RICHARD J. BING
(1909 - 2010)

INTERVIEWED BY
SHIRLEY K. COHEN

June 11 and 29, 1998

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CALIFORNIA INSTITUTE OF TECHNOLOGY
Pasadena, California

Subject area

Medicine, cardiology, biochemistry, music

Abstract

Interview in two sessions, June 11 and 29, 1998, with Richard J. Bing, MD, Director, Cardiology and Intramural Medicine, Huntington Memorial Hospital, and Visiting Associate in Biomedical Engineering, Chemical Engineering, and Chemistry at Caltech, 1970-2010.

Richard J. Bing was born in Nürnberg, Germany. He relates the story of his family and their origins, his early love of music, and his medical education in Frankfurt, Vienna, and Munich in the 1930s during the rise of the Third Reich. A period of study in Denmark at the Carlsberg Biological Institute enables him to meet Alexis Carrel and Charles Lindbergh; he forms lasting relationships with both. After a first trip to New York to Rockefeller Institute to learn Carrel's surgical techniques, he returns to New York and permanently to the US [1937]. His diverse medical career takes him from New York (Rockefeller, Columbia, New York University) to Johns Hopkins, then Alabama, then Washington University in St. Louis, followed by Wayne State University—all of which he recalls in sequence. During this time he demonstrates catheterization of the heart and works on cardiac metabolism. He resigns from Wayne State to take a position at the Huntington Hospital in Pasadena, California, in 1969.

In California, Bing relates, he developed interest in microcirculation and collaborated with Caltech scientist Harold Wayland; collaborations with Michael Hoffmann, Sunney Chan; friendships with Max Delbrück, John Allman. Research support from JPL; relations with director William Pickering; other research funding. There follows discussion of his second career as a composer, the importance of music in his life, and the performance of his musical works. The interview concludes with his views on the state of the medical profession.

Administrative information

Access

The interview is unrestricted.

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Contact information

Archives, California Institute of Technology
Mail Code 015A-74
Pasadena, CA 91125
Phone: (626)395-2704 Fax: (626)395-4073
Email: archives@caltech.edu

CALIFORNIA INSTITUTE OF TECHNOLOGY ARCHIVES

ORAL HISTORY PROJECT

INTERVIEW WITH RICHARD J. BING

BY SHIRLEY K. COHEN

PASADENA, CALIFORNIA

http://resolver.caltech.edu/CaltechOH:OH_Bing_R

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CALIFORNIA INSTITUTE OF TECHNOLOGY ARCHIVES

ORAL HISTORY PROJECT

Interview with Richard J. Bing **by Shirley K. Cohen**

Pasadena, California

Session 1	June 11, 1998
Session 2	June 29, 1998

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COHEN: Good afternoon, Dr. Bing. It was good of you to come. Welcome. You've been here before, and I'm glad that you're willing to participate in this oral history project. Perhaps we could start out by you giving us something of the background of your parents.

BING: First of all, I'm very honored. Thank you for asking me. I was born in Bavaria, in Franconia, in the city of Nürnberg, to which I returned about one year ago, when I received the keys of the city, because they thought all guilt was forgiven. I was born there in 1909. I grew up there in a very warm family. My father was Jewish. My mother was of supposedly mixed origins. That's a strange story of my family, not confirmed. But mainly I grew up in an environment never thinking that I was anything but what everyone else was in school—like most of the Jewish or half-Jewish people thought at the time. It never occurred to them.

COHEN: Were the majority of people you went to school with either Jewish or half Jewish?

BING: It didn't make any difference.

COHEN: So you wouldn't have even known?

BING: It never occurred to me. It never occurred to me. I don't think it occurred to my colleagues either.

COHEN: Was this a private school?

BING: No. This was the *Realgymnasium*, which is part of high school until you go to the university or medical school. I just never got the idea that this was any different. We had parties in the evening where some of the group got together and sang old German songs and drank beer and ate pretzels.

COHEN: So you thought of yourself as being German?

BING: I thought of myself as German. But on the other hand, I knew that in some way I was different. But I never was considered different by others. And that was the decisive moment. And I left, I think, just before others would consider me as very different. And I made the best of it.

COHEN: Let's go back to your parents. What did your father do?

BING: Let me say that the most important thing was what my grandfather did. My mother's family owned the Löwenbräu in Munich, which is a very big brewery. So we were very well off. That was a big brewery. My father had some hand in it. My grandfather was on the board of directors, of course. The brewery was the amalgamation of two smaller breweries, which my family also had.

COHEN: And that was right in Franconia?

BING: That was in Munich.

COHEN: Franconia was not very far from Munich?

BING: Nowadays you drive there in an hour and a half. But by train it was two and a half or three hours. My father was responsible for furnishing the hops to the brewery. And Nürnberg was the center for hops. It was all connected with the brewery.

COHEN: So your grandfather established that brewery?

BING: My grandmother's family established the brewery. The family [name] was Schulein. That was my grandmother's family. They owned it. They ran it. Until the Nazis came, of course, when they had to leave. They were a very prominent family. And now in this country there is a writer—I don't know whether you'd call her famous or not. I can never think of her name [Danielle Steele]. She writes thousands of novels. She lives in San Francisco and has been married hundreds of times. You must know her. She has a bestseller all the time. She comes from the family Schulein. And she wrote me a letter about how miserable the family was, which I never realized. But anyway, the name will probably come to me. I'm sure you know her. I think you've never read anything [by her]—neither have I—but she's extremely well-known. There are many movies made from her things—terrible stuff.

COHEN: Maybe it will come to us.

BING: There was another man from the Schulein family who was an expressionist painter. He belonged to the school of the *Blaue Reiter* [Blue Riders]—[Franz] Marc and others. He was a very excellent painter. And then there was my [maternal] grandfather. His family name was Aischberg. So we lived in Nürnberg in a lovely house.

COHEN: And your father would buy these hops and things?

BING: My father did that—you know, the hops—*Hopfen*. One of my early recollections is the smell of hops, which I found absolutely intoxicating. It's totally different from beer. But you know, conditioned reflexes are really interesting. When I came back to Nürnberg I went to some of these places. It all came back. Nothing can evoke the memory more than the smell of hops. It's strange. So that's my family. We lived in a big house. I went through the *Gymnasium*—what we call high school. I was not a terribly good student actually. I was awfully good in German—what you might call English here—composition and literature. And of course in music I was good. I was pretty bad in math. For some reason I was decent in physics. I never will understand it—why I was good in one and bad in the other.

COHEN: Well, it's a different thing.

BING: But math really bothered me. For me it was a terrible obstacle. Everything that I wanted to see had some emotional motor which propelled me, but math seemed to be devoid of that. Luckily, the math teacher was a good musician, and we played together.

COHEN: That often goes together—math and music.

BING: It does, but not in me. [Laughter] So I passed math.

COHEN: Just let me go back a bit. You had no brothers or sisters?

BING: I have one sister who is still alive. She is ninety-two and she lives in Lima, Ohio, where my parents settled after they got out of London. My parents went from Nürnberg to London, from London to Ohio. My sister married a physician in Lima, Ohio.

COHEN: Do you know Willy Fowler, the physicist [Fowler was born in Lima—ed.]?

BING: I know that they have a high school named after him. And Willy Fowler's sister is still a beautician in Lima. She may have retired now. My sister knows her. My sister, in contrast to me, is very active in Jewish circles in Lima. She goes to temple and everything. I don't belong to anything, neither here nor there.

COHEN: But, Dr. Bing, your parents then had no religious observance of any kind?

BING: No, none whatsoever.

COHEN: Well, I mean, your mother was—

BING: My mother sang mostly. She really didn't have to, but she sang in the synagogue and she sang in church.

COHEN: Wait, I'm confused. Did you say that your mother was not Jewish?

BING: On the surface, yes. She was supposedly "mixed."

COHEN: Oh, but she still did all these things?

BING: Yeah, but the story was that her grandfather was illegitimate. So my mother's family was very mixed up, supposedly of Swedish ancestry.

COHEN: So they may have been Jewish.

BING: Yes. But I have a wonderful tape where she describes this strange ancestry. My mother did this before she died. She died at age ninety-nine in Lima, Ohio.

COHEN: Good genes in your family.

BING: Yeah, well it seems to be so. But, as I say, I never really belonged to or felt like anything. Of course, you get cured of this non-Jewish feeling very rapidly by the Nazis.

COHEN: But you were a completely assimilated household, which was not uncommon in Germany at this time.

BING: We were completely assimilated, yes. And still, at the moment, I consider the Jewish culture a part of the overall culture, and I don't consider it at all as something so totally different that you make a big noise about it. I think it's part of the traditional great culture—

COHEN: Of the western world.

BING: Yeah, but I don't—

COHEN: It wasn't part of your life or your family's life.

BING: No, not at all.

COHEN: Or even the people that you associated with.

BING: No, not at all.

COHEN: That's interesting.

BING: And then I went to medical school.

COHEN: Let's not skip so fast over this. Let's get a little more. So your mother was at home, although she did all this cultural sort of singing?

BING: She had a lovely voice.

COHEN: And that's where your music comes from?

BING: That's right. Music comes from my grandfather—my mother's father—who had very little musical training, but he had an extreme musical capacity. Every day of the year he played for two hours in the morning and one hour in the afternoon—four hand [piano], with my grandmother. Not only this, but they cataloged it: "On November 5th we played Beethoven's Fifth Symphony in the morning and in the afternoon Brahms's string quartet," or something.

COHEN: So that was their life.

BING: That was their life, yes.

COHEN: So you finished *Gymnasium* in Nürnberg?

BING: Yes.

COHEN: Why did you go to medical school? Did your parents think that was a good idea?

BING: No. It was a question between music and medicine—not between medicine and anything else. And I felt that in music, as much as I loved it, I wasn't quite as gifted as I could be in order

to make a real mark. And that lack of gift, I think, probably extended mainly to performing things. I mean, I was a good pianist, but at sight-reading I was quite poor. So, I don't know who at Caltech made the distinction between the right and left brain, but one part—whatever it is—didn't function as well as the other side. So I kept up with musical education during the early years of medical school. I had wonderful lessons at Frankfurt.

COHEN: So you started medical school in Frankfurt?

BING: For one semester only. You probably know that at that time medical education in Germany consisted of hopping from one place to another.

