CHEMICAL HERITAGE FOUNDATION

MAUREEN J. CHARRON

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Helene L. Cohen

at

Albert Einstein College of Medicine

on

7, 8, and 9 September 1999

From the Original Collection of the University of California, Los Angeles

ACKNOWLEDGEMENT

This oral history is part of a series supported by a grant from the Pew Charitable Trusts based on the Pew Scholars Program in the Biomedical Sciences. This collection is an important resource for the history of biomedicine, recording the life and careers of young, distinguished biomedical scientists and of Pew Biomedical Scholar Advisory Committee members.

From the original collection at the Center for Oral History Research, UCLA Library, UCLA.

The following oral history, originally processed at the UCLA Center for Oral History Research, has been reformatted by the Chemical Heritage Foundation. The process involved reformatting the front matter, adding a new abstract, replacing the table of contents, and replacing the index. The paragraph spacing and font of the body of the transcript were altered to conform to the standards of the Oral History Program at the Chemical Heritage Foundation. The text of the oral history remains unaltered; any inadvertent spelling or factual errors in the original manuscript have not been modified. The reformatted version and digital copies of the interview recordings are housed at the Othmer Library, Chemical Heritage Foundation. The original version and research materials remain at the Darling Library, University of California, Los Angeles and at the Bancroft Library, University of California, Berkeley.

REFORMATTING:

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UNIVERSITY OF CALIFORNIA, LOS ANGELES

Oral History Interview Agreement No. R1105020

This Interview Agreement is made and entered into this 5 day of November, 2002 by and between THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a California corporation, on behalf of the Oral History Program at the UCLA campus, hereinafter called "University," and MAUREEN J. CHARRON, having an address at Department of Biochemistry, Albert Einstein College of Medicine, 1300 Morris Park Avenue, F312, Bronx, NY 10461, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about September 7, 1999, and tentatively entitled "Interview with Maureen J. Charron." This Agreement relates to any and all materials originating from the interviews, namely the tape recordings of the interviews and a written manuscript prepared from the tapes, hereinafter collectively called "the Work."

In consideration of the mutual covenants, conditions, and terms set forth below, the parties hereto hereby agree as follows:

1. Interviewee irrevocably assigns to University all her copyright, title and interest in and to the Work. This assignment applies to University, its successors, and assigns, for and during the existence of the copyright and all renewals and extensions thereof.

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4. Interviewee acknowledges that she will receive no remuneration or compensation for her participation in the interviews or for the rights assigned hereunder.

5. Interviewee will receive from University, free of charge, one bound copy of the typewritten manuscript of the interviews.

6. All notices and other official correspondence concerning this Agreement will be sent to the following:

If to University:

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Attention: Janice L. Reiff

If to Interviewee:

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Department of Biochemistry
Albert Einstein College of Medicine
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University and Interviewee have executed this Agreement on the date first written above.

INTERVIEWEE	THE REGENTS OF THE UNIVERSITY CALIFORNIA
Signed release form is on file at the Science History Institute	
(Signature)	(Signature)
Maureen J. Charron (Typed Name)	Janice L. Reiff (Typed Name)
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Date 8/19/02	Date 5 NN 2002

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MAUREEN J. CHARRON

1959 Born in Brooklyn, New York, on 28 August

Education

1981 B.A., Queens College
1983 M.A., Queens College
1985 M.Phil., City University of New York
1987 Ph.D., City University of New York

Professional Experience

Queens College, Queens, New York
1981-1984 Graduate Fellow, Department of Biology
1986-1987 Adjunct Lecturer, Department of Biology

Whitehead Institute for Biomedical Research
1987-1990 Postdoctoral Fellow

Albert Einstein College of Medicine
1990-1995 Assistant Professor, Department of Biochemistry
1995-present Associate Professor, Department of Biochemistry

Honors

1987-1989 Jane Coffin Childs Memorial Fund for Medical Research Award
1989-1990 Postdoctoral fellowship, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health
1992-1995 Career Development Award, American Diabetes Association
1993-1997 Pew Scholar in the Biomedical Sciences
1998-2002 Irma T. Hirschl Career Scientist Award

Selected Publications

Charron, M.J. et al., 1986. Structural and functional analysis of the *MALI* locus of *Saccharomyces. Molecular Cellular Biology* 6:3891-99.
Charron, M.J. et al., 1989. Molecular evolution of the telomere-asspcoated *MAL* loci of *Saccharomyces. Genetics* 122:307-16.

Chan-on, M.J. and B.B. Kahn, 1990. Divergent molecular mechanisms for insulin-resistant glucose transport in muscle and adipose cells *in vivo. Journal of Biological Chemistry* 265:7994-8000.

Michaels, C.A. et al., 1992. The telomere-associated *MAL3* locus of *Saccharomyces* is a tandem array of repeated genes. *Yeast* 8:655-65.

Brosius, F.J.III, et al., 1992. Expression of the insulin-regulatable glucose transporter (GLUT4) in renal glomerulus and microvasculature. *Kidney International Journal* 42:1086-92.

Katz, E.B. et al., 1995. Cardiac and adipose tissue abnormalities but not diabetes in GLUT4 deficient mice. *Nature* 377:151-55.

Tsao, T.S. et al., 1996. Regulation of hexokinase II gene expression by glucose flux in skeletal muscle. *Journal of Biological Chemistry* 271:14959-63.

Li, J. et al., 1997. Signal transduction mechanisms of the glucagon receptor expressed in BTC3 cells. *Biochimica et Biophysica Acta* 1356:229-36.

Kamohara, S. et al., 1997. Acute leptin treatment increases glucose metabolism in mice. *Nature* 389:374-77.

Charron, M.J. et al., 1997. Metabolic and molecular consequences of modifying GLUT4 expression in skeletal muscle. *Biochemical Society Transactions* 25:936-68.

ABSTRACT

Maureen J. Charron has spent most of her life in New York City, New York. She was born on Long Island but grew up in Queens. The elder of two sisters born to parents of Italian and French Canadian descent, she attended parochial schools. She found that her all-girls high school, Mary Louis Academy, provided an excellent education as well as the security of a disciplined approach to education for women. She had always liked science and took as many classes as she could. The first in her family to go to college, she had to persuade her parents that further education was necessary for her; this she did at first by saying she wanted to be a doctor.

For college she selected Queens College, then considered the "jewel" of the City University of New York system. When she decided she liked research and did not want to be a doctor, she accepted a position in the lab of Corinne Michels, at Queens College again, where, ironically, she worked on maltose fermentation genes of yeast for beer. She was intrigued to find that the ends of chromosomes appeared to be "hot spots" for recombinant DNA; eventually she developed this into her research into diabetes.

Her PhD work at Queens went very well, and Charron had a number of offers from Ivy League colleges for postdoc work. She ended up taking a postdoc at the Whitehead Institute for Biomedical Research, where she worked in Harvey Lodish's lab, studying glucose transporters. Lodish required incomers to bring their own grants, so Charron acquired a new skill, obtaining a Jane Coffin Childs award. She loved the atmosphere at the Whitehead, the extravagant facilities, and Lodish's enthusiasm for any and all science; and she stuck to her own timeline of three years for a postdoc before beginning her job search.

Charron accepted an offer from Albert Einstein College of Medicine. One of Einstein's main attractions for Charron was its founding principle that the school would not discriminate against women or on other grounds except scholarship. It was also important that the school had a diabetes lab already established, funded by the National Institutes of Health, and a transgenic mouse facility. In addition, Einstein offered a dynamic atmosphere, creatively-thinking scholars, and a location close to her family and friends. Charron has won a number of awards, including the Pew Scholars in the Biomedical Sciences award, and is now an associate professor at Einstein.

Charron finishes her interview with discussions of ethics in science and her experiences with unethical students; the difficulties women have in science, especially as they progress to faculty; tenure; grant writing; competition and collaboration; lab management and budgeting; and her professional and personal goals. She loves science, though she says she has Lodish's degree of enthusiasm for a more limited number of topics.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Helene L. Cohen, Interviewer, UCLA Oral History Program. B.S., Nursing, UCLA; P.N.P., University of California, San Diego/UCLA; M.A., Theater, San Diego State University.

TIME AND SETTING OF INTERVIEW:

Place: Charron's office, Albert Einstein College of Medicine.

Dates, length of sessions: September 7, 1999 (150 minutes); September 8, 1999 (221); September 9, 1999 (96).

Total number of recorded hours: 7.8

Persons present during interview: Charron and Cohen.

CONDUCT OF INTERVIEW:

This interview is one in a series with Pew Scholars in the Biomedical Sciences conducted by the UCLA Oral History Program in conjunction with the Pew Charitable Trusts's Pew Scholars in the Biomedical Sciences Oral History and Archives Project. The project has been designed to document the backgrounds, education, and research of biomedical scientists awarded four-year Pew scholarships since 1988.

To provide an overall framework for project interviews, the director of the UCLA Oral History Program and three UCLA faculty project consultants developed a topic outline. In preparing for this interview, Cohen held a telephone preinterview conversation with Charron to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule. She also reviewed prior Pew scholars' interviews and the documentation in Charron's file at the Pew Scholars Program office in San Francisco, including her proposal application, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members. For technical background, Cohen consulted J.D. Watson et al., *Molecular Biology of the Gene.* 4th ed. Menlo Park, California: Benjamin/Cummings, 1987; Bruce Alberts et al., *Molecular Biology of the Cell.* 3rd ed. New York: Garland, 1994; Horace F. Judson, *The Eighth Day of Creation.* New York: Simon and Schuster, 1979; and recent issues of *Science* and *Nature*.

The interview is organized chronologically, beginning with Charron's childhood in Brooklyn and Queens, New York, and continuing through her undergraduate work at Queens College, her graduate work at City University of New York, her postdoc at Whitehead Institute for Biomedical Research, and the establishment of her own lab at Albert Einstein College of Medicine. Major topics discussed include the obstacles facing women in science, the difficulties of managing a lab, and her search for a position as a private investigator.

ORIGINAL EDITING:

Ji Young Kwon, editorial assistant, edited the interview. She checked the verbatim transcript of the interview against the original tape recordings, edited for punctuation, paragraphing, and spelling, and verified proper names. Words and phrases inserted by the editor have been bracketed.

Channon did not review the transcript and therefore some names have not been verified.

William Van Benschoten, senior writer, prepared the table of contents. Kwon assembled the biographical summary and interview history. Gail Ostergren, editor, compiled the index.

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INTERVIEWER: **Helene L. Cohen**

LOCATION: **Albert Einstein College of Medicine**

DATE: **7 September 1999**

COHEN: What I'd like to do is start off with something really simple, like, if you could tell me when and where you were born?

CHARRON: I was born August 28, 1959 at Long Island Jewish Hospital in, I guess, New Hyde Park, Lake Success, Long Island. But really, I'm a native Brooklynite.

COHEN: Okay, where in Brooklyn?

CHARRON: Green Point, Brooklyn. But then, on my first birthday, we moved to Queens. It was considered to be moving east and upwardly mobile, so we moved to Flushing then.

COHEN: Maybe you could tell me just a little bit about your parents and your grandparents?

CHARRON: Everything? Anything in particular?

COHEN: Well, were they immigrants from somewhere?

CHARRON: My parents were born in Brooklyn. My grandparents on my mother's side were also born in Brooklyn. It was their parents that were from Italy. So on my mother's side, we are of Italian extraction. My father's side— His mother [Carolyn Briggs Charron] was originally from Vermont—Irish and English farmers—and his father [Alphonse Charron] was from Montreal, so he was French Canadian.

My parents grew up in Brooklyn during the time of the Depression. My mother [Marie A. Sena Charron] was the oldest child, so she had it pretty tough. She had to leave school early and get any kind of work she could in order to help support the family. My father [Joseph E. Charron] was the second of four brothers, and his family had it a little bit better in that his father's job was more secure, because he was a building superintendent. Their rent was free, so

they didn't have that expense, and people still needed help within the house. So my father's family didn't feel the Depression the same way that my mother's family did. My mother's family lived essentially on potatoes and home relief clothes and things like that.

They both went to high school, and at that time graduating from high school was considered an achievement. My dad went to a four-year high school and then, after that, essentially took various jobs. He was trained to do mechanical work—plumbing, carpentry, all sorts of general contracting. My mother went to a commercial high school, and her family— I guess many Italian Americans were seamstresses, so they tried to maybe brainwash her that that trade would be a good trade. But she hated it [mutual laughter], so she went to the commercial high school, got her two-year degree, and then went off and really took a bunch of odd jobs, mostly working in factories because, then, shortly after that, World War II came around. I guess with the shortage of men, there were a lot of jobs in factories that women could take. So my mother worked for Squibb—companies like that—doing piecework, as they called it.

I guess she had it tough in a lot of ways. At least that's the way it's always been described to my sister [Joan A. Charron] and me. Also, because they were a bit of a minority in their neighborhood, people considered— You know, there's always some pecking order that's set up, and she actually was discriminated against with some jobs because she was Italian. Her best friend, who was German and Irish— [My mother] went in, interviewed for a job, and was told that there were no more openings. She walked out and said to her friend, "Forget about it. It's not worth it." Her friend walks in for the same job, interviews, and they give it to her. Both of them had the same exact qualifications: It was a job that you just needed to be able to breathe and move your hands. It was an assembly line worker. It was a company that was known to have skewed hiring practices and that had some discriminatory practices against Italians, so my mother stood up for what she believed to be right, wrote a letter to Fiorello LaGuardia, who was half-Italian himself-

COHEN: And he was mayor at the time.

CHARRON: And he was mayor at the time. And [she] wrote a letter to the newspaper and then, ultimately, she was given a job within that company. And the company was investigated for having skewed hiring practices. So those are my parents.

My grandparents— I think they also pretty much were factory workers. I didn't know my mother's father [Joseph Sena]; he died before I was born. My mother's mother [Mary Tresca Sena] worked at a printing press, Fairchild Publications, for years, and also had a lot of the same assembly-type jobs that my mother had. On my father's side— His father could do general contracting work, so when he wasn't a superintendent, he had a small business with his sons where he did general contracting and plumbing, etc. His mother—I don't think that she worked. I think she was a housewife by trade.

COHEN: Which is a lot of work, but you don't get credit for it.

CHARRON: Yes. Well, she had four sons. Yeah, I think that was a full-time job for her. She also helped out with some of the general building's issues. I think that often the super isn't just the man. It's the family. Everyone kind of gets jobs here and there. I think that's part of what lent the business, the contracting that my grandfather had with his sons— You know, which son was good at carpentry and which one was good at plumbing? My father was very good at plumbing, another one was a good carpenter, another one was a good mason. A lot of it, I think, they picked up from having that in their family.

COHEN: Did any of them stay in the business?

CHARRON: No. I think there was an image that you should get a city or government job, because you would have security with that. So one of my father's brothers became a fireman, another one became a police officer, and his oldest brother was a mechanic for Eastern Airlines.

My father had worked also for Fairchild Publications for many years and then the company was going to move—I think to New Jersey or something—and that came at a bad point in his life. He was midlife—he was in his forties at the time—and the thought of moving to New Jersey was beyond what my family could deal with. [mutual laughter] Certainly not for that kind of job were we going to move out of New York. So he was unemployed for a while, and then he worked under the license of another plumber; he went back to that trade.

Then my mother put the screws on him and said, "You have to get a government job or a city job. We need security," because he had put so many years in with Fairchild and essentially, [there was] no retirement plan. Nothing. It was just gone after, I think it was, like, fifteen years. Poof! So she said, "No, you have to have something that is stable and secure."

So he took the test for the New York City Transit Authority to be a bus maintainer; he had to do a lot of mechanical work for that. He got the highest score of everyone that took the test, because they published it in the newspaper. And midlife—he was about forty-five—he got his job working for the Transit Authority. And I think from the day that he started, he was counting down to retirement. [mutual laughter] So when Dad hit sixty-five—Bingo! Right to the twenty-year mark

COHEN: He was out of there.

CHARRON: He was out, he was out, and with a big smile on his face.

But there was more of a sense of calm, I think, within the household because the job was

stable. It civil servant's job, there was a pension at the end, there was a health plan, because when I was a kid we did not have health insurance. Dental— Dental I remember, for sure—more dental nightmares because of no coverage than-

COHEN: So the more things change, the more they stay the same in our society, huh?

CHARRON: Well, yeah. It's a little sad.

COHEN: So how did your parents meet?

CHARRON: At a dance—a church dance. My mother loved to dance and my father's brother loved to dance and he would bring along my dad. My dad, I think, just liked to help out with church organizations, and Mom went for the social activities. She saw my uncle and thought he was a great dancer, but thought that his brother was good-looking. I guess because they were both good dancers, my uncle and my mother ended up entering dance contests together—this was during the fifties—and they won a lot of prizes. They dated for a very short period of time because my mother really had her eye on my father. [laughs] Then, shortly after a brief period of dating my uncle, somehow, she managed to switch and date my father.

Then my dad got into a really bad car accident on the back roads of Vermont. Because his mother was originally from a farm in Vermont, when they were kids, they would go off for the summer to Vermont. So they had city life and farm life, unlike most New York City people. My mother had no concept of farm life and thought that was backwoods, backwards, hicks. Dad thought it was fresh air, country living, wonderful, and everything, so even when he was older, after their childhood, he would go visit relatives in the Vermont area. He was driving on a back road one night and a big truck just smashed his car, ran it off the road, and he got hurt really bad. He broke his back, so he was in various states of braces and on his back for a year.

This was shortly after my mother and he started dating. Mom decided that, "Hey, he's pretty broken up, but I like this one a lot," so she stuck with him through that period. Then eventually after that, they got married. They were both older. I think my dad was twenty-nine and my mom was thirty-two at the time that they got married. They knew what they wanted at that time. They weren't eighteen and never dated anybody else.

COHEN: So how many kids did they have?

CHARRON: Two. My sister and I.

COHEN: And where do you fit in? Are you the older or the younger?

CHARRON: I'm the older. My mother lost one before me, and then my sister is a year and a half younger than me. So number two immediately followed number one.

COHEN: Well, she started late too, so-

CHARRON: Yeah, there was a very short period after the miscarriage, and then she got pregnant right away with me. When I arrived, they were married almost three years. But I guess that's still pretty quick, considering.

COHEN: So you were born in Brooklyn, you said, and then very quickly you made this upward move to Queens.

CHARRON: Yeah. [mutual laughter]

COHEN: Is that where you grew up?

CHARRON: Yeah, my whole life has been in Flushing. I can even go to the point of saying except for the three years that I was a postdoc—because now I live in Bayside, right on the outskirts of Flushing. So except for the three years that I was up in the Cambridge area, I've always been-

COHEN: One of the things that interests me—because I lived in New York for several years, but it was a long time ago—is that people here very often settle into an apartment and stay there their whole lives. Did you live in the same apartment most of the time or—?

CHARRON: My grandmother bought a house in Flushing, and it was a two-family house. That was how my parents left Brooklyn. Because it was a two-family house, they felt that they could have a bigger apartment within a private house that my grandmother owned. That's how they did it. My parents were not homeowners.

It wasn't until after my grandmother passed away that my mother inherited a third of the estate and then used that as a down payment to mortgage it. My mother said—I think she was in her sixties—"At sixty, now I'm a property owner!" I guess there was a perception between people who owned property and those who rented. She felt that her whole life she rented and,

"Suddenly at this late stage, now I am a property owner?" Something was always hooked up to owning as opposed to renting. I'm not sure what it really meant—whether she meant it in a good way or a bad way. In some respects, it seemed to be a bit of snobbery. In other respects, I think she was envious of it. But now I think she sees it as a burden. [laughs] She wants to sell the house and move into something small.

COHEN: But actually, you grew up in more, like, a private home than an apartment.

CHARRON: Yeah, we walked freely between our apartment, my grandmother's apartment, the basement. We put a pool in the yard. So we were in a house; we just weren't the owners of the house.

COHEN: Tell me a little bit about your sister. She's a year and a half younger, you said.

CHARRON: She's the complete opposite of me-

COHEN: As is usually the case.

CHARRON: —physically and otherwise. Well, she has a beautiful son [Patrick S. Lennon], who's ten and a half. She's no longer married. Let's see, my sister hated school. My parents struggled to get her to finish

They sent us to Catholic grammar school. At the least they wanted us to go to the end of grammar school within the parochial school system. Part of the reason for that was not because they were adamant about us getting a religious education. It more had to do with what was going on within the New York City school system at the time that I was starting first grade, which was 1965. Suddenly, there was this mass busing; that's when this all began. They were taking kids from southern Queens and moving them in. It was all this racial integration, and it was just a big unknown—what was going to happen.

So the public school where I had gone to kindergarten was three blocks from our house. It was much closer, it wouldn't have cost any money to go there, it was a lot more convenient. But because it was so tense and mysterious—what was going to happen—they thought, "No, we'll send them to Catholic school." Because my mother went to Catholic school when she was a kid and it was, I would say— They were strict disciplinarians in those days, and I don't think my mother felt that was appropriate. So she wasn't really dead set on sending us to Catholic school, and my father had gone to public school. So they would have sent us to public school, but then once they made the decision to pay the tuition and go to Catholic school, they figured we would get the religious education and it was more of a known [thing]. So they felt, "You're

going to graduate from grammar school in the same school that we start you out in."

My sister hated the discipline. She hated all of that. I, on the other hand— I think I felt comforted by it. "You tell me what the rules are, and this way I know. If I do these things, I'm on track, I'll get my rewards or at least I'm not going to get in trouble." But she didn't want to know about too many rules, too much discipline. She hated the nuns; there weren't even that many nuns that were teaching us. She didn't like school at all and it didn't come easy to her. I guess that makes it easy to not like something if it's hard for you, right? My parents encouraged her, "Just get through eighth grade and then you can go to a public high school." So with her, she always wanted to quit the school and move to the public school.

