocomposed abstract journal with four indexes in each semi-monthly issue.

WILLIAMS: *Chem. Abstracts* was working toward it but had not done it yet.

DAY: That's right. *Chem. Abstracts* was way behind. *Chem. Abstracts* did not put out individual indexes until later on. I'll come back to that when we start talking about the National Science Foundation. That goes back to COSATI and how all that happened. That's interesting history.

WILLIAMS: Well, now, when you said you designed all the products that you wanted, there must have been something in your head, knowing enough about the nature of the database that you were building, that all these spin-off products were possible. Is that right?

DAY: I knew that we had to go to computer searching. I didn't know how to do it. I had never done it before. I knew the limitations on how we were doing the job. Manually, we were eventually going to fail. We were going to drown in the sheer volume of information that we were processing. We couldn't keep up with the stuff. The period between the time that you got material until you could announce it was going to be too long. I mean, bad enough it took two years to get the damn thing published. Who wants to take two years, another two years, before you can announce it? That was bad.

WILLIAMS: Talk about dealing with the agencies to get the declassified stuff. Was this a problem?

DAY: The declassified stuff?

WILLIAMS: That could be included in *STAR*. You would have to be dealing with DOD with NTIS [National Technical Information Service]?

DAY: No problem at all.

WILLIAMS: That was coming through fine?

DAY: I was very fortunate. My colleagues were very collegial and I got along very well with my colleagues. I was never considered—well, in the beginning I may have been seen as a

threat. They found out very rapidly after that I shared everything I had. I was in a position where I could make them look good to their management and I did just that.

WILLIAMS: This is the ASTIA group now?

DAY: ASTIA, the AEC, all of the agencies. I became very active in COSATI. I'd head different committees that were primarily involved in getting agencies to work together, in getting agencies to move as closely as possible to the same type of systems so that we could exchange stuff back and forth and what have you. We were way ahead of the private sector. The private sector secondary services were falling further and further behind. It wasn't until Burt Adkinson, who was the head of the Office of Science Information Services of the National Science Foundation, decided to use some of his funding authority to fund the private-sector, secondary services efforts to computerize their processing systems to produce their abstract journals.

WILLIAMS: Starting with *Chem. Abstracts*?

DAY: And to produce databases that could be used by the federal government. See, the federal agencies were exchanging their databases. W covered a lot of material but a lot of the disciplinary stuff in some fields, we didn't have. One of the COSATI objectives was to work toward a national system. We knew that it was not going to be a government-imposed, mandatory system. It had to be a voluntary network of cooperating information systems. We wanted the systems to be able to talk to each other. The problem we had is that all these other services had huge investments already in how they were doing things and how they had done things.

WILLIAMS: The private services?

DAY: Private services. If you ask anybody to change to this thing, well, that could have a major impact on everything else that they had done up to that particular point in time, which could have major cost implications. When Burt started doing it in the late 1960s—

WILLIAMS: Actually, I think that *Chem. Abstracts* got some money in 1962 or 1963.

DAY: 1962 or 1963. They weren't doing much then. They got their last government grant money from me when I was the Head of the Office of Science Information Services of the NSF in 1970 and 1971.

WILLIAMS: Oh, right, when you were there.

DAY: When I was there. I closed them out. Because, at that time, the major disciplinary science abstracting services had completed their initial efforts to computerize their abstract journal production systems. They were all pleased with the results. I felt that NSF funds should then be used by these A&I [abstracting and indexing] services to develop the capability in their systems to talk to each other.

WILLIAMS: Did you and Adkinson talk about these concepts of helping out the private indexing and abstracting services?

DAY: Yes. All that came up in the COSATI deliberations. Adkinson made a major contribution, there's no question about that. All of them, that is BIOSIS, *Chem. Abstracts*, *Engineering Information*, *American Mathematical Society*, now *Psych Info*, *American Meteorological*, *American Geological*. Those were the ones. They all received NSF grant funds to computerize their abstract journal production systems.

WILLIAMS: Do you remember what the total contract was that went to Doc Inc.?

DAY: The first year the Doc Inc. contract was for about two and a half million dollars.

WILLIAMS: Over the period of time? You must have done this on a renewing basis.

DAY: Well, no, the contract itself, usually, would be for one year. In the government, you can only enter into one-year contracts because Congress only appropriates money annually. Our contract solicitation covered a three-year period. The contract was a one-year contract renewable at the end of the first and second years at the option of the government. Every three years, NASA would solicit bids to cover the upcoming three-year period.

WILLIAMS: Oh, right. Of course, yes. How long did Doc Inc. have the contract?

DAY: Doc Inc. had the contract for at least six years.

[END OF TAPE, SIDE 6]

WILLIAMS: Let's talk about the NASA RECON project. I have it that the NASA RECON project began in 1969.

DAY: No, 1965. We were operational in 1966.

WILLIAMS: Well, I must be confusing then what you call the first part.

DAY: Well, let me explain, okay. I knew that there were third-generation computers coming. At the time we started the facility I was only thinking in terms of the 1401 or maybe the 1410. I knew in the long range, I was going to have much more powerful computers. Okay? I knew that as a by-product I was going to have a computer-tape database. I knew that there was going to be a need for us to search those tapes. I wanted to set up a couple thousand SDI profiles so that I could provide a service to our NASA centers. By the same token, I also recognized that, in terms of the systems that were coming along, there were limitations on computer searches in terms of batch searching. The big limitation being that the user himself generally did not interact with the database. Maybe a librarian would help. One would make out a question, go down to the computer room, and if you were lucky maybe they would match that up. Maybe you'd get an answer in a day or a week or maybe even two weeks.

WILLIAMS: Now, could you do this batch just from your facility?

DAY: Yes, slowly, on the 1410 and more rapidly on its successor, the IBM 360-40.

WILLIAMS: All right.

DAY: We weren't doing much searching in those days.

WILLIAMS: You were just producing *STAR*.

DAY: That's right. You know, in any business you must look further ahead than next week. Based on what was being written and generally the way that the field was moving, I knew that we were going to have vastly improved searching capability. We replaced the 1401 with a 1410 and then went to a 360-40. Now, the 360-40 gave us the capacity to batch search in volume.

Batch searching was a big improvement in many ways because you could run a number of searches at one time, but there were limitations on batch searching. One, that the user himself did not interact with the database. As a result, often the question that went out had to be modified when it came back. Then you had to get at the end of the queue again. Batch searching had its limitations.

I, in my twisted way, recognized that sooner or later we were going to have to have some kind of an interactive system where either a librarian interacted with it—but somebody's going to interact with this database —and modify the questions and get an answer back essentially in "real time." Not instantly, maybe three seconds, four seconds, five seconds. Whatever it was, it was so superior to batch searching.

WILLIAMS: Well, did you go to the batch-oriented search system and how long did that last?

DAY: Oh, yes. We did batches until 1965.

WILLIAMS: 1965?

DAY: 1965 or 1966.

WILLIAMS: Do you remember when you started them?

DAY: When we got the 360-40. I don't know what year it was.

WILLIAMS: Probably in 1962 or 1963.

DAY: Yes, whenever the first ones became available, we got one. We didn't buy a new one. We were able to pick one up because some NASA office was getting rid of it. See, this was the advantage of working at NASA. I mean, they had so many computers, they were always wanting to upgrade and then you could pick up one someplace. I didn't have to go through this three-year cycle to get those first ones. I was working with a contractor. I played both sides. I'd get the contractor to get the government rates, but he would have to go through the red tape to get the approvals or what have you. [laughter] He'd go ahead and lease, and I'd say we're going to buy for this government agency so I'd get the government rates. We saved a lot of money that way.

I recognized that we were going to have to have an online system. I looked around and I talked with Mort Taube quite often about it. "We've got to do something about an online system." He said, "Let me develop an online system for you." I said, "Mort, you've got to make up your mind. Do you want to do an R&D job or do you want to do an operations job? The same thing I told you before. You can't do both. One or the other, just make a choice. If you try to do both you're not going to do either one of them very well because you're compromising back and forth all the time." Well, he really wanted to do the operation but he also wanted to do the other thing. I said, "Okay. You answered my question."

I tried to find who was doing work in this particular area. I let it be known in the field that I was interested in an online system. Roger Summit was working for Lockheed [Martin Corporation] at the time. He was running an R&D program, trying to develop essentially interactive capability. NASA had the largest single database at that particular point in time, the largest single bibliographic database, at that time, in existence. When I started with Taube, we had two hundred thousand documents in the database. It was a big database. Roger came to me and he wanted to do the job. I said, and I remember saying this to Roger and Roger will tell you this, I said, "Roger, everybody that comes to me says he can do the job. Now, I'm only interested in people that I know can do the job on the size of the database that we have." He made an offer. He said, "If you'll lend me a copy of your database, because it's going to take a while for me to build a two hundred-thousand item database, I will demonstrate that I can do this job for you, and it will cost about eighteen thousand dollars." Now, in government procurement at that time, you could, if the procurement was less than twenty-five thousand dollars, make a case for sole source. I could make a case for sole source. There weren't very many people out there that could do what I wanted. I gave him a copy on loan of the database. He took the thing back to California and he set it up. There's just no question about it. It did exactly what he said it could do. Then I issued a Request for Proposal [RFP] and said this is what I want done and anybody who can do the job should provide a detailed proposal in accordance with the RFP solicitation.

WILLIAMS: Now how did you know Summit?

DAY: I found out what was going on in the field. My job was to know what was going on, and who was doing what.

WILLIAMS: Had you met him at ADI or ASIS meetings?

DAY: I may have met him but I don't recall. I just don't recall at this stage how I met him. He and I have been friends for a long, long time. I just don't recall how I met him. He was a young "comer", a lot younger than me in those days, working for an aircraft company trying to sell me an R&D project that he hoped would convince his company to keep him on and expand his program.

WILLIAMS: Did Lockheed already have experience in doing any kind of online work?

DAY: Oh, I think they did some online work but it was limited. It was only with small databases. This was a large database. I was only interested, at that time, in large databases.

WILLIAMS: They had done the programming already to do this kind of thing.

DAY: Roger had done it, yes. They would have to make certain modifications. We were adding about, I'd say, fifty thousand to sixty thousand information documents a year. That was the rate in those days. Not all reports. That total includes published literature, too. Remember we were getting things from *IAA*. He demonstrated he could do it. Then I put out that RECON RFP and we went up. I think in 1966 we were online across the country. I tied together—this will be of interest—we tied together all of the NASA centers and headquarters where I had my computer. It was a jerry-rigged communications system. It was like Christmas lights all on one strand. We essentially leased the line and we connected them all together. It was not publicly available. It was only available to NASA centers. It essentially and politically was very advantageous to us because it enabled any of the national centers to have exactly the same access as any other center, and essentially to obtain instantaneous access.

WILLIAMS: Therefore, by 1966 you had this set up between all the centers?

DAY: Between all the centers. We operated that system until I left NASA. It wasn't until I went to work at the National Library of Medicine that there was another major change. You understand that it wasn't until 1971, 1972 that the economic viability of an online system as a commercial enterprise was demonstrated. The big reason was the communication item. The National Library of Medicine had contracted with SDC [Systems Development Corporation] to build its online system called MEDLARS. NLM spent a lot more for its system than I spent for NASA's. Mine cost me about two hundred thirty-seven thousand dollars.

WILLIAMS: Was that what the original contract was with Lockheed to get it all set up?

DAY: Two hundred thirty-seven thousand dollars and I gave it to seven other federal agencies. Roger and I are good friends to this day, but he was upset with me at the time. He says, "You can't do that. You ought to let me sell it to them." I said, "Roger, I work for the government. My job is to get the best deal possible for the taxpayer. Now, you check your contract. In that

contract I specifically added language stating that I could give the software to other agencies." He just missed it.

WILLIAMS: You anticipated this and wrote it into the original contract? This was for the software and manuals? What was included there?

DAY: Well, it was the government's software. I just provided them copies of everything that I had. We could do anything we wanted with it. Now, what I did was I said, "Now, look Roger, these people don't know the first damn thing about running an online system. I'm going to give them the software. You go out and get a contract with them to set the thing up and make improvements, modify, do whatever you have to do." He was happy with that.

WILLIAMS: Two hundred thirty-something thousand.

DAY: Two hundred thirty-seven thousand dollars.

WILLIAMS: Two hundred thirty-seven thousand and that's including the software development, getting it set up in your centers.

DAY: In one center.

WILLIAMS: In one center.

DAY: It was at our central facility.

WILLIAMS: All right.

DAY: In our facility.

WILLIAMS: Now, this is the initial programming work and everything that later became DIALOG?

DAY: Yes, it later became DIALOG. There's just no question about it. It was good. Roger had done a great job! The Air Force had supported the development of it. Well, we latched onto it and there's no reason in the world why other agencies shouldn't have been able to latch onto it if NASA paid for it. At the National Library of Medicine we had a different problem. We had to make the medical database publicly available. That was a different challenge than we had at NASA. At NASA didn't have to worry about public access to our machine-readable database at NASA at that particular point in time. I'll tell you how we took care of the NASA problem in just few minutes. At the National Library of Medicine, we had this problem. If I lived in Bethesda, Maryland, I could make a local call and I could tap into MEDLARS, or MEDLINE. I could tie into MEDLINE. If I lived in Alaska—I pay the same taxes—I'd have to pay a long distance call. We recognized that politically we couldn't have different prices for different taxpayers depending upon where they lived. That was just not going to be acceptable. We would have all kinds of political pressure. We said that we had to find a way for everybody to pay the same.

Well, in the 1971-72 time period, there weren't any other national telecommunications networks in the U.S., except AT&T. And AT&T wanted to charge for each phone call. We did find out that there was a computer time-sharing corporation called Time Share. They had a computer in Chicago, one on the West Coast, and one on the East Coast. They tied together these computers. They had FCC, Federal Communications Commission, approval to tie them together into a network.

WILLIAMS: This is Tymnet?

DAY: Not Tymnet. Tymnet did not exist then. There was no other communications system. Take my word for it. One could lease lines and set up a private one like I suppose the military set up private ones. There was no publicly available—and so we convinced the Tymeshare Corporation to put our computer into their network. It worked out beautifully for us.

WILLIAMS: This is at MEDLARS.

DAY: Yes, at the National Library of Medicine. The Tymshare Corporation recognized immediately that this was another source for them to gain revenue. They set up the Tymnet Corporation.

WILLIAMS: All right.

DAY: Okay. Now that the Tymnet Corporation became available—this was what Roger Summit and our good friend, Carlos [Albert] Cuadra at SDC, were waiting for.

WILLIAMS: I know whom you're talking about. Robert [M.] Hayes?

DAY: No. Robert was at UCLA [University of California, Los Angeles].

WILLIAMS: Not Carlos Cuadra?

DAY: Carlos Cuadra was at the Systems Development Corporation. I'm getting a little ahead but let me give you this whole story here. Carlos Cuadra, at SDC, had received about two million dollars to set up the MEDLARS system. He set up the online system. This meant that the NLM could essentially offer the same reduced communication charges to everybody. Tymnet and later Telenet [Corporation] and their services were like a gift from heaven for DIALOG and SDC. This relatively inexpensive communications service, in those days, was a major contributor to the commercial application of online search and retrieval services. To the users, it was like a level playing field.

WILLIAMS: All right. Let's come back to the NLM story and MEDLARS and MEDLINE. How did you do it with the NASA online searching?

DAY: For the online system, we were using a leased line when I left in 1970 for the National Science Foundation because we didn't have anything else at that time. Remember, this took place in 1966.

WILLIAMS: All right.

DAY: There was no other way. I mean, all I could do was spin off each center and say, "Okay now your guys can search, but they're going to have to pay a long distance call."

WILLIAMS: You leased the lines from each center?

DAY: We tied them all on one lease line.

WILLIAMS: Oh, you did. Through headquarters here in Washington?

DAY: Yes.

WILLIAMS: Where was the actual computer?

DAY: That line was big enough in terms of the number of calls it could handle. It could handle other work for NASA, too. It worked out well.

WILLIAMS: Where was the actual computer located that these searches were being done on?

DAY: Out at the facility in Bethesda, Maryland.

WILLIAMS: At Lockheed?

DAY: No. The central NASA information facility was in Bethesda, and was operated by Doc Inc. We did our own searching.

WILLIAMS: Oh, you did.

DAY: Now, at NLM, we had another problem. You're our user. You're our taxpayer. You get on the system and you can't get on because it's too busy, like AOL [America Online]. Or, the system's down. After a couple of frustrating experiences, you say, "Your system ain't no damn good." This is what happens, okay? We recognize we've got to do something about this. We need backup. I'll tell you a private story that I won't tell anybody else. I went to Carlos and I said, "Carlos, why don't you give us an unsolicited proposal. You have our program. You've worked our database on your computer." They had to take it out there to model it.

WILLIAMS: Now this is back to NLM?

DAY: I'm at NLM, but Carlos was out at SDC. That's where he developed it and that's where he ran the big system. I said, "Why don't you propose that you'll become back up for us, in return for which we would give you access to our database, which you could sell commercially. If anybody else wants to do the same thing, that's fine with us, too." Whatever I do here I've got to do for somebody else if anybody else wants it. Carlos didn't want to get into that. SDC was kind of a funny place to work anyway. He wasn't interested. We then had a problem. If

we go out and solicit proposals, it's going to take us several months before we can get this back up. We need backup right away. I found out that SUNY [State University of New York] up in New York had extra capacity. They had a number of universities to which they were providing service, primarily in the biological information area. We talked to SUNY about their being the backup. The advantage of talking to them is that it's a not-for-profit organization. It's an academic organization. It is already in the business and we could contract with them without open competition. I don't have to compete. It was just a backup. If our computer went down, it would automatically flip over to SUNY. Most of the time there was no problem. If we had our computer overloaded, it would flip to them.