COHEN: Yes, you explain this a little bit in this book—that you only had to appear for the examinations. Where you got the information in between was—

BING: No one cared, as long as you were there to sign in, of course.

COHEN: Did you have to pay tuition, or was it a state school?

BING: They were all state schools. They were all run either by the state or the German government.

COHEN: So there was no such thing as tuition?

BING: No. Of course, I don't know how many hundreds of people were in it during the first year. It got whittled down.

COHEN: So anybody could try to pass the examination?

BING: Anyone could try. I think that's a wonderful thing. I don't know whether you know Hans Zinsser's book.

COHEN: No.

BING: Zinsser was a great bacteriologist, but he wrote one of the most sensitive biographies ever. It's called *As I Remember Him: The Biography of R. S.* He authored it when he had leukemia. He tried to get it off his chest. He describes the education in Germany as something quite ideal. It was wonderful for enjoying yourself.

COHEN: Yes, but you also had the discipline to pass the examinations, and many people didn't.

BING: They left more of it up to us, rather than here, where, from the moment you go into medical school, you're pressed into a tube: when the tube is squeezed, you go with it. In Germany you could improvise and do things that you liked to do—music, or whatever—as long as you passed the exam.

COHEN: Didn't you do any clinical training?

BING: Oh, yes, very much so. Biochemistry was given by remarkable people. When I think back there was Embden, who was a Nobel Prize winner [actually Embden did not win the Nobel Prize—ed.]; Ackermann, who was the discoverer of histamine. They were outstanding people.

COHEN: But nobody took attendance—if you went, you went.

BING: Yes, you'd have to attend. But sometimes you'd let other people write your name in—the way we did it in the army.

COHEN: Okay. In the army you don't have to pass tests. [Laughter] When did things start changing?

BING: With the Nazis. Actually, it started in the early thirties. When Hitler came to power in '33, I noticed that things began to get loud. I mean, the Nazis had rallies and things like this. In particular, it was more prominent in Vienna than in other places, where I studied for one semester. And that was chaos.

COHEN: But Vienna has a very high percentage of Jewish people.

BING: Oh yes. Well, I don't think that, in this respect, they had much to do with it. There were the Nazis, of course. And there were what's called the *Heimwehr*, which was more Austrian-centered, but also a rightist movement. And there were, of course, the socialists—[Engelbert] Dollfuss and others—who were assassinated by the Nazis.

COHEN: So they were very receptive to it.

BING: And therefore the university was closed for days at a time.

COHEN: Because of demonstrations and rioting?

BING: Because of demonstrations and riots. And it was frightful. And in this environment [emerged] the most amazing story of our civilization. There blossomed a culture in Vienna which was unbelievable. There was Freud. And there was Kokoschka, the painter. There were a lot of famous architects. I would say about twenty-five or thirty percent were Jewish. There was my friend, Sir Ernst Gombrich, the famous art historian, who grew up there. He was really my only friend through all these years. He's now not too well.

COHEN: You mentioned him in your memoir.

BING: His friendship lasted all through my life—since I was eight years old. Amazing.

COHEN: So these people, even with all this pressure, in some way did all these things.

BING: It's a great miracle. Schoenberg—you know, Alban Berg—the whole Second Vienna School—Gustav Mahler was dead by that time. But amazing.

COHEN: So this wasn't actually in these early years of chaos? That was before there were the laws and everything? It was hard for these people, but they weren't—

BING: No, we were not officially—I mean, we were looked upon as inferior, probably, by a lot of people. Again, it was not noticeable. But I lived across the street from Freud, you know.

Although I never really met him. One friend of mine came in and said one day, "Richard, we ought to hear this man Sigmund Freud." That must have been in 1929. "He really has quite interesting things to say." And I said, "Oh, never mind. I have other things to do."

COHEN: Had this chaos already started in 1929. Well, it was Depression years—1930.

BING: Oh yes. The chaos started when I was in Vienna. It was 1930.

COHEN: That was the worldwide Depression, actually, by that time.

BING: It was worldwide. But it was for the soul of Austria. The socialists did some wonderful things there. They built big homes for workers. And the *Heimwehr* was focused on Austrian greatness—stupid people. And the Nazis, of course, who wanted to make Austria part of the German Reich.

COHEN: This was a lower class of people, and they resented these artistic people perhaps.

BING: I wouldn't say they were a lower class of people. I'd rather say that they were uncultured or uncivilized people. Many came from the middle class, what we might call "blue collar" workers.

COHEN: So these people who lived there had been to school? They were educated?

BING: Exactly. Yeah, but you know half an education is worse than none at all. And some of these people had half education. I mean, even though they went to high school, the thing that makes the western civilization great escaped them totally. Your question is a very important one, because what made the early Nazis—what composed the early Nazis—were not very low-class people at all. It was the lower middle class. In some sense it was even the upper middle class.

COHEN: So you are saying that they were uneducated in the cultural sense.

BING: In the cultural sense. The education didn't—they had no receptors, to talk biologically.

COHEN: Now, in normal living in your growing up you did not really associate with these people?

BING: No, I didn't associate with them. I associated myself with people in my class—my fellow students. And through friendship with the Gombrichs and people who were musicians. And that was really my association.

COHEN: Well, that's normal.

BING: Well, I was neither associated with a purely Jewish group nor was I associated with a purely non-Jewish group.

COHEN: Now, was there a strong Jewish community there?

BING: In Vienna?

COHEN: Yeah.

BING: Oh, tremendous, yeah. There was a Jewish community in Vienna. There was also a conflict beginning, which I look upon with great sadness, because it repeats itself in Israel now. There was a super-religious group, mostly of people from Poland, who were looked upon by the native Jewish people with great disdain. This was a terrible thing to do, and they were cured of that very soon by the Nazis, because they were in concentration camps whether they came from fancy families in Vienna or from poor Jewish people. The equalizing effect of the Nazis was indeed powerful. When you get gassed it makes no difference where you come from. I was aware of what was going on. You asked me the question. That's why I left lots earlier than many others did.

COHEN: And your parents felt that it would blow over?

BING: No, but they were older. And when you're older, even though you know—

COHEN: And they were in business.

BING: They were in business. But the main thing was that they felt that they were a part of the community. They didn't think it would blow over. They never thought that. But they just couldn't make themselves leave everything.

COHEN: So they left, actually, in 1938. You were already gone.

BING: Yes, I was all gone. And I helped them to get the visas. Part of the business was in New York. I had an uncle in the hops business in New York. He wrote the affidavit. No, he didn't do that for me. The Rockefeller people did that for me.

COHEN: So let's get back to you then, now that we have this. In 1934 you finished all your medical training in Germany?

BING: In Munich.

COHEN: In Munich. And you got your certificate?

BING: Yeah. And then on June 2nd of 1934—June 2nd or 3rd—was the Hitler Massacre in Munich. He was the chancellor when he killed off the SA [*Sturmabteilung*]. You know, he had two storm trooper [groups], the SA and the SS [*Schutzstaffel]*. The SS was the black uniform. The SA was the brown uniform. The SS lasted until the last moment of the war. You know, they were fanatics. But the SA was ruled by a man called Roehm, in Munich. Hitler wanted to get rid of him, so he accused him of being a homosexual. But the reason was that he was in the way. So he had him killed. And in doing so he killed almost all the enemies he had. There were mistakes made. I remember my last day in Munich. They killed a man called Schmidt by mistake. He was a music publisher, or something like this. But there was another Schmidt on the enemy list. But "Schmidt" or "Schmidt"—you know, what difference did it make? So I left two days later.

COHEN: And you went to Denmark?

BING: No, I went to Switzerland.

COHEN: Oh, Switzerland. You went to Switzerland. Now, you say in your memoirs here that it was not possible for you to stay there. Why was it not possible for you to stay in Switzerland?

BING: I went to Switzerland because the German State Board Examination was not recognized abroad. In Germany I didn't get the diploma to practice medicine, for obvious reasons.

COHEN: Were the racial laws in by that time in 1934?

BING: Not the written racial laws. That was in 1934. But it was already quite obvious that anyone of Jewish origin was not going to get approbation to practice medicine. The Swiss, at that time, had a provision that you could, as a foreigner, take the Swiss medical examination. That was a big thing, and that's what I needed. That was very fortunate, because it was wonderful.

COHEN: And how did you get money all this time? Were your parents still able to send you money?

BING: My parents had the uncle of mine in America. And I think my father had some money here. That's also a very strange story. I think in 1933, already, the German government said that anyone who had money abroad or outside the country had to bring it in or face execution. My grandfather was a very, very, very wealthy man connected with Löwenbräu and all sorts of things. So my father went there to Zurich, to the bank, and picked up I don't know how much—it must have been $1 million—but he smartly enough left about $120,000 in a Swiss bank. So when they had to go to America they took that out and they had something to live on. My uncle in New York had the money, and it was with that that I was paid while I was in Switzerland. So I got my diploma there.

COHEN: And you stayed there just that one year?

BING: Just that one year.

COHEN: And were you invited to come to Denmark after that? Because I think that was next for you.

BING: Yeah. Again, there was no pay. I found out that I was very interested in cell cultures.

COHEN: Let me ask you another question on this, going back some. During all this, when you went to Switzerland and Denmark, did you make any visits to see your parents in between? I mean, did you go back to Germany?

BING: I couldn't.

COHEN: You couldn't?

BING: No.

COHEN: And you didn't go back.

BING: No, once I was out of Germany I didn't go back.

COHEN: So you were invited to go to Denmark.

BING: Yeah, it was an institute which is now defunct—Carlsberg Biological Institute. There are two Carlsberg institutes. One is very famous. It's the Institute of Physics, or something like that. But the one I went to was the cell culture institute. The head of the institute was a man called Albert Fischer.

COHEN: That's interesting. You're again with the beer people, Carlsberg.

BING: Yeah, the horrible thing is I don't even drink it anymore. I feel like a traitor. [Laughter] In Denmark I worked at the Carlsberg Institute and learned cell cultures. It's amazing how fate plays a very strange role. It was very great fun doing my work there with Nobel Prize people, like [Fritz Albert] Lipmann.

COHEN: But you must have been a very good student. You must have had very good marks. Because why would they have invited you? There must have been many people in your situation.