I think it was even a little hard for her, because I was older and the teachers knew me. They knew my personality and they knew my academic scores; I usually was near the top or at the top and I got along with everybody. My sister was closer to the bottom academically and is not the easiest person to get along with. So what would happen would be two years later along would come another Charron child, and they thought, "Oh, she's going to be just like Maureen." In the meantime, no, she was the exact opposite. She'd be fighting with everyone in the class. She would not know the answers to anything. She wouldn't be paying attention. She'd be cutting up. The teachers were not expecting this, so I think that made it harder on her because there had to have been expectations.

So when it came to high school, she went to the public high school, did what she had to do. I think she took more or less the nonregents pathway; she didn't take algebra or any of that. It was the path of least resistance—just to get out. I think my parents just prayed everyday that she got a high school diploma. To my parents, a high school diploma was a big thing. That was what they always ingrained in us. "You must graduate high school. That means success." I always said, "I want to be a doctor." They were looking— "What? You can't be in school forever." So what they said was, "We'll send you to whatever high school you want to go to. As good a high school as you can get into, we will pay for that. After that, you're on your own."

I got into a high school in Jamaica Estates. It was an all-girls Catholic high school, and I guess academically it was the top within the Catholic school system. It was much better than, let's say, most of the New York City public schools. It was [The] Mary Louis Academy and, like, 95 percent or more of the graduates of that school historically had gone to college. So it really was like a preparation for college. My sister said, "I do not want to go not just to any Catholic high school, I really don't want to go to Mary Louis Academy." I was thinking, "If she went there, boy, she would have it really tough," because everything was a bit faster paced. In that sense, we were still opposite.

We both like sports. When we were younger, they started a girls' softball league; my sister and I played in that. We both enjoyed playing volleyball. I played it competitively. She played it intramurally in the schools that she went to.

After she graduated from high school, for her, that was considered the end of the line. I kept telling her, "You better go to college, Joanie. Really, it's essential that you at least have a

bachelor's degree." She thought that I was an academic snob and that because I was in college, I was trying to tell her that she had to go to college. So she wanted to prove it wasn't necessary. She took a string of jobs doing sort of bookkeeping, because that's the kind of stuff that she studied in high school—business machines, adding machines, accounts payable, record keeping. So she worked for a number of companies. She wasn't terribly thrilled with the jobs and, again, her personality— She's not the easiest person to get along with. So every job she had—"They're out to get me." Everybody was fighting with her— After a while, I turned and I said, "Have you ever thought that maybe it's you?" I mean, every job "Oh, you like to criticize me."

"No, I'm not criticizing you. I'm just pointing a pattern out." Then I learned, "Keep your mouth shut and just let her go on and on and on."

So I said, "Joan, you're very good at physical stuff; you enjoy sports. Why don't you try going to college and majoring in physical education? You could be a gym teacher; you could coach softball teams or volleyball teams. You enjoy that, and that, I think, would become you." She kind of agreed with that, but she also realized that she would have to take certain math, certain science, and she didn't have that preparation from the high school courses that she took.

So she started out trying to go to Queensborough Community College, and what happens is when you're a freshman, nonmatriculated, bottom of the pile, you take a math test, you take an English test, and then they put you in all these remedial courses like pre- pre- pre- pre- calculus. It's not even algebra yet. So she was taking courses that weren't physical education, had nothing to do with physical education—English courses. She wasn't taking anything that was going to motivate her, so it was tough for her to stick with that program. So she dropped out.

Then she took jobs in department stores in security. She realized that she kind of liked this because it was a little physical, it kept her attention, and she thought, "Well, maybe—" We have one cousin who works for the FBI [Federal Bureau of Investigation] and another who works for the Secret Service. Maybe something with criminal justice would be more in her line.

She applied to John Jay [College of Criminal Justice], and I guess got on a nonmatriculated track there. And again, they started with these remedial courses and, again, she got disgusted with the math and the English and not really getting to take anything in criminology. So then she thought, "I'm going to become a police officer," and she took a course in the neighborhood that somebody was running that prepared them for the test and prepared them for the physical exam; there is a physical test that they have to take. She exercised like crazy. She studied so hard. She got a great score on both the written test and the physical test, and they called her for—I guess it was the New York City Housing [Authority] Police Department, which wasn't necessarily her first pick, but it was the police department and she was excited about that.

Her fiancé at the time said, "I do not wish to be married to a policewoman. I don't want you carrying a gun, and I don't want someone potentially shooting you because you're a police person." So she was weighing the pros and cons—"What do I do?"—and ultimately decided that she was not going to take a profession that her to-be husband didn't want her to have. And I

would say that was a big mistake, because she went back to accounting-type jobs, never liking her job—back to the same rut of the people she worked with, didn't like.

She's a tough person to get along with, but I think if you like your job, you view things very differently. I think that contributed to her, let's say, misery on the job and disgust with what her job was. So how long did she work in that profession? Probably too long—until she had her son. About a year or a year and a half after she had my nephew, she went back to work because my brother-in-law had a crummy job. He's a travel agent—no pension, no nothing; all the things that my parents drilled into our heads from childhood, "You must have security. You must, you must, you must—" But he had a high school diploma. [laughs] So you can't say she didn't marry a high school graduate. My feeling was you got to watch—you can't marry only a high school graduate.

So because he couldn't bring in enough salary, she had to go back to work. Even though she was disgusted with what you would call her profession, she had to do something. She went looking all over the place, and at the time a Sheraton Hotel opened up in downtown Flushing. I think they call it Sheraton [La Guardia] East [Hotel]; it's affiliated with La Guardia Airport. They were hiring security for the hotel, so she went back to her security job that she had been doing. She still works at the Sheraton Hotel doing security for them. I would say that she has complaints—not as bad as when she was doing accounting. So that's my sister.

I keep telling her, "You have to tell your son, minimally, he has to go to college." She's still stubborn as could be. "If he wants to, that's his business."

I said, "Well, at least you should be encouraging him that he should be thinking about this, thinking about what he likes, and what kinds of things he would major in in college." She still thinks I'm an academic snob. Even though she and her ex-husband have, I think, suffered and been burned multiple times because of the degree of education that they have, [she] still does not want to admit that that's something that her son should be motivated towards. So I spend my time trying to get the kid to think about school in a positive way and trying to be futuristic about it. Hopefully, he'll see that college is the bare minimum.

COHEN: Well, let's go back just a little bit to your own school experiences. You said you went to kindergarten in public school, and did you—? I'm trying to think if people went to preschool when you were a kid?

CHARRON: Back in those days, no.

COHEN: No preschool.

CHARRON: Mothers didn't work. It was rare.

COHEN: Okay. So kindergarten was your first school experience, and as you mentioned, it was in the neighborhood. Did you like it?

CHARRON: Yeah.

COHEN: You were happy to go to school?

CHARRON: There was nothing not to like. It was play. Now kindergarten is at least first or second grade.

COHEN: It's like college now. [laughs]

CHARRON: No, it was great. All my friends from the street were in my class, and then you met new people. What was not to like? You got to paint. It was all play. Sing. Lovely.

COHEN: Did you mind being taken out of that school to go to Catholic school even though your friends probably stayed there? Or did many of them go with you?

CHARRON: Oh, no. It was almost a unanimous decision.

COHEN: Oh, really?

CHARRON: I don't know if the parents spoke to each other about it or maybe it was just such an obvious controversy at the time that it was almost not a decision. The only kids on the block that didn't go to Saint Anne's and stayed at P.S. 120 were the non-Catholic kids, and they were the minority.

COHEN: Now, was there any—because I actually remember this period of time, being a bit older than you are— For your parents and for the neighborhood, was this only about education, or was there an element of not wanting you to go to school with black kids or to racially mix?

CHARRON: I don't think— I haven't discussed it with my parents. I think it was not even the

fact that they were black kids. I think it was just such an unknown that they didn't know if it was going to be chaotic in the classroom or on the streets even, with the buses coming in. I don't think—my parents—I ever viewed them as being prejudiced. It wasn't even the issue that they were black. I think at that age, it would have hit me and probably stayed with me—if it were a racial thing.

I think it was more like, "This is too liberal—what's going on?" My parents are conservative, and I think they viewed it as such a liberal act that they didn't want to participate in it. I could have gone to first grade and if they didn't like it, they could have yanked me and moved me to the Catholic school. I have a feeling that it was just such a part of the political air. Although my parents are not conservative Republicans, they are, I would say, dyed-in-the-wool Democrats. They believe that everybody has a right to things and everything should be fair for everyone irrespective of how much they earn, but they're at the right end. So they're conservative in their ways but, let's say, liberal in how they view who can be elected and who deserves things. So I think that movement at the time was just viewed by many people as being too liberal and too much of an unknown. And, I guess, for the education of your children, it just wasn't worth risking.

COHEN: Okay. So when you started first grade, what did you particularly like about school? Because you said you liked it.

CHARRON: Oh, I was one of those kids— If I were sick, I went to school. I had perfect attendance all the time. I just enjoyed learning. I think, also, the social aspect—that you got to be with other kids— I just liked it.

COHEN: Were there any special teachers that sort of stood out in your mind from that period?

CHARRON: Well, every so often, we had nice ones. One, my fourth grade teacher, used to sing this song to us—actually, she would say it when she was threatening you—"Would you like to swing on a star?" Do you know that? [mutual laughter]

COHEN: Yeah. Because she was going to toss you out the window?

CHARRON: I think it was if you were cutting up. If somebody was cutting up, she would just start singing, "Would you like to swing on a star?" Then in the spirit of The Honeymooners, she would go, "To the moon, Alice!" I used to think that was so hysterical that she used to do that.

I was the kind of kid— I did what I was told, but every so often— I think I knew that because I was an A student, there was a little leeway in the system. So if I would be yacking in

the class, I'd get a look, where[as] another kid would get yelled at flat out. "You! Stop!" Me, I would just get a look. Then, of course, you have to test it a little bit more.

COHEN: Sure.

CHARRON: So I would push a little bit more, a little bit more, until—oops! "Stand in the corner." Then I'd be there for, like, five minutes and raise my hand, "Was that enough?" "Okay, you can sit now."

Who else? Oh, we had a teacher in the seventh grade. She was perceived as being a hippie. She used to tell us all these stories. She was, I guess, a teenager—early twenties. She went to college in the late sixties, so she had long, long hair and she rented an apartment with two men. She told us this.

COHEN: Scandalous.

CHARRON: That was scandalous. This was 1970-71.

[END OF TAPE 1, SIDE 1]

CHARRON: She used to tell us lots of stories during— I don't even remember when these things would come out. I enjoyed listening to her stories so much because they were so colorful that I don't even remember when she was doing them—in between lessons, during recess, whenever. She made the mistake of telling us that she lived with two male friends, and I think she also mentioned that she smoked pot once or twice. I don't think I told my parents this, but some of the kids must have and she vanished from Saint Anne's. [mutual laughter] She was gone. They fired her. I remember she lived in the neighborhood or was renting an apartment in the neighborhood, and I remember finding out where she lived. I went with my parents, I rang the doorbell, and I told her that I missed her a lot and that I was sorry that they made that decision to do that, but that I liked her stories and wished her lots of luck. They felt that she didn't portray the morals that the school represented and that she was a bad influence on us.

Instead, they pulled in someone who was miserable, an ex-nun who was a crab. No one really was fond of her. She ended up putting a squash on everybody's fun for that year. She was totally in contrast to the other.

COHEN: So your school was first through eighth grade? That was grammar school?

CHARRON: Right, and then high school was nine through twelve.

COHEN: Usually, nowadays, or at least in California, the kids have middle school that's sixth, seventh, and eighth, and it's more like high school in the sense that they have different classes that they go to. Did you have that, or were you pretty much in one room with one teacher?

CHARRON: Here, the grammar schools—the public schools—go to sixth grade and then seventh, eighth, and ninth is junior high. What we had in the Catholic school was in the seventh and eighth grade, for each grade, there were two classes. So the two seventh and the two eighth grade homeroom teachers each taught a particular subject. They rang the bells, we changed classrooms—they made us move from room to room to room to room—and we had four different teachers that were teaching us the basic subjects and then the accessory ones: phys [ical] ed[ucation], religious education, health ed[ucation], art, that stuff. It was a little bit of a feel like what you would get in high school, but nobody left the Catholic grammar school after the sixth grade to then go to a public junior high.

COHEN: At that point, were you already interested in science, or were you interested in everything?

CHARRON: Science. Yeah, I was always interested in science. Medical science. I was pretty adamant. I wanted to be an ophthalmologist, not just any kind of a doctor.

I wanted to be an ophthalmologist, and that was because my sister had a lot of problems with her eyes—bad vision, a lazy eye, astigmatism. I remember us going often to ophthalmologists and them giving us exercises that we had to do with her at home, and I became intrigued with eyes and "How do you see things? How do you correct for that?" Maybe you would say the physics of it. As I got older, I realized that it was an awful lot of physics, and I'm not so fond of physics. But I was very much intrigued by it.

Biology was always interesting to me, so my parents bought me a little microscope. Anywhere— You know, in the backyard, in the park— Anything I could pick and squash under the slide and look at on the microscope was exciting to me. Then I would get books and try and figure out what I was looking at—little stains. I would buy some slides, because I wasn't the best at making my own or it never really looked like the picture. I would buy some with the book, then I could match it up better, figure out what went with what. So even though I was good at almost every subject, science, to me, was the most interesting. It was clear that somehow, my ultimate job was going to be doing science.

The fact that I ended up becoming more or less a genetic engineer was completely against what we were learning in our religious education classes. There was a big stink around the

seventies when cloning— Recombinant DNA and genetic engineering was starting to enter into the household—not as everyday vocabulary, but you heard about it. It was made very clear that, "The church and the Vatican are against this. Cloning is bad. Recombinant DNA stuff—bad. It's all bad, and we must never participate in this sort of stuff." The next thing—well, not the next thing—but a decade and a half later, I am gravitating more and more to genetic engineering.

I look back sometimes and I think that of the group of kids that I grew up with on the street, two of us ended up getting Ph.D.'s in the biomedical sciences—both of us doing genetic engineering of sorts—and both of us were probably the least rebellious of the group. And maybe—well, I don't even think maybe—probably, in the group, we are the ones that are still religious. So if anyone would have predicted back then something that was perceived as being a big taboo, you would think that the ones that were the least religious, the most extreme radicals, the most defiant, would be the ones that would gravitate to that. Instead, it was the ones who were more subdued.

COHEN: Well, that actually brings up a really interesting question, which is—Apparently, if you define yourself as religious, you see that these things can cohabit—science and religion. How do you put that together for yourself?

CHARRON: Extremism of any sort, I think, is bad. Anything that you take too literally, you run into problems with. I guess at a point in my religious education, I felt that you can't take everything as being quote, unquote "gospel." Things are written this way because it either wasn't written before and it was passed on— If you think about how when you play the game "telephone," things change. But also it gets updated for the times or some religions updates for the times [are added] to make it more amenable. So if I am going to be religious, if I am going to keep some of the basic foundation of what I was taught and what I enjoy intellectually as a scientist and in my career, if I'm going to have both of them, then I have to look at the good of both and distill it down to what I believe are the basic take-home messages for both. I don't really see that they conflict with each other.

Years ago when they said that recombinant DNA and cloning was bad, that was because of a naive understanding of the science. Even nowadays people talk about cloning people. For what? To create megalomaniacs, an army of superhuman whatevers that will win wars? That's an extremist way of looking at it, instead of looking at what good things can come from it.

The same thing with religions. If you look at when things start going to the nth degree—Waco—you get fanatics. Then it becomes restrictive and the beauty of it is lost. But if you look at it as just a basic kind of calming or sensible morality— You know, you don't kill people; it's an understanding that everyone should have and it's pretty simple. You don't steal things from other people. They're just very simple things when you look at it in the bare-bones way.

So what I did was, at a certain point, instead of being what you would say "ultraconservative" and taking things too literally— I felt that many of my friends sort of

dropped any religious inclination because they felt it was too restrictive. Catholicism isn't even that restrictive. You go for forty-five minutes a week to a mass. That's not a big deal. There are a lot of religions where you have daily rituals you have to go through. So I felt that, "Okay, I was brought up within this religion. I want to keep this." There are some very nice, calming, ritualistic things about it that I like, and the way that I can do this is if I don't take everything seriously or literally.

The other thing is that you have to find a church or a mass and a priest that is more or less on the same wavelength as you. We have such a range. You have some that are ultraconservative and others who are ultraliberal, some who will never have music played and others where it's kind of Gregorian or others where it's rock. You have to find what's right for you, and that's what I've done. I will not look down on those that want to take it to the extreme, but for me, that's not the way to go. I think as long as I'm going to a mass that is uncomfortable with— You know, my comfort zone is my comfort zone. It doesn't have to be anyone else's. That's how I have maintained my religious perspective. There are many good moral principles that are introduced within Catholicism and within every religion, and there's something nice about having that as a base.

So I've just felt that whenever the church would speak out against some technological advance— I think that the church doesn't do it as much now as it did twenty or thirty years ago, but when it does, it seems to be that it's based on naiveté of the technology. I don't think that.

No, actually on that show that I told you about last night, they showed a priest who teaches at Georgetown and how he felt that cloning people was bad. It's just bad. I might even say, "Cloning people is bad." You know, everything has a life cycle. It shouldn't be endless. Things have a beginning, a middle, and an end, and there's a limited amount of space and resources on the planet and we've got to make room for the new. So maybe his perspective doesn't necessarily have to be attached to religion. I think he was talking about it in that the experimentation that's being done is being done on ovum, and obviously you're going to make mistakes—you kill them, etc. Maybe then it's more the issue of when does life begin and who should be controlling life.

So to me, as a scientist, the way that I rationalize even going into genetic engineering and cloning is that these genes are there. Not all mutations are good. Mutations that stay and are lasting are good ones and they're in response to environmental and other changes. But if we can use genes to produce proteins that people are lacking, like insulin—I do diabetes research— Why should we be extracting insulin from animals and then giving it to people, many of whom had reactions to it—you know, it's not human insulin—when we can take the gene and overproduce it in recombinant form and then give people what they normally have that, because of whatever reason, they're no longer able to make? Cloning, in that sense, I view as an extremely great medical contribution. Why would the church not think that's good?

I think that it's just a matter of when people pitch it in a way that you would engineer things to do bad things, of course, then logic would say, "That's bad." I just view it as, "No, you do it for good reasons." And I think the majority of people that do genetic engineering are doing

it for humanitarian reasons. It's an oddball that's out there that's going to do it for the harm as opposed to the benefit of mankind.

To me, I don't really mix the two if it's going to, let's say, cause an internal dilemma for me. But I probably have reached a point where I can rationalize both my religious feelings and my scientific feelings in a way that I can mix them without having that dilemma. There have been times where I just wouldn't. I think it was due to my lack of sophistication. It was easier to just say, "No, I choose to be religious and I choose to be scientific, and since neither one is bad—" They're just different aspects of my life.

It was a lot of years of my life, because high school was a Catholic high school too.

COHEN: Well, actually, before we go on to high school— Since we're talking about education and religion and all that, as you know, it was just recently that—I think it was in Kansas—they banned the teaching of evolution in the schools. Any thoughts about that?

CHARRON: In the public school?

COHEN: Yeah.

CHARRON: Ugh. For the public school-

COHEN: They took it out of the curriculum.

CHARRON: —nothing should be banned. Public is public. If you want to pay to have your children go to a filtered environment, that's your business. But it should not be that way in the public school. There's plenty of documentation that evolution exists, because the Bible isn't written in a way that acknowledges evolution, let's say, in a way that everyone understands. I mean, seven days. Did it really have to be seven days? It could have been seven hundred million years that it took, right? So no, that's wrong. Sorry. If it's a private school, it's a different story, because you then have opted to do it. In a public school, no way should they allow that.

Even in Catholic school, I remember in my biology class seeing pictures of neanderthals and australopithecus and things like that. It was acknowledged. It wasn't banned there, and I'm sure that there is a conflict—a literal conflict—with what's written in the Bible. I mean, the Bible is— It's the same Bible. People interpret it a little bit differently. We're talking about the same story of creation.

It continues to make me wonder why so many people that I know or have met in my life

feel that Catholics are rigid or that Catholicism is quite rigid. Having been brought up within that religion, I view it as being one of the least restrictive and, in some respects, somewhat liberal compared to a lot of others, including many different types of Protestant [groups], which are considered to be quite liberal. Yet when I hear some of the things that I hear out of Baptists— Probably the Southern Baptists were the ones that have banned the teaching of evolution. It's often amazed me how people view Catholicism as being restrictive, and yet I know that evolution has always been taught, at least within New York City.

That possibly is a caveat to everything that I have to say, because New York is a very different environment than most parts of the United States. You have such a melting pot here. Yeah, I suspect if I grew up in the Midwest, in the South, I would have a very different life experience, and possibly the parochial schools there could be teaching things quite different than what I was used to and what I associate with. So that could be where a lot of the perception comes from and why I don't understand why or where people get these thoughts from.

COHEN: Okay. Well, let's go ahead and talk about your high school then a little bit, because you mentioned that you chose to stay in the parochial school, at this Mary Louis Academy. What was that like?

CHARRON: Oh, that was a great school. I think that was one of the best times of my life. Most positive. I really think that the fact that it was only girls in the school was very important. A lot of us viewed it in a negative way because you think, "Oh, no boys in the classroom—" Now I can step back and appreciate it even more. At the time it didn't matter to me. I was there to learn, and whether there were boys in the room or not didn't stop me when I was learning in grammar school. "So why should it stop me in high school?"

I really think that those four years are so critical in teenage development. Studies have shown that even women teachers, women who think that they are fair, uniform across the board— They've set up video cameras in the room and shown people, "Look, we taped your class. This is what went on." People who think that they're fair ask a question and you have male and female students raising their hand to answer. They swear that they don't bias who they're picking to answer a question or the kinds of things that they say in response to what the student says—meaning, positive reinforcement or whatever. When I first heard this, I thought, "Nah." But that was because I had gone to an all-girls school. Really, I would never have noticed the sexual difference. Everyone has their favorites, and it's difficult if you really like someone to not let it show. The same way if you really don't like someone—it's difficult. There are different inflections in your voice, different body and facial features.