WILLIAMS: Again, all this is MEDLARS, MEDLINE that you're talking about with SDC, right?

DAY: That's how NLM got its online backup and that's why, as far as the user is concerned, the MEDLINE system was always up.

WILLIAMS: Before we leave NASA, you had the system working through your computer here in Washington doing the online searches that Lockheed had worked out?

DAY: The online searches we weren't taking public. The online searching was strictly for NASA centers.

WILLIAMS: Right. Was DIALOG out of the picture at that point or had they done the software and all those kinds of things?

DAY: Roger Summit was now interested in building a commercial business. What he wanted to do was to get as many databases as he could up. He would provide service. Rather than being a developer of software, he wanted to become a provider of services.

WILLIAMS: That's SDC.

DAY: No.

WILLIAMS: No, Lockheed?

DAY: That's Lockheed. SDC did the same. SDC was doing both.

WILLIAMS: Doing the same thing.

DAY: Right. Doing the same thing.

WILLIAMS: Well, I'm just trying to track the story from the time Lockheed did the work for you and when they started DIALOG. They were using the same software right?

DAY: Oh, I think that they probably started DIALOG around the same time. They were having a difficult time selling it.

WILLIAMS: It was all the same software that had been developed.

DAY: Basically the same software. They had to make some modifications. In those days, there was always some modification you had to make.

WILLIAMS: How many agencies actually took this software that Lockheed had developed for you and begin to use it?

DAY: We gave copies to the Atomic Energy Commission, now the Department of Energy. We helped set up JURIS for the Department of Justice, we offered our tapes, we offered our software to Ruth Davis at the National Library of Medicine, and she thanked us very much, but never did anything with it. [laughter]

WILLIAMS: Really? Why didn't they want to go with it? Why would they have later gone with SDC and develop an entirely different set of software, I assume?

DAY: In many ways, their database was much more complicated than ours. They probably felt that they could produce a better one than we could produce and wanted to do their own thing.

WILLIAMS: Were you pretty happy with the Lockheed software and the way that worked?

DAY: Lockheed software worked fine.

WILLIAMS: Yes?

DAY: Worked fine for us. Well, it had the limitations that all that software had. It was built by computer-nicks for computer-nicks. It took somebody that knew something about the system in order to get the thing to work. It was fine, but you know. Look, compared to the batch system that we had before, it was wonderful.

WILLIAMS: Yes. You could do boolean searches?

DAY: Could do boolean searches.

WILLIAMS: You could do large printouts?

DAY: It could, you are absolutely right.

WILLIAMS: How did your SDI system work on it?

DAY: Worked just fine. I tell you, SDI started going by the wayside when the users could start running their own searches and when the librarian at the center could be Miss or Mister Big by creating individual profiles and then having these run on the NASA central database. Essentially, a lot of the profiles were expertly customized and they came from her [the librarian] and that's fine.

WILLIAMS: Is that what you were discovering was happening at the facilities, the librarian was doing the searching?

DAY: Yes, in the initial phases. Which was fine. It's good practice. It built the library up locally so that the library got support, budget support, from the other program offices. It helped them locally and they turned around and helped us.

WILLIAMS: Who trained these folks?

DAY: They would train them locally with help from our central office.

WILLIAMS: You didn't send out your staff to train them?

DAY: We might do that once in a while. We would train the first group. After that it was up to whomever we trained to become the trainers in the local facility rather than trainees.

WILLIAMS: Talk to me about the problems of working. Now, you're firmly embedded in the NASA system. You've done the AEC work. Working with COSATI and working with the ASTIA folks and all those in terms of standards, cooperation, cataloging, indexing, abstracting, language controls, how was that working out, particularly during this period of the 1960s?

DAY: Well, in COSATI we set up working groups to try to bring agency information programs closer together. We did cooperate on policy. We had the usual problems developing standards, federal standards. The reason being that this could involve substantial changes to each of the ongoing systems.

WILLIAMS: Each system had its own setup already.

DAY: Right, each R&D agency had its own setup. The position that agencies took is, "Yes, we would like to do this but we don't have the money to pay for the changes." This is what you find in many federal agencies. I'm not telling you something that you don't already know.

WILLIAMS: You're talking about competition?

DAY: Competition. DOD said, "Well, we have special requirements because we handle classified stuff and there are security problems, so we have something special in ours." You know, this is what always happens; somebody's always got something just a little bit different.

[END OF TAPE, SIDE 7]

WILLIAMS: I've forgotten exactly when COSATI was set up. I have that in 1961 or 1962 the Committee on Scientific Information or COSI, was set up.

DAY: I think that's about right.

WILLIAMS: COSATI follows on immediately?

DAY: Yes COSATI is COSI.

WILLIAMS: You worked with the organization from the beginning?

DAY: I worked from the beginning. Burt Adkinson had set up an interagency group to find out if there were ways that we could work together. We didn't get too much done until COSATI itself was established in the Executive Office of the President. The advantage being that we were then working out of the White House. This gave you status with the management. If we could get COSATI to agree on something, we could take it to our management and say, "Mr. Administrator of an agency or Mr. Secretary of a department, the President's committee is on board; may we have your support?" Well, most of the time they went along with this, you see.

WILLIAMS: Was COSI Burt Adkinson's idea?

DAY: I think Burt Adkinson set something up that came before COSATI.

WILLIAMS: All right. What would you call COSATI's biggest achievement and biggest failure?

DAY: Well, COSATI's big achievement was, as far as I'm concerned, that it became a focal point, a national focal point. Remember the government information programs were years ahead in terms of computerization of the private sector information programs of the same type. COSATI was a national focal point in dealing internationally. Who could they deal with? Well, they usually would deal with a government person, but who could represent the government? You know, Defense says, "Look, we're bigger than anybody else. Deal with us." NASA says, "Well, we're ahead, deal with us." Energy says, "But we were here first." You know, all this kind of stuff. Everybody had some kind of a story. The advantage of COSATI was that it was a White House committee. We weren't representing any one constituency. It became a national focal point in that the private sector would use it as a national focal point around which it could rally. We would invite private sector leaders to interact with us. We shared, you know, our policies and many of our practices with the private sector.

WILLIAMS: Folks like NFAIS [National Federation of Abstracting and Indexing Societies] could come and deal with you?

DAY: NFAIS was essentially set up by government agencies in the beginning. They provided the funding. Burt Adkinson at NSF provided funding. That was one of his major successes. NFAIS was a non-governmental entity whose membership of government and non-government abstracting and indexing services could interact and deal with each other on an equal basis on mutual problems.

WILLIAMS: Why?

DAY: Well, I don't know. I suppose there was some politics involved. You have to understand that we were—that NASA was way ahead of everybody, way ahead of the other agencies. This was in 1967. You know, there is a certain amount of professional jealousy, too. The point is that the agencies worked well together, generally speaking. Initially, I could get them to change only on microfiche. That was because they didn't have any choice. [laughter] Microfiche was such a success that the customers of ASTIA and the customers of AEC were saying, "Let's get rid of the 35mm film and microcards over here. Why don't you guys do what NASA is doing?" Working through COSATI, the AEC, NASA, and DOD established common descriptive cataloging rules and formats so that they could integrate into each of their databases selected output from the other two agencies. My substantive disagreement with Burt was that he didn't spell out general specs to the private A&I services whose computerization efforts he funded. He said, "I will give you money." Nobody had computerized at the time he first started. If only he had demanded that—whatever system—each should be built to have the capacity to do such and such, and have certain features. Then, we could have had a national system years ago. What Burt essentially did was just give them funds and no guidance—and I don't say Burt was wrong, okay. Incidentally, when I went to see the Soviet system, I found that they took, they developed a system and then they made a thousand copies and they said, "You thousand, you people that operate this system all over the Soviet Union, all have to do it this way." Because it was a Soviet system they all installed it. Okay. The problem they ran into was when it came to updating and making a change, they didn't change one system. They had to change a thousand systems, so they didn't change.

You don't know which system is going to be the best when you first get started. Burt's frame of reference was different than my frame of reference. I felt that we had enough successes at that stage to at least issue general specs. To move everything along a lot faster. We would have, I don't think there's any question about that. He essentially just provided CAS. He went to all of these not-for-profits and said, "Give me proposals." If it looked like a half-way decent proposal, he supported it. It didn't make any difference what they did. He supported it. Chemical Abstracts Service got a total of twenty-five million dollars, taxpayers' money. That's a lot of money, taxpayers' money. That's why, when I succeeded Burt

Adkinson, I said, "It's enough." I was the one that turned off the spigot. Each of his grantees had successfully computerized its basic production system and this was a great step forward in being able to process the flood of articles that was inundating them. None of the systems or their output were interchangeable with any of the others.

WILLIAMS: Well, now, COSATI was successful on microfiche, pretty successful on rules, don't you think, for cataloging?

DAY: Yes, they were.

WILLIAMS: They were because COSATI produced a format.

DAY: Yes.

WILLIAMS: What else?

DAY: We established the same general policies internationally. I used to head U.S. committees. I was the head of the U.S. delegation to UNESCO [United Nations Educational, Scientific and Cultural Organization] and Vice President of an intergovernmental information committee. I was also the U.S. representative to the OECD [Organization for Economic Co-operation and Development] and I was Chairman of a technical information panel of AGARD [Advisory Group for Aerospace Research & Development], which is a component of NATO [North Atlantic Treaty Organization]. Whatever policy I espoused, it was one that we had developed at COSATI. It was a U.S. position, and they supported I, too.

WILLIAMS: What about efforts to do vocabulary control? Was COSATI working on that problem to come up with an approach?

DAY: Yes. I think that there was, and they did some vocabulary control. It wasn't a wholesale change. There were certain areas that would come up where both sides would say, "Well, we're not too far entrenched in this right now. Let's work together and get the thing set up now." You must get agreement before they really get too far entrenched. Once they're in, they don't want to change, go back, and reconvert all their old cataloging and indexing files. I understand that.

WILLIAMS: Now, all this time there are these high-level government information policy reports bring written. There was the Killian report, the Baker report, the Weinberg report, and on and on (3). How were they affecting you at NASA?

DAY: It made a big difference. There's just no question at all, because [Alvin M.] Weinberg was very active at that time. Bill [William O.] Baker was a member of PSAC for more than one president.

WILLIAMS: President's Science Advisory Committee [later the President's Committee on Science and Technology]?

DAY: Yes, that's exactly right. Bill Baker, President of Bell Labs, did a lot of work for presidential administrations—in fact he's the guy that took the [Richard M.] Nixon tapes back to his labs in New Jersey and did whatever you had to do so the people could understand the Nixon tapes. Yes, he put them in his briefcase, his black briefcase and he took them up to Bell Labs. That's one of the untold stories. Most people don't know that.

WILLIAMS: I didn't know that either.

DAY: He's a Republican.

WILLIAMS: This was Baker or Weinberg?

DAY: No. This is Baker. Weinberg was Democrat. Baker was a Republican. Nice guy.

WILLIAMS: He took the Nixon tapes?

DAY: Just put them in his briefcase and got on a plane or a train, I guess. He took the train up, did what he had to, put them back in his briefcase, took the train back, and delivered them to whoever was doing the investigation.

WILLIAMS: To the hearing committee?

DAY: Yes.

WILLIAMS: Interesting. That would be an interesting story. You're saying those reports had a positive effect.

DAY: Very positive effect because you see it wasn't just a bunch of zealot bureaucrats, like me, pushing their field while working out of the White House. You had essentially highly-respected senior members of the user community advising the President and Congress of the strategic importance of the U.S. developing the world's best network of science and technology information systems to support the nation's science, technology, and health programs. The user community in that sense was essentially the scientists and engineers. These men were leading U.S. spokesmen. They could do things for our programs that we couldn't do for ourselves.

WILLIAMS: Which one of the reports would you say was the most significant to support a national system?

DAY: Well, they were all important in different ways. I'd say probably the Weinberg report was a seminal report. He threw the responsibility onto the scientists themselves. That's the difference. The Baker report didn't do that. The Baker report said, this is the way things should be, but he didn't have the leverage with the scientists that Alvin Weinberg did. He headed Bell Labs. Bell Labs had a hell of a reputation and he was more of a manager. They considered him a highly talented scientific manager.

WILLIAMS: Well, now, would you describe the focus of all of these or most of these reports as saying, "Look we have got to have a national sci-tech information program here?"

DAY: Yes. Well, everything went along fine until Ed [Edward E.] David [Jr.] became the president's science advisor. Ed David said, "Well, we have too many committees. We ought to get rid of some of this stuff." For years they'd been trying to get the National Science Foundation to take over responsibility for COSATI.

WILLIAMS: Now, what year is this? Is this [James Earl] Carter's administration. Who's he working for?

DAY: This was in 1970.

WILLIAMS: That would have been Nixon.

DAY: [Gerald T.] Ford administration.

WILLIAMS: Or Ford. Right. Yes.

DAY: Probably Ford. He moved it out of the executive Office of the President, and I became the chairman before he moved it out. I went to the National Science Foundation.

WILLIAMS: Moved it out of the President's office?

DAY: I was chairman so they asked me to continue as chairman in its new home at the NSF. It was different then. It was the National Science Foundation chairing an interagency committee—makes a big difference—not a White House committee. Makes a big difference. That's it. The White House has a lot of power. There's just no question about it. Just the fact that you say that you are calling from the White House. Look what Oliver North did. Oliver North was a lieutenant colonel. Oliver North would call a three-star general and say, "General, I want you to do bing. I'm calling from the White House." The general went ahead and did it. That's the way it works.

WILLIAMS: Yes. Now, in 1967 you became deputy administrator for Technology Utilization at NASA. Was this a big switch in responsibility?

DAY: No, I still had responsibility for information, too. I had overall responsibility for three divisions—the Technology Utilization Division, the Scientific and Technical Information Division, and the Management Information Systems Division. I made Jack Stearns Director of the Scientific and Technical Information Division. He was my deputy when I was doing it. We had a technology transfer, Technology Utilization Division, like technology transfer. Then we had a business, a Mansford Information System Division.

WILLIAMS: You ran all three, then, at that point. Were you the person responsible for NASA's *Tech Briefs*?

DAY: Well, I was involved in that.

WILLIAMS: That's a great publication.

DAY: A great publication.

WILLIAMS: Yes, just super. What about working for NASA, what was your greatest satisfaction?

DAY: We published *Tech Briefs* when I was there.

WILLIAMS: Yes.

DAY: We sold *Tech Briefs* through NTIS. I'm sorry for not answering your question.

WILLIAMS: What was your greatest satisfaction at NASA? Is it the online system?

DAY: It actually was the total system we set up that included an online component. Everything we set up. We had the best microform service. We were doing everything right. We set up new series of types of reports. We did everything right then. Our system essentially has been duplicated around the world—everybody copied our system. They'd come around and visit us and copy our system.

WILLIAM: What about the folks at *Chem. Abstracts*? Would they come up and see what you were doing?

DAY: No.

WILLIAMS: Now, you were on the *Chem. Abstracts* advisory board for a while, weren't you? Is that later on?

DAY: No, that was about the same time.

WILLIAMS: Was it? Now, they started their first—

DAY: When I first went to work for NASA, Phyllis Parkins was Director at BIOSIS, or whatever they called the Biological Abstracts group at that time. Dale [B.] Baker of CAS and she came to visit me and let me know that they represented the professional societies. They weren't too happy about NASA getting involved in this big information program.

WILLIAMS: Really?

DAY: Yes siree. They were scared to death of me.

WILLIAMS: What were they afraid of?

DAY: I was doing things, and they couldn't do things. I would do things that they couldn't. They didn't have the money. They were afraid that the government would move in and take them over.

WILLIAMS: This is the early 1960s?

DAY: Early 1960s. Now, all these people have turned out to be great friends of mine. Don't misunderstand. I disabused them of their fear right away. I never did anything that would threaten them at all. I would bring them in and, certainly when I was at COSATI, I'd get them involved. I arranged for Dale Baker to go down to see these different moon shots. I'd do a lot for them. They turned out to be strong allies of mine, which, in a way, was very good. At NASA, I had one professional society supporting me, and now I could get additional professional societies to support me.

WILLIAMS: Now, were you following what they were doing with the early stages of the Chemical Registry System?

DAY: Oh, sure.

WILLIAMS: You were following the KWIC index that they did?

DAY: Yes. Chemical Registry System, good thing. There's just no question about it, but that was NSF money.

WILLIAMS: Talk about that. Were you aware that Adkinson was going to give them the initial money to get caught up and to develop the Chemical Registry System?

DAY: Burt and I worked closely together, yes. When I left my job at NASA I went to the National Science Foundation. Burt and I are different in many ways. I didn't like the National Science Foundation.

WILLIAMS: Why did you go there? You had done all you thought you could do at NASA?

DAY: I did everything that I could at NASA. It isn't that more couldn't be done. I couldn't get it done. NASA was very smug about the fact they had the best information program in the world and they were going to stick with what they had.

WILLIAMS: Headed toward atrophy again?