BING: I had a tremendous libido to do research. Whether my potency was equal to my libido, I can't really say, but I really had a tremendous interest in it. And I was all right. I mean, I got good grades all through the way. But there was Lipmann, and then came the break. That was the visit of [Alexis] Carrel and [Charles] Lindbergh.

COHEN: That's fascinating.

BING: From then on it—

COHEN: It went. Well, tell me how you first met these people.

BING: Well, Carrel and Lindbergh went to an international meeting on cell biology.

COHEN: And that was in Denmark?

BING: That was in Copenhagen. And Albert Fischer, my boss, was a pupil of Carrel. So naturally Carrel sort of roosted there, and Lindbergh went along. Carrel I knew little about, and Lindbergh not much either. I mean, I didn't know that he was a famous flier. I knew a little [about that]. But they had constructed a machine or an apparatus to keep organs alive outside the body. That itself is a fascinating story. Originally Lindbergh wanted to build a cardiopulmonary bypass—you know, where you can operate on the empty heart, because his wife's sister was dying from heart disease. One thing about him was that he never took no for an answer. He said, "Why can't we build machinery at the level of the heart?"

COHEN: Did he have training as an engineer?

BING: No, not really. He went to the University of Michigan [Lindbergh attended the University of Wisconsin—ed.] for awhile for engineering. But he didn't have any, what you might call now, regular training. But he was a very clever engineer. By the way, a new biography of him is coming out.

COHEN: Is that right?

BING: I'm very interested, because the man who wrote it called me up. I had lunch with him. He called me up about a week ago and said, "Is it true your father was Jewish?" I said, "Yes."

They were building the machine. And since I spoke Danish—I have distant relatives who are Danish, so I learned Danish too—there's a Bing family in Denmark. They are very, very distantly related. But I had met them before. So I spoke Danish.

COHEN: So you had visited them before?

BING: Before.

COHEN: This was not your first trip to Denmark, in 1935?

BING: No, no, no. [I had visited] before.

COHEN: When you were growing up?

BING: The first time I visited Denmark was when I was a musician on a boat going from North Germany to Denmark. I was hired to play the piano. But I was so tired when I got there that I don't recall anything.

COHEN: So you had been in Denmark before, visiting your family.

BING: Yes.

COHEN: So you could speak some Danish.

BING: Yeah, I was quite good. Not really too good, but quite good. So, since I spoke a little English and Danish and so on—

COHEN: You were the translator? Carrel was French.

BING: Pardon me?

COHEN: Carrel was French.

BING: Yeah, but I spoke French quite well. But they decided that I was young enough to go and learn the method in New York and then carry it back to Denmark. Lindbergh took a liking to me. So did Carrel. But they had a rough time convincing the Rockefeller Foundation to give me some money. I mean, I was a nobody and I had published nothing and I was from Germany.

COHEN: Well, this country wasn't so good in those years at taking everybody in.

BING: That's right. So Carrel really worked hard to get me over. I finally got this grant for $1,500 or $2,000. At that time that was all right.

COHEN: Of course, you had the uncle there, didn't you?

BING: I had my uncle, yes, exactly. That helped. So I came over here to the Rockefeller Institute.

COHEN: And that was your first—of course—trip to the United States?

BING: That's right.

COHEN: And you liked it?

BING: Fantastic. Yeah. I couldn't understand New York much, because I thought it was totally unpoetic to call streets by number rather than by name. Madison Avenue is all right, but 23rd, 24th, 25th—it takes any character out of it.

COHEN: But then they do get character.

BING: They do. Exactly. But anyway, I had a great time. There were extremely nice people in New York who sort of adopted me. They took me out and were very nice to me.

COHEN: The Rockefeller Institute must have been quite small at that time. I mean, it's still not very big.

BING: It was much smaller, yeah. But one thing about them was that they were extremely hospitable. They were extremely nice to nobodies, like me. I mean, they made it possible for me to immigrate to the United States.

COHEN: Yes, I enjoyed reading the story. You had to go to Cuba in order to come back.

BING: But they were so nice.

COHEN: But you must have been doing very good work, Dr. Bing.

BING: Yeah. They liked me. Carrel, for some reason, was extremely kind to me.

COHEN: So was Carrel a member of Rockefeller?

BING: Oh, he was. He was the head of the department of experimental surgery. You cannot believe the group of people who were at the institute then: [Carl] Landsteiner, the discoverer of blood groups; Avery, the discoverer of the role of DNA; Peyton Rous, the Nobel Prize winner who discovered the first virus in cancer production. There were numerous others. For my citizenship I had to get two witnesses. The one witness who vowed for me was Alfred Mirsky, who is [responsible for] the Mirsky professorship at Rockefeller, who worked on the structure of

DNA. The other was a lady who worked for Carrel by the name of [Lilian] Baker. But you see? I mean—

COHEN: It was a democratic institution, is what you're saying?

BING: Totally. And the director of the thing was a man by the name of Flexner.

COHEN: Is this the same Flexner from the Institute for Advanced Studies?

BING: No, that was Abraham, whom I also met. But this was Simon. Simon—he ruled over this unruly bunch of scientists like a lion tamer. But instead of using the whip, he had a fantastic way of disciplining without—he was quite an amazing man.

COHEN: Did you have seminars every week? I mean, how did you interact with all these people?

BING: At lunch, mostly. Then, of course—you're right—there were seminars too, which I could go to. I did go. And I remember that Alfred Cohn had a daughter that he wanted me to go out with. And Peyton Rous had two daughters. But Cohn had a very lovely girl. We dated for quite a while. So it was a nice, great place.

COHEN: How long were you there?

BING: In New York?

COHEN: Yes.

BING: About eight to ten months, I think.

COHEN: And then you did have to go back to Denmark.

BING: Yeah. That pointed out the stupidity of the people in this country at that time. They were totally unaware of what was going on. I mean, criminally unaware. I went to the Rockefeller

Foundation in New York, the fifty-eighth floor, and they said, "If you go back, you have to stay there. And you have to go back. We gave you the fellowship to teach, so you go back." I said, "Excuse me, do you know what's going on?" [And they said,] "Yeah, Denmark is not Germany. You'll be safe there." So I went back.

COHEN: You already knew that that was not going to be true?

BING: Oh, absolutely.

COHEN: Everybody knew.

BING: Absolutely. I went over and taught the method. I shouldn't really tell you all the story.

COHEN: Sure you can.

BING: My boss and I got into real trouble. I don't know what happened. So he was only too happy when I told him I was going back to America—you know, after six months. It turned out that to teach this method of Carrel and Lindbergh [in such a short time] was hell. And then, I must say that before I left for Denmark I got myself a job in America.

COHEN: You knew you were going to come back.

BING: Yeah, I knew.

COHEN: So they weren't happy to see you coming back to Denmark?

BING: Oh yes, they were very happy. But once I was there I was chafing, if that's the right expression, to go back.

COHEN: I see. So you knew that you didn't want to be there.

BING: No. I felt in my bones that this was going to be a terrible thing. The Nazis were going to march into Denmark and I was frantic. I was scared to death. You see, much of the motivation for people like me is the search to get away from disaster.

COHEN: Well, it's self-preservation. I mean, that's very strong.

BING: Well, I don't want to exaggerate it, but it was really very unpleasant. So I had the job in America, at Columbia [University].

COHEN: So you had this job at Columbia before you went back. Did you have the citizenship at this time?

BING: No, but I was an official immigrant. It took four or five years, I think. But I had the job at Columbia. I took an exam to get it. [The job was] in surgery. I was totally bad in surgery, but one way or the other my name was posted after two days as an accepted resident in surgery at Columbia.

COHEN: Let me ask you something about the Rockefeller Institute at this time. It was an institute of people who were doing research. Where were the patients? I mean, did they have a hospital? How did that work?

BING: There was a Rockefeller Hospital. But most of the institute, like the Scripps Institute, was really theoretical science. The Scripps Clinic has patients. The Rockefeller Institute, at that time, was for research. But the Rockefeller Hospital was for patients. The main emphasis of the hospital at that time was pneumonia.

COHEN: I see. So whatever the research was, that was what they tended to [treat?], like the Mayo Clinic or something like that?

BING: Right. But they wanted the more specific diseases. I don't know how it is now, but at that time the Rockefeller Hospital was interested in a cure for pneumonia. Of course, this was

what they called “the captain of death” at that time. So that’s how much of the pneumonia research was done.

COHEN: I see. That was the hospital’s main [focus]. So they would take pneumonia patients at the Rockefeller Hospital. Dr. Avery was directing the work on pneumonia.

BING: Right.

COHEN: Is there still a Rockefeller Hospital?

BING: Oh yes, very much so. I don’t know what their focus is now—I think it’s molecular biology.

COHEN: [Laughter]

BING: It’s an exception.

COHEN: So you went back to Denmark and you didn’t even stay there a year.

BING: No, I stayed there four or five months.

COHEN: Did you keep in contact with your parents in some way?

BING: Oh yes.

COHEN: Telephone or writing or…?

BING: Yeah, oh yeah. There was no hindrance in writing. Whether their letters were censored or not, I don’t know, but I don’t think so.

COHEN: So the mail went.

BING: It was a crescendo, a disaster. You see, it was bad in ’34, because we saw what was coming, and people had already died. I had a friend who was killed by the Nazis. But it wasn’t that bad. But then ’35, ’36, ’37, ’38—every year it got worse—a crescendo. This thing Hitler did so well—he didn’t come down all of a sudden. It was a gradual thing. People outside Germany didn’t quite sense its severity.

COHEN: Well, who could believe it? You know, it was too incredible.

BING: Exactly. People didn’t want to believe it. But I kept in touch with my parents, particularly when I was in America, because I helped them to come over here. By that time I already knew people, so I could give help.

COHEN: And your sister was still with your parents? Or did she come herself?

BING: No. My sister came a little earlier than my parents. I remember one funny incident—I know this is probably boring—

COHEN: No, no, no.

BING: I picked my sister up with her two little girls—one five [years old] and the other four—at the harbor in New York. They both were very German. And this black gentleman was in the street. One of my nieces looked up and said, “Look, Mama, a *Neger* [German word for Negro].” She had never seen one before. “Look, Mommy, a Negro.” For some reason I thought it was extremely strange. So anyway, they came over then. And I had good luck getting them here, because at that time I knew people who were helpful.