What this tape showed—it really shocked me—was often, when students were holding their hands up, the teacher would more often than not pick on the boys, and often the comments that would follow afterwards were very positive reinforcement. "Oh, very good." "Very clever." "Great." Often questions where no one would put their hand up, if the teacher would pick on someone whose hand wasn't raised, often she would pick on a girl, and the kinds of comments

that were being said afterwards weren't as positive. What you could see was that even teachers that didn't think they did it or felt that they did everything to not show preference could see—"Oh, my God. I am doing this."

So I think that being separated at that point, probably for the girls more so than for the boys— Because what, at least, I've been told is that girls will have a tendency to take a second seat to the boys. They'll be more shy. They'll feel that if they're saying or trying to brag that they know too many answers, it won't be appealing to the boys. And being repressed like that is not good intellectually, socially, and otherwise. Going to an all-girl school did away with that.

Having a uniform is another thing that did away with sort of class issues; that is something that I knew then and I know now. And I think that in some respects, it teaches you a certain degree of discipline—you know, you must conform to certain things. These aren't unreasonable kinds of things, so there is a place for that. If you look at it in a positive way, you can see there's a place for that. You could take it to the negative and argue the same thing. I always try to view it in a positive way.

The other thing was, well, heck, you don't have to be competing with the clothes. You can still express yourself in different ways. With your shoes. They had limitations that they would put on us, but in high school, we broke most of those limitations and did what we wanted anyways with the blouse that you could wear, with how you fixed your hair. So you could do things to still express your individuality. But even though we had some girls that came from extremely wealthy families, because the school was in Jamaica Estates, which is still considered to be a very affluent neighborhood— Tuition was at the time considered a bit high. It was on a hill, and because it was for the academic elite, others decided to call it snob hill. But in the early years, part of the uniform included white gloves. By the time that I got there the white gloves were only for very formal affairs or the glee club or the band would use it. Even for formal assemblies, we didn't run around in white gloves. But because of some of those very proper kinds of things, a lot of other schools referred to us as snob hill.

But I think they taught us how to be women who excelled, how to be important individuals—that your individuality was important and that each person can make a difference, even if it's a small difference. Many of the faculty that were there—both the laypersons and the religious—were young, upbeat, very supportive of the girls. And that was important.

I really view that as a time period that makes a big difference. I participated in a lot of extracurriculars. I was on the softball team. I was on the volleyball team. Sports, I think, is very important. I think that teaches you how to work well with other people, how to make a plan. You have to have a plan of action and, obviously, you want to win. Sports are competitive, but if you don't win— How to try to take it in stride—that's part of the lesson too. How everyone plays an important role on a team, some more so than others. To me, the sports were very important. Even when I was younger, when I was in grade school and I played sports, I think that was important. So I uniformly advocate to everyone that has kids that they should get them into sports. Not like crazed. Nowadays parents seem to get crazed with the sports, and they're overinvolved in it. But for the spirit of it, the flexibility and agility— That's good too. But it's a

different kind of socialization for the kids. So I think that was important.

Something else about Mary Louis that, I think, made a difference was in the religious education courses that they gave. They had courses with a twist, like, there was a course that I thought I would hate called On Death and Dying. Who wants to talk about such things? Well, it's important to talk about such things. The final project in that class—I'll never forget—was planning your own funeral.

COHEN: Was this course required or—?

CHARRON: It was not required. In school you had to take so many credits or course hours each year. They told you how many in religion, and you had electives. You got to pick at least what would fit into your schedule, so you had a limited degree of flexibility, but they offered a lot of different kinds of classes.

Another one that I remember as being kind of interested in the title: Love, Sex, and the Young Christian Woman. I thought that just the fact that the word sex was in there made it an attractive class to take. Of course, there was no sex in the class [laughs], but—you know—they opened up your mind to thinking about things differently. Sometimes you had a hundred-year-old nun that was teaching a course, but if you knew that the hundred-year-old nun was assigned to teach Love, Sex, and the Young Christian Women, chances were you weren't going to really learn what you thought you were going to learn in that class. So you took it with the thirty-year-old layperson and hoped that you got a tip or two here and there.

COHEN: I interrupted you when you were talking about this thing about planning your own funeral.

CHARRON: Yeah.

COHEN: Why did you take that course if you thought it sounded like a bad idea?

CHARRON: I waited until senior year, and I took it because a friend of mine took it and said she really liked it. This was someone whose opinion I trusted. She had taken it with this one woman who was a black teacher. At the time she may have been the only black teacher that we had. She had a different perspective on things, so I took it with her. I really thought I would hate it because I felt it would be so depressing. "I don't want to, at age sixteen, think about dying, particularly my own death!" But, I guess, being able to put your life into perspective— Because part of what they did in the course was to make you overview your life, your life interactions: What are your goals for the future? How do you plan on achieving those goals? If you got cut

short, would you be happy with what you've had up to that point? In many respects, it was a course about life; it just had a very morbid title.

And hearing that— "God, the final project is going to be writing your own funeral?" Of course, mine was, "I do not want crying. I want loud music that has to be rock music. At my funeral I want people dancing. I want you to take whatever money you were going to put into it. I want bare bones, no frills. Cremate me. But I want everyone to have a big party. Have a blast." I issued the invitations by me. "I just want you all to have one last good time and remember that I'm the one that gave it to you."

That was how I felt it should be. Of course, my mother thinks that's a terrible, terrible thing. "No, everybody must go and they must cry." I said, "No, I don't want anybody to cry. No crying."

It was a good experience to take it. Even though it was quote, unquote "religious education," you weren't talking so much about religion in the sense that I guess people outside would think that a religious education course would be. We weren't studying the Bible within courses like that. It was more how to lead a good life—being a good person. That's all. As I say, just common sense kinds of things.

That's why I still perceive religion as important to me, and I see it as a good thing, whereas a lot of people who probably had different experiences than I did view it more as being strapped with something and don't want to conform. It's like something that they have to do. But to me, it's something that I want to do because it was pitched to me in such a good way.

COHEN: Okay, since you were interested in science at this point and this was a highly academic school, how were your science classes? Did they prepare you well for going on? Did you have any particularly good teachers that stand out in your mind in the sciences?

CHARRON: Yeah, I had two very good teachers. My biology teacher in sophomore year, Mrs. [Teresa] Nugent, was excellent. She was a ball of fire. She was about four foot ten, weighed about eighty pounds, and had so much energy. She just made every aspect of biology interesting, exciting. I think if you put a video camera in her room, you would find— She used a lot of street language so that, in that sense, she was atypical. And she didn't care if you raised your hand or not; she was going around, involving everyone in the class. So whether you wanted to be involved or not, you were going to participate in her class.

[END OF TAPE 1, SIDE 2]

CHARRON: At the time I thought her labs were creative. We didn't have a lot of props and supplies, but with what she had, she seemed to have made do, because I don't remember sitting

around bored. So it must have been that she made do well enough. I remember we had to do things in groups, so there wasn't enough for everybody; when we had dissections, maybe one table of four would have a frog or a pig. She involved you. That's what I think made a difference. Also, she was so vivacious that if you wanted to fall asleep in her class, it would have been very difficult to do. You would have to be pretty tired to do that.

The other science teacher I had that was good was my chemistry teacher. She was a nun, Sister Kathleen McKinney. Kathy McKinney was also my senior-year homeroom teacher. She was an interesting person. She was very in tune to young women. None of us could understand why she was a nun. "Why in God's name would you choose to be a nun? You could be married, couldn't you?" She loved science. She loved her chemistry. Also, she wasn't like the Charlie Brown teacher. [makes mumbling sounds] She had lot of inflection in her voice. You could tell that she liked the chemistry. She gave good demos in her labs. She also taught some physics. Did I have her for physics too? Maybe not. Physics I didn't like, so that just blends into the background.

I guess the two that stick out were two that really enjoyed what they were doing. They had a talent for teaching, and it was by engaging their students. Kathy McKinney now is principal of The [Mary Louis] Academy. We had our twentieth reunion two years ago and she came. Same face, a lot of grey hair. She had the same enthusiasm as before, and when I heard that they had just made her principal, I thought that was so great because she really had a way with the students—with kind of figuring out different personalities and what would be good for them. That came out when she was our homeroom teacher.

She also was the dean for the year ahead of mine, and at that point I think that was a big job for her because she was probably in her twenties at the time. And to see them—fourteen, fifteen, sixteen, seventeen—going through those periods when she was probably going from, like, twenty-five to twenty-nine herself— It was kind of unusual that you're the dean of those people. They were pretty wild ones that she had to keep track of.

There were a lot of women who taught at Mary Louis. Having a lot of strong women who were very good teachers, and I think not having boys in the room, allowed us a much different and more of a nurturing, I think, kind of an education. That was something I felt—more or less at the time, and now in retrospect—made a big, big difference.

I was shy, you know. Once I opened up, it was a different story. But at the time, I was very, very, very shy. Part of that is if you come from a conservative family and you're brought up within a religious environment, you're taught to respect your elders. You don't talk back and things like that, and I would say, to an extent, there's a problem with that in that at least with me, it took me too long to learn to express my opinions outwardly. On paper, I'd be fine. And if I were participating in a lab exercise or in a sport—no problem in my physical expression. But if it meant asking questions or challenging ideas verbally, that was not me. That didn't happen until graduate school. So in college I didn't ask more than two questions in four years, because I felt either that it was a stupid question— Yet nobody ever told me that I asked stupid questions. I just assumed because I knew the answers to so many questions, that the ones I didn't know the

answers to— "It's either something trivial or people will think I'm stupid that I didn't know that and I should have known it." Or, "I'm not going to word it correctly. I'm going to word it in a way that's going to make it seem like—"

So that was one thing about parochial schooling that I felt, maybe, may have been a bit of a hindrance—that it maybe was a little too much discipline. Or probably my personality was such, because there were plenty of people that were always raising their hands and asking a hundred thousand questions. I think that it just took me longer to lock into that.

But in retrospect, I've even said that if I had a daughter, to this day, I probably would send her to Mary Louis for high school, because I do believe that it was a very nurturing environment. And now that I see things presented scientifically, where boys and girls are separated in the classroom and how performance is different— If for no other reason than that, I would advocate it. But the fact that the academy still can say that more than 95 percent of the girls that graduate go to college— That alone is worth it. It means they're preparing you well for it, and I view that as an extremely valuable life tool.

COHEN: You were saying that your parents thought that the high school diploma was a big achievement and that after that, you were sort of on your own. Did they get you? I mean, did they understand this drive that you have now?

CHARRON: No, no. If anything— Well, my father [Joseph E. Charron] is very laid-back. He's the quiet one. My mother [Marie A. Sena Charron] is outgoing, and she will not hesitate to tell you when she disagrees with something. She felt that I should get a job and start earning money. "What are you doing? You want to still go to school? It's on your ticket now." If anything, it was viewed in a negative way—going to college. I said, "But if I want to be a doctor, I cannot not go to college." In that sense then, she thought it was okay, because you have to. And her reason for, let's say, wanting to support the notion of me becoming a doctor was based perhaps more on the money and prestige that comes with the medical profession. You don't hear about starving doctors. Maybe nowadays with managed health care, they are not earning as much as before, but still, we're not going to hear that any of them are starving or about their being unemployed. So she felt that it was a stable career, you would earn a lot of money, and it was very prestigious. For those reasons, she was supportive of it. What they said they would do was pay for my books in college, but the tuition I had to take care of myself.

COHEN: Is that what made you decide to go to the]? Because that was, I imagine, pretty inexpensive. At least it was.

CHARRON: Yeah, that was part of it. The other part was that being from a conservative family, the view was that if you were not married, you do not leave home. "Only wild girls live away from home." Moving from home to go to college— That thought could not be rationalized

with still being quote, unquote "a respectable girl." So it meant that I was going to have to stay in the New York City area and commute. I think also, having come from not just a conservative family but having been in a more or less conservative environment in the parochial schools, I wasn't emotionally ready to go out on my own. I wasn't being prepared for that either at home or at school—to go away. And some of it, I think, was just me. It was just the way I was. I was kind of shy, so the thought of going away was too much to think about and it wasn't being presented to me as even an option.

Mary Louis is located very near to St. John's [University], and a lot of students just automatically went from Mary Louis to St. John's University. Maybe I should say that I mean no disrespect to St. John's; it had its heyday in the sixties and the early seventies, but by the time I graduated high school, by the late seventies, it wasn't an academic mecca. The tuition was not horrifying. It was probably about $2,500; that number sticks in my head. Certainly, that was a lot more than what the City University of New York was. But at that point I felt that I should go to a place where I wasn't going to rack up big bills, where I could get a really good education, not just an all right education.

I also felt that it was time to not be in a parochial school anymore, for whatever that meant. I didn't think that waiting until after college to quote, unquote "integrate with the rest of the world"—even though on my street, we had the melting pot of society— I still think that it was important to do it then.

Man, it was a shock! Queens College was then considered the jewel in the crown of the City University and still is. I guess many years ago City College was it; City College has probably produced more Nobel laureates than any other university. City College isn't any longer the top-ranked school within the City University. I think Queens College still is. It was near to home; I could walk there—about a mile away—so you get some exercise in. A number of friends from the neighborhood had gone there, so somehow, naively, I thought I would know people. Oh, you go there and there are just strange faces everywhere.

COHEN: How many students were there at the time?

CHARRON: I couldn't even guess. I don't know how many there are now. Day school, I'd say 8,000? I know that's nothing compared— Like, Ohio State [University]-40,000 or something like that. But it was tens of thousands in total, between day and night and the graduate programs and stuff. There were a lot of people.

I felt invisible, and that was terrible. Maybe to go away to school, I think you probably have more of a sense of a class and that you're in it together. A commuter college where you just are dumped into this sea of strangers— Oh my God, I felt like nobody—that nobody was watching after what I was doing. I had no advice on what to do.

Then suddenly, I was among many religious Jews and I thought, "Wow! This is different.

This is a lot different." Also, it was at the period of—well, when I went to high school was during the period—a lot of unsettlement between blacks and whites. Black power, the afro sort of generation—that was still lingering into college, and I'd say that was a little unsettling. So you had that faction in part of the student union. There were many Jewish organizations, many Jewish newspapers, which I wasn't used to. Suddenly, I was in the minority and then, I felt like, "I don't know anything about these people."

I'll never forget the first week of school, picking up one of the newspapers. I didn't realize it was one of the Jewish newspapers. I picked it up, and they were talking about anti-Semitism. I read what was going on there, and it didn't seem to be— It seemed like it was an issue that was being blown out of proportion—what they were turning into a front-page story. Then I started realizing a little bit more about the history of World War II. So as it had been taught to me in a parochial school and, within the context, you learn that many religious people, not just Jews, were persecuted during that time period. I was looking at this and I was seeing things presented in a whole different way. But also, things that seemed to be, like, almost thirty years old, they were making an issue today. "Why is this?" I didn't understand why this was. And in some respects, it seemed to be setting up more of a gap between people instead of an integration. You know, I just viewed religion that, "If there is one god, people are so different that you can't all—" It would be so smart to separate your faithful people into factions, because different types of people can accept things in certain ways and would prefer to practice in certain ways. So to me, I felt, "Well, I studied the Bible, so I learned the New Testament as well as the Old Testament." I couldn't understand what the big fuss was that was going on.

So a lot of my freshman year was just getting used to other kinds of people—people seeming to want their individuality—and carving a niche. Everything was an issue. I just wanted to find a place where I felt a little comfortable. It took me almost two years to find that over there; I think at the end of four years, I kind of felt like I had belonged.

My education was extremely good. I said that the high school years were among the best followed by the turmoil of college, which was among the worst. If I had to do something over, that would probably be part of it. I would not stay and be a commuter-college student. It was rough. Too rough. I think it took a lot of the whole experience that I hear other people have away, like people that work in my lab now that have kids that are in high school and getting ready for college or if I have high school kids that do volunteer work in my lab during the summer— Oh, I'm like a guidance counselor for all colleges.

It was because I think I just wasn't exposed to it. Maybe even if I was, I was not the kind of person who would have gone away. But my exposure to it was very limited, and the fact that my parents didn't go to college It was a big mystery. Most of my friends' parents didn't go to college, so the information that we had access to was very limited. What to mimic— You didn't know what to mimic. There was nothing to mimic.

And the high school guidance counselors— This is where I think Mary Louis has changed. Now they're with the times, and they try to put people into all kinds of colleges—you know, the best that they can. At the time a lot of them were old nuns and they advocated— Not

that they only pushed Catholic schools, but that's what they knew best and that's what they could give you the best advice on. Most didn't go to Catholic school for college, but it was through their parents and relatives that they knew of these other places. It was not through the guidance counselors then. So Mary Louis has changed that way, and that was essential—that they get more on the ball with that.

So commuter college is not something I advocate. It certainly— You can do well. I don't fault the education that I got at Queens College. They have great teachers there, great courses, and it was very affordable. You had to make it what you wanted it to be. It wasn't set up for you. It's probably too easy to fall through the cracks in a place like that, so maybe twelve years of discipline saved me from falling through the cracks over there.

COHEN: Maybe, yeah. Well, I want to talk a little about the program that you were in. But before we do, I just want to go back for a second, because we didn't talk at all about your social life. You know, here you were in this all-girl school, which for many reasons was very good. But did you date in high school? Were you allowed to? Did you have a social life?

CHARRON: Well, they had dances. The dances would be advertised at the boys' schools, so I went to a lot of the dances. And in the neighborhood, I knew a lot of the boys I grew up with. So I dated. When did I start? Somewhere in the middle. By junior year I had a boyfriend, somewhat. But that was loose terms for me. You know, going out on a date was enough for me. [laughs] Yeah, at least they had mixers and dances and stuff that they set up. The school tried to organize social things, then we would get advertisements when the boys' schools had dances that they set up. And then, like I say, within the neighborhood-

COHEN: Okay. Well, let's go back to college then. I noticed from your résumé that you have a bachelor of arts degree, and yet you were a science major. In most schools, you get a bachelor of science degree.

CHARRON: Not Queens College. I don't think they're accredited to give out a bachelor of science. I remember arguing about this a little bit in my senior year, because it didn't dawn on me until then that the degree was going to be a bachelor of arts.

I said, "Out of 120 or 122 credits that I had to take in four years, more than 80 credits are in science courses. So how could this be a bachelor of arts degree?" And they said, "Because Queens College gives out a bachelor of arts degree." Even my master's degree, which was a hundred percent biology, is a master of arts and it's because Queens College is accredited to give out bachelor and master of arts. "Tough nuts. You have a bachelor of arts in biology and a master of arts in biology. People will have to understand [because] biology is a science."

COHEN: Was it ever a problem for you?

CHARRON: No. The thing that was a problem was when, two years into my postdoc, I went looking for jobs and I applied to Cornell [University] Medical College. I went to my boss [Harvey F. Lodish] first, and I said, "Harvey, do you know anywhere in— I want to go back to New York." From the day that I left New York to go to Boston, I knew I was coming back. So I said to him, "Look, I want to go back to New York. Do you have any friends or colleagues or connections back in New York? Just to call to see what departments are hiring? I might miss an advertisement here or there."

So he started calling around to a few places, and that was a small miracle because, in the whole history of the Lodish lab, no one ever got Harvey to make a phone call for them for a job. And to me, I just felt, "One of the reasons that I have chosen to work for this man is because of who he is, not just what I can learn from him as a scientist [or] the value of having a letter with MIT [Massachusetts Institute of Technology]/Whitehead Institute [for Biomedical Research] letterhead and signed by Harvey Lodish, but his connections. He may be able to open a door that I wouldn't even know existed. He's not going to open a door that he thinks I can't deal with. He's not going to want me to fall on my nose, if not for any other reason [than] I'll make him look bad." So my feeling was that I can get more than the obvious from working with this guy as my postdoc mentor.

I had to be persistent with him because he was not used to doing that, and I guess other people who had asked him—either he just outright said no or he just procrastinated to the point where they never followed up on it. My feeling was, "This is a very important point in my life and in my career. I am going to stick my nails in his back if I have to." So I stayed on him and stayed on him and everyone in the lab— It had been known throughout the lab, "Lodish does not do this. Period." I said, "Doesn't he realize what a great asset it is to the people that he's training? He's accepting all these people in his lab, and this is some great thing that he can do as a mentor for them. I can't believe he won't do it." What had happened was apparently he hadn't done it and it became like folklore and people just didn't ask. And my feeling was, "Well, I am going to make sure that he won't do it by asking. Give him a chance to turn me down." When I went to him, he had this look on his face: "What a novel concept."

I said, "Well, you're a big scientist. You know lots of people. Do you know anyone in New York that you can call?" What he said was, "Make a list and tell me who you want me to call."

And I said, "Well, I don't know who you know in New York, but I'll give you a list of all the schools that are there and then you could tell me who you know there. I'll help you. I'll get as many phone numbers as I can. If you don't have the phone numbers, I'll help in any way. I need and I want you to help me with this." You know, he procrastinated a bit, and I had to ask several times. Then, finally, he said, "Come with me now into my office, and we'll make some phone calls."

He put the speakerphone on; he wanted everything to be completely aboveboard, where I would know who he called, when he called, what was said. So he called around to several people in New York—Columbia [University] and then Cornell Med. One person in particular—this guy at Cornell Med who had a position of great authority; he was chairman at the time and soon to be dean of sciences—didn't realize it was a speaker phone, or maybe he knew it was a speakerphone, because it always sounds like someone's in a fish tank when they put the speakerphone on. But he didn't know that I was sitting in the room.

So he says to Lodish, "Tell me about this one," and Harvey kind of goes through what my project was, what my accomplishments in his lab were, what he thought my strengths were. This guy turns and says, "Well, where did she go to college?" He says, "Queens College."

Then he says, "Where did she get her Ph.D.? Where did she go to graduate school?" He said, "She stayed at Queens College, so her Ph.D. is from City University." And he goes, "Why would she do that? Why would anybody do that?" And Harvey said, "Well, why are you asking this? She got a lot of publications from her Ph.D. thesis in highly respected journals."