DAY: Every agency goes through this. That's what happens. I mean, you've got to keep moving. That's all. That's what happens. In fact, if you take a private-sector company, a corporation, you need an innovator, a guy with ideas, a creative guy to get it started. Then you get a little further along, people like what you're doing. Your company now has to expand to serve a larger group of customers, but you don't have the money to do so. Well, you need a different type of man to head the company and to raise the money. You need a different kind of a president. He gets the money. Now the big thing is sales. Well, now you need a president who knows sales. This is what happens. You take a look at the way organizations move back and forth until the organization gets to middle age and then so many continue as they did before with little change.

WILLIAMS: Then you need another innovator? Is that what you're saying?

DAY: Well, yes, I mean that the organization gets hardening of the arteries, like IBM and AT&T and Xerox [Corporation], all of them. The young guys coming, moving fast, can beat them.

WILLIAMS: You said, "It's time for me to go?" Adkinson, what did he do? This is 1970.

DAY: Adkinson retired.

WILLIAMS: In 1970.

DAY: He retired in 1970. I did not have a Ph.D. At the National Science Foundation, a Ph.D. is pretty important, but I had a good record. They couldn't get anybody any better. They hired me.

WILLIAMS: Before we leave NASA, I want to ask you, did you follow the lawsuit between *Chem. Abstracts* and DIALOG that took place in the early 1990s?

DAY: I did; I would have been a key witness.

WILLIAMS: Is that right? Tell me about your reaction to this. It is my understanding that DIALOG was suing CAS for access to the tapes, pretty much unrestricted, under the rubric of, "You built this system with government money." Was there a little irony in your mind that also Lockheed had built its system?

DAY: No. I kept quiet. I never said a word. I made sure that when we wrote that NSF contract that it included that whatever NSF funded would be open to competition.

WILLIAMS: To DIALOG. To Lockheed.

DAY: To anybody. I didn't name anybody.

WILLIAMS: No, I mean that's what you said in the DIALOG contract, or Lockheed contract.

DAY: Not in the Lockheed contract, but rather in the CAS contract. I provided funds from the National Science Foundation to the Chemical Abstracts Service. I said, "If you get NSF funds, you're using public funds to produce something. I don't say that you shouldn't charge people for it. Certainly you have costs. You decide what you want to charge, but you cannot keep exclusive publishing rights to what the government has funded."

WILLIAMS: You said this to CAS?

DAY: To CAS. That was in the contract. DIALOG wanted to use me as a witness.

WILLIAMS: You may be that person I saw in some of the articles that said that CAS put a restraining order on DIALOG to not call a certain government witness. Are you that person?

DAY: I don't know.

WILLIAMS: No?

DAY: I kept my mouth shut on this one.

WILLIAMS: Neither side came to you?

DAY: Oh, yes. They both came to me. They both came to me with their lawyers. Both sides wanted me to be their witness. They wanted to pay me as a consultant and I said, "Nobody can pay me." They pay. I mean, <u>they pay</u>. You know, they pay three hundred dollars an hour.

WILLIAMS: What did you tell them?

DAY: I said, "No way." They said, "Why?" I said, "That's to protect you." They said, "What do you mean by that?" Regardless of which one, I could've testified for either one of them, but I knew what was in that contract. I mean, you can't argue with what's in the contract.

WILLIAMS: The NSF contract and you knew the Lockheed contract also, about the building of the software.

DAY: You mean in my contract I gave to Lockheed?

WILLIAMS: Right.

DAY: Oh, yes. I always protected the public. That was my job. To get the best deal I possibly could for the public. I'm using public funds. I'm using taxpayers' funds. There's a lot of needs for taxpayers' funds. If I am using them, then I've got to get the best possible deal for the government. How was I going to protect the taxpayer here? To make sure that there would be competition, that's all.

WILLIAMS: That's what you said to CAS also when you cut them off.

DAY: That's right. Even though I was a chemist and a member of the American Chemical Society for more than fifty years, I thought that they were stupid. I said, "Look, you're going to make money no matter what happens. If somebody else is going to use your database, they're going to pay you royalties." I mean, you may not get five dollars on this deal. Maybe you'll only get three dollars on this deal, but you don't have any added-on costs associated with it.

WILLIAMS: They wanted all the money.

DAY: That's the way the American Chemical Society was. They had that problem when they went international. I am told that they had problems with the Germans, problems with the French, and with the Japanese. CAS' position is that, "We want to cooperate with you, providing you do it our way." [laughter]

WILLIAMS: We get the money.

DAY: We get the biggest share, you know—and we have the control.

WILLIAMS: Yes. Tell me about how you'd assess the documentation, information science field in the 1960s, very generally. Was there a lot of progress, or not as much progress as you'd hoped?

DAY: I think that the 1960s were the turning point. In the 1960s we really came into our own and technology developed right along with us. We had the technology to do things we couldn't do in the 1950s. The pace of the technological changes was beginning to pick up.

WILLIAMS: What about the ideas from the documentation field?

DAY: Well, I think that we had a good base with the 1950s. I think that the model that the Atomic Energy Commission had was a good model, basically. Back then they could only think much more narrowly than we could in the 1960s. In the 1960s, the AEC was comfortable with its technical information program and big improvement and changes did not take place until the 1970s and 1980s.

WILLIAMS: What about the ideas, though, in terms of from the documentation information science field, say for those folks whose names you associate with being the idea people, mainly Taube, Morris, and [Hans Peter] Luhn? Were those ideas developed in the 1950s good enough for the 1960s?

DAY: Oh, I believe that everything that they did was the basis for what happened in the 1960s. I don't think there's any question about that. I think we had more revolutionary thinkers in our field in the early years than in the later years. I think that at that time, most of the talent was put into the genius of developing ideas and approaches rather than trying to put them into operational practice.

[END OF TAPE, SIDE 8]

WILLIAMS: Looking at the early automation stuff, in the 1950s, what strikes me is that we have good ideas, but we have a bunch of folks trying to build special-purpose machines that basically disappeared once the general-purpose computer came into effect and was able to handle information. What is your impression?

DAY: Yes. I think that you're probably right. In many ways, they probably were ahead of themselves. The best idea-people sometimes aren't the best people to build equipment. There has to be something more than just an idea in a small field, which is necessary to spark really big developments. The information field today is huge and now covers everything. As we saw the information field, say in the scientific and technical information area, we weren't considered big players. We were doing some interesting things but we weren't considered the big players then. Certainly in the 1950s we weren't. People weren't paying much attention to us. Within our own ranks we were having problems. Many of us were dissipating our energies fighting among ourselves. Primarily, fighting change.

WILLIAMS: Fighting over these individual, small systems?

DAY: Individual, small things and the biggest portion of our community, in terms of information, really were the librarians. The librarians really weren't on board with us. Most would watch what was going on, but they didn't think that it really applied to them.

WILLIAMS: They still laughed at these punch-card systems and at the things like the Western Reserve Selector.

DAY: Oh, yes.

WILLIAMS: The edge notch cards.

DAY: The McBee cards.

WILLIAMS: McBee cards.

DAY: Yes, sure. Well, those things worked and they made sense. They provided a service for some small applications. For certain things they were good. For big databases they were impossible. You know, they were nice little things that you could play with but you couldn't handle any big-volume applications on them.

WILLIAMS: What about ideas like semantic factoring and telegraphic abstracts that Perry was working on? Do you think there's much left there in terms of basic ideas or has all that been replaced by full-text searching and such?

DAY: Oh, I think that with the capacity we have now and with its ready availability and speed of access, people are looking for new ideas and applications. Today almost everything is on the information highway, which is twenty lanes across, and there's no lines, no rules, you know, just general chaos. [laughter] You can get on and get some information. There's just no question. You can go to places you've never been before. You can get all kinds of stuff, including lots of chaff. Last night on my PC, I pulled out some great pictures of Mars. You know, that's great but there's going to have to be a lot more discipline built into the systems.

WILLIAMS: Are there any ideas left from the 1950s that impacted the 1960s or even impacted the 1970s, in terms of documentation ideas?

DAY: Well, in the documentation field, I think there was—remember in the early years and in the 1940s and in the 1950s, the professional societies essentially were the disciplinary information systems and they only dealt with published materials. If it wasn't published and it hadn't been put through peer review, they weren't going to cover it. At the end of World War II and into the space age, we started pouring out documents at a phenomenal rate, a completely different type of animal—the technical report. The average technical report was somewhere between fifty and a hundred pages, some more, some occasionally less. The average article in a journal was seven to ten pages, completely different. The published journal article had been through peer review. The technical report was primarily concerned with getting something out fast and not worried about peer review because they had to get that thing out early. Or they wanted to patent something in the report. If you published it as a report, in those early days, that was not considered publishing. You could still go ahead and patent information in it.

WILLIAMS: Right.

DAY: They're a lot of different things that happened. All I'm saying is that there are a number of different factors that pushed things in the 1960s, that if we had the same people in the 1960s thinking the same things in the 1950s, then probably a lot of those things wouldn't have been done.

WILLIAMS: Interesting. Well, let's move to where all this was supposed to be generating the funds to support it, and that's namely NSF. You were there from 1970 to 1972? You said you didn't like it. Why is that?

DAY: That's because of my peculiarities. That's because of Mel Day.

WILLIAMS: What peculiarities?

DAY: I like doing things. Even though I ran programs, I was always actively involved in my operations.

WILLIAMS: The day-to-day operations?

DAY: Day-to-day operations. I did try not to micromanage, and I usually didn't micromanage except in the beginning, when I micromanaged Doc Inc., but we won't go into that. I just like being a player in the total process: idea conception, testing the conception, its successful application, and its further development. It's the same way it was when I used to be a chemist.

For ten years after I left the chemical lab, when I'd walk into a chemical lab my hands would itch. I wanted to get in and do something.

WILLIAMS: Get right in there and wash those test tubes again. [laughter]

DAY: Not wash them—put something in the test tubes, get something happening. You know. All I'm saying is that the big excitement to me is building something and getting it to work. Building information systems and programs—and mine involved programs as well as systems—getting them to work, and this involves government people, private sector people, Americans, people from all over. To me, that's exciting. I mean, that's what I—

WILLIAMS: NSF was not as exciting?

DAY: Well, NSF was different. NSF always considered itself kind of the elite as far as the government science community is concerned. I don't say they weren't. Don't misunderstand. They were a granting agency. They didn't do things. They gave money to other guys who did things. All I'm saying is I wanted somebody to give me money to do things. [laughter] My fun is helping to design and develop an approach and then making it work, making it do something to improve the quality of life for people or to improve the status or the prestige of the U.S. government. I mean, a lot of the things I did, did that. I know they did that.

WILLIAMS: Building a research and development system didn't have that same kind of appeal?

DAY: At NSF, I wasn't building a research and development system.

WILLIAMS: I don't mean your own, but helping support it and build it out there in the world.

DAY: At the National Science Foundation, I approved grant funds for many intriguing R&D projects. It is just the paper shuffling procedures that I had to follow. While they were necessary, I, personally, did not find them very challenging. Some guys like doing it—that's fine. We need those people and they make a major contribution. If you ask me about my kicks, my kicks are getting people and their resources together to solve problems, information problems. Now, I realize this has to be based on a lot of R&D work and this is fine. Without those people, we aren't going to have anything over here in the application area. Don't misunderstand me. Let me tell you, all the work they do, a lot of the work they do will come to naught if you don't have guys like me over here to put the stuff to work.

WILLIAMS: Dealing with the grant applications, deciding what to fund, didn't have that same kind of pleasure?

DAY: Didn't have any kicks for me. Well, let me tell you why. The day that I came into the National Science Foundation, I had a staff meeting with my people. My deputy at that time asked me what I was going to do, and I told him about some of the things I would like to do at that particular point in time. He came around to me about two weeks after I was there and said to me, "You don't know what you're doing."

WILLIAMS: Your deputy said this to you?

DAY: Yes. I said, "Well, you may be right. Why don't you tell me about it?" That guy said, "You just don't know what you're doing." Well, I said, "What do you mean I don't know what I'm doing?" He said, "You don't understand that our job is to give away money." I said, "That's not my job. [laughter] My job is to provide funds for people to do something, but to do something that appears to be reasonable, to be in support of what this program is supposed to be doing, and that what is being proposed appears to have some reasonable chance of success. Maybe it won't be successful, but you know, if it's completely off the wall and nobody says it's going to work, well, then maybe I don't want to support it. If it won't go to peer review, we'll kill it. Okay? But my job is not giving away money. Now, why do you raise this point?" "Well, because you asked for justification on everything." Well, I did.

Now, I'll admit that my background was different than their background. My background utilized contracts and not grants. I never gave anybody any grants until I went to NSF. All I wanted was to make sure that the taxpayer was getting his money's worth, or appeared to be—to the best of my ability—getting his money's worth. Okay? I guess my big objection to the National Science Foundation, for me, doesn't mean I couldn't work there. My job at NSF had a lot of prestige involved. I mean, I was sitting on all these national and international committees as the Head of the Office of Science Information Service. My office had its own statutory authority, which I have to credit Burt Adkinson and Alberto Thompson for getting. My office had its own science information committee that was established by law, and NSF couldn't put it out of commission. That's the way Congress set it up.

Two years after, I left. When I leave, I turn around and I walk away from an operation and I don't look back. It's his watch. If I think he's doing something wrong, I'll keep that inside. I don't say anything. That's his business. If he's going to blow the place up, that's different. I mean everybody has his baby. His views are right, and mine are wrong. That's not for me to interfere. I don't want to do anything. I have a certain amount of influence in the field. I know a lot of people but I don't want to spoil it for him or her, I just keep quiet. I don't say a word.

WILLIAMS: Who followed you at the NSF?

DAY: Lee G. Burchinal. Unfortunately, his "watch" led to the end of the Office of Scientific Information Service. I called Lee two years afterwards. I said, "Lee, the statutory authority for the Office of Scientific Information Service is running out. It's very easy to get it renewed. If I may make a suggestion, this is all that has to be done." He said, "I don't have any problem. I have all the support I need here. I don't need that kind of stuff." Well, let me tell you, when the statutory authority ran out, NSF management eliminated the Office of Scientific Information Service. His background was different than mine. He was a Ph.D. His field is education, I guess. He's very articulate. He's a very bright guy.

WILLIAMS: He came from the ERIC [Educational Resources Information Center] system, right?

DAY: Yes. He set up the ERIC system. It was at least five years behind NASA's system. He came in five years after the complete NASA system was operational. He met with us at NASA and we offered to help in any way he wished. His system was set up differently from mine. He himself didn't want to operate anything. His system was set up at a number of universities around the country. Well, this gave him strong political support for the Office of Education at that particular point in time in each geographical area where an ERIC center was established. That was a good move. Each of the ERIC centers has responsibility for collecting the educational literature in its area of educational excellence and sending these materials to a central contractor to abstract, index, and announce in an ERIC publication.

WILLIAMS: Right.

DAY: I'm not being critical. Don't misunderstand me. What I'm saying is that in many ways, it's just a lot more difficult to run a system like that, that's all. The ERIC system must be serving its users well because it continues to get Congressional support.

WILLIAMS: Speaking of measurement, because I'm afraid I will forget this, the Cranfield studies (4) were done in 1963, correct?

DAY: Yes, they were good.

WILLIAMS: Did you use any of that methodology to go in and evaluate?

DAY: Yes. I knew those people over there because I was active in AGARD. I knew those people. I guess I used it, but I can't remember how I used it at this particular point in time. I tried to use the literature. I've always tried to keep up on the literature. I did not have as much patience with some of the far out R&D because I didn't have time. There was no application at that time and it wasn't going to help the program. I mean, I just didn't have the time. If I spent it on that, I wasn't going to spend it on an area with a bigger payoff, so I didn't. You know, some of the work that was going on in universities I know was good work. I didn't pay that much attention to some of it. You know, I'd follow what appears in the journals. I'd read it and I'd say, "Well, when they get a little bit further I'll see what happens and maybe I can get involved."

WILLIAMS: Would something like machine translations fall under that?

DAY: Machine translation—thirty years ago they were doing machine translations. I mean, the U.S. Air Force thirty years ago was putting twenty-five million dollars a year into developing machine translations. People talk about all the wonderful machine translations today, yes, it is a good first cut. Now you have a translator clean up what's missing and you can probably save an awful lot of time and maybe a lot of money.

WILLIAMS: Yes. Right. It's pretty complicated. You talked about cutting CAS off. Why did you decide to do this when you were at NSF? They had gotten how much money before you came and then how much after?

DAY: Pretty close to twenty-five million dollars.

WILLIAMS: By the time you left or before?

DAY: I think the last they got from me was maybe a hundred thousand dollars, something like that.

WILLIAMS: Adkinson had given them twenty-five million dollars.

DAY: You know, the first question I asked when I came in was, "What are these people doing with this money and why does it continue so long?" I mean, <u>how long</u>? You know, I've been in

development a long time. I know what it takes, I didn't develop it myself but I know you can get guys out there that can develop systems and it doesn't take twenty years or it doesn't take ten years. Okay? You know that and I know that. When you set up a system in the private sector, for-profit private sector, you set goals. You get your money, you get equipment, you get everything designed to do something by such and such a time. Maybe you have to spend a little extra time on that, but it isn't going to be this much extra time, because so much of it continues to be R&D. It's development. They never will have anything done because there's always ways to make it better. All I'm saying, as of a certain date, you designate the system as Mark 1. Now, let's get Mark 1 going and we'll start working on Mark 2. That's fine, I have no problem with that. Let's not wait until we get to Mark 10 before we put it into operation. That's all I'm saying.

WILLIAMS: Do you think *Chem. Abstracts* did that?