COHEN: So they came. So then you came, and then your parents came in ’38. And you came back, then, to the job at Columbia.

BING: I came to the job at Columbia. That was ’36 or so. I worked there one year as an intern in surgery, but I didn’t do any surgery. I mostly did research on Lindbergh’s pump. Lindbergh

was very helpful. He came very often and helped me with the building—putting the apparatus together.

COHEN: Did he actually work for Rockefeller? Or did he just come around to help?

BING: He designed the machine. It was a brilliant job—a truly brilliant job. It didn't materialize to be a great thing. It might be something that would be able to grow viruses and hold tissue, but that's not here yet.

COHEN: So this is what he was doing?

BING: Exactly, yes.

COHEN: Did he have a job? Or did his family have a fortune? I mean, what did he do?

BING: Oh God, yeah. Well, he was wealthy on his own account. After he flew he became a director of the Lindbergh line, which was TWA. And his wife, of course, was a Morrow [Anne Morrow Lindbergh], whom I knew. That's one of the few people I truly adored.

COHEN: I've read her books about the pebbles on the beach.

BING: Yeah. I adored her, because I stayed with them. You see, I forgot to tell you. On my way to America the first time, they invited me [to stay with them]. They lived in Sevenoaks, England, because he really couldn't take it anymore. That was after the murder of his son. So they moved to England, and he invited me to come and visit. And I did. That's when I met Mrs. Lindbergh for the first time. I was really taken by this lady. I saw her again maybe eight years ago, which was when I was asked to give a lecture in Little Falls, Minnesota, where he grew up. There was a little reception by the governor, and Mrs. Lindbergh was there. She knew I played the piano. So she said, "Let's go in the other room and you play." I thought we'd play Bach, you know. And she was so nice about it. It was the first quiet moment for her in a long time. I liked her. She was a really extraordinary woman. She disliked her husband's—political thing—I believe.

COHEN: Well, he actually became quite a fascist.

BING: Well, she disliked that part of him.

COHEN: Did you have any inkling of what led him to think these things?

BING: I had no idea. [Tape ends]

Begin Tape 1, Side 2

COHEN: I asked you if you had any feeling about why Lindbergh went the way he did.

BING: As I said, it was part of his stubborn nature. I think that, in many ways, he was naïve. I mean, he was really politically naïve. And when he went to Germany, those miserable people pulled the wool over him. And I'm sure it was impressive to see all this *Luftwaffe*. You must remember where he came from. His father was a very, very stubborn politician. He wasn't a senator, but he was a representative. And he was very stubborn, and like his son. His father took up court with useless and outlandish causes, and so did Charles.

COHEN: Of course, look at all the English aristocracy that thought that Hitler was so wonderful.

BING: Well, that's why he footsied with them. I stopped all relations with Lindbergh. And I sent him a telegram.

COHEN: Oh, you knew he was associating with all these people?

BING: Yeah. And I sent him a message to Germany and said, "Please protest against the inhumane treatment of minorities." That's the way I expressed it. Of course, I didn't hear from him. And we took up the friendship again here in Pasadena about 1970—that's two years before his death—when he wrote and came to visit me. I lived in La Cañada. He came and visited me, and I asked him to give a little talk at the Huntington Hospital staff meeting, which he did. There was no publicity, no nothing. It was a nice little talk. He came back to my house, and I brought him to the airport.

COHEN: But by then he had broken with all those other things?

BING: Totally. Totally. It was the most unusual change. I don't know whether his new biography mentions it, but something happened to him. He was very interested in environmental causes. He was extremely tolerant.

COHEN: Do you think it could have been when everybody saw how bad it was in Germany in 1945 in the concentration camps? Do you think that could have had anything to do with it?

BING: I don't think so. I think he himself had changed. And I think what changed him most was his life. He got older, you know. Carrel is accused of having been of the same ilk, but that's absolutely not true.

COHEN: You don't think he was a fascist?

BING: No. Carrel was an admirer of strong personalities. But he admired Einstein about as much as anything. They were actually good friends. And there was Lipmann—a famous doctor whom Carrel adored. He was not anti-Semitic.

COHEN: Carrel was not anti-Semitic?

BING: No. But he admired power, so he thought that America was going the wrong way. And he disliked Roosevelt, like many others did.

COHEN: That was the socialist bit.

BING: Exactly.

COHEN: So here you are in 1938. When you came back you went to work for Columbia?

BING: Yeah. And I married the boss's daughter, so I quickly quit.

COHEN: Quit Columbia?

BING: No, I quit surgery, which I had no trouble quitting. I married Dr. Whipple's [Allen O. Whipple's] daughter. He was the head of surgery. He's getting more and more famous. Somebody called me and came to see me—somebody who was writing his biography. He did an operation which was called the Whipple Procedure, which is like Rachmaninoff's Second Piano Concerto—the culmination of a surgeon's skill for cancer of the pancreas. He was one man whom I admired more than anyone in my life, Whipple, although he was my father-in-law.

COHEN: Was he any relation to Fred Whipple, the astronomer?

BING: I don't know. But he was related to George Whipple, the Nobel Prize winner in Rochester.

COHEN: Well, that's not such an uncommon name.

BING: No, it is not.

COHEN: So you got married in 19…?

BING: 1938. I had four children. We were married fifty-three years.

COHEN: But tell me something. You were not fond of surgery?

BING: Oh no. I was totally ungifted. I think, first, my hands weren't so good. The mentality of a surgeon is different, no matter what they say.

COHEN: Tell me what you mean by that.

BING: Well, they are people of, sometimes—well, I shouldn't say this.

COHEN: No, say it.

BING: Quick decision, and not sentimental about things. I mean, they don't stew over problems so much. They are people of quick action, sometimes without too much thinking. But surgery has changed, and now the great surgeons are really people who are also scientists. But at that time they were people of action, and still are.

COHEN: In some sense they have to be.

BING: They have to be. And I wasn't that at all.

COHEN: You wanted to think about it a little bit?

BING: No, I'd think about it and I'd get too sentimental about things. So I didn't think surgery was the thing for me, and I went into physiology and trundled along.

COHEN: When did you really start on your cardiology?

BING: Well, the man I started with was Homer Smith, who was a very famous renal physiologist. I worked with him. I worked on the kidney and the heart.

COHEN: That was at Columbia?

BING: That was at New York University. And then I was asked to come to Johns Hopkins on a fellowship on hypertension. That's when all these things started.

COHEN: Your interest in the cardiology?

BING: Yes. I went to Hopkins and stayed there for awhile, until I went into the army in 1943—I think it was—and stayed there. I was assigned to be, first, a lieutenant. After a year I was promoted to captain. The war was over in 1945, but I was sent to Germany after the war as a lieutenant colonel. I was promoted over there. That was the most marvelous thing that ever happened to me. I was grunting along and all of a sudden the general made me a lieutenant colonel. And I got a car and a driver.

COHEN: Why were you sent over to Germany? Because you knew German?

BING: No, I was sent over to Germany for the Surgeon General's office, to find out what the status of German medicine was at the time.

COHEN: Ah, after the war was over.

BING: Yeah.

COHEN: And where was your family at this time when you were in the army?

BING: My family lived back with the Whipples. The Whipples had a house in Connecticut.

COHEN: Ah, so they stayed in Connecticut. How long were you in Germany?

BING: Not very long. About six weeks, I guess. That's when I went back to my hometown, Nürnberg, and found my house. Now it's totally gone. But at that time the whole upper floors were leveled, but there was still a basement. And I went in the basement. I wasn't in uniform. They had a bookstore, of all things. There was a man there, as I was looking at it, and he came to me and said to me—in German, of course—"What are you doing here?" And I said, "The question I will ask you is, 'What the hell are you doing here?' This is my house." At that time the Germans were very submissive. "I'm so sorry," you know. But there was one book by Hans Zinsser. I mentioned him before. And it's called *Rats, Lice, & History*. It's a wonderful book about war and disease—the connection between the two.

COHEN: So when you said, "This is my house," what did the man say? Was there anybody left there from before?

BING: My grandfather's old cook was there. She baked me the most incredible cake. The food was very scarce. How she ever did it, I don't know. And I'd been around to many of the German hospitals.

COHEN: What was the state of their medicine at the time? It must have been pretty bad.

BING: Pretty damned bad. But catheterization of the heart started in Germany with a man called Forssman, who did it on himself. They had never seen one. So when I was in Frankfurt and went to the university—I mean, I was ordered to do it—they wanted me to demonstrate catheterization of the heart. It was 1946. It was on a young man, obviously a soldier still—they were standing around watching me—I put the tube in and turned the fluoroscope on and there was a bullet in this man's heart moving back and forth. I was so scared. The catheter made contact, but there was nothing to worry about.

COHEN: Did he really have the bullet?

BING: Yeah. But you see, twenty years later I gave a lecture in Frankfurt and an old man said, "Dr. Bing, I remember the first catheterization, or the bullet in the man's heart."

COHEN: He had seen you do this?

BING: Yeah.

COHEN: So you made your report?

BING: I made my report to the Surgeon General's office, came back to Johns Hopkins, and then joined the department of surgery at Hopkins.

COHEN: So you lived in Baltimore for quite a few years?

BING: Yeah, a long time. I didn't like it.

COHEN: You didn't like Baltimore?

BING: No, I'm sorry.

COHEN: Why?

BING: It was different then. I mean, Hopkins was undoubtedly an interesting and great place. But Baltimore was a backward city. They didn't have much culture. There were no theaters, very little music. It must have changed.

COHEN: My husband's family was in Baltimore a few years after the war, and it was more interesting in Baltimore than Washington. I mean, that whole area has changed.

BING: Indeed. At that time I found out something interesting in cardiology, something which I thought was really fascinating. That was the metabolism of the heart. My boss was Alfred Blalock, a very famous surgeon. He worked on congenital heart disease. And once I found out that I could—in man—determine how much glucose and fatty acids the human heart used, I got all steamed up. He didn't like that much, but he was pleasant enough, so I went to Alabama.

COHEN: You explained that in your book—that you thought you were going to the ends of the earth, but it turned out to be nice.