Half of my thesis was published in the journal Molecular Cellular Biology, and the other half—or most of it—was in Genetics, which is the flagship journal of the American Genetics Society. So for geneticists and molecular geneticists, my thesis was in top-ranked journals. They were not Cell, Science, and Nature papers, but most of us don't routinely get those. And it was not only one paper or even two. I got six papers, and most of them I was first author.

So at that point when I'm looking for a job as an independent investigator, why the issue of where I went to college or where I went to graduate school should come up as opposed to what were the quality of the papers that I published as a graduate student, what was my training at—What area of science— And then, as a postdoc, how did I build on that, did I change fields, did I grow in different ways, what will I be doing as an independent—? This guy was harping on the fact that I went to the City University of New York, as if I was a mutant. And my blood pressure was going up as I was sitting in that room, and I couldn't open up my mouth, because—you know—it was not clear to him that I was sitting in the room listening to this. It would have been inappropriate to do that.

So what he said was, "Well, my department might be hiring, but if not, there are other departments here that I could pass her CV to. She's really good, isn't she?" And Harvey said "Yes, I wouldn't have called you if I didn't think that."

I thought the issue was over. I sent my CV in follow-up to this person, who shall remain nameless. I got an interview, not in his department, but in the physiology department at Cornell, and I went on the interview. Actually, I think I had gone on eight interviews in and around the New York City area, and nearly every place I went to, I got offered the job the same day. There was no waiting period or anything, so it was almost like a joke Lodish made when I would come back to Boston. He wanted to know, "Okay, what offer did you get this time?" It wasn't even, "Did you get the job offer?" It was "How big of an offer were you able to negotiate on the first interview?" I didn't even realize that that was atypical.

But what happened was at Cornell, they offered me the position, and what they offered to do was to nominate me for a Cornell Scholar award, which gives you an extra hundred or two hundred thousand dollars start-up and, I guess, something else that you put on your CV that separates you from others. What they said for this award was that I had to get three letters of recommendation, and they said, "Well, you should get David Baltimore," who at the time was the director of the Whitehead. I said, "Well, I have Harvey Lodish. I have Corinne [A.] Michels, who was my mentor at Queens College." And I think I had Jeff [Jeffrey S.] Flier, who had been a visiting scientist in the Lodish lab. He was at the Beth Israel [Deaconess Medical Center] at Harvard Med[ical School]. I collaborated with someone in his division, so Jeff knew me; he was in the same sort of fields that I was in. So I got a letter from Jeff.

And I said, "Well, Harvey's a member of the National Academy [of Sciences], and that comes with Whitehead/MIT letterhead." They said, "Well, can you get someone other than Corinne Michels?" I said, "She's my thesis adviser. Harvey and Corinne know me best. Corinne knows me even better than Harvey, because she had me for longer and at a different stage in my career and a much smaller lab than Lodish lab." And they said, "Well, why not David Baltimore?"

I said, "David Baltimore will write a letter saying that he's played softball with me at MIT softball games two times and that I can hit and he's seen me in the elevator several times and I've helped the Institute when they've needed press releases or whenever. But David doesn't know my science. He doesn't know me personally. He just knows me to say 'hello,' and I don't want to ask him for a letter."

Then they said, "Well, there's someone here at Cornell that is uncomfortable with the fact that you got your degree through Queens College in the City University of New York—doesn't understand. Why didn't you go to Harvard [University]?" That had come up on that speakerphone—the same thing: "Why didn't she go to Harvard?" As if everyone that goes there has to come out great and that anyone that would have gone where I went couldn't be great. That irritant had come back. So my blood pressure shot up again.

And I said, "I am not going to even apply for a Cornell Scholar award. I haven't even accepted your job offer." I said, "But now I want to know who at Cornell has a problem with my education. I want to see this person face-to-face, and we're going to discuss this." "Oh, no. It wouldn't be right for me to tell you."

I said, "Well, then fine. You can withdraw my application right now." Well, they didn't want that. They wanted me to go there and to be a faculty member there. So I said, "The only way I would go would be if I met who this person was." I needed to know if this was someone who could influence my career path there. If they think it's a problem now, we've got to get this out in the open—that it's not a problem—and we go forward and we never bring it up again-

COHEN: But they wanted to hire you though, in spite of this?

CHARRON: —or it is a problem and it will always be a problem because that will never change. I felt that, "It has to be a problem or you wouldn't be bringing it up. If you're able to function as an independent chair, why are you saying this to me?" So he tells me who it is, and it's the same one from the phone call. So I said, "I want a second interview and I want you to put this guy on my list."

Now I go back a second time and I'm sitting in this guy's office. He's treating me like the queen of England—no evidence whatsoever of him being uncomfortable with anything on my record. Complete and total phony. And now my blood is boiling. I wanted to see how long he was going to go on playing this game. I look down at my watch; there were about ten minutes left. He's talking about my research, my publications like he thinks all of this is great, fabulous—not letting on that he has any problem with anything. So I'm finding it tough to believe that this is really a problem. Then I figured, "Well, I didn't come back here to put myself and them through this for nothing. Now I'm going to have to bring this subject up myself." So how do I do it? I felt the best way was just head-on.

So I turned and I said, "I don't mean to change the subject of the conversation Dr. So-and-So, but there's an issue that's gnawing at me and I just have to clarify it. I've been told you have a problem with the fact that I got my Ph.D. and my degrees through City University." You would have thought that I did root canal work on this guy without anesthesia. He shot up out of his chair, denied completely that— But his mere reaction— If it had been false— First off, the chairman of the physiology department would never have told me someone else if they hadn't done it, right? And why would he react so—have such a visceral response? I would think if it were wrong, he would have a very confused look and say, "Gee, I've never said anything like that. You must be mistaken." No, this guy went— It was stereotypical behavior. And I said, "Well, gee, I'm sorry if it's wrong, but I've been told that you have a problem and that you don't understand why I didn't go to Harvard."

[END OF TAPE 2, SIDE 1]

CHARRON: He then says, "So? So what? Why didn't you go to Harvard?"

COHEN: Oh my.

CHARRON: Then he makes it very clear. I said, "I have to tell you, I'm having a problem with this. This is a new form of prejudice that I haven't yet been exposed to." I said, "Some people will just frankly tell you that they don't like something, and others will hide it forever. You have some sort of an academic bias and snobbery and you're prejudiced against me for that, and then you deny it. Now you're telling me you don't deny it anymore. I don't understand this."

Then he goes, "Well, why didn't you go to Harvard? You should have gone to Harvard. I have someone in my department that got his degree from the University of North Dakota. I don't understand why he did that."

I said, "You have a problem with the University of North Dakota too? You hired him. That's the point. You hired the guy. Obviously, you think he's well trained, he's published good stuff, he's going to do well. So why do you care where they got their training?" Well, he was frantically— I mean, he was flying all over his office. He told me that he thought that I was overly aggressive and that I should not have done that. Then he wished me all the luck in the world in my pursuit of a job, etc., and showed me the door.

COHEN: Oh wow.

CHARRON: I mean, it was the last ten minutes, but he was so uncomfortable and I just felt that it had to be let out in the open—that it's wrong to judge somebody just based upon where their degree comes from. For better or worse, you don't assume that because someone went somewhere that they're good or that they're bad or overqualified or underqualified. That irritated me a lot. So that's a time when it came up.

The other time—around the same time period and kind of over the same issue—Other postdocs in the lab—people that I thought were my friends; many of whom had gone to prestigious Ivy League or Ivy-League-type schools—for whatever reason, didn't excel and weren't being offered jobs everywhere they went. Some of them weren't being offered jobs anywhere, and they were getting a chip on their shoulder. What happened was, as I said, every time I came back from another trip to New York, I had another job offer, and Lodish was getting so excited about it that he didn't make it secret. He would come running down the hallway and want to know, "What did you get this time?" Then he would brag about it; that's Harvey's way. And other postdocs in the lab—like I say, the ones that I thought were my friends— It became pretty clear who was and who wasn't really my friend—you know, who were the ones that were in it for the long haul. Those that were happy for me showed it and then others, frankly, said, "You went to Queens College. Obviously, the only reason you're getting all these job offers is that nobody wants to work in New York and so they're desperate. That's why you can get a job offer anywhere. Anyone can get job offers in New York."

I was so— I couldn't even answer. I was so stunned because of the mouths that it was coming out of, people that I thought were friends. Then I started thinking back that they were the same ones that, when I first came to the lab, had said to me: "What fellowship do you have?" I had a Jane Coffin Childs [Memorial Fund for Medical Research] fellowship, which I didn't realize—I was so naive—was a very special select group of people that get this. One of them turned and said, "Oh, well, I have a Helen Hay Whitney [Foundation], and all my friends have either Jane Coffin Childs or Helen Hay Whitney. Isn't that remarkable?" To me, I didn't even know—I was on another planet—that any of them were so special. I just knew that my salary

was low [mutual laughter], and I had a job that I had to do. I wanted, within two years, to have my dog and pony show ready to go on the road, so I could get whatever job I wanted back in New York.

It didn't click at the time that some people were judging me based upon what fellowship I had. But they were the ones that made those cracks. It became clear that they didn't verbalize it flat out, but when I got the jobs later— Not that they acknowledged what I had accomplished in the two years—the papers and the cloning and what it would mean in the long run. It was more an issue about them—who had gone to Duke [University] and Wash[ington] U[niversity] and Yale [University] and UC [University of California] San Diego. [They] felt that they had lineage and that they deserved it. I didn't have lineage.

So that was when the City University issue was made an issue. Because of that, I would not take a job at Cornell. I felt that this person—if he could influence the chair of the department that I would be going to, and they were making him dean—would always feel that way about me. And because I had obviously pushed the panic button with him, he would probably never forgive me for it, unless, of course, I rose to a point higher than him and he would have no choice but to forgive me. I didn't wish to have to endure such a thing.

The other was within the lab, and that hurt more. I didn't give two cents about what that guy over at Cornell thought about me, but I did care about what these other people that I thought were my friends— How superficial people can be.

COHEN: Well, it probably helped that you had a few other job offers under your belt, so you didn't really need Cornell.

CHARRON: Yeah, I wasn't desperate, and that was why I pursued it so much. But I think it was because of initially being in the room with Harvey with that speakerphone on and the subject coming up and to me being so foreign. Of course I came back and I told Harvey what I did, and he goes running home, tells his wife. Pam [Pamela Lodish] knew my personality. She knew what I was going to do. Harvey couldn't believe what I did. He said, "You have chutzpa. Good for you. But boy, you're going to live to regret that." He goes, "Don't do that frequently." Actually, the chairman of the physiology department at Cornell wanted me even more because of that.

COHEN: Oh, really?

CHARRON: You know, after that happened, my blood pressure would not go down. The whole rest of the day I was shot. I was, like, so red. Several of the women on the staff there said that this particular guy had not supported women in his department for promotion and for tenure—that most of the junior faculty hated him. So obviously he's an irritant there. Now he

has fallen from his power and he's stuffed in some corner somewhere, blah, blah, blah. He had gone, actually, from [State University of New York] Downstate Medical [Center] to Cornell. Downstate, as far as research was concerned, had lost its momentum and was just having a resurgence. So of course, right before I walked out, he turned and he said, "I was at Downstate for years. Why would I think it bad that you would have gone to City University?" And I said, "Well, I don't know. But isn't it a coincidence that now that you're not at Downstate, they're having a resurgence." [mutual laughter] Then I realized, "Oh, God. I can't believe that I said that." "But when you were at Downstate, it was at its lowest. And now that you're not there, they're picking back up." I had a job offer at Downstate, and I was entertaining it because it did seem like they were revitalizing the place.

But this guy really, really upset me. Actually, he was going to a meeting of chairs right after that meeting he had with me. He went in and he nearly choked the chair of physiology, because he knew that he had to have been the one that told me. By the end of the day, when I made it back to the chair of physiology and the guy is trying to seal the deal, he's acting like he doesn't know this happened. So I figured, "He doesn't know. I better tell him—right?—because he's going to find out sooner or later. This guy's going to tell. So it's better that it comes from me. I don't want it to seem like I'm hiding anything."

So I tell the guy, "I think you got to know something. I kind of had a little um, uh—" I was trying to think of the diplomatic way of putting what had transpired between me and this guy. This guy was from Austria and he goes, "Run-in with Dr. So-and-So." [using German accent] "I guess you could call it that" is what I said.

He said, "He cornered me right after you left his office, and I have to say that I admire you for your persistence in dealing with him and your honesty and openness with dealing with him. But I have to tell you that if you come here, it is not a good idea for you to press that guy's button too many times."

I told him that I had to go back and think about it. I said to myself, "He's a smart man. He has to realize that I cannot take a job there." No, he kept pushing. He wanted me. So I just made my list of request items double. I said, "Well, now that I'm not going to interact with that guy at all, I require this and this and this and this." That pushed the list to, like, infinity. He was agreeing to all of it. In the end, I just had to tell him that I couldn't. I just couldn't see that it wouldn't affect my career path there. I felt that if it initially caused him to question it, that man had enough power over people that he could influence me, and I was not comfortable with that.

I also told him that I thought that at [Albert] Einstein [College of Medicine], since they already have a diabetes center and Cornell didn't, that was a plus that was never going to change—or at least not quickly going to change. I told him I thought that the student pool was better here than there and that Einstein was going to help with a down payment on a house. Cornell was just going to put me on a waiting list for a small apartment in Manhattan; I've never lived in an apartment building and wasn't looking forward to it. So I told him that those [considerations] also contributed to my decision. And it was true; they did contribute to the decision. But ugh! That whole episode just rubbed me the wrong way.

COHEN: I'll bet.

CHARRON: So that was where my Queens College education seemed to have come up in a way that I wouldn't have expected—in a negative way—and was perceived as being a liability. It was at the time when I was looking for independent jobs, and I would never have thought that it should have come up then. But [it] did.

[END OF TAPE 2, SIDE 2]

[END OF INTERVIEW]

INTERVIEWEE: **Maureen J. Charron**

INTERVIEWER: **Helene L. Cohen**

LOCATION: **Albert Einstein College of Medicine**

DATE: **8 September 1999**

COHEN: When I went over the materials that we discussed yesterday, there were a couple of things I wanted to go back and revisit a little bit. One is, you mentioned that from a very early time you wanted to be a doctor. Did you enter college as a premed then?

CHARRON: Yeah.

COHEN: Okay. So when did that change? How did that change?

CHARRON: Well, I guess there were several ways that it changed. It changed near the end of college. I majored in biology. I considered majoring in chemistry but, really, I'm much more of a visual-type person and chemistry is much less visual than biology, so I was more and more attracted to biology.

It was kind of standard knowledge that if you were premed, it was a good idea to do volunteer work in hospitals to show not just community service, but that you've had exposure to it and it is really something that you're interested in. So I did volunteer work at two local hospitals, in the emergency rooms of both, and I talked to a lot of the doctors and nurses at the time that were on staff. Many of the doctors were hyperfocused on malpractice insurance—how much that cost—instead of looking at each patient in a way that I thought they would, which was perhaps naive. [It] would be, "I want to help this person. I want to do everything I can to help this person who's ill in some way."

What I saw instead— Maybe not everyone behaved that way, but it was more of a hands-off approach, because if you did something that was too far, not quite right, or whatever, you could potentially be hit with a lawsuit. Or it was more likely than not [that] if this person wasn't completely satisfied, you would have a lawsuit on your hands. So instead of doing everything possible or viewing the patient as I've been trained to practice medicine— I was very disappointed by that, and I started thinking about it from that perspective: "Well, maybe this is reality. Malpractice insurance is very high and wouldn't it be terrible if here I am, being a humanitarian and doing everything possible to help this person, and for whatever reason, whether I deserve it or not, they're going to try and sue the pants off of me. This could get pretty ugly fast." So I started feeling less enamored of the thought of going to medical school and

becoming a doctor based on that.

The other thing I realized is that sick people are cranky and they're not— You're sick. You want to moan, and you have a right to moan. But the bottom line is that people are not on their best behavior and they do feel like they have a right to be extra cranky if they want, because they're sick. So you got to put up with it. And while that is true, I didn't know that I was the one that wanted to be exposed to it. Then all the sights and smells and sounds were not pleasant for me. Even though I was really interested in seeing as many different cases and as many different procedures and getting as much hands-on [experience] as I could, there were some things that grossed me out and I didn't want to do. I felt, "If I go to medical school, I'm going to have to do these things whether or not I like it. Well, this may not be appropriate for my long-term purposes. For short-term, it's okay, but I don't know that I want to do that forever."

I spoke to a number of doctors and told them, "Well, really, I'd like to be an ophthalmologist." Then they told me, "Well, is your father, your uncles, your grandfathers—? Do you have a lot of family that are ophthalmologists?" Because that's one of the fields that is so entrenched with— Not really cronyism, but it's passed on within the family. It's genetically inherited. It's just about a closed field, and it's one of the specialties that's more difficult to get into. I asked around and I asked a number of ophthalmologists if they felt that was true and, more or less, it was confirmed.

So now I started thinking, "Oh, well, if I weren't an ophthalmologist, what would I want to be?" The list got very short, and I couldn't really imagine what I wanted to be. So that, combined with the fact that at the time that I graduated from college, really, you needed to have an exceptionally high index and really, really high scores on the MCATs [Medical College Admission Test]—the standardized entrance exam— My college average was about a 3.3 or 3.4. It was about a B-plus average, which I thought was very good. I guess most people do categorize that as very good, but it wasn't excellent. I didn't have the A's, and most people who were competitive to get into medical school had A averages. They had a 3.8, a 3.9, or a perfect 4.0, and I thought, "Well, I can't compete with them."

The other alternative would have been to have phenomenal scores on the MCATs and then hope to match with some school that would see me as being a good candidate. But the bottom line is that I'm probably the worst standardized test taker on the planet, and my true knowledge of fields or intelligence is so poorly reflected in the scores that I get. Like, I can't finish the test. I usually don't even fill in the grid in the right number. So I may be answering it correctly, but I'm putting it in the wrong place on the grid, and then I find out at the end that I skipped one accidentally. So I usually came out with scores that were in the retarded range, and no one ever could understand [why], even when I was younger. The teachers never understood how I could do so poorly on standardized tests.

So you put those facts together and it was a combination of reality bites and "I'm not sure anymore. Maybe I've glorified this, or even if I think I'd like this, I may not be able to get that one aspect of medicine that I think I like." Probably on an interview to medical school, if I sat

there and said, "I only want to be an ophthalmologist," I sincerely think that the admissions committee would not view that positively. They probably would want someone with a more open mind say, "I think I would like this, but I'm open to whatever." And I wasn't interested in that.

So that I realized around senior year in college, which is kind of frightening—to be at that point in your academic life and feel like, "Uh-oh. Now what do I do?" And I didn't want to just go and be a technician in a company or just go off and not do something in the sciences.

I felt I needed to think longer about whether I really wanted to go to medical school or whether, possibly, research could be something for me. So in my senior year I did research in one of the labs in the biology department, that a friend had been working in, and figured I'd start to get my feet wet.

COHEN: Was that as a technician then?

CHARRON: No, I was a senior. It was just a research project; it was volunteer work. I didn't have to write a paper. I didn't get paid for it. It was whatever I could learn, I wanted to learn. [It] at least gave me a feel for if research might be something. I knew that it might be, because I kind of liked what was going on in the lab. It was a developmental biology lab. The professor was looking at early implantation embryos and I would say, compared to most grant-funded science, this was not competitive. But it was a little project that a college student could work with and feel like it was your own territory. It was a good learning tool.

It was a more positive experience than negative, so I decided that maybe I should stay in college a little longer and figure out if I really liked research and take a few graduate courses and get A's in them. Because if I really decide that, "Okay, I do want to become a medical doctor and I'm going to bite the bullet and the things that I think I don't like, I actually do like"— You know, I was confused. What I felt was, if I got all A's in my graduate courses, that could in part compensate for not having a 4.0 index as an undergrad. At the same time I could do some graduate research and see if that avenue was a viable option. It also gave me a chance to teach. I was a graduate TA [teaching assistant].

At that point, not having taken the Graduate Record Exam, I didn't have many options for where I could go to graduate school. Having been in the biology department at Queens College as an undergraduate, I could get accepted. My grades were very, very good; I could easily get accepted into their master's program. They knew the courses, what the grades meant—that a B actually was an extremely good grade to get, where other schools would probably weigh the GRE [Graduate Record Exam] score more heavily. So I didn't need to take the GRE, and I could at that late point in time apply to the master's program at Queens College. It was something that I viewed as the only choice that I could make without having a break in school. That's how I ended up staying at Queens College to get my master's degree there.

I stayed in the biology department. I did research in a different lab the first year that I was in graduate school. It also was not a competitive lab environment. So I learned a few techniques, but I realized that if I was going to try to make a real decision about research as a future, I had to get into a lab that was doing more competitive state-of-the-art science. In some ways, it was good because it wasn't high pressure to be in that lab; I learned some new techniques, some more histology, a little bit of cancer biology. At the time I was TAing beginning biology laboratories for undergraduates. It gave me public speaking experience, forced me to have to think of things very logically and how you explain it at a basic level to nonscientists, because one of the courses that I taught was for nonscience majors. The other one that I later taught was for science majors. That gave me a lot of very good experience at that point.

The first graduate course that I took was molecular genetics. At Queens College, all the grad courses were taught at night. We were tough. We taught all day. We worked in the lab for the rest of the day, and then in the night, we went from seven o'clock to ten o'clock and had lectures. Then you went home, you studied, you got up the next day, and you did it again. And we liked it. [mutual laughter] Nowadays, man, everything is given on a silver platter. They don't have to teach, have their courses during the day, get time off, don't want to work. They're very delicate nowadays. I say, "Back in the old days—" They look at me and they don't think the old days could be that long ago. I say, "It's not that long ago I had to prepare my lectures and my recitations, grade everything, do my lab work, fit in lunch and dinner somewhere, go to my classes at night, and then study whenever." Somehow, it all happened. Now— Oh, no. They want everything to be at normal times during the day and time off to study and take only one course. We were taking three courses at night. So different.