DAY: No, not really. They did put their improved registry system into operation, but they were also using NSF funds for the processing of input into their system. Then they were changing the user full-price, even though the taxpayer had paid part of the system's operating costs. Well, because they knew money was coming in, I don't think they worried so much about it.

WILLIAMS: About setting goals?

DAY: I mean, they knew it was coming on. As long as Burt was there, they were getting it.

WILLIAMS: Was chemistry a more difficult problem than you had in NASA? Intellectually, I mean, particularly with chemical notation, chemical nomenclature, structure, all those things?

DAY: Yes.

WILLIAMS: Still not enough to justify ten, twelve years of government support?

DAY: I just think that their main emphasis had to be on putting out that abstract journal, *Chemical Abstracts*. You get some of the old timers; they'll tell you, their backlogs were killing them.

WILLIAMS: In 1962 they had a twenty-two month backlog.

DAY: There was no way they could keep current using manual systems. I mean, it was going to be worse by 1964.

WILLIAMS: Right.

DAY: By 1968 it would have been a disaster for *Chemical Abstracts*. The only way that they could get current and stay current was by computerizing their processing systems. Burt did the right thing to provide funds. My only criticism is the absence of any NSF guidelines relating to system design, because Burt was all part of thinking in terms of national systems. If he weren't part of it, I wouldn't probably be as critical. He knew what everybody else was thinking. He knew the mistakes that we made in the government sector and that experience could have helped CAS and the other recipients of his funding. However, each of his grantees started off in a different direction. With the leverage of NSF funding, Burt could have gotten the societies to work together. Burt didn't want to take that one on. He didn't think that way. I mean, that's not necessarily bad. He did a lot more in supporting some of the basic stuff. That is very good. He was a very good politician up on the Hill.

WILLIAMS: Did you like the aspect of being a politician?

DAY: Not particularly, but I would do it. I'd do it because that's what you had to do in order to get what you wanted. I'll tell you a funny story about Burt. Burt used to like to smoke cigars. Burt was the one that sponsored me for the Cosmos Club.

WILLIAMS: I think you told me that.

DAY: We had a COSATI meeting. Andy [Andrew Adolphe] Aines set up the special COSATI meeting at the Aberdeen Proving Grounds. The man who was head of COSATI, the chairman of COSATI, was a three-star general from Defense, [General Ely]. He was in charge of all Defense R&D at that point in time. Andy reported to him. He was a colonel. We had this meeting and of course we were at a military post. All of us were in civilian clothes and they got the word there that this three-star general was coming. General Ely was the nicest guy in the world. He didn't come to the meeting wearing his uniform. He came wearing civilian clothes like the rest of us. We were going to walk over to where this meeting was to be held. The commanding general of Aberdeen made sure that the motor pool was going to have a driver over there to pick up General Ely. This poor driver, a sergeant, drives up and he sees all these guys standing out there and there's this one guy standing out there looking important, puffing on this great big black cigar, and the driver figures that's General Ely. That's Burt Adkinson, you see. [laughter] He hops out, and rushes around the vehicle, opens up the rear door, asks Burt to

get in and drives off. General Ely and the rest of us are standing there going into hysterics. [laughter] That was Burt. He didn't mean anything by it. He just enjoyed the notoriety, that's all.

WILLIAMS: That's great. Well, leaving NSF and going to the National Library of Medicine, I gather at NLM you saw the kind of challenge you liked.

DAY: Yes. NLM had an operational job. I had a call from Marty [Martin M.] Cummings, who was the director of the library, and he asked me to come over on a Saturday morning. He and I had been friends for many years. He knew that I was good; he knew my reputation.

WILLIAMS: This was Martin Cummings?

DAY: It was Martin Cummings. He took me out, takes me around to the back of the National Library of Medicine building and there was a big gully right beside the Library. Now, there's a big building there. In those days there was only a big gully. He said to me, "Mel, do you see it?" I said, "Marty, what am I supposed to see?" [laughter] He said, "The Lister Hill Center." I said, "Where am I supposed to be looking? All I see is this big gully. [laughter] What am I supposed to be looking for?" He said, "I want you to come over and help me build the Lister Hill Center." I didn't know anything about the Lister Hill Center. The Lister Hill Center, at that time, was up on the mezzanine of the library. It was named after Senator Lister Hill, who was the patron saint of NLM and NIH [National Institutes of Health].

Every time we included a building in the budget for the Lister Hill Center, it would get knocked out. The president of the budget always knocked it out. I was over there and I liked the National Library of Medicine. The National Library of Medicine, as far as government information programs are concerned, it's the best place in government to work. No question in my mind. It has the best staff, highest paid, but the best. Works in a great environment, it's almost like an academic environment. Okay? It's got a lot of discipline built into the system because it has a huge budget. The annual budget now must be more than a hundred seventy-five million dollars. When I was there it was forty-five million dollars. That was a big budget for a government information program in those days. It's a great field. You're doing something that's going to help people. You know, it's going to help people. There's just no question about it. It's not going to help everybody but it's going to help somebody. You don't worry about national boundaries. We even sent information and documents down to Cuba. The government doesn't send them anything else. They can get anything they want from Library of Medicine. No matter who it is, we try to help. You like being part of a system where you're helping people. You don't know the people. You don't know their faces, you don't know their names, you don't care. You're just helping people. It was a great place to work. Marty was a very good director. He had a heart attack shortly after I got there and so, he essentially let me run the program for him. I'll tell you a funny story about Marty Cummings.

[END OF TAPE, SIDE 9]

WILLIAMS: Now, when did Cummings have a heart attack?

DAY: Oh, I'd say about—

WILLIAMS: You came in 1972.

DAY: Yes, in 1972.

WILLIAMS: He had the heart attack shortly thereafter then?

DAY: Yes.

WILLIAMS: You were Deputy Director.

DAY: I was the deputy director and I have always felt that I had been a very good deputy. I'd been a pretty good director at AEC, NASA, and NSF. So, I'd been a very good deputy. I knew what the deputy's job was and how to make that director look good.

WILLIAMS: Make the director look good?

DAY: Oh, yes. Always make the director look good. That's fine because if he's good then it's good for everybody. If he's not good it's not good for the organization, that's for sure. When he was ill, I didn't want to sign his correspondence "M. Day, Melvin Day, Acting Director," because I didn't know how long he was going to be out and it raised too damn many questions. Some people say, "Is he in trouble politically?" No, he had a heart attack. "Now, how come he's not signing his—?" All kinds of questions asked. I signed his correspondence "Martin M. Cummings, M.D." Marty comes back, he gets all upset—his secretary saved him a copy of the correspondence. He calls me in, he said, "Mel, I want to thank you for taking care of this correspondence but I'm really troubled by something." I said, "Troubled by what?" He said, "The way you sign my correspondence." I said, "What's the trouble, Marty?" "You signed 'Martin M. Cummings, M.D.,'" he said. I said, "Yes, that's right. Marty, your name is Martin

M. Cummings and my initials are M.D." He looked at me funny and I never heard a word about it after that. [laughter]

WILLIAMS: That's good.

DAY: He signed his name, "Martin M. Cummings, M.D." All doctors sign their names, "M.D."

WILLIAMS: That's pretty good. Now, the really initial development stuff on MEDLARS had happened before you came, right? That was the late 1960s and very early 1970s. Describe where MEDLARS was.

DAY: The first start was not very good. GE [General Electric Company] had a contract.

WILLIAMS: Right.

DAY: It turned out to be something less than successful.

WILLIAMS: Why was that? I've heard a little bit about this from Mrs. [Claire K.] Schultz.

DAY: I don't know.

WILLIAMS: That took place before you came?

DAY: I'm afraid I can't help you. I don't know what the problem was. I had offered to give them the NASA program five years previously. They must have had good reasons for not accepting it. My job was what happened after I got there. That was my business. What happened before that was of great interest but I didn't have anything to do with that.

WILLIAMS: Well, how was it going in 1972?

DAY: In 1972 it was going pretty good.

WILLIAMS: The subject-heading controversy is already over by this time? I can't remember.

DAY: What was the controversy?

WILLIAMS: The controversy was over whether or not to have the subheadings.

DAY: It must have been over at that stage because when I was there, there was strictly a hierarchical system (seven levels).

WILLIAMS: Winifred Sewell talks a little bit about it in her oral history interview, which I didn't do, but they did under the Medical Library Association program. That controversy had died down and it was going fine now. Where were you in terms of online, with it, with going to MEDLARS?

DAY: We were about to go online. We weren't ready yet, but we were getting ready to go public.

WILLIAMS: This was still during the batch-searching days.

DAY: Yes. We were ready to go, ready to go with it. We were producing our journal by computer and by photocomposing. By the way, I have to give the NLM credit. When I was at NASA, I received from the National Library of Medicine, for the NASA program, software to help me photo typeset our journals back in 1961.

WILLIAMS: Photocomposition.

DAY: Yes.

WILLIAMS: Was that the Docutronics?

DAY: I can't even remember what it was now.

WILLIAMS: I've seen that picture up at NLM.

DAY: Yes. They deserve that credit. There's no question about that. Yes, that was over. An early, big contribution to the public accessibility to online systems was made by NLM.

WILLIAMS: Medical communications?

DAY: No. It was in the area of affordable telecommunications access.

WILLIAMS: Oh, for the online system?

DAY: That's exactly right. See, NLM could do things as a government agency. I mean NLM wasn't any threat to anybody. It wasn't going to make any money on it. It makes a big difference. Aside from AT&T, at that time, there were no publicly accessible, nationwide communications networks available to provide affordable network telecommunications support. At NLM we were highly concerned because as a federal health-service agency, it would be to our advantage for taxpayer users to have equal access—at the same price—to our online service. A user in Spokane, Washington, using AT&T long-distance phone lines would have a pretty hefty charge by AT&T per minute while someone in Washington, DC, would only have an inexpensive cost for a local call.

We learned that the Tymshare Corporation that provided online computer services across the nation had been granted approval by the FCC [Federal Communications Commission] to connect their mainframe computers in the East, Midwest, and the West into a private Tymshare telecommunications network. We sought permission from Tymshare to place the NLM computer in the network on a trial basis. Tymshare agreed and it worked so well that Tymshare set up Tymnet, a wholly owned subsidiary, to provide network telecommunications on services. DIALOG and SDC then joined the network.

Tymshare let them put the MEDLINE in. Who in the Tymshare Corporation or in the FCC were going to say, "Look, don't make this health information available to people." I mean, come on now, right? Nobody. I mean, that was a contribution.

WILLIAMS: To a politically powerful group, mainly doctors, too.

DAY: Mainly to doctors, there's just no question about that, and to the Congressmen. You know, I used to go up there to hearings. They would look at Dr. Cummings and they'd say,

"Now Dr. Cummings, my brother-in-law has got a pain in the rear of his bing. Do you have any thoughts on that?" [laughter]

WILLIAMS: Did they really? This happened at the hearings?

DAY: Well, off the record.

WILLIAMS: Oh, I see, all right.

DAY: They'd say, "Off the record." [laughter] Then of course Dr. Cummings has to be very politic. He'd have to say, "Well, you really ought to go see your physician." Well, you know there are a number of different things. But, "You ought to ask him, bing." They loved all that. All of that was taken down by somebody there. It wasn't part of the official record. The hearings reported would send that to the Department. Marty was a hero, you see. [laughter] That helped them, and that helped us. No question about it.

WILLIAMS: You went to many of these hearings by yourself?

DAY: No, over at the National Library of Medicine I'd always go with Marty Cummings. At NASA I had to go by myself.

WILLIAMS: Now, is Cummings an entirely different administrator than the director before him?

DAY: The director before him, Brad Rogers, was military. His brother was librarian at Yale University. I'd met him a good thirty years ago. I can see the man and I think that his name was Rudy Rogers. Yes, they were different. The other man was a doctor but there was quite a bit of military in him. Marty had a little military in him.

WILLIAMS: Yes, it sounded like he ran a tight ship, too.

DAY: Marty was great for the Library. Marty would do anything for the Library. Marty started computerization at NLM and left at the right time.

WILLIAMS: Which was when?

DAY: Ten years ago? They needed a computer man. They brought in Don [Donald A. B.] Lindberg who was a med-info type. He's the guy selected by the White House to head up the interagency technical committee on the national information highway. He was just the one they needed at that particular point. Marty knew that computers would be big. He had a big computer room and a lot of equipment in it. All big stuff. Marty always kind of made a detour [laughter] through all that stuff. You know, he just felt uncomfortable with it.

WILLIAMS: Yes.

DAY: The Lister Hill Center of NLM under Lindberg has blossomed because it's all new technology. It's all this genome, and genes, and what have you. Without computers he'd have nothing. He talks that language. He talks that language to Congress and so he is very good at it. He's not as smooth a politician as Marty is. Marty was a very good politician.

WILLIAMS: Now, your responsibilities were to bring along the MEDLARS to MEDLINE development?

DAY: My responsibility was that and also library operations.

WILLIAMS: All right. Describe the progress that was made during the time you were there.

DAY: Well, MEDLINE got up and operating. We had some political problems.

WILLIAMS: With whom?

DAY: We were sued by—

WILLIAMS: Oh, the Williams and Wilkins case?

DAY: Williams and Wilkins. Twenty-five million dollars on each of two counts. It got thrown out of court, but that took up a lot of time.

WILLIAMS: I'll bet that took up a lot of time.

DAY: I mean, that's the whole problem with the suits. It's like having a small fender bender. It's not your fault. Somebody dented your fender and it can be fixed. It's all that you have to go through to get the damn fender fixed.

WILLIAMS: Right.

DAY: Then we had problems with some of the vendors. Well, you know, there's a problem, they always thought that we were in competition with them. It was a hard row to hoe because the original program was conceived on information at NLM being available free. The taxpayers pay for it, they ought to be able to get it free. Congress insisted that NLM—this is when the budget wasn't very tight—ought to try to get some of their money back. Marty Cummings was very shrewd and said, "Okay, if this is what you want to do, then we'll do that." He never would let that be an offset to money for his budget. You see, that's how Congress hurt NTIS. In the beginning, NTIS just charged a little bit. First it was 20 percent to cover costs, then it was 30 percent to cover costs, and then when I came they said, "Become completely self-supporting," which we did the first year. When that happens, that's going to limit what you're going to be able to do. You've got no development funds. You can't go out to a bank and borrow money to do things. That's the problem.

WILLIAMS: It sounds like NLM was more of a holding pattern for you, being someone who really liked to go in and develop a new system, certainly than NASA had been. Is that so?

DAY: Oh, yes, it was a different kind of a job. Although we were involved in a lot of things at the National Library of Medicine, too. We were doing some things—we took over the National Medical Audiovisual Center, which we moved up from Atlanta. We built the Lister Hill Center. It was never in the President's budget, but we got it. I'm not going to explain for the record how that was done, but we got it. [laughter]

WILLIAMS: Was the regional medical library system built during this time?

DAY: During the time when I was there.

WILLIAMS: Yes. What kinds of trouble did you have from day to day?

DAY: Well, that was a good system. See, his whole system is, you go to your library, if you can't get what your library has, if it's a medical library, they come directly to us. If it's not a medical library then they should go to their medical library or they can come directly to us. We do not make copies for individuals, except for reader requests in our reading room. We want users of NLM services to get used to using their medical library and we encourage them to learn the value of the services that medical librarians can provide. There are four thousand medical libraries in the U.S., a lot of them are at hospitals. Many did not have trained librarians. In some cases, a secretary was transferred in to become the librarian. As you know, if the librarian has had no formal training, he/she may be limited in what can be accomplished. As time has gone on, a lot of those have been replaced with talented, trained people now, and that's fine. That's fine. It's all built up and, politically, it's the best thing in the world. The best thing in the world because you now have the regional medical libraries with excellent staffs and other resources to satisfy most of the local needs of libraries in their area. NLM supports and backstops the regional medical libraries.

Let me tell you, librarians love to write to their Congressman. They're great. They write to their Congressman. Especially if they think something's going to impact negatively on them. NLM helped support the regional medical libraries to build up their regional capabilities. There are extra costs that they took on because they had a responsibility for training. The regional medical library program is a great library program, and has just worked out beautifully.

WILLIAMS: Were those ideas pretty well advanced by the time you came there or were you part of that development?

DAY: No, we were part of that, too. It's a good program.

WILLIAMS: Let's talk about NTIS.

DAY: All right.

WILLIAMS: Why did you leave NLM and head for NTIS?

DAY: Well, it's a funny story. I won't go into all of the gruesome details. One evening we were getting ready to sit down for dinner with the children—there were children in those days. There was a telephone call and it was the assistant secretary of the Department of Commerce [Bernard Baruch]. He was looking to fill the vacancy that Bill [William] Knox had left when he died. He was the director of NTIS. He had received two hundred applications, and interviewed a large number of people. I wouldn't apply because I was having a good time at the National

Library of Medicine. At the Lister Hill Center, we were beginning to get funds to do things that nobody else in this business was going to be able to do. That was fun. Dr. Baruch said to me, "I understand that you've had some complaints with NTIS." I said, "Yes, I have." He said, "Well, tell me about them." I said, "I really don't think you want to hear." He said, "Look, I called you because I want to hear. So, tell me about them." I told him. The kids ate, finished, my wife ate, finished, cleaned off the table, did the dishes, and I'm still on the phone. [laughter]

WILLIAMS: What kinds of things did you tell him?