BING: It was wonderful. The South is even better now. I went back to Alabama. I was invited. At that time—the first time—you know, there was the time before Martin Luther King when things began to boil. I mean, you noticed it. But when I went back to Birmingham recently, to me it was a city of total equality. There were a lot of black doctors at the university. It is a marvelous thing, how that has changed.

COHEN: And what year was that when you went back there?

BING: That was about eight or ten years ago.

COHEN: Do you feel they really have integrated there?

BING: Oh yes. It's going on more and more. And the South, which was so totally disintegrated, is probably the place where it's going to be more integrated than any other place. Look what's happened in Mississippi. I mean, they are putting to trial people who murdered thirty years ago and thought they'd get away with it. It's very encouraging.

COHEN: So you were in Alabama for how long?

BING: Four years.

COHEN: So your children were growing up still.

BING: Yeah. They loved Alabama too. The whole family loved it. My youngest daughter was born—the youngest, the fourth child. She was born in Alabama. My wife was in the—what do you call it—"birth control…"?

COHEN: Planned Parenthood?

BING: Planned Parenthood, yes. And when she got pregnant I think they were very disappointed. But the youngest daughter—

COHEN: Was born in Alabama.

BING: Why we left Alabama, I don't know. I was asked to become a professor at Washington University. But always, in my life, I have tried always to better [things]—without regard to how happy I was.

COHEN: Well, you certainly were used to moving around.

BING: I've been here thirty years now. I've made up for it.

COHEN: Well, once you get to California, you stay.

BING: Yeah. [Laughter]

COHEN: Same with us. [Laughter]

BING: Where did you come from?

COHEN: Well, I was born in Connecticut—

BING: I'm sorry.

COHEN: Well, I'll tell you later. I'm not on this tape. [Laughter] So you were in Alabama. Now, I don't remember when the Detroit was. Evidently, that was not a happy time.

BING: From Alabama I went to Washington University as a professor of medicine.

COHEN: In St. Louis?

BING: In St. Louis, yes.

COHEN: That's supposed to be a good school.

BING: Wonderful. It's a wonderful school. I think it's probably the best school I have ever been in.

COHEN: Washington University?

BING: Washington University.

COHEN: And you were doing research all this time?

BING: Yeah, and clinical work too. I was head of the medical department of the veterans' hospital at Washington University. So I had a lot of clinical responsibilities. And if I regret anything in my life—I was always interested in clinical and research—if I had to do it over

again, I would probably stick more with the clinical. Now it's bad, but it used to be gorgeous. You really were liked by your patients and you felt that, day after day, you did something really good. In research it's year after year that you *may* do something good.

COHEN: Well, the combination seems like a good thing, if one can do that.

BING: Yeah, well, I'm retiring next year. I'll be eighty-nine then. And if they will have me, I really plan to work at the Foothill Free Clinic. I have to relearn medicine again.

COHEN: Well, let's get back. So after St. Louis you went to Detroit?

BING: After St. Louis I went to Detroit.

COHEN: And now you don't know why you did that?

BING: Yes, because I'm an idiot. I think I went there because I was chairman of the department. And I think that's part of my European heritage.

COHEN: Oh, you wanted to be chairman?

BING: Chairman.

COHEN: Oh, so that's what was offered to you—to come and be chairman there?

BING: Yes.

COHEN: Was that Wayne University?

BING: Wayne State University. Medically, it wasn't the best place. That's where I really ran into trouble. I mean, after ten years as chairman of the department, the dean decided I wasn't enough of a clinician—after nine years. So I was supposed to be promoted, but [got] demoted to Professor of Experimental Medicine.

COHEN: Did the family like living in Detroit? The suburbs were probably very pleasant.

BING: The suburbs were very pleasant. And my wife made some very good friends in the suburbs. But I was the chief of medicine in the hospital for the poorest of the poorest. I think in inner Africa it wouldn't have been as bad. Disregard for social responsibility is the most frightening thing I've ever encountered. It was just horrible. It was mostly a black population. The emergency room was disorganized. People had to wait twelve, fifteen, eighteen hours before they were seen. There was no triage. It was horrible. And I was chief of this place, ramming my head against a wall. Doing things better—hopeless.

COHEN: So you would come in and really be discouraged?

BING: Very discouraged.

COHEN: So then the opportunity—

BING: Then I had two choices. One was to become a professor at Emory University, and I was very tempted.

COHEN: That would have been the South again.

BING: Yeah, and I was very tempted. But this thing came up at the Huntington Hospital. I took that because I had had enough of universities.

COHEN: Maybe it's the people that do it.

BING: You are so right. That's exactly what it is.

COHEN: So had you ever been here to visit before? Did you know Pasadena?

BING: I was chairman of the scientific committee at the City of Hope for ten or twelve years.

COHEN: Ah, so you had been out here before. That's a wonderful place too.

BING: It is. I was very tempted to go. They asked me to. But you see, in all honesty, when you get very old you sort of fade. And that's a thing that's very hard to take.

COHEN: "Old soldiers never die, they just fade away."

BING: If the young people don't remember, the old people fade away.

COHEN: So you were happy to leave Detroit. By then your children must have been grown.

BING: Yeah, John was at Harvard. Judy was becoming a nurse. Bill, who is here, was in music camp at Interlaken. The youngest one was still in school.

COHEN: So then you had the invitation to come to Huntington Hospital.

BING: Yeah, I did that. It was beautiful in the beginning.

COHEN: I'm going to leave that for next time.

BING: Fine. You're very patient. [Tape ends]

RICHARD J. BING

SESSION 2

June 29, 1998

Begin Tape 2, Side 1

COHEN: Hello, Dr. Bing. I'm happy to see you. I thought today we might talk about your California life.

BING: Okay. I came here in 1969 from Detroit, because I actually quit my job.

COHEN: You mean you actually just plain quit?

BING: Wayne State University, yes. They sort of demoted me, I guess, because after ten years as chairman of medicine they made me the chairman of experimental medicine. It's a little bit like the president of Liechtenstein, or something like this. [Laughter] He had nothing to do. But as soon as I left, of course, there was a big to-do in Detroit, and they offered me, God knows what actually.

COHEN: To stay?

BING: Oh yes. But it was the Board of Directors of the university who really tried to get me to stay. But by that time I had two choices. One was to go to Emory University as a professor of medicine, which was a nice place.

COHEN: That's in Atlanta?

BING: Yeah, and I went to Atlanta. But for some reason it did not work. I was a little bit leery of university politics, which I had tasted to the bitter end in Detroit. So, a friend of mine said, "They're looking for someone at the Huntington Memorial Hospital." So I came out here and started as the director of cardiology and medical education in medicine, and then got an appointment, at the same time, at USC [University of Southern California] as a professor of medicine.

COHEN: Was there a connection between Huntington and USC at this time?

BING: Not an official one. But a good number of staff members at the Huntington Hospital are also on the faculty—mostly clinical professors. That's the title given to practicing doctors who are offered some university connection. But some of them are regular professors. That, of course, was very nice for me, because it made it possible for me to see a tremendous amount of clinical material on my rounds of the county hospital.

COHEN: Ah, USC was operating the county hospital.

BING: And at that time, the director of the institute was a wonderful man—Dr. Pudenz, who is still alive, although barely so, if I may say so. He has very bad cancer—bone cancer, like Max Delbrück. And he sort of recruited me for the institute. There was a man at Caltech, Harold Wayland, who worked in the field in which I also was working, namely microcirculation. I was interested in that. I hadn't really worked in that, but when I came here I got interested in it. And Harold had a laboratory in the subbasement of Thomas [Laboratory]. To me Caltech was, like I write in my life story, a really great experience, because I had been working in a second-rate, between second- and third-rate, university [laughter]—Wayne State University. Incredible. I know why they call Caltech an elitist group of people.

COHEN: Smart people.

BING: Smart people. Harold was not in the mainstream of Caltech things at the time, but he did work—

COHEN: Now, he was an engineer?

BING: He was an engineer, but his work was really in biology. He had devised a system for photographing the tiny blood vessels in the brain. And I started to do that in the heart. I worked with him a while and learned a great deal from him. And then I went back to the Huntington Institute and built a duplicate setup, specifically for the heart.

COHEN: This was a special kind of camera? Something that was inserted?

BING: A special kind of camera. And I built something which I was very proud of, although I don't think it's so great. But instead of shining the light on the tissue, which is called epi-illumination, I shone it through the tissue, which is called transillumination. And I devised a micro-needle with a little quartz crystal which conducted the light into the tissue and illuminated it from below. And I got tremendous help from JPL [the Jet Propulsion Laboratory].

COHEN: Who at JPL did you work with?

BING: Those were the golden days. There was a director's fund from which I must have gotten quite a bit of money. Who is the man who did all the space exploration? I can't think of his name.

COHEN: Bruce Murray?

BING: No. He was the director of JPL then, from New Zealand.

COHEN: Oh, Pickering. Dr. Pickering.

BING: Pickering. He was just as nice as anything. And he used to give me the right direction. And, believe it or not, he gave me money for my research. That made it possible to develop this method.

COHEN: So you had people from JPL working on this camera?

BING: On this camera, and on the transillumination with the quartz crystal. We tried everything at JPL, like using lasers, that didn't work. But in principle it was sort of a natural selection of the method. And eventually it worked out all right. If it hadn't been for Caltech or JPL, I don't think I would have been able to develop it. That was my first contact with these people.

COHEN: With this kind of person?

BING: With this kind of institution, I should say, because previously I had not encountered anything like Caltech. Caltech is a very unusual place, as you well know.

COHEN: Yes, of course.

BING: To me it was like—for all the years I have been here—sort of an unrequited love affair.

COHEN: Well, not completely unrequited, but okay.

BING: But in some way. But anyway, I published a lot—about seven or eight years—on that thing.

COHEN: Now, let me, in my ignorance, ask a question. This method could only be done during surgery, couldn't it? I mean, you had to have the heart open, right?

BING: No. It was done on animals, on cats. What we did was we opened the thorax on the anesthetized cat and put this little needle under the muscle. First we used the turtle heart, because the turtle has only three chambers. And that heart beats maybe thirty times a minute, whereas the cat heart beats about 100-120. So you have time to observe the coronary circulation. It goes much slower. So we used the turtle. I don't know where we got them from, but it worked very well, and we found quite a few interesting things about coronary circulation which I didn't know. We got quite a bit of—I don't know if it was publicity—but response to that work. So that was extremely good. I had people from the Max Planck Institute in Cologne coming here—a man and his girlfriend. They were truly brilliant people. Very quiet, but very brilliant. And I never saw them working, but I found out they worked at night. They came around six o'clock or so and worked all night. And they did some incredible work. I finally spent some time with them at night on the circulation of the brain.