But the genetics course that I took the first semester of grad school I really enjoyed. That was with Corinne [A.] Michels, who then became my mentor for my master's thesis and my Ph.D. thesis. At the end of the genetics course, Corinne approached me and she said, "When you want to get serious about research, give me a call. I have a space in my lab for you."

COHEN: Why was she attracted to you? Did you ask a lot of questions or—?

CHARRON: I don't know. Maybe I asked a lot of questions. I did exceptionally well in the class. But you figure part of my motivation was I was going to get an A in every graduate course because I still wasn't a hundred percent sure that I was never going to go to medical school. The other thing is, my parents had heard me for ten years telling them, "I'm going to be a doctor, I'm going to be a doctor." I was valedictorian of my grammar school class, and I was in the National Honor Society in high school. Then, suddenly, I went from being always near the top to in college— No longer was I the top dog. Although I did good, it was just good. And just good was nowhere near good enough, because admissions to medical school then were highly, highly competitive. Everybody wanted it. It was perceived as being lucrative. Now I understand the medical schools again are having low admissions rates and it's not perceived as being as high paying a job as people can get fresh out of college—go and do some technology-based thing where they can make a million before they're twenty-eight. You're not going to do that.

You're going to rack up a lot of loans, a lot of debt, by the time you're twenty-eight and then get paid a low salary as a resident and it'll take you a while to recover from that.

I think that Corinne knew my questions were good. I didn't ask millions of questions during class, but I felt more comfortable talking to her one-on-one after class. So as we'd be walking to the parking lot to go to our cars, we would be talking. She also had to teach some of the labs to the general biology course that I was teaching in, so we had other meetings that we participated in together. So she saw me in several different lights, and maybe that had something to do with it.

But on my exams, I really— They were essay exams, so that gave me a chance to really tell people what I knew. As an undergraduate, so many of the exams were multiple-choice, multiple guess, kind of questions.

COHEN: And you didn't have to get it in the right box.

CHARRON: And I didn't have to get it in the right box and wouldn't have panic attacks for an essay question because I studied. I knew the answers to these things. So many multiple-choice questions, even true-false questions, are written with a subtlety to them that you really have to be someone that clicks into those— You may not even know the real answer, but you're such a good test taker, you know what those clues are without ever having studied the subject. I know people that could walk in and do well, and I could be studying for weeks and I could argue with you why each answer is partially right and partially wrong and thus, even when I get it on the line, I still pick the wrong answer. As a grad student, you don't get those kinds of questions. And that's where they could see. You know, "Design an experiment." "Think about this." "Tell us what you know about these areas." I think I felt much more comfortable with school at that point.

I then went to Dr. Michels and asked her if there was still an opening in her lab, and she said that there was and that I was welcome. So I went into her lab and that's when I started cloning—the forbidden subject of cloning.

COHEN: Now, were you officially in the doctoral program at that point when you went to—?

CHARRON: No, I was in the master's program. You had a choice in the master's program of doing a library thesis or doing a lab thesis. And I didn't see the point—if I was going to try to figure out if research was a potential career option for me—of doing a library thesis. So I got into the lab. I started learning recombinant DNA techniques. Next thing you know, I'm making libraries, I'm cloning something, I'm doing functional analysis, and so many things are just going well: I'm liking this. Then it was a matter [of], "Uh-oh, do I apply to medical school or not?" Because I was in my second year of graduate school, I was going to get my master's

degree at the end of that year, and now my parents are expecting that I'm going to apply and I've been getting A's, so this should matter.

Well, my MCAT scores never got better. I mean, slightly better, but it was still in the retarded level [mutual laughter], or what would be perceived as being retarded. It was nothing to brag about. So I applied to some of the medical schools and I just started getting this bigger and bigger pit in my stomach where I just felt like, "Even if I get in, I don't know what to do. I can't go. I don't want to do this." So I had to find, somehow, the courage to tell my parents that I didn't want to do that and that I was going to withdraw my applications from medical school.

My father [Joseph E. Charron] just looked and he said, "Well, if that's what you really want, then that's fine with me. The most important thing is that you're happy." My mother [Marie A. Sena Charron] turned and said, "What? Are you out of your mind? You could be rich. Are you crazy? People will respect you if you go to medical school. What will you be if you don't go to medical school?" I said, "Well, I'll get a Ph.D." "That's a doctoring degree?" I said, "It's a doctorate. It's not a doctoring degree." "Will people call you doctor?" [Cohen laughs] I said, "Yes, people will call me 'doctor.'" "I could tell my friends that you're a doctor then?"

I went, "Don't you tell them that because you're misleading them. You're doing something bad." She just was livid over it. And I said, "Well, this is what I want to do." At that point, my thesis adviser had said to me, "Well, if you choose not to go to medical school, I really think there's a rich future for you in research and I'd like you to stay in my lab."

COHEN: This was Corinne Michels?

CHARRON: This was Corinne Michels. At that point I thought, "Well now, I still don't have GRE scores. I don't want to have a break again in my academic career." I already had a master's thesis that at that point I was about to defend successfully, and it was clear it could easily be developed into a Ph.D. thesis. Why should I put myself through trying to get a good GRE score when I knew that I could never get good scores on standardized tests and then apply to Ph.D. programs elsewhere and have to start from scratch with the coursework, with the lab work? I felt that not only would I lose that year of applying, but also I would lose in the long-term, more time because

I was very rigid about time. I didn't want there to be a waste of time. So my decision was based strictly on the fact that, again, I felt, "This is where it's logical for me to stay. It's a good choice and things are going good, so there's no reason to stop. And finally, I feel comfortable at Queens College, so why should I risk the trauma that I had back in the fall of '77 when I started as a freshman in college?" I figured the same sort of thing would happen if I started somewhere else in graduate school and that would drag me down. And what for? So I didn't leave at that point. Stayed there for the next four years.

COHEN: I noticed on your résumé that not only do you have the master of arts, but somewhere

in the middle of your doctoral program, you got a master of philosophy.

CHARRON: They make you take a million exams in the City University of New York. [For] the master of arts, I formally went to Queens College—their master's program in biology. I wrote and defended a thesis and took all the credits for a master of arts degree from Queens College. The Ph.D. program is from the City University of New York. Each of the campuses have faculty that are part of the graduate school, so you can take courses at any campus, which is also an interesting option—gives you more flexibility. You can do your research in anyone's laboratory that you wish, and the degree itself comes from the City University of New York.

For that program, the Ph.D., once you've completed all of the coursework and a written qualifying exam, which was a four-day exam— A grueling exam. You had to do it in four subjects, and they had a list of what subjects the exams would be given in. [There were] four areas of biology. The four that I picked were genetics, developmental biology, cytology and cellular biology, and biochemistry and molecular biology. At the beginning of the summer or at the end of the spring semester, you got a reading list as long as your arm for each of the four areas that you chose, got all those books and manuscripts that were on the required reading list. What you knew was at the end of August, for four days, you would be sitting at the graduate center in Manhattan taking exams where you would be given four questions and you had to answer two in three hours. You had to write two essays in three hours and you-

COHEN: For each subject?

CHARRON: For each subject. So each exam was three hours long and you could opt out of two of the questions, but they expected you to be there for three hours and your hand to be moving for three hours. So each of those essays were mega—were eight- to ten-page essays. It was also hard on the hand because the paper they gave you was in triplicate, so you had to press really hard. One copy was for here, one copy for here, another copy for here.

From the reading list, you could try to guess what areas you would be examined on and just hope that you were guessing correctly, so that when you sat down— We really knew. I studied with three of my friends from grad school. [We] probably were among the three best in the whole graduate program, so the four of us, of course, drove each other nuts because we would ask each other harder and harder and harder and harder questions. So while it was very good, it was also very stressful to be studying. In the history of the exam, the four of us got the highest scores ever, but nearly caused each other to have nervous breakdowns or kill each other during the course of the summer in our study groups. What we ended up doing was trying to guess what the questions would be, then write essays on the questions that we thought it would be, and then pass it among ourselves and correct each other's and say, "No, you should have brought this point out," or, "You didn't express this clearly."

Once you've passed that exam and all of your coursework, the graduate school then

issued a master of philosophy degree. That meant you had met all your requirements except having successfully defended a Ph.D. thesis.

COHEN: I see.

CHARRON: So some people who never get to that last point and hadn't done a master's degree separately, as I did, would have had their bachelor's degree and a master of philosophy. That would have been, "Okay, you did everything but the thesis."

COHEN: That's actually really good because a lot of people don't get through the thesis and then they have nothing.

CHARRON: Right, so you have that. Yeah, so that's why I have that there. It meant that I had gone through all of those things. At that point it was a formality; a piece of paper was filled out and filed. But you had to earn it, so to say.

COHEN: What kind of work were you doing then in Corinne's lab? I know you weren't doing genetic cloning-

CHARRON: Right.

COHEN: but was that where you began to be interested in glucose homeostasis or—?

CHARRON: No, I was just excited that I was doing genetic engineering. The genes that I worked on were the maltose fermentation genes of yeast that are important in bread baking and beer brewing.

COHEN: A very important subject within college. [laughs]

CHARRON: Very, very important subject. I contributed to humanity in many ways. [mutual laughter]

The interesting thing about them is that they were repeated genes in the yeast genome and they all were located at the ends of chromosomes. So the main theme of my thesis project was to clone all of these loci from different yeast strains and compare them structurally and see if there

was some sort of a mechanism that I could come up with for how they evolved. "If you have genes that are located at the ends of chromosomes, is that a more susceptible site for recombination and transmission throughout the genome?" At the time, a number of other systems in flies, in trypanosomes, in mammalian cells, in immunoglobulin class switching, in antigenic variation— In a number of other eucaryotic systems, similar kinds of themes were coming up where you had repeated elements. "How do you get these somewhat quick changes that occur?"

Barbara McClintock, who at the time when I was a graduate student got the Nobel Prize for her jumping genes in maize— She was a maize geneticist and by looking at different texture corn kernels and different colors, she hypothesized and then proved through the mating of different corn strains that there were mobile genetic elements that were jumping around in the corn genome. That was a mode of transmission of some traits. In trypanosomes, which in third world countries is quite a problem and a difficult one to deal with, because they have a very quick way of changing their coat proteins— So if you try to make a vaccine that will attack them based upon what they look like now, because they can switch so fast, now it looks like something different.

It turns out that these genes are located at the ends of chromosomes and are probably flanked by very small repeated sequences that may be hot spots for recombination. And in certain cancers, there are hot spots for recombination. So the whole field of genome rearrangements and mobile genetic elements was sort of blossoming at that point in the eighties. And even though I was working on what seemed to be maybe a commercially interesting subject of maltose fermentation genes, it really was a good model for looking at how the structures at the ends of chromosomes may lend themselves to these processes. How did the different mal loci— How did mutations accumulate there? Did that make them more susceptible or not? Did you get more duplications?

So I kind of was working in an area of molecular evolution and genome rearrangement, and I thought less about it from the sense of the fermentation. It was a read-out for a functional assay. If we saw gas getting released or not in our test tubes, then we knew that they could ferment. Otherwise, not. So we had a functional read-out that was easy to follow. It also was a system that was regulated by glucose, by maltose; different sugars could regulate it, so it gave us areas of gene regulation that we could study. It wasn't just structural and molecular evolution; it was also regulation of gene transcription and model systems and how genes could be regulated by substrates, be they sugar or others. In mammalian systems, it could be hormones. It gave a really strong foundation for molecular genetic principles and techniques, and I think it was a really good system to work with at that point in my career because it allowed me to learn so many new things—to accomplish a lot in a relatively short period of time. Because the life cycle of yeast is so fast that you could do lots of experiments in them.

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[END OF TAPE 3, SIDE 1]

[This portion of the text has been sealed.]

There was only one woman on the planet that I would risk doing my postdoc with at the time. That was Shirley [M.] Tilghman, who was in a period of leaving her position—I think she was at Fox Chase [Cancer Center]—and moving to Princeton [University]. I got a very nice letter back from her. Her lab was in a state of flux and I think the letter said, "If a year from now, you're still looking, please—"

She was the only woman that I had written to and I wasn't certain that even if I met her and she offered me a place in her lab, I would do it. But at the same point when I got to every one of the males' labs, I was concerned that they wouldn't treat me as an equal, that there could be a bias. I had already felt that from my thesis mentor, and I just wanted to work in an environment where I was going to be perceived as being— Okay, I have to earn my keep, but whatever I accomplish, I would be acknowledged for. It would not matter whether I was a man or a women. I wouldn't be treated better or worse. There wouldn't be any expectations. I just wanted it to be that way, which could have been naive—to think that people behaved that way—but I really just wanted things neutral.

COHEN: One can always hope.

CHARRON: Right. I think that became a very important focus of my search, and it was because I felt uncomfortable with it as a graduate student and just didn't want that impeding me from my free thinking and my experimenting and excelling as a postdoc. I saw that time period as being so critical that, if I could weed out the stinkers [laughs], I was going to do it.

So I had a list of questions I asked each of the people. They were interviewing me; I was interviewing them right back. Then I went to every postdoc and every student in the lab and I frankly asked them, "What is the worst thing this person ever did to you? What is the best thing this person ever did to you? Is this person a sexist? Is there anything at all that comes to mind?" Also, on my list, I of course wanted to— I had ranked "where did people go after the labs?" What journals are they publishing in? What is housing like? What is entertainment like? The killer was, I didn't have the intention of working less hours as a postdoc than as a graduate student. Yet, somehow, I wanted to be sure that on the rare day that I wanted to entertain myself, I would have many choices of things. Some cities were unappealing because it seemed like there was so little to do. I actually did so little outside of the lab as a postdoc anyway, but when looking for a spot, that was on the list. Also, proximity to New York. How easy is it for me to get back to New York frequently if I needed to?

I actually made, like, a scorecard, and all these things were on it. They each had weighted

values—it was a very scientific way of doing it—and in the end, several of them came in very close numerically. The scores were so close that then I really just had to say to myself that, from a practical perspective, I really enjoyed, aesthetically, the Whitehead Institute [for Biomedical Research]. I really think that working on the potential of a new glucose transporter in the long-term may have the best future if what I'm proposing is real, because for [Harvey F.] Lodish, I had said, "I think that there's an insulin responsive glucose transporter. I don't believe there's only one." At the time, his lab had only cloned one, and it was thought to be the glucose transporter. I just felt, "No. Something has to respond to hormones at least. There should be some important regulation in diabetes." My mother was a diabetic, so I thought, "Well, I can use my cloning skills to try and clone a new glucose transporter. And then his lab is so strong in cell biology, I can learn a lot of cell biology and do a lot of cell biology, and that will complement my molecular genetics."

So he passed all the other tests. The most horrible thing that I heard wasn't too horrifying to me. The Institute was such— It just seemed— I walked in and I said, "Wow, I could get used to this fast." It was kind of like going into The Ritz Hotel. And for someone who had been used to Howard Johnson [Hotels & Inns] or the Holiday Inn, that kind of a difference— I felt, "What I really want during my postdoc is an environment where I'm not going to be restricted due to instrumentation, dollars, space, anything. My limit is my head and my abilities with my hands. If at the end of this time period I can't get some great thing done, then it will not have been because the environment was lacking things." I felt this was my opportunity. That seemed to be the all-around best place for me to go, and I felt that the potential of the project was the greatest. Doesn't mean that by other people's standards that was so. That was my view at the time, and I still believe that that was the best choice.

What was unusual at the time was that Harvey was the only one that did not say he would pay my salary to come to his lab. All the other PIs [principal investigators] were throwing money at me, even upping the ante. He says, "I expect all of my fellows to write grant proposals and obtain their own funding for at least two years, if not three years, because I reserve my funding to support them if they have to stay an extra year while applying for jobs." You would think that was a negative, a turnoff. Instead, for me— I always go in the direction of a different drummer, or something I can't have suddenly becomes this great attraction to me. My friends are going, "Oh my God, you have to write a grant proposal before you can go?" I had no idea what that really meant, if it was going to be hard. I just felt, "Okay, he thinks I can do it. I guess I can do it." So I said, "Yes;" he said, "Yes." The next thing I know, I'm writing grant proposals.

I got a grant from the Jane Coffin Childs Memorial Fund [for Medical Research], which I subsequently learned was prestigious. I was so naive. I didn't know which one might be perceived as better than another or which was more competitive—if they only gave out twenty or whether they gave out two hundred. I didn't know what the odds of any of those things were. And maybe it was good. Ignorance is sometimes bliss, because it would only have stressed me to know what was more competitive. Maybe I would not have applied for some.

[This portion of the text has been sealed.]

COHEN: Okay. Well, there are a few directions we can go at this point, but why don't we keep moving through your educational process. You decided to go to Harvey Lodish's lab for your postdoc. Tell me a little bit about what that lab was like and the work that you did there?

CHARRON: It was completely opposite to what I had experienced at Queens College because the emphasis wasn't on research. Queens College is a teaching environment, so very few labs are doing competitive research; a lot of them have small research programs that are good for training undergraduates. Corinne's lab had been NIH funded for her whole career, so she is a competitive scientist. But on the whole, the department has more teachers than active scientists. Now I'm in an environment that's high-powered science all the time. The lights are never off in the Institute. All the labs are big. Everything— Big, beautiful, and a little intimidating in that I hadn't come from that kind of an environment. But I felt that, "I am just going to soak up as much as I can. As long as I try to view everything as an opportunity and as a positive and not focus on negative things— Because let's face it, everybody's trying to get some great discovery, some new clone, some whatever that's going to get them a great job after this—high-profile papers. Some of that can be competitive, so people can say and do things that can be distasteful. So just be aware that this could happen and try not to associate with people that are like that. When you see it, step away from them. Just stay focused on what you want to do." So Lodish's lab had about twenty-five or so people-

COHEN: That's a big lab.

CHARRON: —mostly postdocs. And I had come from a lab that had about six or so grad students. At most, we were about eight or nine, counting undergraduates. No postdocs. Small lab. So that took a little bit of getting used to. But to me it was kind of interesting, because now you had people from all over the world that had come to do their research there, so I learned a lot about different cultures and different educational experiences that people had. A lot of different scientific backgrounds that people had come from were, I viewed, very useful in helping me to learn new techniques. So I tried to go around and find out, "What did you work in before? What are you working in now?" so that when I needed to learn new things, I knew who to go to. Most of the people were very, very helpful. What you found was that everybody in the lab had their own way of doing things, so if you asked five people, you got five different protocols. And what you did was you reviewed it and you made your own; you made a sixth protocol. So it just metastasized with time. More and more protocols evolved in the lab.

COHEN: Was he a hands-on mentor or—?

CHARRON: No. He was around a lot. You could see him most days of the week, at least

during the period that I was there. But he would come through the lab, and he would say, "Got any data? Got any data?" He would go from room to room to room to room, and he would relay some stories from his recent trips or some papers if you asked him a question. He was so good at remembering everything he'd ever read. "Oh, there's this that I had read about this time."

If you were not producing, he wouldn't come and hover over you and say, "Look, you're not progressing. Do you realize I've been coming by for a month, two months, and I don't see anything? Doesn't that worry you? It worries me." I'll say things like that. But maybe if I had twenty-five people in my lab, I wouldn't, because it wouldn't worry me.

The bottom line is—and I realized this early on—when you have a lab that's that big, you only need to have one person be successful at any time to have a story that you can tell for you to look good. Everybody else could be failing, and you'll look good because you always have your story, right? Of course, if everybody else is falling through the cracks, my interrogation method from my interview would have found that out—you know, that only, like, one out of eight postdocs that leave the lab get a job in academia at an institution that I've heard of, etc., etc. It couldn't be that bad. But truthfully, only one person at any time has to have a story for him to look good. So if he has twenty-five people, the chance of one person having a story is pretty good, right? He's almost never going to look bad. That's a fact. If you're there thinking he's going to fish you out, that it's his job to fish you out, then you belong somewhere else.

That wasn't why I was there. I was there to learn from him what I could, to learn from the other people that were there in the lab and in other labs what I could. Really, this was an environment that was so user-friendly, like the land of plenty. "I have to see for myself, can I succeed? Can I, however, with whatever, can I get a dog and pony show together in what I felt had to be about two years, two and a half years, so that I can get on the road, get a job, and be out of there by the end of three years?"

That was another thing. I was on a very tight schedule. In my mind, it was sort of written in stone that you're a postdoc for three years. That was the average. Most of the fellowships cover you for three years. So if you can't do it in three years, why would they have most fellowships fund you for three years? I thought it was kind of silly that they were saying, "Oh, lots of people are doing two postdocs nowadays." I said, "Well, that's if you don't get it right the first time. I think that I have analyzed the situation well enough that I have optimized my chance of success. If I don't get it right, then I'll consider if I have to stay in the same place longer or go somewhere else and try something else. But I want to try and go by what I think the model is, and the model is within three years, you should be out." So that's what I was shooting for, and my fellowship was for three years. That was how I looked at it.

I didn't view that Harvey's job was to guarantee my success. I felt he had a hard job raising funds to keep that boat afloat; it's a big boat. If I had intellectual questions, scientific questions, I expected him—if he knew the answer—to give me an answer or to help me think it through. If he was in town and I needed to talk to him about something like that, [I felt] that he would make himself available to me. That was what I expected. Nothing more. If I wrote a

manuscript, I expected him to help me make it better or criticize it, teach me why I'm wrong or why it's not as good one way versus another. That was what I felt his job was.

To this day I think the most valuable thing that I got from him was his enthusiasm for science. He exudes enthusiasm for the smallest things. It used to amaze me. A lot of times on a Saturday or a Sunday I would be in the lab at the bench and at that time, while a lot of people came into the institute, it was much less than a typical weekday; maybe a quarter of the postdocs were there then. Harvey would come in, he'd be a lot more relaxed too, and he'd have more time too—fewer people that would be jockeying for position or his time. He would walk through, and a lot of times he would just come and sit down by your bench or your desk and want to talk about science and some little, trivial things that I thought, "Oh, it's not worth wasting my time with Harvey. I know what I have to do. It's just that the gremlins have come upon me and something that should [be there], isn't."