DAY: Oh, I talked about the service and talked about some of the difficulties that they had. I knew they had difficulties. Talked about the fact that it was then 1978 and they were still operating with a 360 computer. I went through a lot of this stuff. I had problems with some of their policies. Then finally he said to me, "Well, I want to thank you very much." I said, "You're welcome." He said, "If you think you're so damn smart, why don't you come over here and do something about it?" I said, "Look, there's a lot that has to be done. With all due respect, sir, the Department of Commerce is a tough department in which to get anything done. It's an old-line government agency. I've been spoiled. I grew up in this business in some exciting agencies, the Manhattan Project, Atomic Energy Commission, the NASA program, and now the National Library of Medicine. Why would I want to come over to the Department of Commerce? You know, it doesn't have a very good reputation for getting things done." He said, "Well, you come over here and I'll see that you get the support that you need to get things done." I said, "Well, let me think about it."

I thought about it and I went and I talked to Marty Cummings and he said, "You're out of your mind. Why do you want to go over there?" I said, "Why don't you think I ought to go?" He said, "How are you going to get anything done over there?" [laughter] He said what everybody else was thinking. He said, "It's an old-line government agency. It exists to exist." I mean, that's been its problem. It's a catch-all. It's got a bunch of things that just don't tie together. It's got NOAA [National Oceanic and Atmospheric Administration]. It's got NIST [National Institute of Standards and Technology], which was the old National Bureau of Standards. It's got the Patent Office. None of its operational groups are in that huge building downtown. When the Commerce Building was built, it was the largest office building in the world. It stretches from Fourteenth to Fifteenth Street and from Pennsylvania Avenue to Constitution Avenue. It's a big building. I don't know what they do in that building. I thought about it and then I said, "Well, I'll never become the director of the National Library of Medicine."

WILLIAMS: You were not an M.D.

DAY: I'm not an M.D.; even though my initials are M.D., I'm not an M.D. I can't put it after, but I can put it as my name. I mentioned this to Marty Cummings. Well, he said, "I wouldn't

say that you can't become the director here." "Come on, Marty. At NIH, if you're an M.D., you're a Class A citizen. If you're a Ph.D., you are a Class B citizen. If you ain't any of those two, you belong to the rest of the group. Now, you know that as well as I do." He said, "Well, you know they're kind of touchy about certain things." I said, "Look, when I came on board here you took me over to the director and his staff. You introduced me to the whole staff. You introduced me as a chemist. Marty, I haven't done any chemistry for thirty years. But that's the only reason they would accept me." They wouldn't accept me because I was an information specialist. Maybe I had done a few things in the information business. You know, I have made friends with a lot of people at NLM and there's no place that I'd rather work than the National Library of Medicine. There's no place I'd rather retire from than the National Library of Medicine. You know, I'm never going to become a director. I decided to take the job.

I went over there. The first day I was there, I had a meeting with my computer people, I met with the different groups, and I said, "Tell me about your computer." They said, "Well, we have a 360-40." I don't say a word except, "Well, what do you plan to do about it?" They said, "Well, we just completed a six-month study." I said, "What did you find?" They said, "We have some papers here we'd like you to sign." I said, "Look, why don't you just give me the papers. I'll put them over here. Now you tell me about it." They said, "Well, we're going to need some more equipment." I said, "Yes." "And we have some papers for you to sign." I said, "That's fine." "And we got a good deal on a computer. We found one at surplus someplace else, at one of the other agencies." I said, "Well, that's fine. So tell me about it." "It's another 360-40." I said, "Wait a minute!" This is 1978. The computer they had, I checked the serial number, was the second IBM 360-40 that IBM built. I mean that damn computer was seventeen years old, or sixteen years old, something like that. [laughter] Computer technology was way beyond that. There was no way that we could get done what had to be done with a 360-40. I wanted our stuff online. In those days, when I took over, if you called NTIS and you'd say, "What's the price of PB-123456?" They'd say, "Send us the report numbers on a postcard and we'll send you back the answer." What kind of stupid reply was that? Right? Our reply often took six weeks.

WILLIAMS: Six weeks later?

DAY: Six weeks later. I mean, this is just the beginning. I said that we had to get some more modern systems. When a customer calls, you should be able to tell online whether or not the customer is one of the eighteen thousand NTIS deposit accounts or be able to tell what his/her balance is. They ought to know what's in stock. They ought to know what the price is. They ought to know what it's going to take, how long it's going to take, to get the customer what he/she wants. It can all be on the computer. I looked at the 360-40 and I asked more questions and the more it became obvious, these guys were really second-generation computer people. They had a 360-40, which could do so much more, but still a long way from enough. They just thought that the 360-40 was the end of the world. You see what I mean? They didn't have the slightest idea what was being done at other agencies. They never went anyplace. They never asked. I asked them.

I was over there and I was determined to turn that place around. I had a lot of friends in government so I went around and I found the 360-65. I immediately put an order in for new third-generation computer, one that would give us the capability that we needed. I had to make it self-supporting in one year. Those were my orders.

WILLIAMS: Now, you said prior to this it was not self-supporting?

DAY: It was about 80 percent, 70 or 80 percent self-supporting. I had my one year to make it self-supporting.

WILLIAMS: Where was this other money coming from?

DAY: From the sale of NTIS products and services. NTIS was charging for products and services before I came. All they did was keep raising the prices. Well, you know, there's a limit to what you can charge. I mean, there's so much elasticity in the market. In addition, I said, "We're a government agency, we have a responsibility to the people."

WILLIAMS: You were given the mandate by Commerce to make it totally self-supporting?

DAY: There would be no appropriated funds in the Commerce budget request the following year. First year we made it self-supporting. Second year we made three million dollars, which I turned back. After that we just made money, I turned it back.

WILLIAMS: How did you do this?

DAY: You turn it back, just turn it over to the Treasury.

WILLIAMS: No, I mean how did you go from 80 percent self-supporting to a surplus?

DAY: We started to make the improvements that had to be made. Still didn't make all of them. I finally just got fed up with Commerce in the end. I found a surplus IBM 360-65. I didn't <u>want</u> a 360-65 but the 360-65 would at least give me the immediate capability to go online. I knew I could get a software package for free because I knew the people at NASA so I knew where to get a software package.

WILLIAMS: They weren't using the NASA software or anything else advanced at the time?

DAY: They weren't searching their own database. They didn't even have their own database up.

WILLIAMS: Internally?

DAY: They didn't have their own database up. That's why they couldn't tell what they had.

WILLIAMS: Oh, of course.

DAY: They didn't have their own database up.

WILLIAMS: They were doing batch operations strictly?

DAY: Yes. Everything was batch. For an interim solution, I took possession of an IBM 360-65. With my own money, I hired a rigger to load the thing on the back of a big flatbed because it's huge and heavy. You need a crane. I paid for this out of my own pocket and had it moved over and put in our building. Then I called our guys in and I said, "Okay, guys, see if you can't connect it up and let's get her working tonight. Tell me about it in the morning." Well, I come in the next morning and since I had no phone calls from my computer people, it must have gone well. "Well, we couldn't get it working last night." "Why couldn't you get it working last night?" "Well, we need a three-prong plug." I said, "Well, what's the problem?" "Well, we only have a two-prong wall receptacle." [laughter] "Well, get the damn thing changed." You know, that was a mistake that I made. They call up to GSA [General Services Administration] and they tell the GSA that I want to get it changed. GSA said, "Well, you can't get it changed." They said, "Why can't we get it changed?" "Well, because we're now negotiating a new contract for the lease of the space that NTIS occupies and if you get that one thing changed then this changes everything." This is the Department of Commerce. [laughter]

[END OF TAPE, SIDE 10]

DAY: I heard about this and I was furious. I said, "Who did you talk to?" They gave me the guy's name. "Who's his supervisor? Well, give me his name." I go to the supervisor and the

supervisor says, "Well, we can't do that?" I said, "Why not?" He gives me this long song and dance, same thing all over again. Then I really got angry. I said, "Forget it. I'm sorry I asked." I should have hung up, but I said, "I'll take care of it myself." That's the way I've always done it. If something, you know, they can't do it, I'll do it myself. Well, that was a mistake. Then the GSA guy says, "You can't do that." Then I realized I made a mistake because I told him. Damn thing sat around there for twelve months and I couldn't get that computer operational for twelve months until GSA signed its contract with the owner of the NTIS building.

You want to know why I didn't leave then? Because I don't walk away from a job until I accomplish what I set out to do. I mean, I had to make it self-supporting and we had to make some improvements. We made a lot of improvements. I changed the way the journals were organized. I tightened up on all the bibliographic control. I mean, it was just slop that's all. What they did was they took the indexing of the DOD, NASA, and Energy and they merged them and out comes this index. Well, if you don't know any better, that's okay. I mean, I understand it. You don't know anything about the business, if you know something about the business you know what you're going to get. Okay. I called our people and I said, "Have you ever looked at your indexes?" "Oh, it looks great." I said, "I'm not talking about he appearance. Have you ever looked, have you ever used your indexes?" They said, "No." I called for an issue and I said, "Find me something on such and such." We spent a half-hour and they couldn't find it. See? Probably because they didn't know how to look for it.

WILLIAMS: What part of your staff were you talking to there?

DAY: We had a bibliographic controls section.

WILLIAMS: These were librarians or a variety of folks?

DAY: Mostly librarians at the time, librarian types. They had some technical background, but they had done it so bad for so long. The only indexing they would do would be those, would be for reports that came in for which we were not given the bibliographic information, including the indexing. You see, I talked to Defense, I talked to AEC, and I talked to NASA, and I got all their tapes. When they would send me their reports, they'd send me a microfiche master, and they sent me the tape.

WILLIAMS: Was this happening before you came?

DAY: They were talking about it but we got it going.

WILLIAMS: The tapes weren't coming from those three agencies before you came?

DAY: Well, you know, most of them weren't in a position where they could use the tapes. These guys weren't thinking about ever going to use the tapes. They wanted to do the whole job all over again but they didn't know how to do the job all over again. It wasn't good. We weren't doing duplicate control. I mean, sometimes we get the same reports that NASA got, and NASA got some of the same reports that DOD got, and AEC got some of the reports that all of them got. They would be cataloged differently. I asked what they were going to do about that. Well, I couldn't get any satisfactory answers.

WILLIAMS: They just processed it on through?

DAY: Process it on through. You know, it was really bad.

WILLIAMS: Yes.

DAY: We got some of that stuff cleaned up, but let me tell you, it took three years to get the new computer. At NASA, it took me only thirty days for my contractor, Doc Inc., to get a new computer. Now, perhaps, you can fully appreciate why seventeen years before, in 1961, I was so anxious to contract out the operational phases of the NASA program.

WILLIAMS: After three years?

DAY: Yes. It was three years. Then I said, "Look, we have to get people prepared for the new system. I want to start training people how to use this system. I want the training presented in such a way that they understand that this is no threat to their jobs." Okay? The guy who was in charge of all this, whom I inherited, met with all these people, after which, they sent a delegation to me and I said, "What's the problem?" "Well, we don't like the idea the computer is going to put us out business." I say, "Wait a minute. What do you mean the computer is going to put you out of business? The computer is going give you capability to do a lot more than you could do before, and do it better, with a lot less work and a lot less worry." I sat down and explained what we were going to do, how we were going to do it, and how this was going to make their jobs more responsible and all those kind of things. Then I called this other guy in and he was an old second-generation computer-type and he said, "Well, computers always put people out of jobs." I said, "That's wrong! I've justified computers on the basis of labor that it's going to save. I tell you right now, over the years it has never saved me from hiring one body." I always find out that I get all this additional capability and I need more people to be able to handle it, to do all these different things. It's just that simple. I said, "It's good for

people. You can upgrade people. You can get more responsible jobs." I said, "Those people are dead on their feet and if we can give them the right tools and the right leadership, they can do a creditable job. It will take a while for the impact to be felt fully by all our customers." When I came in, it took weeks to get many orders filled.

We cleared a lot of that up. I wouldn't raise my prices. The first month I was there I got a bill for two hundred thousand dollars from the postal department. I said, "What's this bill for?" "Well, we make an estimate a year ahead and then we make an estimate on the end as a result of what our experience has been per year and whatever the difference is we adjust." "Well, where did this two hundred thousand dollar bill come from?" "Well, our figures show—and we did this one sampling—our figures show that you owe two hundred thousand dollars." Well, I can't argue with the Postal Service. If I can't mail stuff out, I'm out of business. Well, I sit down and fight with them and they don't do anything about it. I had to pay the two hundred thousand dollars, but I tell you I set a system in right then. At the end of the year, I gave them a printout—this is what it cost us. You owe us so and so or I owe you so and so. It was always something in two figures, the lower two figures, when we made that adjustment back and forth.

We were shipping twenty-two thousand items a day. Dollar wise, with our prices one-third of what they are today, we were doing the same volume of business that NTIS is today. We were doing a lot more business transactions in those days than NTIS is doing now. It wasn't good.

WILLIAMS: It wasn't speedy, you mean?

DAY: It wasn't speedy. It wasn't good. From my standpoint, we were not adequately responsive. I asked a gal who was the librarian at the Intelligence Defense Agency, her name is Ruth Smith. I convinced her to leave IDA and to join us, and she agreed to do that. She had been in the military. She gave us four years that she could head on. I said, "Now this is the office. You don't have anything to do here. This is what I want you to do. I want you to go out and build a constituency. You have one big disadvantage, which is that we aren't providing very good service. I'll tell you right on. But the only way that we're going to get support up on the Hill is to make some of the changes that we're going to have to make over here and this is going to require funds." It's not that I didn't want to turn back the three million dollars but let me use the three million dollars to make some improvements over here. I said, "If we get the people out in the field to start writing," this is what they did at NASA. This is what they did at the National Library of Medicine. "We could do exactly the same thing. You're not doing it for NTIS. They don't care about NTIS. You're doing it for them." She went out and she organized, I think, fifty chapters out there.

WILLIAMS: The user-support groups.

DAY: We called them user-support groups and boy, did they write letters. Today NTIS gets money from the federal government to upgrade the whole operation. The problem that NTIS has today is that the man who was the director, who is very bright—may not be smart but very bright—sees the future, and I don't say this is wrong, as being in the computer end of the business. He set up Fedworld, what have you. Then he reallocates his costs to show that Fedworld is making money and everything else is losing money. [laughter] You know what happens in these situations, he's in trouble. Right now he's got to go through a major riff in order to get down to stay self-supporting. He failed to see that the individual agencies all have their own web-page market niche that only NTIS can fill.

WILLIAMS: In order to stay self-supporting?

DAY: Oh, yes. Otherwise, if he's not self-supporting he's out of business. In fact, he could go to jail.

WILLIAMS: Right. Now, sometime during your time is when the NTIS database became available.

DAY: I made NTIS available—I put in the Energy database, the report portion, and the NASA database report portion. I made it available through DIALOG or anybody else who wanted it. DIALOG was the first one to make it available.

WILLIAMS: Was income pretty good from that?

DAY: Income was very good from that. Income that first year was a million dollars.

WILLIAMS: Was that amount from just the online stuff?

DAY: Yes. It was the second highest used database they had that first year.

WILLIAMS: Well, the databases did exist or didn't exist before you came? The NTIS databases.

DAY: The database existed but it was only for batch searching. They didn't want to—and nobody had pushed making databases available. I was the first one to make databases available. I was the first one to make government software available.

WILLIAMS: NTIS is file six on DIALOG, right? It was the sixth file available on DIALOG. ERIC was the first one on DIALOG, I believe.

DAY: First government one on DIALOG.

WILLIAMS: Right, first government one, right, yes.

DAY: Well, actually NASA was the first one, except we never made it publicly available.

WILLIAMS: That's right.

DAY: It was not DIALOG, it was called RECON. NASA RECON.

WILLIAMS: Right, yes. The income from DIALOG and those other providers of these Energy and NASA databases was really going well. That's how you managed to go from the 80 percent support to turning money back?

DAY: That's exactly right. There is no question that you have to move in that particular direction, but you cannot just turn your back on what your basic mission is. You remember the basic mission was that this would be the archive for the government R&D materials. The problem that this director faces is that he's allowed himself no margin, and if he continues to do that, then he's going to be in the red because so many of those reports sell so few copies. He's now going out to get reports other than government, which I think is wrong. He's putting himself into competition with the private sector and, right now, there's no outcry because he's no threat to anybody. If he would ever get to the point where he's successful then it would be an outcry on the part of the commercial information community.

WILLIAMS: Did you run into problems with the commercial folks?

DAY: Oh, yes.

WILLIAMS: You did?

DAY: Yes, the first year that I was the director of NTIS I called the Information Industry Association [IIA] and I asked for a place to speak to the entire membership at their next annual meeting, which was within two or three months, something like that. I was going into the lion's den, and I knew it. I wasn't going to wait for them to—I was going to hit them first.

WILLIAMS: What did you tell them and what did they say?

DAY: I told them what our policies were going to be. I said, "We should be no threat to you. In fact, we're making opportunities for the private sector. The NTIS mission is important to this country. It's important that the NTIS carry out its mission successfully because it's the only instrument that can do it, and we should have an archive because federal agencies just won't keep this type of material around very long. Although most of it becomes outdated pretty fast, a certain part of it doesn't. There should be one place where one can go and get a copy. A place that would be your last resort. Look, I know what some IIA members are saying. They're saying, boom." I found out what they were saying. I said, "Let me answer this, boom." When I was finished, a couple of guys gave me a bad time, but I got a standing ovation at the end and after that I never had any problems with them, because I went out of my way to keep them involved and keep them informed.

WILLIAMS: Well, making that database available to them made sales.