COHEN: What year is this?

BING: That must have been in 1974.

COHEN: So the experiments were actually done at JPL?

BING: No. They were done at the Huntington Institute. At that time my lab was opposite the hospital. There are several Huntington Institutes. Unfortunately, I'm not there anymore. I loved that place. But I was sent to the gulag. [Laughter]

COHEN: [Laughter] Okay, we'll come to that. But we have you at one of these buildings that are called the Huntington Institute.

BING: Yeah, HMRI—Huntington Medical Research Institute.

COHEN: Okay, I've seen that.

BING: That's just opposite the hospital.

COHEN: Wait. Let me just backtrack a little bit. You were funded in this work by JPL?

BING: No. Well, yeah, they gave some money, but I was also funded by the National Institutes of Health. And I was funded by the Council for Tobacco Research. Nowadays that's like saying that Adolph Hitler gave you some extra money. [Laughter] And there was one other foundation. I was absolutely rolling in money.

COHEN: Did you write these grants yourself to get this money?

BING: Oh yes. At the Huntington Institute no one writes it for you. This is one of the other great things about Caltech—which maybe people here don't appreciate—that they get help in writing these things.

COHEN: People I know write their own.

BING: Well, you write your own, but they'll go over it later on—go over the budget, and so on. We don't have that luxury. So I wrote my own grants. And I was tremendously well-supplied

with funds. I also worked on a field which I had started on at Wayne State University. That probably got me a little bit of fame. I was told that's why I got elected to the American Philosophical Society, but I don't think it's quite true. But I used, for the first time, positron emitters to measure coronary blood flow. I suppose it was somewhat of a big deal, but it's totally forgotten now. I used patients for that, of course, and amongst them was the Governor of Michigan, George Romney.

COHEN: He came and you did his procedure?

BING: He came because he thought he had angina and thought that I would be able to say whether he did or not. But he wanted to lend his support for the research. He later on ran for president, but was defeated because he told the truth. Do you remember?

COHEN: Sure.

BING: He said that he was brainwashed in Vietnam. I mean, it's unbelievable how things change. Something that was absolutely the truth and was offensive then, five years later would have been glorified. That's why I think it's always good to shut your mouth. Well, anyway…

COHEN: [Laughter] So you had this group going with help from both JPL and Caltech people.

BING: Yeah, and with funding from NIH and from a lot of other foundations.

COHEN: But, Dr. Bing, basically these were your ideas?

BING: Yes.

COHEN: And these other people just were delighted to cooperate with these things?

BING: That's right, yeah.

COHEN: Did you have postdocs or other doctors working with you?

BING: Oh yes, many, but none, really, from Caltech. They all came specifically to work at the institute on those subjects. I hardly ever had fellows from Caltech working with me, because I think for some of them that would have been like going from the Rockefeller Institute to Lower Slobovia University, or something like that.

COHEN: [Laughter] Well, too bad.

BING: It's the truth. That's the back side of the coin. The great people here are not one bit conceited, but some of the little people think that they are anointed, and really no one in life is.

COHEN: Well, maybe they think that's how you get to be great people. Who knows?

BING: Who knows?

COHEN: So this work, which was very productive, went on for quite some time.

BING: Oh yes. It went on for six to eight years, at least. It was during that time, I think—when I came here—I don't know whether that's of interest to anyone—but to me it meant a tremendous amount. I started to write music again.

COHEN: In Detroit you didn't write any music?

BING: I took lessons. I took lessons from a wonderful man from the Detroit symphony who taught me an awful lot about instrumentation. So when I came here I was obsessed and possessed and wrote a mass—a *Missa*. Why I did that, it's very difficult to understand, but it meant a lot to me. That was performed in Vienna and other places.

COHEN: Well, you must have been feeling very creative doing all this work.

BING: I felt really good, because it was such a wonderful thing to get out of Detroit. And here we lived in La Cañada, up in the hills. There were trees and it was quiet. It was so wonderful, really. I explored California, not excessively so, but we went around. And the Huntington

hospital was a wonderful place, because they really supported me. The honeymoon lasted quite a long time. It was followed by some sort of disillusionment, but [the honeymoon] lasted a long time. It was wonderful.

COHEN: And this research you did with help from JPL and Caltech was done in the laboratories at the Huntington?

BING: Correct, yes. The first laboratories at the Huntington were actually at the hospital. They went out of their way to make them. And then they had the earthquake, in '72, wasn't it?

COHEN: The San Fernando, '71.

BING: And the whole laboratory was totally destroyed. But within no time at all they built another one in some other part of the hospital. They were very proud of having that.

COHEN: The research going on?

BING: Oh yeah. Now they wouldn't be any more, because the HMO [Health Maintenance Organization] has really totally changed the emphasis. It's as if the bitterness of life omits all the niceties from going on.

COHEN: Too bad.

BING: Yeah. That's not very good. But as long as they take care of patients, that's really very, very important—if they do a good job, then it's probably worth it.

COHEN: Let's get back to your laboratory. Tell me more about some of these experiments that you were doing.

BING: About the coronary microcirculation—I think I told you about the new method we introduced. We applied it to the brain. And the new thing about it was that we used the same transillumination—you know, stick a teeny, microscopic needle in and shine the light through it

to see the vessels. We used 250 frames per second, so things moved pretty fast. And then later, more and greater speed. But in the brain, of course, what people had done was observe the circulation through the skin of the brain, the pia. We attempted to do it through the actual brain mass. And some really astonishing thing came up. We saw blood vessels open and close. I still have the movie. Some of the group felt that it looked like the freeway system. They had some—what do you call the blockage?

COHEN: Uh…

BING: Yeah, well anyway, nothing went through.

COHEN: Sig-alerts.

BING: Sig-alerts. And all of a sudden it went on. Usually a white cell marching along and all the red cells after that. The whole thing was wonderful. I always think it's wonderful to see nature directly, rather than indirectly. I mean, the biochemists only see that they have a tremendous amount of insight, but they see it indirectly. But these people who make direct measurements, see movements, and so on—that is something where you have a feeling that you see nature directly at work, and that's a wonderful thing. With the coronary circulation we published quite a bit. We showed the advantage of positron emission—which was, by the way, discovered at Caltech, of course, by Anderson—over the other method, which was called the singles method. We published that, and that was quite successful.

COHEN: Did you have anything to do with Anderson?

BING: No. He already was quite withdrawn from things. I published a paper on him, and I have a copy of his original article. It was a very fascinating story. I'm sure you're aware of it.

COHEN: No.

BING: When he got the Nobel Prize he was an assistant professor.

COHEN: Yes, okay.

BING: [Laughter] So gradually Caltech agreed that he deserved a promotion and made him a professor. Carl Anderson, I think, was his name.

COHEN: Carl Anderson, yes.

BING: I never met him, but it was a brilliant tour de force by a relatively young man.

COHEN: Yes, it certainly was.

BING: So on his work we based our finding. Now they have this PET [positron emission tomography] scan. You know what that is. They have one here, I think. Who is the man who is in charge of imaging?

COHEN: Scott Fraser?

BING: Fraser, yeah. I guess he had one. But we built one, probably the first one. And then, of course, it was at Washington University in St. Louis where they built it. And now the PET scanner costs $2 million. But we compared coincidence with singles and found how we could localize things. That was a very good time.

COHEN: So, did you ever build a machine that actually could be used? Or was this a step on the way?

BING: Oh yes. We had patients there.

COHEN: So you really used them clinically.

BING: We used them clinically. Of course we had, by no means, the expensive and super-sophisticated PET scan. That came a little bit later. But at least we had the feeling that we did some initial work on that. That lasted for about eight years. A gorgeous time, I must admit.

The next project we worked on was something that didn't work out. It may in the future, but right now it looks pretty gray. We tried to prevent the uptake of cholesterol by the artery by giving ketocholesterol, which is an oxidized cholesterol. And I thought I had the ticket to Stockholm, and not to La Cañada. The artery refused to take up cholesterol. That created a little bit of interest. But then I worked with a man here named Sunney Chan. That wasn't very productive.

COHEN: Now, this was on the cholesterol problem?

BING: Yeah. He sent a man from Caltech—a fellow called Schuh—to work with us. Dr. Schuh considered that as going to, as I told you, Lower Slobovia. [Laughter]

COHEN: Dr. Schuh was a research fellow, or something?

BING: He was a research fellow. And he not only didn't deliver, he didn't show up. And when he showed up he wasn't very nice. So this cooperation with Sunney just didn't work at all. Sunney's a real nice man. I really like him a lot. But I told him later. I tried again some other time, but it didn't work either.

COHEN: Is it that he didn't come himself and just sent somebody?

BING: He wasn't impolite at all. Sunney cannot be impolite. He's always pleasant.

COHEN: So he just didn't come and work on it.

BING: He didn't come and work on it. I still think that was an interesting project. And it was at that time that Charles Lindbergh came back to my lab.

COHEN: Oh, really?

BING: Because Charles and I had worked together.

COHEN: Right, in 1934. So this was, what, about 1980 now?

BING: No. He died in ’72.

COHEN: Oh, so this was previously that he came back. That sounds like a good story.

BING: Yeah, well he wrote me.

COHEN: He was living in Europe, wasn’t he? Or had he come back to this country?

BING: He had come back. He lived in Connecticut or in Rye, New York, with Mrs. Lindbergh. The children had all grown up. He wrote me that he was coming to the neighborhood. He wrote me some extremely emotional letters—totally unexpected from a man whom I always considered down-to-earth and his face averted from sentimental things—in contrast to me. But he wrote that, after he visited me he came and—he didn’t stay at my house—but he came to stay during the day. And I asked him to give a lecture at the Huntington staff meeting. He had been very shy, but that had all disappeared. He was willing to do almost anything. He was interested in environmental preservation, and so on. And then he came to the lab, and we had the perfusion pump going. To him that was just the noise of the pump and the atmosphere. Then he wrote me the letter that said how wonderful it was to have a look back at our youth and that it was a privilege to have worked together with Alexis Carrel, whom he adored.