[END OF TAPE 3, SIDE 2]

CHARRON: So I would think to myself, "Harvey [F. Lodish] isn't going to solve the problem. I'm not doing anything obviously wrong. It's just that sometimes in molecular biology or probably in all kinds of research, things that usually work, for an unknown reason, stop working." It could be as silly as the water filtration system needs a new cartridge and you don't realize it. Now your reactions aren't working for that reason and you're changing every solution, making fresh solutions with crappy water, and that's why it's not working. Or, you know, something astrological is going on. It's just mysterious sometimes. Things stop working and then—boom—they start working again and you don't understand why that happened. So I would feel a little silly showing Harvey— "Oh, can I help you?" And because it was a Saturday or Sunday, he had all this time that he could spend with you.

I remember showing him some ligation of DNA that should have worked. It was silly. A little trivial thing. It was not a high, intellectual problem to solve. I showed it to him and I said, "Harvey, I don't know why it isn't working." He starts looking at the fragments of DNA—the picture on a gel—and he's getting all excited about it, like a boy. Of course, he didn't tell me anything that would make the gremlins go away. The bottom line was the last time he pipetted DNA— It was when he was a boy

COHEN: Really?

CHARRON: —which was when I was a baby. [laughs] He couldn't really solve it, but he lit up so much and he got so excited just about looking at these things on a gel.

Or if you gave him an X-ray film— Most of us are rambunctious. We can't wait for a gel to expose long enough to see a band that we're hoping to find fast enough, so we always run into

the darkroom prematurely, develop it, and then hold it up to the light with the right kind of angle, trying to see what you hope will be there. Like all the others, I would do that too and then throw another piece of film down, because it was the land of plenty. Even if you're on a shoestring budget, you tend to do that too. You say, "Okay, based upon the early exposure, I'll think how long the other one has to stay." But Harvey had a way that he would put the film on an angle and he would shake it and he would go, "There! There! I see the band." Then he would have this theory about it. Sometimes the theories were so farfetched. But the way he got this twinkle in his eye and the way he was so proud of himself, the way he could shake that film

Then I would go [laughs] to one of the other postdocs, "No! You've got to shake it like this and hold it up to the light and then put a twinkle in your eye and you'll be able to see it just like Harvey." They would go, "Oh, no. Not Harvey again."

And I would [say], "I could see it. I swear I could see it!"

Sometimes he would tell you things that were so farfetched, but to me it wasn't. I wasn't looking for him to tell me the experiment to do. If I had to do my postdoc that way, then when I got here, who in God's name was going to tell me? I'd be calling Lodish, "What experiment should I be doing?" No, he just provided every so often, because I wasn't the kind of person that was always in his office with something. Nor did I—anytime I achieved something—want to show it to him for a medal or something. If he came around, asked if I had something, I'd show it to him. Or if it was on a weekend and he plopped down, then even silly things that I knew he couldn't really help with, I would show him.

But it was what seemed to be an unending sense of excitement that he got over the smallest things that was inspirational to me. How could— How does he do that? That I really admired in Harvey. Yes, he has a creative mind. He can memorize lots of things. He can extrapolate really fast. As far as I was concerned, that was all a given at the time I wrote a letter to him that I wanted to work with him. But to have someone who's at that level, who doesn't have an arrogance that only the most earth-shattering things will he acknowledge as being great— He acknowledged everything, the little things as well. And to me, that meant that he wasn't showing favoritism around the lab. You know, it didn't matter what molecule you were working on, because lots of things excited him.

I felt that could be inspirational to lots of postdocs. And I knew that even when I was showing him baloney stuff that I was embarrassed to show him because that was what was gnawing me at the time that he appeared, he'd even get excited about that. So I figured that whatever any of the other people in the lab had to show—whatever hardware, software, any of their goods they had to market—I knew that he would be able to say something if they listened correctly. So some of it could be your mind-set, because a lot of people would have negative things to say or didn't see that in him. To me, it was obvious, certainly on a weekly basis, but almost on a daily basis. I just could never understand how was he always so excited about stuff?

When I was a Pew Scholar [in the Biomedical Sciences] at the Pew meetings, he always sat in the front, always asked lots of questions. Still, if you talk to him, whether it's at a break or

during mealtime, he gets very excited about so many different things. And if I call him up now or if I see him now—same thing. It's the same Harvey. This is something inherent about him that I found to be uplifting.

COHEN: Inspiring.

CHARRON: Yeah. I get excited about my science. I don't get excited about all science. Harvey seems to get excited about all things. [laughs] I can't. I can't. I know my students and my postdocs feel that I have a lot of passion for what I do. I can't gather that same passion for anything. The same way that I knew that I could not be any kind of a doctor, I could not be any kind of a scientist.

For example, if I went off to industry and took a job there and got attached to a project and the company pulled the plug for whatever reason, yes, I would still be able to be a good scientist working on another project. But no passion. You know, it would be— Then it would be my job. When I start viewing this as a job—"I am only doing it because it's my job"—then a lot of the fun is gone.

Harvey always gave this feeling that it wasn't a job. This was fun. You see it in the eyes, you see it on the face. You can't fake that kind of stuff. That is what I found to be the most valuable thing about working for him. I felt I had plenty of strong scientific training from my years at Queens College, from my Ph.D. training as a scientist with Corinne [A. Michels]. I wanted to be in an environment that I could now take my skills and test for myself, "Can I make it myself?"—but having access to lots of things and a lot of positive role models. A lot of hysteria. When you see people who are working all the time—seven days a week, twenty-four hours a day practically—it's stress.

COHEN: Sure. Well, we talked yesterday a lot about your job-seeking experiences as you were drawing to the end of your postdoc. But I'm wondering how you decided, because you had all these multiple offers? We know why you didn't go to Cornell [University Medical College]. But how did you decide to come to [Albert] Einstein [College of Medicine]? What went into that?

CHARRON: What I found when I interviewed at Einstein was that there was a feeling among the faculty that it didn't matter what department you belonged to. I was used to—at Queens College—there being very strong demarcation zones between departments. There was the biology department, the chemistry department, the physics department. Very little mingling between them. Very territorial. And a lot of other schools, some of which I had interviewed at, were not as open. It wasn't true of all the schools. But here, it seemed to be that it was very open. It was known historically to be a good place to be a junior faculty member.

Historically, Einstein was founded on the premise of being an institution that didn't

discriminate against anyone for any reason. Part of that was because many Jews were discriminated against during and after the war. So Einstein was an institution that was not—We're affiliated with Yeshiva University, which is a religious, Jewish institution, but the medical school itself is not a religious institution. So, initially, it was a place that was friendly to many Jewish scientists who were being somewhat discriminated against at that time in history.

But also, many women were being discriminated against around the same time because we weren't perceived as being equal. It wasn't common to have your own lab. Often, women in science were married to men in science. The husband would really be the head of the lab, and the wife would work within the husband's lab. The wife actually wouldn't even have a tenure-track position. So a number of the older women scientists who came here came after having been at other places where they were either in their husband's lab or in an unrelated man's lab in an inferior position with little chance of promotion, no hope of having their own bona fide lab, and not feeling good about that. So—feeling that they would have more of an equal opportunity. I liked that history.

COHEN: The history that that wasn't the case here?

CHARRON: Yeah, I liked the history of Einstein not wanting to discriminate or actually that form of discrimination being an incentive for forming a school. I guess the medical school itself also was perceived as being a school that would admit students of any race, creed, etc. It wasn't simply a hiring policy among the faculty: it was an admission policy for the students as well, and that was very attractive to me. Even if in, let's say 1990, when I had started here, it was not obvious that such discrimination still occurred—yeah, I've strategically picked the words for that sentence—I still felt that in principle and from a historical perspective, the basis for the foundation of the institution was attractive to me. That was a plus. It wasn't the driving force. There are more women at Einstein than other places, so you don't necessarily stand out.

COHEN: What is, for example, in your department, the percentage of women?

CHARRON: My department is not a good reflection. For quite a while I was the only female junior faculty in the department out of about twenty. The only other woman in the department was emeritus. Then [there was] someone who was a full professor but with a secondary appointment in this department, so not a major presence in the department. That was a bit awkward.

Also, the fact that it's a biochemistry department. Over the years, the science has gone very much towards the chemistry end of biochemistry than the biology end of biochemistry, so I'm a little bit of an enigma, scientifically, within my department, although my science is very similar to the science in most of the other departments here. So being in a department of biochemistry, which was quite macho—you know, skewed very much in the sex ratio, but also

skewed where many of the scientists were enzymologists, x-ray crystallographers, NMR [nuclear magnetic resonance]— All these macho kinds of sciences

If this place were one where the boundaries between departments were quite rigid, I would have felt very different about this, because—yes—my science is biochemistry in a sense— My science is everything in a sense, but in my heart, I'm a molecular geneticist and I will never be an enzymologist. I will never be a hard-core biochemist. Maybe in my heart, you can also say I'm a metabolic physiologist. I'm a diabetes researcher and whatever it means I have to do to find a cure for that disease, I will do. But I'm using the skills that I've been trained with, which are molecular genetics and cell biology, so I will never be a macho nmr person or a crystallographer or enzymologist or structural biologist.

There are times when I felt isolated. When we have our faculty research in progress biweekly— At the beginning it was kind of interesting to listen to all these different things. But I just admit it: I don't get thrilled and overly excited the way that Harvey does about everything. He may not even get excited about everything. There are things that are going on in his lab, so obviously he wants those projects to be there.

So at the beginning, it was exciting to me because it was very new and I thought, "Oh, I'd better get excited about this. I'm a new faculty member here. I have to at least show good faith." So I went to all the seminars and I sat through all the stuff, and over the years I've realized: "Nope, didn't excite me then; it doesn't excite me now." I am never going to be a mechanistic enzymologist. I'm probably not going to ask the questions that those guys really want to hear asked—you know, high enough level for them—or I'm going to ask something that tries to bring them down from their puritanical, sterile environment to the biology and the physiology where it gets messy and complicated and they don't want to think about that. I'm going to ask a question, the room will go silent, and everyone will act as if, "Oh, she's asked the dreaded, 'What is the biological relevance of this?'" After all, in a cell, that thing isn't crashing around by itself with only water molecules near it.

So I went through a period of not liking it, and now I just take it in stride. But I belong to the [Albert Einstein Comprehensive] Cancer Center here, the Diabetes Center here, the [Marion Bessin] Liver [Research] Center. I'm a member of the molecular cardiology group, the membrane group. So many groups. What you find out after a while is the lack of boundaries then becomes a burden, because then everyone has formed journal clubs and different types of groups of interest, they invite you to all these things, and the next thing you know, your schedule is filled up—tons and tons and tons of meetings. Then you feel bad if you're not going—that people are going to think that you're not interested in it. It simply becomes a matter of how many hours are there in a day, and you can't spend them all away from your desk and away from your people.

It's a lot of pros and cons, and sometimes pros become cons. But it just seemed to be a very lively environment with a lot of different kinds of sciences, but a lot of people who were doing things that were of interest to me. Maybe not necessarily in this department, but because of the lack of boundaries, it seemed that it wouldn't matter that I was in biochemistry.

A very strong attractant was that the position I applied to was co-sponsored by the Diabetes Center, so there was an additional funding that supported the start-up package. And knowing that there was a group of diabetes researchers and clinicians that were funded by the NIH [National Institutes of Health] meant that even if they weren't as cohesive an entity in reality as they were on paper, at least on paper they could put down, "There's a core of people here that are devoted to diabetes research and education." And to me, that was important, because I knew my science was going very much in that direction and I wanted to learn from people like that. I wasn't trained as a diabetologist, so I felt that having a job at an institution that had a diabetes center would be good.

The transgenic mouse facility here was also very, very, very well developed, and they were starting to set up a knockout mouse facility at the time. In fact, my knockout mouse was the first one that had been successfully made here, but they were just setting it up at the time that I was coming and I wanted to do the knockout. I had told Harvey that that was a project that I wanted to take with me and if I couldn't really do it here, then I would have had to collaborate back with people at Whitehead [Institute for Biomedical Research] and be shuttling back and forth between here and there.

Then there's always the complication, "Well, what if the mouse is very interesting?"

COHEN: So you started it there?

CHARRON: I cloned the gene over there and I glued together all the pieces of DNA necessary to make the construct. And then I did all of the stem cell work and mouse work here. That I was kind of doing in my spare time.

I was very fortunate in that, one floor below us, was Rudy [Rudolf] Jaenisch's lab, who was the first person in the world who successfully generated a mouse knockout of a gene. I went down to his lab, made friends with students and postdocs in the lab, and asked them, "What are the rules and regulations?" which weren't known at the time. I got guidance from people in his lab and learned a lot from them. That was another perk of being at Whitehead.

COHEN: That must have been exciting though, to have your knockout be the first one sort of out of the hopper here.

CHARRON: It was. It wasn't the first one that got published, because working on the diabetes model, you end up having to age your mice and stuff. But it was the first germ line transmission of a knockout. Everybody was excited. We were thrilled. Yeah, it was very exciting. So that was also an attraction to come here.

Then my chairman was very interested in getting me here, so anything that I said that I wanted, he pretty much said yes. I was able to negotiate my raises for the first three years that I was here. Also through Einstein, they have a housing assistance program, so I was able to negotiate a low-interest loan for a mortgage on a house.

It really seemed to be the kind of environment where people wanted you to succeed. It's not the kind of place that if you lose your grants for a long period of time, you'll be able to stay forever and ever and ever. There wasn't a lot of that here. You had a lot of vibrant activity, lots of creative thoughts, lots of intermingling, cross-fertilization. I was allowed the flexibility to negotiate my annual increase for several years. I also had the flexibility to write into my contract the maximum number of lectures that I would be teaching. A lot of that I just felt were security blankets that if anyone ever wanted to do something bad, like make me teach way too much, I could at least whip out the piece of paper and say, "No, we agreed to this." So I was very defensive and very aggressive [about] what I wanted in writing before I signed on the dotted line for anything. The fact that it was located close to Queens where my family is was attractive.

There were just lots of things that seemed to make sense for my career development, not the least of which was that there was a diabetes center here and an established, successful transgenic mouse facility. Also, that women in the faculty were not as much a minority as in other places. We're still very much in the minority, but not as bad as in other places.

COHEN: Well, one of the things that fascinates me in almost all of the interviews that I do—there was one exception and it was not a university; the Wistar Institute in Philadelphia has pretty much a fifty-fifty blend of men and women—is that when you look at the postdocs and the graduate students in most labs, it's 50 percent or more women. Yet when you look at the faculties, depending on the place, it can be as little as 5 percent or 10 percent. So the question is, where have all the women gone? How—?

CHARRON: See, now, I don't think it's interesting. I view it as sad.

COHEN: Well, yes.

CHARRON: I try not to dwell on that. It's a fact, and it isn't going away. People predicted by now it would go away. I remember when I was a graduate student, looking around at the faculty or looking around at scientists in general and saying, "Okay, there are far fewer women than men," and looking around my classroom and saying, "Well, it's almost a fifty-fifty split, so by the time that I'm a faculty member, it should be evening out a bit." I don't see that happening. I remember saying that something that I found very interesting was, "Don't you find it odd that we go to meetings and at most, only one woman will be a speaker at the meeting? Sometimes none?" I said, "But yet, they'll take our money to attend. They just won't let us near a microphone to speak our mind. Do you think they're afraid of what we have to say?"

I really don't know what the problem is. Some of it is, perhaps, that it is not an easy career. No way. Living from grant to grant to grant to grant—it's constant pressure. But even if you were funded, let's say, by your institution—not overly funded, but you had a reasonable amount of money where grants were just gravy— So let's say the stress of that would go away—the constant worry about grants or the constant writing of the grants and defending them—then it's the competition to publish or make new discoveries. If you're doing something that is exciting, it's often not exciting just to you only, because then you probably will never be funded, because no one else will perceive it as important. If you're doing something that's really perceived to be important by yourself and by many other people, it's competitive by nature. So you're on a time line, and there's a certain accuracy that you must have. You can get a reputation for publishing a lot of bad things in a timely manner. People will figure it out—whether you're timely and accurate, etc.

But getting those papers out—that's stress. You can't just do the research and keep the information to yourself. I think that's not compatible with a domestic life—with raising a family—for a lot of people. It's tough. It's tough to do. And I think women feel more compelled than men to have a strong influence on the children or, historically—obviously—women have played a much more significant role in that process. And even though they keep saying, "Yeah, men want to be strong father figures, they want to contribute to the development of their children," every couple I know, irrespective of how progressive and liberal and open-minded and fair the relationship seems to be— Well, the wife always does more than the husband.

COHEN: But are you saying then that the women don't want these jobs, or are you saying that they want them and they're not getting them?

CHARRON: I think that it's a combination. I think some realize that, "How can I do both at that level?" I know a number of people that went into industry—figured they wouldn't have to compete for grants. Yes, it's still a stressful job. You have to perform. Company's going to give you deadlines. They're going to expect performance and you're going to have lots of work, but you're not going to have to constantly compete for grant dollars. If you are a good, competent scientist, that is, in a way, your job security. You just have to be able to roll with the fact that they're going to pull the plug on your favorite projects every so often. Well, maybe it's not always going to be nine to five, but more often than not in industry it will be nine to five than in academia, so it leads to what's perceived to be more friendly towards having a family.

I don't know. Myself, I don't think I could have done both. I mean, obviously, I'm not married and I don't have children and I can't see where that could have fit into this. In part, it's because I would never want to do a shoddy job of raising a child. Once I would make a commitment to being a mother— That is a very serious job, and to just put it into a category where you're saying, "Oh, well, this much has to be enough"—

Well, maybe it is for a certain while, but there are going to be times when the bare

minimum isn't enough and I think you're going to know it. And then being torn between— Well, which do you sacrifice? To me, it seems that you don't sacrifice for something that affects the development of an individual, of a human being. The science would have to go at that point, and I can't see how I could be comfortable with that either. I think it's tough. It's really, really tough to do both, and my friends that do both are pulling their hair out constantly over this. It's rough. Then you have other people who will sit and say, "Oh, she's gone soft."

COHEN: "Gone soft," meaning—?

CHARRON: "After she had a baby—" You know, the cutback. But frankly, I have to say, right now, I've cut back some and I haven't had a baby. It's just that you can't do it at ultra intensity all the time.

But I suspect that it has to do with childrearing. I don't know if the statistics have been done where they look to see if the women that have fallen out—I know they're looking to see when they're falling out—are with or without children. What percent of women that are in academia have children? What percent of women that are in industry have children? What percent of women that were postdocs had children? What happened to them? Who are the fallout? I think that maybe there's a false perception that marriages are equal in responsibility. Even when your spouse is an academician or, let's say, someone else who's in industry or another scientist with similar kinds of pressures— I think under those circumstances—people that I know in that situation—it is a little bit more balanced because they both understand the pressures of the job and they try to share the responsibility. But most of the women will tell you, "Well, we're pretty good, but I still do more." And I suspect it's true. I don't think that they're just looking for sympathy.

COHEN: So do you have any regrets about not pursuing the marriage and child route?

CHARRON: No.

COHEN: It feels okay?

CHARRON: Yeah. You know, I've always done things that I felt were important to me, even if it meant that my parents [Joseph E. Charron and Marie A. Sena Charron] were going to not like it or whoever was not going to like it. This is a passion that I have. I had friends who, when they were younger, knew they were going to have children.

They really wanted it. I have never really wanted it. My feeling has been that if I meet the right person, I will know it. And only if that person is adamant about wanting to have children

will I consider it, simply because it's such a huge responsibility and this career is not the kind that lends itself easily to putting the time into proper parenting.

Maybe at this point in time, when I'm coming up for promotion to full professor, I have a few NIH grants— It's always a struggle and it's anxiety producing, constantly. But people in the lab— Supervising them is more methodical. I get invited to lots of places to give talks, so all of the angst of being junior faculty and being able to publish on your own— Can you publish in high-impact places? Can you train people? Will they go on to successful postdocs and successful careers? Can I? Will I? Is it possible? I passed all those initial turmoils, and I'm at a point now where the CV stands on its own and the promotion committee will do what they want. It doesn't mean tenure here at Einstein.

COHEN: Oh, it doesn't?

CHARRON: No, that's a separate decision. Einstein is strange in that way in that when you get promoted to associate professor, it has nothing to do with tenure. You must become full professor before it will even be considered that you get tenure, and when you're full professor, you could be full professor forever and never be considered for tenure. So in some respects, you never have that parachute, or it's a long way to getting the parachute.

I said one of the things about Einstein that people have perceived is that it's a good place for junior faculty to develop their careers. A number of people hit a point where tenure becomes important to them and often will leave and go to other places that will offer them full professor with tenure, and then a bit of a sigh of relief comes with that. It doesn't mean your NIH grants come rolling in. It's just that you're not always working just to cover your salary.

[END OF TAPE 4, SIDE 1]

CHARRON: So my feeling is that now, if the right person were to enter into my life—that person hasn't entered into my life or I was blindfolded at the time and didn't realize it—I might be more open to the thought of having a child simply because my job is somewhat easier for me now than it was ten years ago. Of course I'm much older, which would mean that if it were to happen, it would have to be pretty soon because, you know, I don't want to enter the Guinness Book [of Records] for being one of the oldest mothers on the planet. Nor do I want to use any scientific tricks to bear a child.

There probably is also a certain degree of maturity and calm in rearing children at my age as opposed to in your twenties or at a frenzy point in my career development when I was in my early thirties. Whatever baby would ever come out of that would definitely see a different mother at this point than at an earlier stage.

I remember when I was taking my qualifying exam in graduate school: one of the women I studied with, Ellen Katz, who's a very close friend and has worked in my lab as a postdoc for many, many years—she still quasi-works with me on projects— She and I were grad students together; she was one of the four that I was studying with for this qualifying exam. She was married with three children, the youngest of which was about one and a half, two. I remember one night her calling me up on the phone, and we were discussing one of the papers or one of the questions that we had posed as a potential thing.