DAY: I kept them informed. Whenever I would make a change, I would always tell them. In fact, because NTIS was not doing its job well, a number of private-sector groups got into the business in competition with them, selling NTIS reports.

WILLIAMS: Like Bernan [Essential Reference Publications]?

DAY: Yes. That's ridiculous. They're paying NTIS these outlandish prices to get them and they can still sell them cheaper than NTIS. Well, come on now. I mean there's something wrong in Denmark.

WILLIAMS: [laughter] Well, talk about relations between NTIS and GPO [Government Printing Office] while you were there.

DAY: When I was there they were very good. I had a very good agreement and arrangement with GPO.

WILLIAMS: Which was?

DAY: I would not compete with them. I wanted to be able to sell their stuff by buying overprint copies on selected items. Whatever we announced and bought we would always keep in print. This was a service to them. It was one of the items that we picked up some extra copies of, because I could get them at a cheap price. This was a good deal for us. They were good looking publications. I sat as the Superintendent of the Documents Advisory Committee.

WILLIAMS: What about duplication problems? That's always been an issue between NTIS and GPO.

DAY: What do you mean by duplication problems?

WILLIAMS: Cataloging some of the same items.

DAY: NTIS doesn't catalog in the classical sense.

WILLIAMS: Well, processing them through, say for things like the CIA [Central Intelligence Agency] reports.

DAY: It's a very small number. Yes. It's a very, very small number when you consider the number of type—I think they put into the system sixty thousand titles a year. I bet they don't duplicate a thousand titles. It's a small number.

WILLIAMS: The JPRS [Joint Publications Research Service] ones.

DAY: It depends on what customer group you're talking to. It depends on whom you're selling to. GPO, as far as the cataloging information, will sell primarily to librarians because that's what librarians use, especially the public librarians. I understand that. That's fine. That's not the major group that I want NTIS to sell to. We had eighteen thousand deposit accounts, most of them were businesses. Businesses are not going to go for it. Most of them don't have

libraries. You know, it doesn't bother me anymore that Defense will catalog something or index something differently than NASA will, or NLM will index something differently than BIOSIS will. They're indexing for a different audience. NLM will index medicine on the effect that a chemical has on the human organism. *Chem. Abstracts* will index that same chemical formula and the chemical properties of it. That's the way it is. There's no one best answer for everybody because we all have different frames of reference and different needs. Nobody can do everything for everybody.

WILLIAMS: You saw the central audience or customer base for NTIS to be more business and industry than you did the academic libraries? Did it bother you that GPO was distributing your central index for free as a depository item?

DAY: No.

WILLIAMS: No.

DAY: The depository libraries aren't using it much. There are something like thirteen hundred depository libraries and I've been in a lot of them. I mean, I had to find out about these depository libraries. Some are very, very good. Like the one in Detroit is excellent. That's fine, and they should do their job. They're serving the public. If they can do a better job than we can, I never had any objection to it. Most of them, I don't know where the stuff goes. Vertical files, I guess.

WILLIAMS: Well, it depends on how they handle it, but it's there.

DAY: It's there. The problem that you have is they don't have the staffs. It's not considered a top-priority item and they don't have the staff to provide distributory support. It's a real problem. Now they want to get involved with electronic databases. What the hell are they going to do with electronic databases? I mean, they're coming out of their gazoo as far as the government is concerned. What are they going to do? They can't mount them. I mean, they cannot. What are they going to do with them?

WILLIAMS: They've got a lot of them on CD ROM and clearly they come through GPO.

DAY: The ones that come through GPO, I don't have any objection to that. The ones that come through GPO for the most part don't come to NTIS.

WILLIAMS: Were you getting much pressure, when you were with NTIS, from the librarians to make the NTIS database available free?

DAY: No, absolutely not because they weren't using it. Absolutely not. You see, we were not directing our efforts toward that particular community. I don't say we shouldn't have. We had to go to the prime community that was providing us with the income in order to survive and that was business and industry. It's hard to become everything for everybody and run a self-supporting or profit-making organization. You can't do it. You can't be everything to everybody.

WILLIAMS: To speak personally, because I've been teaching a government information class and one of my really heavy units in the course was on tech reports. It was a great frustration to me that I could not get free access to the entire NTIS database to show folks how to do that. Now, after a while, DIALOG gave library schools free access to the DIALOG databases.

DAY: Well, then that was stupid on the part of the director of NTIS. I would have made them available.

WILLIAMS: Available.

DAY: Students are potential future customers. It's that simple. I always believed in giving things to universities to kind of hook universities, and especially the students—NLM has done this for years. You can't go into a medical school where the students don't know how to use MEDLINE. All doctors who graduated in the last five to ten years know how to use MEDLINE. They use MEDLINE. The older doctors are more reluctant to use MEDLINE.

WILLIAMS: Yes, well, finally DIALOG ended up doing a free account or limited account.

DAY: The good will that's engendered by doing that is more than offset by their day to day costs.

WILLIAMS: Right.

DAY: Well, that's good business. That's all.

WILLIAMS: Yes.

DAY: Yes. I'm sorry, but you should have come and talked to me.

WILLIAMS: [laughter] I should have known you at that time. Yes.

DAY: Well, we probably would have done something special because I see that as an opportunity.

WILLIAMS: Well, when did you go online, internally and then externally? Externally, you were always for the NTIS database.

DAY: The NTIS database is still not available online at NTIS.

WILLIAMS: It isn't internally available?

DAY: Right! You can't run a search at NTIS on their database.

WILLIAMS: You have to go into DIALOG?

DAY: You have to go to DIALOG.

WILLIAMS: [laughter]

DAY: Crazy. I'm telling you, it's crazy. My first problem was to get everything in the warehouse under control. The second problem was to get those order desks under control. Making sure that the workers at the desk were not only properly trained but also had the tools with which to do their job and would treat a customer as a customer should be treated, or a potential customer as a customer should be treated. Not as just somebody bothering a government office, if you pardon the expression. When you call a government office, what happens? You get one, two, three, four, five, six, seven, numbers you can push. You push them and you get another one, two, three, four, five, six, seven, then you finally get one that looks like the one you really want and you push it and you get voice mail. That's the government. That's the government's attitude. That's why I say that the people at NTIS have to think like private-

sector people in terms of providing service, rather than as government people. Government people generally just don't think in terms of providing service.

WILLIAMS: Even though it was a cost recovery operation where you should have thought that way?

DAY: Most of those NTIS employees did not start at NTIS. They came from other government agencies. This is the problem that you run into. It's an attitudinal problem. When NTIS went on flex-time, I was against flex-time, because I think that in many cases it's too wasteful. There are certain jobs that can be flex-time. I don't have any objection to that. If your job is taking sales orders, what good does it do to come in at seven o'clock in the morning? Who's going to order a document at seven o'clock in the morning? Nobody. This application of flex-time doesn't make sense. I've come into offices there where the people have been sitting there at 8:15 am. Our office hours start 8:30 am. The telephones would ring and that could only be telephone calls from customers to place orders. They wouldn't answer telephone calls until 8:30 am.

WILLIAMS: So much for service mentality.

DAY: That's what I mean. You know. If you're in a crisis and you can't answer the phone, I understand that. If you're just sitting there drinking a cup of coffee, answer the damn telephone. You're going to have to answer them later on anyway if they call back. If they do call back. They may not even call back. It's an attitudinal problem. It's a basic problem that I think that the present director has now. I'm not being critical of him, but I do think it's a serious problem. It's something that involves the director spending a lot of time with his staff and transferring to them the enthusiasm that he has for providing service. Where he can get these people committed. If the staff thinks that way, they're going to think of additional ways of satisfying the customer that we never even thought of. There's just no question about that.

WILLIAMS: Now, during your time at NTIS, were there some of the original discussions about privatization of NTIS afloat?

DAY: Just at the end, but they really weren't talking about privatization. The librarians called it privatization. They were not talking privatization. When I was there, they were talking about contracting out the operation with the government in total control, providing overall direction. The government provided the funding, set the policies, and provided all the specifications for the NTIS products, services, and processing tools.

WILLIAMS: Contracting it out. Not selling it?

DAY: Yes! It is the same thing that I did at NASA. We got the best-qualified contractor. We negotiated the best price and we got the most effective equipment because the contractor could do things that I couldn't. The contractor moved speedily in hiring and training staff, in obtaining and leasing operating space, and in procuring equipment. It was a highly successful partnership arrangement between the government and the private sector. The NASA operating facility was operational in thirty days, providing services and products. The contractor was Documentation Inc. and its president was Mort Taube. I always built my contracts so they had an incentive fee in them. It was a basic fee, usually 3 percent, maybe sometimes 4 percent. Plus an incentive fee. The incentive fee was based on ideas that they would bring in and how they'd beat our schedules and processing costs.

WILLIAMS: Where do you stand on genuine privatization now?

DAY: I am against, really, privatizing NTIS. It's a national resource that belongs to the American people. You can't give a national resource away.

WILLIAMS: Do you think that contracting out could be the best of both worlds?

DAY: For NTIS at this time, it would be the best solution if the government officials responsible for overseeing and directing the NTIS program really knew the information business and could provide the right kind of program leadership.

As you may have heard, the director of NTIS has proposed that NTIS be set up as a quasi-government organization having all of the advantages of both a government organization and a private-sector organization and, at the same time, having none of the disadvantages of either. The U.S. Postal Service is an example. A cost to the NTIS customers that they may not perceive is the loss of important leverage that they currently have in pressuring NTIS management to improve its services, to charge reasonable prices, and to be more responsive to its customers.

Most NTIS customers do not realize how much leverage they have today. All that a dissatisfied user has to do is to tell his Congressman. It's that simple. He can use Congress as leverage. Let me tell you, even a freshman Congressman today has power to pressure NTIS and Congressmen who have been there a long time have power to apply mega-pressure at the highest levels. They go right to the Secretary of Commerce or higher.

WILLIAMS: Call the Secretary of Commerce?

DAY: Right. If dissatisfied customers call the Secretary, they get attention. NTIS' proposal there now is part of the Vice-President's reinventing government program.

[END OF TAPE, SIDE 11]

DAY: Under his proposal, he would not be limited by government-hiring salaries. He could award bonuses. His bonus would be limited only by the requirement that his entire annual income not exceed that of the President of the United States. [laughter]

WILLIAMS: You agree with [Albert] Gore's proposal then?

DAY: No! William Knox, who was NTIS director in the 1970s, made the same proposal to the Secretary of Commerce, who turned it down. There are a number of complicated issues involved here, which I would be happy to discuss at another time.

WILLIAMS: [laughter] Well, it will be interesting. Before we leave NTIS, I just want to get your reaction to those various efforts to centralize. Let me just quote, Saul Herner in his article (5) says that Mel Day should be recognized for the "building of a national integrated information clearinghouse." Do you remember that article, *Brief History of Information Science*, which Herner did back in 1984?

DAY: I don't remember very much about it, no.

WILLIAMS: That's what he says about you as one of the pioneers of information science. I thought that he was talking about NTIS and your work there. Then I began to think it sounds more like he was talking about the work at NASA.

DAY: Well, yes. I do believe that he was talking about my setting up directly the comprehensive NASA information program in the 1960s. I had one big advantage over most people in that I was able to develop the type of working relationships with the other federal agencies that I don't think anybody has done since. I made it a point of doing that and I could get other agencies to do things then that they're less willing to do now.

The NASA scientific and technical information program became the leader. Working closely with the directors of the DOD, AEC, and NTIS programs, they closely coordinated these

four major information programs so that the output of any of these programs could be easily integrated with minimum processing as input into each of the other three programs. They standardized formats, adopted a federal standard for microfiche, and shared their technical know-how.

WILLIAMS: That's what my main question is. Since 1945 there have been all these efforts to put together that entire scientific technical information system. We've never quite managed it.

DAY: No, well, you can't manage it. The problem you have is that each individual agency and department has its own authorization legislation. They all have something in it that concerns information and they're all interpreted in the way that the secretary or the head of the agency wants to interpret it. In most cases, the head of the agency could care less about information. [laughter] I mean, he's got a myriad of problems and this is not exactly at the top of the list.

WILLIAMS: I see. Integration and cooperation concerns take a lower priority?

DAY: Well, he doesn't worry about the other agencies. He will agree to his group participating if he can see the advantage is going to accrue to his program. Look, I don't care whether it's a government or private-sector organization, you can't convince management, top management, to cooperate unless they can see some advantage accruing to them or their organization.

WILLIAMS: Those things were never there enough to get beyond the bare minimum in terms of cooperation?

DAY: We got some of this accomplished through, COSATI mechanism. The COSATI mechanism was very effective in pulling together all of the Federal agency STINFO [Scientific Technical Information Office] programs. We had too many working group involved. COSATI became a heavy burden for some of the agencies, too. Then, of course, when COSATI was transferred out of the White House, this action had a major impact on the top-level government.

WILLIAMS: Why didn't NTIS become this centralized coordinating agency?

DAY: Well, because their mission is different and they were a follower of information programs rather than a leader. The output of NASA, AEC, and DOD became the major input into NTIS and there was no need for NTIS to do any reprocessing. This, in effect, resulted in a 60 percent reduction in processing costs for NTIS. Frankly, NTIS did not have the quality of

technical staff that existed in the other three agencies. I would be happy to expand in detail on this.

WILLIAMS: Is there any other reason?

DAY: Yes. These other agencies are completely funded. Their job is to provide whatever is necessary for their own facilities, their own staff, the agency staff, their contractors, and so on. It's all funded, and making a big difference.

WILLIAMS: Whereas NTIS had to do cost recovery.

DAY: That's the difference. Do you see now the difference between NTIS and NLM? NLM doesn't have that problem. All NLM has to do is to go to Congress and they say, "Look what we can do for the American people. This is how we can improve." Well, Congress says, "Well, here's more money, do it." NLM doesn't have to raise its prices. They just go out and do it, period. That's how the budget went from forty-five million dollars in 1978 to a hundred seventy-five million dollars in 1998, about twenty years. NLM produced the world's leading medical information program and its products and services are unequaled. Today, it stands head and shoulders above any other Federal scientific and technical information program.

WILLIAMS: NTIS never had that kind of advantage?

DAY: NTIS had an advantage when it was first set up because it was just after the end of World War II. It was set up primarily with captured German and Japanese documents to start. The early management of NTIS knew very little about the information business. You'll find much of NTIS' early holdings over at the Library of Congress. Don't ask LC to find them because they don't have any effective indexes to them. [laughter] That's another problem. Let me tell you what bothers me. During the Iran crisis, President Carter proposed spending billions of dollars to develop alternative methods of producing fuel. We spent billions. We had a number of demonstration projects and they produced all kinds of documents and reports on this subject. You can't find that stuff today.

WILLIAMS: I thought it would have come into NTIS through DOE [Department of Energy].

DAY: Sure. Some of it did come in. A lot of it didn't come in. The companies that were the contractors are no longer working on that problem. You can't find the stuff. This is what the American public paid for. There ought to be some place where you can go to get it. Even

though we don't need that technology today. We may need it five years from now. By next year. Who knows? We'll start all over again.

WILLIAMS: The compulsion, I guess, would be for a DOE contract. If DOE doesn't get the report, you don't get it. They're the front line.

DAY: You are right! What I'm saying is that NTIS is completely dependent upon the ability of the contracting agencies to get the material for them. If they don't get the reports at that time, NTIS will not get them to make them available to the public. It's a weakness in the system.

WILLIAMS: Yes. Oh, definitely. Because I'm trying to teach folks how to use this system and explain it, you can understand my trying to sort it all out. It's a great frustration.

DAY: The Book of Knowledge, it has some value. You don't throw it out.

WILLIAMS: Yes, and particularly when you paid big bucks for it.

DAY: The taxpayer paid big bucks for that research.

WILLIAMS: Well, let's talk about national information policy. You said in an article—I believe about 1979 (6)—you mention the Rockefeller report (7).

DAY: The Rockefeller report was a very good report.

WILLIAMS: Was that as close as we ever came to—if we had implemented the Rockefeller report, would we have had what would have satisfied you in terms of a national information policy?

DAY: No, not completely. The Rockefeller report was workable and would start us on that road. I mean, you're not going to get it in one step. Success is built on success. All I'm saying is that if we had been successful with that particular report, implementing all those recommendations, then we'd have been well along the road. There's just no question about it. It was a very good report. Andrew Aines had major input into that report.

WILLIAMS: You said in your 1978 article that you had hoped that there would have been some follow-through by the Carter administration—I gather all that initiative was lost?

DAY: Well, this is what happens with politicians. I went down to the ASIS annual meeting in Atlanta when the key speaker was Governor Carter. This was just before he ran for president. He told about how important information was and so on. Then he got elected president, which is kind of a fluke, but that's another subject. He was elected president and he was a very hard working president. He has raised his stature so much more since he's left the presidency than when he was in the presidency. He brought in a group of Georgians who were well meaning, but didn't know the first thing about how to operate in Washington.

President Carter micro-managed and tried to do everything himself. I mean, he's bright as a dime and as well meaning as they come. I have friends who would write staff papers for the top officials of their agencies and get back comments from the president in his own handwriting on those papers. Come on. [laughter] You know, dozens of these staff reports are being generated all the time. President Carter would read those things. His comments were well done. The problem he had is he didn't have the help around him to implement the good ideas. His party was the majority party in the House and the Senate and he still couldn't get a damn thing done because he didn't know how to operate in Washington. It was really a sad deal.

WILLIAMS: I was a fan of Carter in most ways, but it is too bad, yes.

DAY: It's too bad.