COHEN: And what was he doing at this time? Was he just sort of doing things with the environment?

BING: I took him to the airport in a car that wouldn’t work. You had to fiddle around to make it go. He told me on the way that, when he gets to New York at 4:30 in the morning, he sleeps in his truck until he just goes to a meeting in Manhattan. [Laughter] Completamente pazzo [Totally crazy!—ed.].

COHEN: But his wife was writing books at this time?

BING: Not any more. By the way, I did like her.

COHEN: That's what you told me previously.

BING: We both were sentimental about the past because of our earlier time together at the Rockefeller Institute. And that was very nice.

But that was the experiment on the ketocholesterol and uptake of cholesterol. I still don't understand why it worked.

COHEN: Why it worked?

BING: Why it worked. Exactly.

COHEN: But you never were able to progress and use it for anything?

BING: Never. And I was hoping that Sunney Chan's group would show me a way out of this dilemma, because I didn't feel I was really trained enough to do that.

COHEN: In the chemistry of it?

BING: Yeah.

COHEN: Well, maybe you'll get someone else interested one day.

BING: You never know. You never know.

COHEN: After Sunney Chan, who did you work with?

BING: Then I started nitric oxide work. That's when I met Delbrück, whom I really liked a lot. And there is a man named Hoffman, who now has an endowed chair in environmental

chemistry—Michael Hoffman. He is also a totally unconceited, very down-to-earth, wonderful person.

COHEN: So what problem were you working on with these people?

BING: I started on nitric oxide work. I think you probably are aware that this is the big deal in the last five years. It's an unstable gas. Hoffman had worked on that as a pollutant in the atmosphere for many years. So I got advice from him about the chemistry of that stuff.

COHEN: As it affected circulation?

BING: Well, yeah. It had been kind of an interesting story. A seventy-two-year-old pharmacologist in New York named Furchgott—a wonderful man—had discovered that this substance was produced by the cell that lined the blood vessel, the endothelial cell.

COHEN: The nitric oxide?

BING: Yeah. And that makes them dilate. He later found that they continuously reproduce—all the time—to keep the vessels open. That's a big deal for the body. They called it "endothelium derived relaxing factor"—EDRF. And that was a big deal then. Of course, like it goes, the race went on to find out what it is. I was in the race too, but my horse was a little bit lame. [Laughter]

COHEN: Now, for this you talked with Hoffman?

BING: I talked to Mike Hoffman, yeah.

COHEN: And what were you doing with Max Delbrück? Was he just involved in this problem also?

BING: No, not really. He wasn't really involved. It was just something that started independent of my work. How I got introduced to Max, I don't remember. By Manny [Manny Delbrück,

Max's wife], I think. And Max was already beyond the time of the phage group. He had sort of grown out of that and left the battle to minor soldiers to fight. And then he went into the lab and did this work on plants. And he went to all of my concerts. For some reason or the other, that interested him. Another thing we had in common was our love for Rilke, the poet. He took tremendous comfort in the poetry of Rilke, almost until he died. I liked it too. We talked quite a bit about it. And we also played four-hands, which was, I must say, not very nice, because he was a terrible [laughter]—Max wasn't a great pianist, you know.

COHEN: Oh, but he liked to play piano with you?

BING: Yeah, he liked to play piano with me.

COHEN: Well, at least you had his company.

BING: To me that was very interesting, because I always considered myself—and I think I still am considered by Caltech—a little bit—not a little bit—an outsider. I'm only a visiting associate, but I'm not a professor of anything by itself. And people at Caltech think of another Bing. There's a Bing family which gave a couple million dollars to the department of biology. There's a Bing professorship.

COHEN: What Bing is that?

BING: That's Peter Bing.

COHEN: Any relative?

BING: No. I wish that I was.

COHEN: And so they felt you were him once in a while?

BING: Oh, many times, yeah, and that's wonderful. [Laughter]

COHEN: So you don't discourage that? [Laughter]

BING: [Laughter] I don't discourage that. I don't discourage them at all. So Max was someone who did not just consider me an outsider, but looked at me, I suppose, as a person he would like to say hello to. He was always friendly, always polite. He actually helped me write a paper. He went through it and was very nice about it.

COHEN: He probably liked you.

BING: That's possible. I hope so. I liked him tremendously. And when he died I wrote a piece of music. I got very moved by that. I sent it to Manny and she liked it. So he was actually my entrance to Caltech—to the really good people.

COHEN: He was certainly tremendously respected here.

BING: He had another side—once in a while his German professorship came to the fore. For instance, I once went to the Athenaeum and he was sitting there. They were meeting, obviously—the great people of molecular biology. And I came in and said, "hello." Max didn't pay any attention to me. Interestingly enough, two days later he phoned me and said, "I'm sorry. I should have said hello."

COHEN: Ah, so he noticed.

BING: For me he was just a man who was intellectually interesting and nice. I asked him, when I was president of the American section of the Society for Heart Research, which met in Pasadena—it must have been in 1975—to give a lecture. It was at the old Huntington Hotel. And Max did a wonderful job, not talking about science, but he showed slides—like a family excursion of walking in the Sierras with his friend Bonner [James F. Bonner] and whomever. People liked it.

COHEN: So he wanted to do something different. I remember during the Vietnam War—the Cambodia bombing—when the kids here actually had a demonstration, which was almost unique. And I still remember Max standing and reading from *The Peloponnesian Wars*.

BING: He did what? *The Peloponnesian Wars*? That's like him.

COHEN: So there was this other side. So actually it wasn't really science that you did with Max.

BING: Not at all, no. But he tolerated me somewhat.

COHEN: And you felt he was an entree to meeting other people here?

BING: Yeah. And I was at his house several times. It was always very nice. My wife loved it too.

COHEN: It was a cheerful, heartfelt—

BING: Yeah. Well, for me it was nice to get a view of what's really great at Caltech. Of course, only later when I wrote my book did I become aware of the incredible role Caltech played in the development of molecular biology.

COHEN: I see. Tell me about this book that you wrote. What book was this?

BING: Well, it was the history of cardiology, actually. It was *Cardiology: The History of the Art and Science* [Correct title: *Cardiology: The Evolution of the Science and the Art*—ed.]. That's the title. And the first edition—I wouldn't call it *Gone With the Wind*, but it sold pretty well. It was published by Gordon and Breach. They didn't propagandize it well, but they were nice about it. No one else would take it. I mean, I tried to sell it.

COHEN: What year was this?

BING: This was six years ago. And then it sold so well that I wrote a second edition. But I switched publishers. I went to the Rutgers University Press, which I thought was a little more on the up-and-up. So that's where it is now. It's been sent to the publisher now.

COHEN: Ah, so this is something you've just recently done.

BING: I just recently did it. And it was truly a pain in the neck, because we don't have much money and the institute can pay only a very low salary—maybe ten or eleven dollars an hour—that's not an awful lot.

COHEN: Now, look. We're skipping a whole bunch, because we're going from Max to this book.

BING: Oh yes.

COHEN: And you did this nitric oxide work with Hoffman.

BING: It started with Hoffman.

COHEN: What came of that work?

BING: Well, this could have been a much happier story than it was, because, as I told you, the race was on to identify this mysterious substance that the endothelial cells produced.

COHEN: Oh, you didn't know it was nitric oxide at that time?

BING: Oh, no. No one knew. And I really was racing, but I told you: my horse was limping on one leg. [Laughter] I isolated endothelial cells from cows' pulmonary arteries and bound them to little microspheres—plastic spheres—so they'd stick around this thing. And they were just like a cow giving milk. The amount of EDRF, as it was called, was tremendous. I said, "Oh, well, now I have lots of material to identify." Electron spin resonance is the way to do this sort

of thing. So again I went to see Sunney Chan—here we go again. And his machine had more wiggles than a baby jumping around the crib. It should be a peak, you know?

COHEN: Yeah, I know how that works.

BING: But the truth must be told. I went to USC to the physics lab and got another one. And there was this peak.

COHEN: So you had a successful collaboration there?

BING: Yeah. But my mind was not prepared, you see? And I was not aware of what this meant. I said, "Oh, that's very interesting," and left it. And that was nitric oxide. About six months later UCLA had someone and Furchgott had someone and some other people all found out almost simultaneously that this strange substance was nitric oxide. Then I found other substances and published in the National Academy. It wasn't a very good paper. But I stuck to nitric oxide ever since. I sort of didn't belong to the inner circle, because I had missed the boat really. I had missed it. But gradually, being a cardiologist, I got myself back together again and worked. That's the work I do now about nitric oxide and heart attacks. That turns out to be a very interesting field.

COHEN: So there's a real connection there?

BING: Oh yes, indeed.

COHEN: And is that your present work now?

BING: That is my present work now.

COHEN: And are you working at all with anybody here from Caltech now?

BING: No.

COHEN: So the business with Sunney Chan was sort of the end of that. [Laughter]

BING: Yeah.

COHEN: And you didn't work with anybody again after that?

BING: That's all right. [Laughter] Well, I wouldn't know anyone who really works on that here. I would ask one lady who works on that. This is Erin Schuman, who works in biology. Part of her lab works on nitric oxide. When someone at Caltech asks for a grant, the chances are pretty good that it will go through. When someone applies from our institute, chances are pretty good that it will not go through. Honestly, there is a big difference. So we have to struggle much harder.

COHEN: Does the Huntington Institute itself have any endowment that you can get any money from?

BING: Yes.

COHEN: Well, what other kinds of research go on there?

BING: Some really good stuff. There's a fellow called Agnew. His method is more technical, but that doesn't detract from it at all. He makes instruments—electrodes for brain stimulation for people with loss of hearing, and things like this. And he has a big grant from the NIH. Then there is a man who works on magnetic resonance spectroscopy called Ross. He has a big lab there. He does outstanding work.

COHEN: Now, Jack Roberts has done work with people there. Is this another—

BING: Jack Roberts did not really work with people, but he is on the board of directors. Thank goodness. He is a pure scientist. He is always opposed to things that are not above board scientifically; Jack has always tried to sponsor the purely scientific aspect. I'm on the board of directors, so I know what's going on.

COHEN: So it's a problem there sometimes?