It was very close to the exam date and I said to her, "I can't take it anymore. This is too stressful, too much studying. I'm not going to go to the study group. Whatever I know as of now is it. I am just going to sit out on my front stoop like a typical Queens resident, and I'm going to stare up at the stars for the next couple of nights and just clear my mind, because I am too hyper about this."

Then she said, "Well, do you think it's easy for me?" She didn't think I was criticizing her. She said, "Do you think it's easy for me? I want to take Stuart— Do you know what it's like to have a two-year-old? He's crawling all over me." The next one was four or five years old; then the other—the one ahead of that—was seven or eight. And her husband, who was working for a big PR [public relations] firm, was never home. You know, constantly working, working, working for the family to do better. She said, "I want to take Stuart and just throw him against the wall or lock him in the closet. How do you think I feel as a mother that I'm even thinking such thoughts about my baby, whom I love?" She said, "What am I? Crazy? I can't be studying like this. What was I thinking?" And she just was going on and— This is someone who is a pretty typical white, Anglo-Saxon Protestant—not overly dramatic as opposed to me with my half-Italian genes and my hands flying around. I can't speak without moving them, and if I don't have major inflection in my voice, I feel no one will understand me. So Ellen is there, like, hysterical, and then I'm thinking the world is coming to an end. Ellen is showing emotion.

That impressed me, and I turned and I said after the exam was over, "If I were in a significant relationship or if I had been married, the way I behaved in the last few months would have been grounds for divorce." I would have admitted in a court that I was bad and no one should have been near me. I was intolerable during that time period. I remember saying that very, very vividly. Then there were times when I would be writing NIH grants as a junior faculty where I thought, "Dear God in heaven, if I had a spouse right now, he would have to be the most understanding person on the planet. Either that or have a job where he would have to do a lot of traveling and I would just warn him beforehand, 'I'm going to be animalistic during this time period

COHEN: [laughs] Go away.

CHARRON: —and it has nothing to do with you. It's induced by grants.'"

I have my priorities, and I think that if the right person were to come along and shift my

priorities, then so be it. And I'll know it. So that's how I live my life.

COHEN: Okay, let's shift gears a little bit. I want to make sure that we get through a fair amount of the material today, but tell me if you're getting tired, because we've been at it for a while. Let's talk a little bit about your career, how it's going in terms of your career goals that perhaps you established awhile back. How do you think you're doing in terms of accomplishing what you set out to do?

CHARRON: I wonder how many people you ask that to just sort of go blank and have to think for a long time. Do people usually answer that quickly?

COHEN: Not everybody answers quickly, but some do.

CHARRON: Yeah, well, I can answer it quickly only because I felt things were so stressful that I had to step back and try and evaluate things in a realistic way. The bottom line is that from an objective perspective, I'm doing better than I should, or at least as good as I hoped, if not better. Did I notice that always or even within the last year or so? No, I had to stop and just sort of evaluate, because a lot of times—or most of the time—no one comes and tells you where you stand.

Some things, I think, are different for women in science than men and maybe in other professions too. Guys talk to each other. You know, they go to lunch together and they yack. They have a network that they've set up. I don't think that it's even intentional that they're guiding or mentoring each other. I think it just happens as part of their general conversation. You know, who do you think of when someone says, "Hey, we should get together and do this, that, or the other thing"? Or, "Do you know someone that would be good for this?" That might be something that would be advantageous for someone's career, and the names that come to mind, I think, often are your buddies. Who are the people that come to mind?

I don't think that it's an active, purposeful thing that happens, but I have sensed that here, and I bet here is similar to a lot of other places, that the women feel more isolated than the men and don't necessarily feel that in their career path as a junior faculty member—let's say, going up from there—that they necessarily know what things are good. You know, what use of energy is productive versus not? I think that we're less able to say no. So what happens is that you just say yes to everything—many things being the kind that are just a waste of your time that ultimately will make you get fed up. Maybe you'll learn a few things from it, but you're not sure. "Did that help my career at all?" Some of it, I think, is just our nature in general. The other is that we don't have kind of a buddy-buddy system among women, and the men, I think, aren't used to us being here and inviting us into the regular circle and saying, "Oh yeah, let's ask her and her and her."

I think you then kind of overwork. You're not sure where you stand, so that becomes an uncertainty that's like a stress on you. So not just the grants and the obvious things that you know are stressful, but— I know I complained to my chairman that I was being overused on committees and overasked to teach lectures. I mean, it was a fact—documented on my CV—and I don't get paid any more for any of that "good citizen" work. We all have to be good citizens, but there's a difference between good and overused citizens, abused citizens. If you don't know what other people are being asked to do, then you think that you are on par with the others. And then you start to realize, "No, I've been asked to sit on more committees than any of the men in the department. Why is that? Why is it that I get asked to teach lectures on things I never learned myself? Why was there a period when I was teaching more lectures than most of the men in the department?"

You start looking at that and you say, "Well, of course, none of us have secretarial assistants, we all have grant pressures, we all have to mentor, hopefully, a large number of students and postdocs." Yet I had to be sitting on all these other committees. I had to be doing all these other teaching assignments and grading all those other exams. I didn't get a penny more.

Then, in the end, when you come up for promotion or you're going for grant renewal, you're not getting bonus points for that, so that's not entering into your grant score. When you're coming up for promotion, they look. "Did they do citizen work? Yeah." It's not, "Oh, that's an enormous amount." It's only if you're so weak in something else should you have to super-compensate in one area. So it's not until you sit on a promotion committee that you start looking around at the CVs and you say, "Hey—" Or you start looking at the list of everyone's duties in the department and seeing, "Hey, how come I only get these dopey committees that I have to sit on?" Look, if I'm going to be spending time on committees—" At the beginning, yeah, maybe. All right, if I make a mistake, you figure they'd put me on a nonsense kind of committee. It's okay. It'll be a benign mistake. But after a while, maybe I have something insightful to say, maybe I can contribute, and maybe those hours of my time that are going to be spent in that location away from my science I will be able to benefit from and can benefit more from if it's a more important kind of a committee. Why do I still get put on baloney committees?

What I noticed also, every year we would be recruiting another faculty and I was never asked to sit on one of the committees that reviewed all the CVs and that helped to make the decision about who would get hired. That, after a while, kind of ticked me off. So yeah, I started noticing that my time seemed to be less valuable and that it was perceived to be less valuable. Maybe part of the problem was that I was easy to ask. Maybe some people are easier to ask than others, so if you don't learn to say no, then people will keep asking you. But there should still be value attached to it.

I think that things hit a point where I felt I needed to assess the situation, and that's why I can step back and say quickly, "Yes." I didn't realize it in part probably because I wasn't getting positive feedback. I didn't really know what to compare [my work] to. I knew that I hit a point where yes, papers were getting accepted in high-tier journals, but I always wanted that. So yeah, I'm going in the right direction, but does that mean that I'm on the right track? Am I ahead of

track?

Then what happened was I started getting invited to speak all over the place, and if you're not good at saying no— First, you think you shouldn't say no because then they may never ask you again and it's good PR to do it. So you start doing it and then more and more invitations come in and you find that you're always on a plane and you're running yourself ragged and being jet-lagged constantly. That's a stress. So now something that I thought was a good thing—I thought getting invited to speak at meetings, getting invited to give lots of lectures around the country, in other countries, was a sign that others are acknowledging that my work is important. Same thing: Some things that are good suddenly start seeming bad when you don't realize enough is enough.

Earlier this year—I think in the first twelve weeks of this year—I had eleven commitments, either for talks or NIH study sections. And the only reason that it wasn't more was because I said, "I will not in the first week of this year do any external stuff." Otherwise, on January fourth, I would have been giving a talk at Merck [and Company].

It hits a point where it starts— You know, your success becomes like a giant stress on you, so then you have to evaluate: What are my priorities? Have I achieved enough? Can I now set things where I can turn and say, "No, I don't want to do that," or, "I'm sorry, I don't have enough time for that. I'll take a rain check" or "My schedule is very tight now. At such and such— If that's compatible with you."

I had to reevaluate things and then, because the areas that I do research in are pretty competitive, I had to step back and say, "Look, am I doing well enough that if I were to stop right now, have I contributed significantly to the field?" The answer was yes, and probably that I'd contributed more in the ten years that I've been in the field than most people could want to in their whole career. I accept that, and now I'm trying to calm down a bit.

But a lot of the hyperactivity was because I first got my job here during the period when NIH had no money and it was a big weed-out time. There was the philosophy that the most established labs, the high-production labs, would be funded—you know, weeding the wheat from the chaff—and that the juniors— The best will survive somehow; their institutions will support them or whatever. I know a lot of good people that dropped right out and not without a struggle. But it was so demoralizing to constantly be writing grants and writing grants and writing grants. During that time I developed carpal tunnel syndrome in both hands. I still have it. Every night I sleep with braces. And it was because NIH didn't have enough money. The percentiles were horrifyingly low of what got funded. So you were always writing. You were writing to every agency on the planet. It was constant.

Actually, at the end of that five-year period of what I think was hell on earth, I turned to myself. From thinking I was going to be the kind of person who would be in science—I'd be a body bagger; you're going to have to take me out in a bag because I love this—I turned and I said, "There is no way on this planet—" I think by age fifty I will retire. I'll probably do this for ten more years. I just don't know that after that, I'm going to want that intensity.

My feeling is that I want to be secure enough financially— I took a fifteen-year mortgage on my house because I felt it would be paid off before I'm fifty. If I can be financially secure by the time I am fifty— I want it to be that any day I wake up and say, "This is too much," that the decision to retire is mine and it's not going to be based on, "I can't afford to live if I don't work." I never thought I would feel that way about it, but this— It's a tough job.

COHEN: So this extremely difficult period at the beginning, that's when the Pew [Scholars Program in the Biomedical Sciences] scholarship came along for you, wasn't it?

CHARRON: Thank God! Thank God I got that and I got a Career Development Award from the American Diabetes Association. The way that I got that award from the ADA was I wrote a grant about something that I had no data on, no experience for. I said, "The field of glucose homeostasis is out of balance. Everything is devoted to insulin, insulin receptor, insulin action, and glucagon and glucagon receptor. Glucagon receptor, in particular, has been a very important receptor in signaling. [The] signal transduction system that is generated from it has generated Nobel laureates. It deserves to have molecular biology brought to it and I'm going to take all of my experience as a molecular biologist and experience from working with membrane proteins with glucose transporters and I am going to devote that to another area of diabetes research, which will lead to the cloning of the glucagon receptor."

In doing that, I was not stepping on anybody's big toe. Suddenly, boom! I get funded from the American Diabetes Association. Three years. I think it was 75K [$75,000] per year. At the same time I got nominated internally for the Pew award, where I could write an imaginative— Pew says, "We want to hear imaginative science." NIH squashed anything with imagination. It was high risk. Instead of rewarding you for creativity and futuristic thinking, you would get pink sheets back that said, "You don't yet have the mouse." If I had ES—embryonic stem cells—that had the knockout in it and they were being put into the mice, they would say, "You don't yet have the mice." The next round, nine months later, they would say—when I would show them that I had the mice and germ line transmission—"You don't have enough mice." This was baloney! It wasn't simply frustrating. It was exhausting and it was demoralizing because often you got mean-spirited reviews where they would say, "This is naive," or, "Until she can work with hundreds of mice, it is simply hypothetical that this is important." And then when I showed them that I could work with lots and lots of mice, it turned out that my GLUT4 null mice did not get diabetes. They said, "Well, now that they don't get diabetes, this isn't important to study," and I had a paper that was coming out in Nature.

At that point, I blew up. This is semi regular in my life. I hold things in for years and years and years and then suddenly I say, "Great injustice is being done. I don't care." I was ready to leave science because every time I wrote a grant about glucose transporters and glucose transporter biology, it would get squashed. And I was qualified to do this. This is what I was supposed to be working on. "What is this? I can't do this?"

[This portion of the text has been sealed.]

[END OF TAPE 4, SIDE 2]

COHEN: We were talking about grant writing, which is everyone's favorite thing to do, I'm sure. I noticed that right now you've got a couple of RO1 s and also a Howard Hughes [Medical Institute grant], as well as some other things. Are you in pretty good shape now in terms of your funding?

CHARRON: Yeah, I'm not struggling. But since the money has to pay for my salary and everybody else's salary and 30 percent fringe benefits for everybody else, I have to have this much money in order to just keep an operation of seven or eight people employed without us always feeling crisis. I have large animal bills because of all the transgenic and the knockout work—my annual animal bill runs upwards of $60,000 to $70,000 thousand a year—so a lot of my grant money goes to that. Although it may seem like I have adequate support, some grants restrict how much personnel they'll cover or what type of personnel they'll cover. Some restrict different categories. So it came to a point where I had to have these kinds of grants and this much in order to be comfortable.

So two NIH [National Institutes of Health] grants. The thing that's good about that is that if you lose one, you'll not be perceived as being without, because in many ways your worth is based upon your NIH funding—because they give the most indirect costs to the schools. So even for many years when I had no NIH grant, I never was grantless or penniless, but the grants that I had either paid no indirect costs or a very small percent. Because of that, it was perceived by my chairman— I was flat-out told by my chairman that until I got an NIH grant, I would not be considered to have arrived or have accomplished, to have the support of my peers—you know, the mark of my peers. In no way was that true, because all the other grants were peer reviewed. What it meant was that I wasn't bringing enough overhead for the school or for him to be satisfied.

So now that I have several NIH grants, other groups within the school that want to put together program project grants see that, "Well, she's been able to get several NIH grants. Maybe she's a strong candidate to add to our program project grant, which will then mean possibly another NIH grant." That was what the meeting that I had right before this meeting was about. I, yesterday afternoon, was told, "Today at one o'clock, will you come and give a chalk talk about such and such? We'd like you in our program project grant and we're going to go down to NIH on Friday and we need to have this meeting now."

That, obviously, will be great for me—if I can get another—because you never know when one project is going to go dry or you'll lose it or something. Having these fail-safes are good. The other thing is if you're bringing a lot of indirect costs in, people leave you alone.

They're not going to rock your boat too much. And that, in the long run, is good.

COHEN: Well, how do you handle the uncertainty? Because it's clear from talking with you that it's not easy. How do you deal with the uncertainty?

CHARRON: At times, badly. At times, very badly. I'm sure that every time you ask this question to any scientist, it has to make people nervous. Anyone that tells you that they take it in stride—"it's no problem"—I would say it's possible that they're at an institution where their salary is covered—you know, a state institution— Ten months. Some cover twelve months of one's salary. So if you get $150,000 a year from NIH and that's going to pay salaries in your labs and your supply money, that $150,000 goes a lot further than the $150,000 for you to pay your salary, etc. So it is a big stress, particularly when your salary is hooked up to it. Granted, you know that the school is going to pay your salary if you lose all sources of funding. But it's not going to be forever, and in that time period you're not going to feel, either directly or indirectly, very comfortable about that. Anyone who does— Well, maybe I need to take some lessons from them. But it has to be a fine art to learn how to take that in stride. You have to learn how to put it into perspective, because if you don't, it becomes a big stressor. I've gotten better.

COHEN: Do you require your postdocs to supply their own funding, like Harvey [F. Lodish] did?

CHARRON: I would love to. No. I try to push them to. A number of them are non-American, so the agencies that they have access to funding from are far fewer. NIH is a good source of money for American fellows or people who are permanent residents. The funding level is quite high now. But most of my fellows are not American, so that source is out, which makes it more difficult.

I have had some who were very aggressive and creative and felt a pride in getting their own funding, and I've had others that don't seem to be bothered by the fact that they're not writing grants for it. I certainly do encourage them to do it, but if I wait around for people to come up with their own funding, I won't have many postdocs at all. Whether that's a reflection of the times or a reflection of where my science is at and where I stand in the grand scheme of things, I can't demand that and carry the operation that I want to carry.

COHEN: You talked a little bit earlier about how competitive the field is. There's no doubt that competition is a major player in the sciences and you talked about some of the downsides of it. Is there any upside to the competition?

CHARRON: Oh, for sure. As well as in athletics. It pushes you to do better and to excel. In this

case, to potentially be more creative, to think harder. Yes, there are many, many benefits to it and you have to keep it all in perspective.

COHEN: A lot of people worry about getting scooped on something. Has that ever happened to you?

CHARRON: I've been fortunate. No. I'm the kind of person— Have I worried about it? Small worry. I don't think you can let it be your obsession because that will drag you down. I always have felt and told people that I can't waste my time worrying about what other people are doing. I know that I'm doing good science, that I'm working at the best rate that I can and doing the best I can and that if I run my own race and not somebody else's race, in the end, I can't be disappointed with myself. If it wasn't enough to win the race, then so be it. I ran the best that I could and I did the best that I could. And by not looking over my shoulder and worrying where other people are at, I'm not burdened with that.

I see a lot of other people that are too busy looking over their shoulders, calling around, trying to snoop out where others are at, and then you get hyper and obsessed with where you are relative to them. Even if you know that it turns out that you're far ahead, then what? What would the reflex for that be? I would think it would be more natural that you would ease up and say, "Oh, I could take it easy a little bit. We're far ahead." Ha! You could turn around and find out that they made a giant leap forward and now they're ahead of you. So don't worry about it. Run your own race. So I put my blinders on. As one of my very close friends has said to me, "You are one of the most no-nonsense kind of people I know."

Yeah, I run my race. I do it my way, on my terms, and I don't mess around. So I haven't been unlucky in that I've gotten scooped on a big thing. There was a point when I was a postdoc where we submitted to Science and the paper got sat on for a period of about three months.

COHEN: By the journal?

CHARRON: By a reviewer. We were calling and calling and calling, and they said they were still waiting for one of the reviewers to get back. We felt it was an extraordinary amount of time, and what happened was we woke up one morning, opened up Nature, and saw two papers come out of Nature that essentially had the story that we wanted to publish that was being sat on in Science. At that point we got a lovely letter from Science and the manuscript returned to us saying that, "In light of the two papers that had come out in Nature, this was no longer of global importance," and that it was "more suitable for a specialty journal."

It was clear that probably one of the authors of the other papers was the one that was sitting on it, because what had come back were not damning reviews. They were reasonable things that we could have easily answered, and we would have had a more timely publication. I

guess you could say we got scooped there. I never viewed it so much about being scooped as much as cheated, in a way. But it happens. So we just quickly reformatted the paper and sent it to the JBC [Journal of Biological Chemistry]. It got accepted so fast and was soon published after it. So we weren't penalized more than the paper came out in a different journal and it took a few more months. It was a little disappointing, but-

COHEN: Well, that brings up the darker side of competition, which is doing things that are not so nice on the better end, and doing things that could be considered even fraudulent at the other end of the extreme. In your career, have you run into any sort of ethical problems in the field of science?

CHARRON: Of course.

COHEN: Anything you want to talk about?

CHARRON: Well, my experiences have been more as an observer or being asked to judge, where I had been recruited by the committee on ethics here to review—at two points in my career—cases that have been brought forward. One was a very— I think it was sort of an innocent, minor [infraction]. It was an NSF [National Science Foundation] grant proposal. There was a paragraph that had been in a grant proposal that was plagiarized from a review article, and probably the person who wrote the review article is the one that reviewed the grant and that's why it even got picked up. A really big stink was made over it. The paragraph was not even an important paragraph. It was in the background in significance. If that paragraph were removed from the document, the importance of the subject was still there.

This isn't to say that I advocate copying somebody else's work and not crediting them for it. What it turned out to be was a senior postdoc in the lab who was a coinvestigator on the grant— The grant really was this person's grant, but because this person wasn't an independent faculty member, this person couldn't put the grant in themselves. So this faculty member, who had the lab and was sort of the mentor of this very senior, senior postdoc/instructor, signed off on the grant and had read everything over, but really had no way to know that that paragraph in the background in significance was copied from a review article. You know, it was copied with the citations. Each sentence cited the fact that was being made in that sentence and referenced— So for the senior investigator, I don't know how this person could have ever known where that paragraph came from and why you would assume that it had come from someone else's review article that was copied by your protégé. It is beyond me.

But the task that the committee had was to figure out whether this was done intentionally, who was at fault, what punishment, if any, should be made? And we were told that we had to come to some kind of decision and the decision better be a good one because otherwise, NSF would come in and investigate it themselves. We don't want NSF to think that at [Albert]

Einstein [College of Medicine], we don't have a way of dealing with these things quickly and properly and fairly.

So I looked at the situation and I sat back and I said, "I don't know how I would ever have picked this up. Someone in my lab could easily dupe me, and I could be accused of the same thing," because they were pointing the finger more at the senior person than the one that did it, and the one that did it admitted, "I did it. English isn't my first language. It must have been my way of taking notes. I was copying and then, when I started putting the whole document together, I didn't realize that that was a verbatim quote." Blah, blah, blah. I mean, it seemed pretty reasonable. The person was sorry. We couldn't find any other evidence within that document or any other document.

For several months it occupied five faculty from here plus a parent committee with another five or so faculty. And then— I mean, really, the slap on the hand that the senior investigator got, where a letter was placed in her file— The fact that the letter didn't go beyond the file, couldn't be accessed by just anyone, was to me— The fact that there was a letter anywhere, I thought, was ridiculous, because you never know what these pieces of paper can be used for. It was something where you could see it was making this woman crazy—treating her like a criminal.

That was one experience that I had as an assistant professor. That opened my eyes up and made me realize I could get into so much trouble with the people that I employ and that I'm mentoring. If they want to be diabolical, they could trick me and I wouldn't know it and then I'm going to be called on the carpet. That made me realize aspects of my own job and my job responsibilities that I hadn't even thought of.

Then as an associate professor, two years ago, I sat on another committee that was just really an ugly relationship between two people for a very long time. Each one was doing more and more and more detrimental things to the other, so it was misconduct on multiple levels by both parties. And that, to me, was also disgusting. Taught me another lesson. I could see where it could happen in any walk of life, not just in science. So both of them weren't the hard-core kind of cheating—making up data issues.