WILLIAMS: Yes. You still have hopes for a national information policy? Do you think it will ever happen? Or are we just too diffuse in terms of the social system?

DAY: We already do have national information policies. We don't have a national information policy. If you want to have a national information policy, it's going to be so general that it isn't going to mean much to anybody.

WILLIAMS: You'll still have to come back to these places.

DAY: I don't think that there's any question that as time goes on, we'll be required to have an organized, integrated set of national information policies, but it will be an evolving thing. I do not believe in revolution. I only believe in evolution. [laughter] That's the way things work.

You build on success. You get one codified and accepted, and then go on to the next, the next, and eventually you can get all things under control.

WILLIAMS: Let's talk about ASIS. When was your term as president?

DAY: 1975-1976. We were there during the bicentennial.

WILLIAMS: Yes. How did you get nominated?

DAY: Don't ask me. I don't know. I was nominated. Actually, I was the incoming president the year before.

WILLIAMS: Right.

DAY: I know a lot of people. I've lectured all over the country and I used to do some writing. As an operating official, I didn't have time to write, so I didn't do as much writing, but I used to give talks often.

WILLIAMS: Right. You held a lot of different positions within ASIS, too, and committees and those kinds of things.

DAY: Oh, yes. I don't believe in belonging to an organization unless you're going to participate. I don't participate much now. I lost patience with the organization.

WILLIAMS: Really? Why?

DAY: Well, because ASIS' big problem was that it didn't know what it was. I can remember when there was a big talk about whether ASIS and SLA ought to combine.

WILLIAMS: Were you in favor of that merger?

DAY: I thought it would be too restrictive on ASIS. I had no problem with the merger. All I'm saying is that it would have needed to grow beyond being a library association, as far as I was

concerned. Let me explain what I mean. SLA has got a good executive director. They have good programs and it's a good professional library organization.

WILLIAMS: Now, you mean.

DAY: SLA and ASIS, when I was president, had the same number of members. SLA now has almost four times as many members as ASIS has. We're in the information age, with all this that's going on, and we still think organizationally as we did twenty-five years ago. All I'm saying is that the tool that propelled the information field is the computer. Most of us, if we were still doing things manually, would be a lot further behind than we are now. All I'm saying is that when the computer had its advent, we were very slow to change. What do you define as the information community? People who know how to manipulate information? People who are communicating? What's the information community? This is what I said. ASIS didn't know what it was. All I'm saying is that with a field that has grown from millions to billions—

WILLIAMS: In dollars.

DAY: Yes, in dollars. ASIS is smaller now than it was in 1976, twenty years ago. If I had time today, if I were younger, and I had the energy that I had twenty years ago, I'd raise hell. At my age, nobody wants to listen to the old guys anymore. I don't do it anymore. I just keep quiet. The young guys, it's their watch, and what we have is what they want to do. I'm there if they want to ask questions. I'm there to help if they ask me. If they don't, I keep quiet. They're really not going to listen anyway.

WILLIAMS: What about in that twenty-year period prior to when you became president? Did you see the same kinds of problems?

DAY: No, because we really didn't have a clear concept of what was happening. We didn't have the organized infrastructure, low-cost PCs [personal computers], and telecommunications systems that exist today. I mean, remember, when I became president in the 1970s, we just had the third-generation mainframe computer and the initial low-cost online communications networks. From the general availability standpoint, we were really just starting then. The first thing I tried to do was to get the term for president extended to two years. In one year, a president can't do much. You need a lot of help along the way. It helps if you can get a president who comes from an organization that has resources, because it takes resources. If he can't do it, then hopefully the president can get people to do certain things and get him what he needs in order to get things moving. The president has to be the leader and has to be an instigator to get people moving. What I'm saying here is that in the two-year period, he's got twice the opportunity for accomplishment that he has in a one-year period. That's all I'm

saying. More than twice the opportunity. By the end of six months, people know who the president is, and they're usually comfortable with her or him. The committees are optional. For a one-year presidential term, at the end of six months, the committees will all be out of business in another six months, period. Then we start all over again.

WILLIAMS: A new president comes along.

DAY: The new president comes along and maybe doesn't think quite the same way. I'm not going to say that's bad. All I'm saying is that the field has changed and we haven't changed enough with it.

WILLIAMS: Who turned down your idea to have two-year terms? The board?

DAY: Yes. I recommended that it start with the next president, not with me. I'd have been happy to work for two years for that next president. I told them that. I'll work for two years. I will help the president for two years, but he needs two years. They turned it down. I think any of these organizations, if the president is going to have an impact, the term has got to be at least two years. You need two to three years. Otherwise you don't have any impact. No impact at all. I mean, the next annual meeting is somebody else. You need somebody who can lead and somebody who can get people excited. There's a lot to get people excited about.

Now, the problem that you have is that many of the members feel that if we expand and start expanding, where do you draw the limit? That's a problem. You can't do everything. You can't bring everybody in. First of all, they don't want to come in. You've got to start someplace. It certainly should be beyond where we are now. Or maybe it's those computer guys that are working in information organizations. You have to have something in meetings that's going to appeal to these guys. It isn't just opening up membership. It's a matter of having programs that will appeal to these different types. We're not doing that right now.

WILLIAMS: You think ASIS still basically doesn't know what it wants to be?

DAY: Yes, as far as the leadership of ASIS, I think ASIS knows that it wants to be what it is.

WILLIAMS: Small, elite group. Closed. Not closed, but self-contained anyway.

DAY: I read *JASIS [Journal of the American Society for Information Science]*. You know, if I'm an R&D type, it's good. If I'm not an R&D type, I don't find much there to read. If it

weren't a compulsory part of the membership fee, it wouldn't be in print. If it didn't become part of every agency—of every membership that they're paying for. You know, we all pay for *JASIS*, otherwise, it wouldn't survive financially.

WILLIAMS: Do you think it needs more practical kinds of articles?

DAY: I would like to see more practical kinds of articles that are going to appeal, in many cases, to many more of the information professionals who are not now part of ASIS membership.

WILLIAMS: Descriptions of system implementations and projects and that kind of thing?

DAY: That's the payoff, although the R&D type of article currently featured in *JASIS* is also critically important.

WILLIAMS: Of course, the *ASIS Bulletin* is supposed to do that.

DAY: It doesn't do it. Not only that, the guy that has to spend the time and the work to put together the kind of article you want for that journal and has to put a lot of work into it is not what you put into the *ASIS Bulletin*.

WILLIAMS: Now, you mentioned about ASIS and its practically bankrupt days. I think you said you wrote some checks out of your own checkbook to cover things.

DAY: Oh, yes. I've got those checks. The total ran into thousands of dollars.

WILLIAMS: This was when you were president or earlier?

DAY: Yes, this near disaster came to light when I asked to see the ASIS financial records after I assumed the office of president. I took over the presidency from Dale Baker, who was kept completely in the dark by those responsible for maintaining the financial records. Dale had no way of knowing that the records were being manipulated to give a positive picture. Dale is a "cracker-jack" manager, but he was being duped.

WILLIAMS: I think Dale was actually two years before you, but I'm not certain.

DAY: Who was before me, though?

WILLIAMS: Gosh, I don't know. I could look it up in my directory.

DAY: Okay, don't worry about it. It's not important. The meeting was up in Boston. I'm sure it was Dale.

WILLIAMS: I think you're right.

DAY: It was Dale. At this meeting, I went to this meeting, and we were only a small group, and for every little subgroup, we had breakfasts, a big cocktail party that the president had, and he had people up to his suite and free drinks and what have you and so forth. I said to the executive director, "How are we covering all these costs?" "Oh, there's nothing to worry about." When I became president I asked to see the books. When you looked at the books, you couldn't tell because it looked all right if one just looked at the bottom line. I couldn't find all the costs. In fact, initially, I wasn't looking for all the costs. I was just looking at bottom lines. I came to find out that we had a CPA taking care of our books. When I asked for, and was finally provided with, an item-by-item accounting of <u>all</u> bills, I found that we were only selectively posting certain bills. We were actually bankrupt. It's just that simple. We had spent more money than we had. Well, for a professional society in that situation to go out and borrow money, forget it. You know that no bank will even let you sit down in the chair to ask for money, never mind give you the money. We borrowed money from friends and relatives. I made out personal checks to ASIS until we finally got ourselves back so at least we could pay our bills. Peggy [Margaret] Fisher, who came after me as incoming president, was a great source of strength for all of us. In my eyes, she will always be eight-feet tall.

WILLIAMS: Now, the NSF grant came right along this time also, right?

DAY: Yes, we tapped all possible sources for funding, including friends and relatives, and we proposed and were awarded an NSF grant in connection with the bicentennial. We didn't get it for anything else. We had a good bicentennial program and Robert [L.] Chartrand (Library of Congress) deserves much of the credit for the entire program: its content, the speakers, and the program promotion. We even had the Vice President of our nation [Nelson A. Rockefeller] give the keynote address. Those were heady days.

WILLIAMS: You mentioned in the ALA yearbook (8) the NSF grant to study research and development planning requirements and priorities of scientific and technical information communities.

DAY: Where did that come from?

WILLIAMS: It came from NSF.

DAY: To whom?

WILLIAMS: To ASIS. In your ALA yearbook article that you did. I think you did that the year you were president or the year before.

DAY: I don't even recall that.

WILLIAMS: Yes. I meant to look that up to see. You don't remember? I'll have to check that out.

DAY: Gee, it must have been a blazing success.

WILLIAMS: [laughter]

DAY: All I can think of in that particular situation is that in 1976 NSF must have—

WILLIAMS: They gave some money for just operational support and for doing a special meeting. I'd have to look at my notes.

DAY: In 1976?

WILLIAMS: I don't remember.

DAY: Well, it may be. I'll tell you, in those days I was scrounging to get any kind of money that we could. I just don't remember at this instant all the specific details.

WILLIAMS: Yes. I can't remember. Well, we can go on and I'll double check it and try to put it in.

DAY: Okay. Just tell me and I'll see what I can do.

WILLIAMS: I wanted to talk about ASIS. Now, let's go back. You retired in 1982.

DAY: Yes, February 1982, I retired from the federal government.

WILLIAMS: Had you had enough? Or was that your number of years in?

DAY: Oh, I had more than enough years. I had pretty close to forty years of government services, including my military service. Trying to get things done in the Department of Commerce was difficult. I had a lot of things that I wanted to do. I was trying to run a business and earn a profit that would be sent to the Treasury. We did not use it for our operations. At that time, I had no formal business training. If I only knew then what I know today. I've been in business now for fifteen years; I've worked for large corporations. I know how to run a business today, and I can do things today that I couldn't do back then. I grew up in the information business. I literally worked in that field since 1946, and every day was a real learning experience. No matter how bright you are, there is no substitute for hands-on experience. I mean, it's just like I learned the information business. I know how to run a business.

WILLIAMS: How did you choose to go with the Thyssen-Bournemisza Information Technology Group?

DAY: I never had to look for a job. I am being immodest, but in those days, everybody came after me.

WILLIAMS: They knew you were retiring?

DAY: The man who hired me was Ron Quake, who was the group president of the Information Technology Group.

WILLIAMS: You had worked with him someplace else?

DAY: Ron Quake was the guy who ran a large computer center at SUNY and provided online access to a small number of bibliographic databases in scientific fields. Then when the state of New York wouldn't procure for his center a new computer, because he needed more capacity, he left and took the top technical people. He went to each of the universities that was a SUNY customer and got a contingency contract with them, contingent upon him having an operational computer center. They agreed to procure online services from him. On the basis of that, banks lent him money for center operations. Then he went to the Carrier Corporation up in Albany. They had two 365s. One of them was idle. He got cheap time on that extra computer and he set up his online system, which is essentially what he had at SUNY. With that capacity in hand, he then went to the bank that in turn provided sufficient operational funds for his center, which he named BRS. I believe that BRS was an acronym for Bibliographic Retrieval Services. His operation was a success and then Thyssen-Bournemisza bought BRS for its Information Technology Group.

WILLIAMS: Oh, I see.

DAY: They bought BRS (Albany, New York). They bought Predicast (Cleveland, Ohio). They bought IHS [Information Handling Services] (Denver, Colorado). All three of them were making money.

WILLIAMS: That's why I didn't recognize that name. I didn't associate them with BRS.

DAY: BRS.

WILLIAMS: I learned to search on BRS.

DAY: Then you know the system. Ron Quake developed that particular system. He liked what he had seen me accomplish at NASA, at NLM, and at NTIS, and he thought that I might be able to help him. When he became president of the Information Technology Group, he brought me in as a group vice president.

WILLIAMS: What did you do?

DAY: I was in charge of new product development.

WILLIAMS: What systems? What were the new products?

[END OF TAPE, SIDE 12]

WILLIAMS: We were talking about the Information Technology Group.

DAY: Yes. Ron Quake was the president. I had a good relationship with Ron. Ron never would put anything in writing, neither to his boss, nor anybody else. He just didn't do it. I mean he always ran his business out of his back pocket. You can't run a corporation that way. I think he probably had some words with his management. He didn't stay terribly long, but he was there long enough for me to get something started. The first thing I did was to go around to each of our companies and find out what products they had under development. I came back and recommended that a good part of them be dropped. I was then advised at that particular point that I didn't understand how the system worked, so I learned something.

WILLIAMS: Oh, yes?

DAY: Yes. The Information Technology Group was a three-billion-dollar corporation. It was a big corporation. They did not expense product development. They capitalized all product development. They may spread it over ten years. If it cost a million dollars over ten years, then each year you only have to expense a hundred thousand dollars. Then hopefully at the end of ten years you had a product that would then start bringing in some money. Well, the first thing I found out was that every manager's bonus is dependent on what happens underneath them. My boss' bonus depended upon my bonus and his boss' bonus depended on his bonus. If his guy didn't, if Ron didn't get a bonus, then the guy to whom he reported didn't get a bonus. Okay? That's the way it worked. If we wiped out any of these product developments, a number of them, that means that the money that had been spent on them, but had not yet been charged would then have to go to the bottom line as an expense that year. That would have a significant negative effect on profits and then on bonuses. [laughter] They all continued under development, I am sorry to say.

WILLIAMS: Even though it didn't make sense in your view?

DAY: Didn't make a bit of sense. Since I like development work, I started a small development project in my office with one part-time individual so that I could be personally involved on a daily basis. We developed the system and software using a Sun PC. This was in the 1982-1983 period, so that's more than fifteen years ago. We built the system for the use of interior decorators, furniture companies, and large department stores working on interior design with individual customers or groups of customers. The database was made up of five integrated sections with online interactive capability for searching and retrieval. The sections included: furniture; accessories, such as lamps and paintings; rugs; wall coverings (wallpaper); and drapes. Each item in these five sections was a high-quality color image and with each item was a complete description, plus information on the manufacturer, purchase price, number in stock, and special order data. The system itself we designed and test-marketed with a number of groups in the Washington area, and they were delighted with it. Our headquarters office was in New York, and Ron Quake and his boss in New York liked what we were doing. They arranged to have a demonstration before the president of Burlington Mills and his staff. Burlington was the largest U.S. manufacturer of rugs. Their entire line of rugs was in our database. The Burlington president watched our demo and offered my boss' boss three million dollars for the system the way it stood. It only cost us a few thousand dollars to develop this system. My boss said to himself, "If this thing is worth three million dollars to him, it must be worth a hell of a lot more to us." [laughter] He was really excited about this system. He asked me to transfer the project to New York and said, "We will now see if we can't get customers here in the New York area." We had talked to furniture and rug manufacturers, and all these people wanted to get their products into the database. You can charge them to put their stuff in there. It's a no lose situation. You can charge the companies who use it. It's a win, win situation.

I don't know what happened to it because I was now out of the loop at that point. My job was to develop products. They gave it to somebody else in New York to sell. I knew the guy, I didn't know him very well, but I do know that he was an accountant. He liked to sell stuff. I don't know what happened after that. The project died. They had a system worth three million dollars, and it died. Our total cost was a part-time programmer, the project's equipment, and a little travel. In those days, I would be surprised if we spent more than thirty thousand to forty thousand dollars, at the most.

WILLIAMS: It disappeared?

DAY: Disappeared.

WILLIAMS: Now, why did you leave this group and go with Research Publications [a Thompson Company]?

DAY: Shortly after that, Ron Quake left and a new guy came in and I had no trouble with the new guy but Bob [Robert] Anderson, a high official in the Thompson Company, had been talking to me and so I decided I would go with a Thompson company, so I left.

WILLIAMS: You were only with Research Publications for a short time, is that right?

DAY: Two years. I'd say two years. Remember, part of my reason for going with these corporations was to learn. I learned about all I wanted to learn from the Information Technology Group. [laughter]

WILLIAMS: Oh, yes?

DAY: The people that made the decisions that I inherited were still there. I mean, you know, I was going to run into the same thing no matter what happened.

WILLIAMS: What did you learn at Research Publications?

DAY: I learned more about how big business operates.

WILLIAMS: They were a much larger group, or a larger group certainly than Saul Herner, where you went next?

DAY: Oh, yes.

WILLIAMS: Oh, I thought you went to Research Publications.

DAY: Research Publications was a Thompson Company, I went to Saul last. Then I decided I wanted to go to a small company. I've known Saul for years and Saul made a major contribution and I thought maybe I could help him. I did a lot of traveling on these other jobs. Thompson was a completely different operating philosophy. Thompson did not believe in developing anything. Most large corporations say, "Look, if the little guy wants to beat his head on the wall and go ahead and develop, well, that's fine."

WILLIAM: We'll buy it from you.