BING: But I retire at the end of next year, 1999, when I'm in my ninetieth year. I don't want to at all, because my great pleasure now is younger people working with me. I don't know whether my paternal instincts come through, but it's nice.

COHEN: Well, that's what's interesting. I'm going to turn this over now. [Tape ends]

Begin Tape 2, Side 2

COHEN: Okay, Dr. Bing. We've talked about all these professional things, and they sound very good. Tell us about the other side of your life. I mean, have you connected with church or anything like that since you've lived in Pasadena?

BING: When I came here to Pasadena, I think I mentioned that it was like going to heaven.

COHEN: Yes, so you didn't need religion.

BING: [Laughter] Exactly. And that was wonderful. My music began to—

COHEN: So you weren't affiliated with any formal kinds of church?

BING: No. My wife went to the Episcopal church.

COHEN: Your wife was Episcopalian?

BING: Yes, she was. She died about eight years ago. She wasn't very fond of going out of New York in the first place. That was where her family was, and so on. But I think California was all right. But for me it was just wonderful—the music in particular. The Neighborhood Church where my wife went—I never liked to go to any church, sorry to say—had a music director, at that time, who was interested in my music. And it was wonderful, because he performed the *Missa* and the Requiem Mass and a lot of things.

COHEN: In the church?

BING: In the church. Until I got on the wrong foot with him. He was really wonderful. And that was all paid for. The great performance was the *Missa*. It cost thousands of dollars to copy. I had a patient who worked in the movie industry, and he had a place where they copied music, so it was all done for nothing. They played it in a different church in Beverly Hills so it could be recorded. And that was the reason I was played in Vienna by the—

COHEN: That was the piece you gave me?

BING: Yeah. I wrote that, and then I wrote more and more. You know, you change the way you write. But I never became a member of the interior cabinet of musicians, never. In order to do that you have to grow up with them, go into a conservatory—

COHEN: Do you mean here in Los Angeles?

BING: Anywhere. And my music is not what you might call atonal, because I cannot write totally atonally, because I want to have a melody. So, for the atonal musicians I am just a nineteenth-century romantic, I suppose. All I can say is, "So be it." If I want to cry, I cry.

COHEN: But you have had, certainly, some formal training in all of this.

BING: Oh yes. I had training at a Frankfurt conservatory [the Hoch Conservatory]. I was trained by a delightful man called [Bernhard] Sekles. [Paul] Hindemith, the composer—he [i.e., Sekles] trained him. And Hindemith had already left the conservatory. But he was extremely nice to me and helped me. And then after that, of course, medicine took over. But then, as I said, in Detroit I began to take lessons again. And in New York too, I should say. Music helped a lot. But it goes in spurts. For three or four months I write, but then I have to write a paper.

COHEN: Well, you have two professions.

BING: There are two personalities or more, I think, in each person. I'm sure you have the same thing. One likes to write and do the research. But here, too, I am more or less a romantic. I am not an exact mathematical scientist—for whom I have the greatest admiration. But this particular side of my brain must have been damaged at birth—I don't know.

COHEN: [Laughter] I don't think so.

BING: I do research also, because for me it's an unknown thing which is romantic to explore.

COHEN: Now, the research you are talking about is in medicine?

BING: Medicine, yeah. Music's the same. It comes from the same source. I recently wrote a quartet and the LA Philharmonic played it about two months ago. They played a new piece I had written for a very strange group of instruments—timpani and string quartet and piano and clarinet and a soprano. I wrote many pieces based on text by Rilke.

COHEN: You took his poems and wrote the music for them?

BING: Yes. But it's very hard to write music on German text. It doesn't go very well, because no one knows what it really means. Then you have to print on the program what they are saying, and that's no good. So I'm fiddling around. That's really the expression. I don't think it's for the greater glory of myself, but it just satisfies a need. That's probably what it is. No more, no less.

COHEN: Now, is Bill [William Bing, Caltech's Director of Concert Band and Jazz Bands] your only son that's a musician?

BING: No. Bill is the only one who is a professional musician. My other son, John—Dr. John Bing at Princeton—he's a musician, but only by avocation. He played the piano extremely well. He's actually a good musician, but he didn't pursue it. He's in the field of education, so he doesn't do that any more.

COHEN: So is he at Princeton?

BING: He's at Princeton.

COHEN: He's a professor there?

BING: No, he has a business there. He's a Harvard graduate. He went to [U. Mass.] Amherst after that and got his PhD in the field of education. It's an interesting field, which I don't really quite understand. He has a company which advises big companies how to behave when they go to foreign countries.

COHEN: Ah, I see. But he does play music also?

BING: Oh yes. And my two daughters—one was a singer. She went to USC in the music department. She has some good records. But then she got married and had two children, and I don't think she even sang in the shower anymore. She died last year of cancer. And my other daughter is also very musical.

COHEN: That's wonderful.

BING: Yeah, it's good.

COHEN: So I would say you've had a good time.

BING: I had a good time. But every piece of honey which I tasted had a taste of vinegar in it too, which is life.

COHEN: So you've been in Pasadena about thirty years now?

BING: Exactly. Thirty years.

COHEN: What with Caltech and USC—

BING: Caltech I really adore. I have a very, very good friend at Caltech.

COHEN: Who is that?

BING: John Allman. He's an interesting man. He's unusual.

COHEN: Well, he works on the brain. We know that.

BING: He works on the brain. He's unusual. I'm very fond of him. We meet and go to the German place to eat. And he likes my music. For me, that's a tremendous plus.

COHEN: [Laughter] What's the German place?

BING: It's called the Bavarian Inn.

COHEN: Where is that?

BING: In San Gabriel.

COHEN: Oh, okay. I don't know that.

BING: I've got to take you sometime. I really mean it. It's really a nice place. They have wonderful schnitzel. It's just absolutely out of this world.

COHEN: Okay. So, you go there with John Allman periodically.

BING: John Allman and whoever he's with.

COHEN: Is he interested in some of these experiments—these movies that you've made?

BING: No. I didn't know him at that time. I met John only about two or three years ago.

COHEN: Yeah, but even so, wouldn't he be interested in looking at some of that?

BING: Oh yeah, he would be very interested. He recently got interviewed by God knows how many—I turn on the new station—INS, or something like that—

COHEN: CNN?

BING: And there was Allman talking about experiments which demonstrated that male monkeys who take care of their young ones live longer than those who don't. I haven't read the paper yet, but of course it was grist for the mill. You can't imagine how that caught on. He's writing a book now too. I'm very fond of him. I'd say I admire his work and he likes my music.

COHEN: So you get on very well together.

BING: We get along very well together. My relations with the institute are only that they give me, more or less, a house. Also I'm very fond of some of the workers there. But there are things there which are difficult.

COHEN: At the hospital itself?

BING: No, at the hospital it's all right.

COHEN: The institute?

BING: The institute, yes. They are totally separate.

COHEN: Oh, I didn't realize that.

BING: But John Allman is my connection with Caltech, more or less.

COHEN: Well, when you outlive them, Dr. Bing [laughter], you've got to go after the next group.

BING: Last time I saw Manny Delbrück I showed her a picture of her and Max and my wife and myself and another lady, Mrs. Bonner [Mrs. James F. Bonner]. And she said, "You know, you and I are the only ones who are still around." Very soon later she died.

COHEN: Yes. It's sad. We miss Manny. But you had a very good relationship with USC?

BING: Yes. Very good.

COHEN: I get the feeling that you think that they are really better than what they are given credit for.

BING: Yes. I think they are doing a heroic job under extremely difficult circumstances. I mean, the poorest of the poor go there. And they try extremely hard to do their best. And I'll tell you the reason why I am impressed by them. It's because I worked under similar circumstances in Detroit. And there people waited twenty-four hours to be seen in the emergency room. You cannot imagine the neglect—that's not a strong enough word—which people had for the poor in Detroit. It was just awful. It was like Cameroon or Togo or something—even worse. And at the county hospital [Los Angeles County—USC Medical Center] they try very hard to do the right thing—under terribly difficult circumstances, too.

COHEN: Well, they're overwhelmed by the numbers.

BING: Exactly. And the poor very often have no spokesperson at all.

COHEN: Even the rich these days need an advocate when they get into the medical profession. [Laughter]

BING: That's very true. I see it often, for instance, when relatives of mine go to the hospital and they treat them like nothing—unless they become nasty and assert themselves. It's a terrible thing that's happening. It really is. The dehumanization of medicine. That's really the bottom line of the horror.

COHEN: And that's what's going on now.

BING: But that's what's going on now.

COHEN: Well, as soon as you see these organizations—medical groups for profit—something is wrong with that.

BING: Totally wrong. Excuse me for talking politics, but Clinton—Mrs. Clinton—tried to do something about health care, and the doctors despised them for it. They despised them. I was at the Huntington at that time. For them it was horrible. Like Roosevelt was when he was president. And now I see what's going on. They wish they had what Mrs. Clinton proposed. What's going on for the doctors is terrible there. They are the tool of the insurance company. That's a dreadful thing.

COHEN: Do you see any chance of this getting better?

BING: The only thing that can get better is [if] people complain. And Congress is about to enact some laws protecting people. But believe me, the bottom line is still the decisive thing. Health care cost has dropped, at what cost? Friends of mine—doctors who were dumped by the HMOs—have no jobs and have gotten sick. It's a cruel business.

COHEN: Well, as soon as you put profit into it, it's wrong.

BING: Exactly.

COHEN: Medicine should not be for profit.

BING: No. Well, doctors are really responsible for some of the mischief that's going on, because some of them were really greedy. Excuse me, but they made good money—$300,000 or $400,000 a year. That just isn't right. They should not. If you make $150,000 I think that's wonderful. I wish I had it. You see, if you make a lot of money and have to cut down, it's horrible for these people.

COHEN: So it's a whole combination. Well, fault is never in one place.

BING: No. But it's like a witches' brew at the moment. A lot of ingredients go in there to make the thing unpleasant.

COHEN: Well, Dr. Bing, is there anything else you would like to say about things?

BING: No. I wanted to thank you.

COHEN: Well, I thank you.

BING: It's a great privilege. I really mean that.

COHEN: Well, I think we have an interesting story.

BING: I feel as if I have a peeping voice in Caltech's archives. Thank you very much.

COHEN: Well, thank you. [Tape ends]