DAY: Then we'll buy it from you. That's exactly what happens. They weren't the least bit interested in computerizing. Research Publications was big in the patent business and their excellent U.S patent collection was on microfilm, from which they would reproduce copies. Well, let me tell you, when the PCs became readily available, it became obvious that the patent collection should be put into machine-readable form. The electronic database was the future. You didn't have to be a genius to figure that one out.

WILLIAMS: Yes, right.

DAY: At that time, they just didn't want to do anything like that. Somebody else has done it and has captured a good part of the Research Publications market in the patent area.

WILLIAMS: What was it like working for Herner and Company?

DAY: Herner and Company was different. I wasn't developing anything for Herner and Company. I ran contracts for him. I was a manager. I knew the government. I knew a lot of people in the government. I had the right credentials and a pretty good reputation. I know how to write proposals. I hate writing them, but I know how to write them. I've been on the other side and I know what they're looking for, so it made it easy. I knew exactly how to target proposals. Saul left me alone. I did my own thing.

WILLIAMS: You managed the contracts that they had gotten?

DAY: I managed a number of them that were in my area. Saul was very good about it. He said, "If you want to do consulting, that's okay." I still had a couple of things I kept going. I had some consulting contracts. I stayed there for a while and I was consulting for a company that was getting involved with electronic imaging. I didn't know anything about electronic imaging but I wanted to learn. I found an opportunity. They made me the executive vice president and I learned.

WILLIAMS: This is with which corporation?

DAY: BIIS Corporation.

WILLIAMS: Right, BIIS.

DAY: I learned. It was a small company. I think it could have been successful. We had some good ideas.

WILLIAMS: It didn't make it?

DAY: No, we didn't make it because at the Board level there was a big argument about operating philosophy. The Board was where the funding and support came from. Finally, the guy who had been providing most of the funding support said, "Look, I've got something else that I can invest my money in." That was the end of that. He wrote it off. Then I became involved in telecommunications. I like to learn.

WILLIAMS: What's the name of that company?

DAY: GlobeNet.

WILLIAMS: GlobeNnet, right.

DAY: GlobeNet is not for publications. At GlobeNet, we worked for three years and I worked for no salary, no nothing. I paid bills out of my pocket. I was a part owner. We wanted to go international. We said, "Let's not do anything in the U.S. We can't compete with the big guys," which was right. The big companies have trouble overseas because most small countries don't trust them. Trust is important; many small countries have been fleeced before. American large corporations are very difficult to deal with. "This is the way it is. Take or leave it." That's the way so many of them think. It's stupid, but that's the way they deal. The big corporations are independent enough and making so damn much money that they don't have to do anything any differently. For example, in the telecommunication business, I would think AT&T would have a damn good reputation. Well, it does have a good technical reputation, but many developing countries steer away from AT&T. Why? I am told that when AT&T develops new equipment and puts it into operation in the U.S., what's it going to do with its old equipment? Much of it gets installed in the smaller developing countries. While many of the local operators of telecommunications systems and networks in developing countries do not have the same high level of technical background as those in AT&T. It isn't that the old equipment won't work. It will work. They pay to get the best and they don't get the best. They get cast offs, and they resent that.

We proposed to organize and set up a consortium, as a second carrier in Latin America. We planned to use digital networks; it was also called cellular. We were successful in lining up financial support from New York investment bankers. Getting money support for this was easy, provided we could put together a consortium, which we worked two years to do.

WILLIAMS: A consortium of Latin American telephone companies?

DAY: A consortium of Latin American telephone companies that would do this with us. They would merge under the GlobeNet name. Most of them were second telecommunications carriers. Neither primary carriers, nor the secondary carriers, had the capital to expand beyond where they were. Most of the countries down there don't have any money to expand. The way they attract capital is to license and open up their markets, provide frequencies and what have you. We had that offered. We identified and located companies—these Latin American companies—that were making money, had licenses, and had a large customer base. We sold them our plan, in half a dozen countries. We sold them on agreeing to sell their stock to a new company that would be a consortium of all these companies and they would have stock in this large company. They would get capital to expand in their countries. It took a hell of a selling job to do this because the Latins really don't trust Americans. With Canadians it's a lot easier, because Canadians are no threat to them. Americans have fleeced them in the past. We had oral agreements, we had written agreements; companies would do it. We had Oppenheimer [Funds] up in New York agree to fund and to raise the money and they claimed they already had the money. With their record, they go out to two or three people and they get the money. We were talking initially about raising about thirty million dollars. The second, which would be a few months later, another seventy-eight million dollars and the third would be about three hundred million dollars. This is big business. For us, we would only need a little piece of a big thing. You know, I worked for government. I never made any money. I sunk everything that I had into this thing. The final ceremonial signing agreement was in our Alexandria [Virginia] offices.

WILLIAMS: Now, who was down in Latin America doing the selling?

DAY: We were selling ourselves. We would go down. I served as the Executive Vice President. My job was overseeing everything. I didn't want to travel. I mean, I had had my share of traveling. I let young guys do most of this. The big meetings we would have in Washington. We had all these people agreeable to come. They'd come to sign the contract to set up this new company (GlobeNet). The agreements, all the sub agreements that we had that would show their stock. Everything was set up. We spent two million dollars in just Washington legal fees. I'm not talking about the legal fees we had in Latin America. Let me tell you, you can't do any business down there unless you get a local lawyer. We spent a lot of money. Everything I owned I threw into this deal. I don't want any of this material to be public.

WILLIAMS: Do you not want me to tape this?

DAY: Well, you can tape it for your eyes only. I'm not going to let you do anything with this material.

WILLIAMS: All right.

DAY: Everything I owned we put into this undertaking. I went into debt, because we were so close to success. I mean, you get to the point of no return. I couldn't pull out because it looked like it was a "go." There's just no question about it, okay? We get all these people here to sign. We get the money people to sign. We're ready to go. All of us would have had good jobs. All of us would have been paid back what we had already put into the business. All of us would have had a share. It was worth millions, okay? The president of our company, who was the largest shareholder in our company, gets up at the meeting and tells about how wonderful this thing is. It was a good talk. Then, like a bolt out of the blue, he said that because of his contribution he wants to modify the agreement so that he could get a little bit more. The Latins just walked out and that was the end of that.

WILLIAMS: He wanted to change it at the last minute?

DAY: Greed. This guy would have become a multi-multi-millionaire because of his numbers of shares of stock that he had. He wanted more. To the Latins, it had happened to them before, they turned around and they walked out. We tried for four months to get them back in. Couldn't get them back. Oppenheimer said, "You get them in to sign. We have the money." Couldn't get them back in. Somebody's going to do it. Somebody's going to make it go.

WILLIAMS: You lost a bundle of money then?

DAY: You know, it was a good try. I did it primarily for my kids and my wife. I said, "Gee, I'd like to leave something for all of them." I have a wonderful family and each one of them is my pride and joy.

WILLIAMS: Not easy to manage.

DAY: No, I wasn't making it. I borrowed on everything that I had. I borrowed on my life insurance and paid all that back. Then I poured it into this and I kind of came up with not very much. It was an experience. I learned the telecommunications business. I didn't learn it as the guy that twists wires, but I learned how the business works. Let me tell you, there's a lot of money that can be made in telecommunications. A lot is going to be lost. You know, people say, "Well, how long did you expect—?" I didn't care if we stayed in business two days. It didn't make any difference. Somebody was going to buy us out. That was worth something. The same way that you say that the big companies will buy out something you develop. One of them would have bought us out. They pay to buy you out. That's where you make your money.

WILLIAMS: Did the company just go totally broke then?

DAY: We didn't have anything to give anybody.

WILLIAMS: Yes, so you were dissolved?

DAY: Yes. We didn't have any money. We spent all of our money. We spent more than three million dollars. I was paying expenses out of my own pocket. I was Executive Vice President. I had to pay rent. I had to pay for a secretary. I mean, I can't ask her to work for nothing.

WILLIAMS: I hope somebody gave this guy a poke in the nose.

DAY: No, he's out there. What good is it going to do?

WILLIAMS: A little bit of satisfaction.

DAY: I'll tell you where I made a mistake. We had two leading law firms that went into debt—that took on a million dollars—we never paid them a cent. They considered it a good deal and they knew they were going to get their money and they would probably get some shares. They checked us out up and down and back and forth, and I figured if these guys are satisfied, I guess it's okay. That was a mistake.

WILLIAMS: They were doing it on contingency sort of reasoning, I guess?

DAY: Well, they could afford to. They write it off. I can't write it off. I don't have anything that I can write it off on. That's my problem. It was an experience, but, you know, I bounce. You know, I don't stay down very long. I don't stay down at all. I come right back up again. I came back up again and I figured, "Well, we'll wait and see what happens. I'll continue plugging ahead, trying to contribute and help if I can help, and maybe something else will come up. I got a lot of know-how that can help people."

WILLIAMS: Yes.

DAY: I learned how the investment banking business works. I learned a lot. I learned things about business that I never thought was important. Well, because I didn't know anything about business. [laughter] That's why I say today I can run a business a lot better.

WILLIAMS: You're taking on some contracts but doing them mostly just yourself, right? You're not hiring a staff?

DAY: In my consulting for the last five years, I never hire a staff. I know everybody in the business—at least, I know in this area. When I need extra help, I pick up the telephone and I say, "I have a job, I'll split it with you." I do fifty-fifty. "This is what I can bring and this is what I expect that you can bring. I think we can make this into much more than talk." I show them everything, we go over it, and then I have the guy do it, and they're good. They're all good people. I only get good people. That's the way that goes.

WILLIAMS: I've certainly taken up plenty of your time.

DAY: The last part of this we're not going to record. I mean, record it, but I don't want you to spend any time with it.

WILLIAMS: Well, let's transcribe it and you see how you feel about it. Actually this is, historically, we're talking about recent times, but in terms of an information person, dealing with what was a logical next step, that's where the future is.

DAY: Right, well, just for your recording. Do you still have it on?

WILLIAMS: Yes.

DAY: This should be recorded. Do you remember I always talked about the three Cs: computer, communications, and content?

WILLIAMS: I read that article.

DAY: I had those three things. This was communications. That is what was attractive to me.

WILLIAMS: That's what I mean. Finally you were putting all three of them together.

DAY: I thought that I was going to be able to bring content into the system. There's a lot of money in content. That's where the money is going to be.

WILLIAMS: Right.

DAY: It's going to be in content. The carriers, in many ways, they're going to make money. Don't misunderstand. The carriers, in many ways, are going to be like service providers today.

WILLIAMS: Well, the carriers may end up controlling the content and doing it all.

DAY: You're right. Database providers, if they work it right, may be able to make some money. Now, the secondary publishers have real problems because primary publishers now have certain capabilities that they didn't have before.

WILLIAMS: Right. Yes. The web being a powerful tool.

DAY: Their role may get modified and they're going to have to do some fast jumping, which they can do.

WILLIAMS: By way of final things, I was reminded when I looked at your resume, and particularly what's listed in the *Who's Who,* of something that was said about George [Herbert Walker] Bush—that no one ever had a better resume to be president. Looking at your resume it looks like to me no one ever had a better resume to deal with the issues of information management.

DAY: Thank you. You are too kind. Well, I was very fortunate. I don't regret anything that I did. My telecommunications effort was a failure. It wasn't my fault, but it was failure. I'm not very happy with that. You know, I've had a good life and a charmed life. Every job I was on I took chances, but I'm not a risky gambler. I do my homework. On this, I probably didn't do as much homework as I should have. I've worked with some wonderful people who have made me look good. I've been fortunate in being able to attract some good people and I've had some great teachers. I've learned from every experience, the failures as well as the successes. You can learn so much from failures.

WILLIAMS: Whom do you consider your central teachers besides Thompson?

DAY: A man down at Oak Ridge. It was a man by the name of Carl Holmes. Carl Holmes was in charge of our publications program down there. I was twenty-six at the time. I knew nothing. I mean, when I look back on it, I really didn't know anything. I knew my job, which was very limited in those days. Don't misunderstand me. Carl was an old cudgemudgeon. He was a perfectionist. He was an artist. He was an editor. He could do all that stuff. Tough on people, but, boy, could he produce. He did by example. I learned from Carl. I don't handle people the way Carl does. I do things differently because we're all different. I thought Carl was a little too tough on people at times. I learned from Carl so much that he didn't realize that he was teaching me. He was a man who made a living doing artwork for ads for *International Harvester*. All of a sudden he is in the publications business. "Let me tell you something," was his favorite expression.

[END OF TAPE, SIDE 13]

DAY: He said, "I found that when I painted farm scenes for *International Harvester*, they always asked me to take something out of the painting before they approved it. I decided I'd put a red rooster in my paintings. I knew that the red rooster was wrong. [laughter] I knew it didn't belong there and I knew as soon as they took a look they'd say, 'Carl, take out the damn red rooster.' Then I'd cut it out, and then I'd get it approved." Carl thereafter always put a red rooster in every painting. You know, he was just home spun and I learned a lot from a fun guy like that.

I learned from everybody that I worked with. I learned from Marty Cummings. I learned from everybody because everybody is different. Marty was a medical doctor and as a doctor he expected to be listened to. He was kind of, okay. He was trained to make decisions on life and death and he wasn't afraid to make decisions on life and death. He had practiced medicine in the past. He didn't expect any back talk. [laughter]. I mean, that's just the way Marty was. I learned a lot from Marty, too. There's no more charming man than Marty Cummings. When Marty Cummings wanted to get something, he would put his arm around you

the same way he put his arm around me. There wasn't anything you wouldn't do for this guy. Let me tell you. He didn't put his arm around too many people, but when he had to, he would. He ran a tight ship and a good ship. The National Library of Medicine was a top-notch ship.

WILLIAMS: Yes.

DAY: I hope that my comments have not wasted your time.

WILLIAMS: You haven't wasted it. I hope you don't consider it a waste of time.

DAY: I mean by wasting, telling all my stories, and talking too much.

WILLIAMS: No, one of your worse fears as an interviewer is that you will run into a non-storyteller. Then you just have a "yes, no" sort of thing and that's twice as dull.

DAY: Well, stories will tell you something about people.

WILLIAMS: Yes.

DAY: It isn't so much the story as what it tells you about people.

WILLIAMS: Well, is there anything that we haven't covered that you want to say in addition? Other issues or problems?

DAY: It's a great field to get into, the information field. There's going to be great opportunities in packaging and repackaging. There's so much—if you pardon the expression—garbage out there on the Internet. In the beginning it's exciting. People are going to get tired of having to separate so much chaff from the wheat.

WILLIAMS: The filtering aspect, you think, is going to be even more and more important?

DAY: Well, yes, because people's time is worth money. In the beginning, it's as exciting as when the first television became available. Just think back to when you saw that ten-inch square

screen—I don't know if you're old enough to remember the ten-inch square television, black and white. There would be one in the department store window and there would be crowds just standing around and watching this thing, and it was kind of stupid. But it was exciting. People would do anything to see television. The computer screen has that excitement today for people. The kids, young kids learn with it. It's a great teaching tool and it's entertainment. Good and bad. The computer terminal is a tool. We usually tire of a tool after a while. You're going to say, "Okay, now, I don't want to have to spend two hours looking for all this stuff. How can I get the best information I need, and get it fast and painlessly?"

WILLIAMS: Well, one of our favorite expressions in teaching folks about the Internet and about the world of information is to say very facetiously, "Go ahead and spend two hours on the Internet. Never mind that you can go ask the librarian and in five minutes get the answer." It's that. It's the excitement of it, but at the other end it's that filter.

DAY: A lot of the initial excitement will not last.

WILLIAMS: That's right. You've got to get that packaging and such.

DAY: Color television came out. It didn't make any difference what was on it. It was color, right? Now we take it for granted.

[END OF TAPE, SIDE 14]

[END OF INTERVIEW]

NOTES

1. See for example:

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   Alvin C. Graves, ed. *Miscellaneous physical and chemical techniques of the Los Alamos project*. National Nuclear Energy Series. Manhattan Project technical section, vol. 3 (New York: McGraw Hill, 1952).

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   Laurence L. Quill, ed. *The chemistry and metallurgy of miscellaneous materials: thermodynamics.* National Nuclear Energy Series. Manhattan Project technical section, vol. 19B (New York: McGraw Hill, 1950).

2. Vannevar Bush. *Science, the endless frontier. A report to the President on a program for postwar scientific research* (Washington, D.C.: U.S. Government printing office, 1945).

   John R. Steelman. *Steelman report on science and public policy* (Washington, D.C.: U.S. Government printing office, 1947).

3. President's Science Advisory Committee. *Killian report on strengthening American science* (Washington, D.C.: U.S. Government printing office, 1958).

   Committee on Scientific Information. *Status report on scientific and technical information in the Federal Government* (Washington, D.C: U.S. Department of Commerce, Office of Technical Services, 1963).

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4. Jean Aitchison & Cyril W. Cleverdon, "Report on a Test of the Index of Metallurgical Literature at Western Reserve University" (College of Aeronautics, Cranfield, England, Oct. 1963).

5. Saul Herner, "Brief history of information science," *Journal of the American Society for Information Science* 35, no. 3 (May 1984), 157-163.

6. Melvin S. Day. “Major U.S. Government Publications Systems: a Summary” (Paper presented at the 45th Conference of the International Federation of Library Associations and Institutions, Copenhagen, Denmark, 27 August-1 September 1979).

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8. Melvin S. Day, “American Society for Information Science,” *ALA Yearbook, 1976*, 82 (1976).

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