Then when I was a postdoc, there was the big thing with David Baltimore, Teresa Imanishi Kari, and the Dingle investigations. As a postdoc at Whitehead [Institute for Biomedical Research], I remember we invited someone from Dingle's office who was going to be writing legislation to protect whistle-blowers. David invited this person down to Whitehead and wanted a small group of students and postdocs to meet with this person to discuss issues. I was asked to talk to this person within the group, and I think it was because when I cloned GLUT4, my stuff was publicized in newspapers. So the people that were brought in were postdocs and students that had experience—let's say some degree of visibility at the time—and I guess at that point I was answering questions or thinking about scientific misconduct and actually making up data when I had never even— Like the thought of doing that never crossed my mind. It would be something that maybe you would write in a science fiction novel—not that science is really the fiction of some scientist that publishes that. It made me think a little bit

more about the actual fantasy of data and how dangerous that can be.

I did have a man that had come from China to work in my lab as a visiting scientist when I was a junior faculty member. It turns out that he came from sort of a privileged environment. His parents were communist leaders. I didn't know this. On his CV [it showed that] he had gone to medical school, then went on to do endocrinology and metabolism. He wrote and he told me that he wanted to do research in that area after having been in more of a clinical setting. He went to a medical school that someone else in my lab had gone to and this person in my lab knew him. Another person from Einstein knew him, so I thought that I had someone that—even though I couldn't interview [him]—was a reasonable person to bring over.

What became clear to all of us after he got here was that things were handed to him on a silver platter. Everything he got was sort of through the back door throughout his life, and suddenly that wasn't happening here. He couldn't get things to work, and then he started making things work. Suddenly, I was getting very clean—like, unbelievably clean—results. Things where he would take scintillation counts and then make a graph from it. And the numbers were just too perfect. When you're drawing the best fit line, very often most of the points don't actually land on the line; they're scattered around it. Well, he had most of the dots on the line, and it would be rare that a dot wouldn't be on the line. And because it was so uncreative—his way of fixing the data—I was cluing into it very quickly. I would ask him for the primary data and he would say that he left it at home or he was on the bus and he lost it on the bus, but he hoped to find it. All these weird excuses.

I started pointing out to him that he would show me primary data and I would show him, "Well, the data isn't exactly this, you see?" Then he would say, "Well, I wanted to make it look good because I want you to be happy." And I said, "Well, I'm happy to know what the data is. I'm not happy to have you make up what you think will make me happy." And he just— He couldn't cut it and he couldn't— He would just try to make the data be what he thought it should be, and I felt that was way too dangerous a situation. I essentially told him that the funding source ran out for him. I'm not good at firing people, so I will endure a lot of pain before telling someone to go. So my way of getting this guy out of the lab was to tell him that the funding source ran out.

But actually, he was exhibiting a lot of strange behaviors. He was talking to himself, he was pacing all around the lab, he was making everyone in the lab really, really, really nervous. People would see him walking on the streets at two o'clock in the morning just seemingly aimlessly. And when I asked him if something was bothering him—this is before I told him that the funding ran out—he said that his father back in China was dying, had a bad heart and everything. So I told him, "Well, I think you should go back to China and be with your father." What really was going on—what I found out from Chinese community members here later—was that he was imagining that his wife was having an affair back in China. He didn't want to tell me that, but he felt that if he told me he was worried that his father was dying, that would be a reasonable cause for his behavior. Instead, he was really worried—imagining and getting furious—over the fact that he thought his wife was having an affair back in China. It was driving him nuts here.

Several people in the lab came and said to me, "This guy is such a nut. I think he's going to come in one day and he's going to blow us all up. He's going to just take out a machine gun and blow us all up." Well, I think right around the same time, a Chinese student somewhere in the Midwest—I think it was Wisconsin or Iowa; I think he was a physics student—lost his composure and shot his mentor, like, right between the eyes. I think he failed out of the program or something, and that's seen as such a disgrace that you can't go back to China or you'll be viewed as a failure. He couldn't accept that and this guy, like, offed his mentor.

So this was sitting in everybody's head and people in the lab were antsy that the guy was going to lose it. I knew he was making data up, and now I'm thinking, "How am I going to fire him? I got to get him out of here." So I told him that I would pay him for a month, but the money was going to run out, that I didn't expect him to work during that month, and that he should spend the time trying to find alternate employment, but that I couldn't give a recommendation for here. I said, "You should look elsewhere."

But he liked living in the postdoc housing here. The cheap rent. There was a large Chinese community. So he kept looking here and I said, "Bo, I have to be outright honest and tell people I do not recommend you for here. I have to live with these people and you are making up data." He said he would never do it again and I said I couldn't risk that and that he should look elsewhere.

So he came to me; I will never forget it. I was writing a grant and I was in my office. It was a Saturday night, around two o'clock in the morning, and I was all by myself. I was pretty sure that I had locked the lab door, but I had my office door inside open. At two o'clock he appears, and he just starts crying like a baby, throws his body on the floor, wraps his arm around my ankles and he's like-

COHEN: Oh, my God.

CHARRON: —sniveling at my feet, begging me to take him back. He'll never manipulate his data again. He'll be wonderful—blah, blah, blah. It was so frightening because he was acting so strange at that time and I had learned through my technician that he really— You know, as much as he was saying it was his father that was sick, he thought his wife was having an affair. So I knew that this was— I didn't know where reality began or ended with him, but I knew that he was a scientific liability and I had to stand by, "there's no money."

I said, "There's no money. There's no money. You have to go. You have to go."

"But please give me a recommendation from here."

"No, no, no, no, no," I said. "You must leave or I'm going to have to call security. It's very late. I'm tired. I can't— No is no, and stop crying on me." I said, "Stand up and act like a

man." I said, "I cannot take this crying at my feet and you're wetting my shoes." And I was going to say, "And you're scaring the living daylights out of me." After I got him out the door and I locked the lab and I locked myself in my office, I then called security. From that moment on, I had a system set up with security that until they changed the lock on the lab door, if I called, they had better be there like in a nanosecond because this guy was just a nut.

After that, he ultimately applied for a job at [Memorial] Sloan-Kettering [Cancer Center], and I wrote a recommendation letter that— It was very level. I said what he learned in my lab. I said he required a lot of supervision, a lot of guidance, but that if he had to do the same thing again and again and again and his data was carefully monitored, he could be useful. This was a junior faculty who then called me up and was asking me all kinds of questions and I said something along the lines that you have to have him do something that's kind of like a well-trained monkey. "The same thing, again, again, again. And you must monitor the data." I didn't say that he had fantasized data, but I, in no way, gave him a glorious review. I pretty much said, "He's not a postdoctoral fellow. He requires a lot of supervision. Be careful." I think he lasted three months. The guy fired him, and then I heard he was in the import-export business. That was much better, perhaps, with his ethical background.

COHEN: Well, see, what's interesting to me is that you go through all these years of training yourself to become a scientist. You get no training on how to manage a lab and the people in it.

CHARRON: Or the finances of it, right. But actually, for me, the management of the finances— Because I know a lot of people who keep bankrupting their lab; even if they have an adequate source of money, they just spend too much at one period of time and not enough at others. They have no clue about how to regulate the flow of dollars and very few scientists take courses in money management or economics.

But to pay my tuition at Queens College, I took a job. I started the day after I graduated high school at the Greenpoint Bank and became a teller at the bank. Every summer I worked six days a week, earning as much money as I could as a bank teller. During the school year I worked on Saturdays, and if I could work one day or a half a day during the week, I did that. I did it all through my undergrad and halfway through graduate school. Actually, the bank was trying to get me to go into the management track there. But for me, that was simply to help pay my tuition and living expenses so that I would be contributing to the household finances and be independent financially. So I learned a lot about how to write out deposit slips, how to keep track of your balance with things, and that helped me in the economic aspects of this and also bargaining with the different vendors to cut deals. That's something you have to learn how to do too—cutting deals for supplies and pieces of equipment, getting one to bid against another, or, "Well, look: I can get the same thing from that person, and they're going to throw in this on top of it. What are you going to do to make me want it from you?" That's a way to help your finances if you're on a low budget—how to make it go better. If you're able to spend efficiently, that's good. And they don't teach us that.

Yes, there are an awful lot of things. They don't teach us how to manage people. Lots and lots of things that we have to do you just get thrown into. It's kind of strange. In a lot of other careers, they prepare people for a lot of what they're really going to do on their job, and we don't get that. What you learn, actually, is that a lot of our job is political science too, and we don't get any training in that. Most scientists, by nature, are poor politicians, so you have to learn that too—diplomacy.

COHEN: Then the real irony is that when you're done doing all of this stuff, there's no time to be at the bench.

CHARRON: Oh yeah, yeah. Well, that's why I think the beginning part of your career is the hardest. Or the beginning part of your independent career is the hardest. When I was finishing my postdoc, Lodish said something to me that I didn't appreciate fully at the time and didn't want to believe. He said, "You are right now at the best time in your career, and you're about to begin the worst time in your career. The two are directly abutted next to each other. During your postdoc time, that's the best time of your career. When you're an assistant professor, at least for the first few years, it is the absolute worst time of your career." A lot of postdocs that had recently left the lab and were coming back or communicating with people back at the lab were talking about how great life after the Lodish lab was, how happy they were in their own labs and how great— Everything was great, great, great.

I came here and I'll never forget, you know, getting bombarded with a million things at once. Yeah, they built a beautiful lab for you, but engineering didn't quite finish the job. Now they're starting another job, so getting the last few things done—that's like the rate-limiting step. You're never going to get past those things, and you're new at the place. You don't know what buttons to push. You don't know the path of least resistance. For the first time in my life, I started getting migraine headaches.

Then you realize, "Hey, this is beautiful. This is my lab. Isn't it great?" Then you hear an echo, because you're all alone in your lab. "Holy mackerel! I'm all alone. I got to get people here. I'm great. Look at the great job I did as a postdoc. Why aren't people flocking to my lab?" So you go through this period of denial that you're a junior faculty member. And let's face it, when I went looking for a postdoc, I wasn't looking at assistant professors, people who were just getting started. I'm thinking that I'm going to attract postdocs who were like me to my lab, and I couldn't understand. "Why aren't these people banging down my door? Where is everybody?" And you realize how many hats you have to wear at the same time. You have to recruit the people. You've got to write the grants to pay their salaries. You have to then train them. Not just train them to do things, but train them to function independent of you, which takes a long time. Then hope that they can start asking questions that are useful as opposed to, "How long do I have to keep this at this temperature?"—and they'll have a protocol in their hand that says 20 minutes at 37 degrees.

So I saw Harvey. I think that I had seen him or that I had to call him for some reason. It

must have been about a year after I was gone or close to a year after I was gone, and I said, "Harvey, I have to be very honest with you." He said something like, "Maureen, I don't think you've ever been anything but honest with me." I said, "You know, when I was getting ready to leave your lab, you made a comment to me that the postdoc time is the best time in your career and it's immediately followed by the absolute worst time in your career, when you're beginning as an assistant professor. I didn't want to believe that you were right." Several postdocs who had left the lab and were only gone for a short period of time were all talking about how great life after the Lodish lab was and everything was smelling like roses and peaches and cream and glorious. They were lying through their teeth. [mutual laughter]

I said, "You were right. This is the worst time. I get migraine headaches. How many things do I have to do at once? Oh my God." He goes, "I told you, Maureen. I really meant it." So it's true, that you're doing so many jobs. It's not even that you're doing so many jobs you were trained to do and, suddenly, you have to do them simultaneously. You're doing the thing you were trained to do, but then on top of it, you have to learn how to do all these other things that you weren't. Then you start realizing that as you're successful in growing within the lab, the thing that you enjoy the most, which was the benchwork, you can't do at all.

[END OF TAPE 5, SIDE 1]

[END OF INTERVIEW]

INTERVIEWEE: **Maureen J. Charron**

INTERVIEWER: **Helene L. Cohen**

LOCATION: **Albert Einstein College of Medicine**

DATE: **9 September 1999**

COHEN: We talked a little bit towards the end yesterday about this fellow that you had in your lab, and what I was wondering was if, today, you could just tell me a little bit about your lab—the composition of it, who's there, who does what?

CHARRON: I have a mix of grad students and postdocs. It's about a fifty-fifty mix. I usually don't have a technician, although right now one of the visiting scientists has asked to be converted to a technician in the lab; it's because of pension benefits and things like that. So now I have a technician—something that I haven't had since the first few years that I was here.

Everybody's job is just to do their best—not really specific. They have individual projects that they work on, but most of the projects are integrated with others in the lab. So most people have to be good team players.

COHEN: How many are there altogether?

CHARRON: Right now I have six or seven and a few floaters. It expands and contracts depending upon the time of year. On average, I probably have about eight, sometimes nine, but it's gone up to about fourteen in the summertime with volunteers and visiting scientists from other countries. I like keeping it in the ballpark of seven to ten. That's pretty manageable. Beyond that, you really need to have several senior people that are among the group that are motivated to take leadership roles and help you to mentor the others, so I encourage people in the lab to do that and to do it as soon as possible. From a practical perspective, that doesn't really happen until after several years.

What I find then is senior graduate students become very good at training new students and fellows in the lab. Postdocs— It varies and I can understand why, because they're on a much shorter time line and it takes time to train people. So some of them are more willing and better at it than others, and others you see are more reluctant to do it.

COHEN: You mentioned yesterday that a fair number of your lab people are from other countries. You were talking about funding and whatnot. How does that break down?

CHARRON: In the past, I've had several French scientists, postdocs, a Dutch M.D./Ph.D. student, a Taiwanese— originally from Taiwan, but then a permanent American resident—who was a Ph.D. student. I've had several people from mainland China. I think the majority of foreign students and fellows that I've had have been from mainland China, and that's reflective of what is in Albert Einstein [College of Medicine] and I think many other programs. The majority of foreign students and fellows come from mainland China. I get visiting scientists. I've had a visiting M.D./Ph.D. student from Sweden. I've had two from Israel. Yeah, I get a mix.

COHEN: Actually, there was something in Science a couple of months ago about this influx of foreign scientists and, "Is this good or bad for the scientific community in the United States?" What do you think?

CHARRON: I don't think it's good or bad. Scientists are scientists. If their goal is to go back to their country, well, then they've gotten the benefit of training in one of the best countries in the world to learn these technologies. If they're going to stay and they're good, we can at least objectively critique their experience, their publications. And if they can compete on the American market for jobs and will contribute to science, then that's good. So I don't view it as an American problem or benefit. It just is.

I know that a lot of other countries have viewed it important for their scientists or students to leave the country after they get their degree and go to the U.S., do their postdoc, and hopefully come back. So the foreign perception has been positive. I don't think that if they leave, it's a loss, because the work that they'll do will be beneficial to everyone. American scientists aren't doing science just for the benefit of Americans. So I don't have a problem with that.

COHEN: Okay. How much do you mentor in the lab? We talked about how hands-on Harvey [F. Lodish] was or wasn't. How about you in your lab?

CHARRON: I'm a little bit less so now. As time goes on, I'm probably less so in the formal training sense for sure. I'm here all the time that I'm not traveling, and when I'm here, I'm always available to the students and fellows.

The kind of mentoring that I do now is more advice, helping to critique their experimental data, making suggestions about controls that should have been run or should be run for future experiments. So my role is not the same kind of mentor that I was at the very beginning. At the very beginning, I was the one who was training them technically, and as I mentioned earlier in the interview, it just becomes impossible after a while to do the thing that you were the best trained to do—and for many of us, what we loved the most—which was the actual benchwork. That requires a time commitment that is fairly constant. A lot of experiments

don't have easy stop points or can tolerate that you can only put an hour of two at the bench this day or that day. And even if it did, sometimes it's difficult—if you have that hour or two—to turn off the mode that you were in and then efficiently use that hour at the bench and do that routinely.

So early on, I taught people in the lab with my hands as well as with my mouth and my thoughts. But now it's, I would say, 90 percent. Some things I do show people. Other times I'll just say, "Well, when I was at your stage in development, I did it this way. I know that there are more modern ways of doing it. However, it worked this way then. I'm sure it can still do it now. So I can tell you what the pitfalls are if we take this approach. It'll probably take a little bit longer to do this way, but that never seemed to have affected me when I was at your stage."

Certain things I can't troubleshoot because I don't have the practical experience. I have some textbook knowledge of it, but I can't troubleshoot those things. In that sense, other people in the lab or in other labs, and fellows, etc., are people that they'll go to for that kind of advice. So in some respects, my mentoring skills are tuned by keeping an eye out for what labs are working on what kinds of projects, who in those labs have those techniques, or calling that lab and saying, "Hey, who in your lab is doing this now? Can the person from my lab come to yours and watch them or at least get good protocols?" A lot of times I can help them that way, and my students and postdocs have actually come back and told me how valuable they felt that was. Often, I think all I am is like a directory and I'm just pointing people in different directions. But the truth of the matter is that you can spend a lot of time spinning your wheels and going in the wrong direction. So I've come to appreciate that I can provide them with some valuable information that even to me, if it seems trivial or not so scientific, is important for them and their progress.

One of my students a couple of weeks ago came in and told me she was having a problem with one of the experiments that she was doing. It was a technical issue and using a procedure that I don't have hands-on experience with. Of course, I gave her the phone number of the former student and another former student that had done it routinely and said, "Well, call them up. They should be able to troubleshoot this. But have you considered comparing it to—?" It was an experiment in animals and she was working with male animals and all our previous work had been on females. I said, "Well, what if there's a sexual dimorphism? Why don't you do a few females? See if you can reproduce what we had done before with the females and then you'll see maybe this is a male-specific phenomenon and there isn't something wrong." She came to me the next day and said, "You know, I've been sitting and thinking and thinking, and I couldn't figure it out. I was going deeper and deeper and [becoming] more technical, technical, technical. And then something that was an obvious practical thing I didn't even think of." To me, I didn't see the value in what I told her—I figured it was just an obvious common sense kind of a thing—and she pointed out to me a day later that she felt that was really important. Sometimes they think that they're asking me something small or I unconsciously think that I'm telling them something trivial and they walk away and they feel that was a big help. So how you mentor and what you're doing when you're mentoring comes in different guises.

COHEN: What about formal teaching? Do you have to teach classes?

CHARRON: Yes.

COHEN: What is your load like?

CHARRON: It varies. Some years it's been as small as three or four lectures in graduate biochemistry and the course.

COHEN: In a whole year?

CHARRON: Within the whole year. In general, the teaching loads in medical schools are smaller than the teaching loads at institutions where you have a large undergraduate population. I had a lot of teaching experience as a graduate student—I felt it was very valuable then— [I had] no teaching experience as a postdoc, except if I had a summer student that worked with me. Then, as an independent investigator, I really felt that I loved doing research so much that I didn't want to spend a lot of time doing formal didactic lecturing.

I believe that my talents are best spent teaching other people how to do good research—research tools—how to critique themselves and others in a constructive way. I also feel that my teaching is better done—maybe better serving people around me and that I'm better at it—if I'm teaching something that I really love. A lot of the lecturing that I've done has been in my area of expertise, so the few lectures that I give, I give on something that I really like. But I view that the lectures that I get invited to give—the seminars that I'm invited to give, which are open to the entire communities of the institutions that I go to—as a form of teaching, because I'm talking about very basic research that has medical implications. So the audience can appreciate it at different levels. I get a very broad audience. Sometimes I have many clinicians and clinical fellows, and other times I have undergraduates and graduate students. I get a very broad audience.

I've also been invited to teach a course in Israel. It was an elective course: Special Topics in Glucose Transporters and Diabetes. It ran for a little over a week in Beersheva, Israel, at the medical school there. I was invited to teach the entire course and that gave me an opportunity to really pull together all the stuff that I had done. They didn't ask me to go into many areas that I hadn't done research on myself. There were some group discussions with other people. We were critiquing many papers in the field, some of which were my own—as well as others—so we talked about issues. But they wanted me to highlight what I had done and how it fit into diabetes, and they felt that having a person that had done that work teach the medical students—the M.D./Ph.D. students and the graduate students that took it as an elective course— would be beneficial to them. That kind of teaching I really liked.

I have also had years where the teaching load was my several graduate lectures in the beginning biochemistry class, and that was followed about a week later by several weeks of lectures to first-year medical students who were taking medical biochemistry. The bottom line is that very few of a class of two hundred first-year medical students are truly interested in biochemistry and the biochemistry of carbohydrate metabolism. What I found that kind of lecturing to be was absolutely horrifying. It was miserable.

You're in a lecture hall. You have to present a handout that has every figure that you're going to show them. It's almost like you're dealing with babies, because if you don't give them a figure and you show it, you hear all the pages in the book turning feverishly. They can't go with the flow of the lecture. "That wasn't in the book! What are you doing?" So you feel very restricted when you're teaching those kinds of classes. Often, the students feel that you're being paid by them. They're paying a large tuition; you're being paid by them to teach them this. And they think that this is what you do every day of your life. They don't realize that sometimes you've been asked to teach something that you don't know yourself and you've just learned. And in fact, they're not paying my salary. My grants are paying my salary. So in a way, this is good citizenship on my part and volunteer work on my part and I'm doing the best I can. But they ask questions with a tone. Some will frankly say out loud if they don't like something, and that just makes it uncomfortable.

Most of the people that do these lectures have had these kinds of experiences. You're not going to hear that from people that are teaching subjects that are very, very medical. Those students want to hear about medicine, they want to see things, they want to cut things, they want to get their hands on things that doctors do. Listening to biochemical pathways is boring, so what they want to know is, "What do I need for the exam? What am I going to need for the Boards [National Board Examination; now called United States Medical Licensing Examination]?" "I've never taken the Boards. I don't know what you need for the Boards. I'm just telling you what I think is important in this subject. Hopefully, the people who write the exam for the boards feel the same."

It was such a period— One of the guys who had been lecturing in that course said to me, "Every year when I have to do it, I can't— My whole metabolism goes crazy. My wife can't take me anymore. I gained twenty pounds. I'm a disaster on wheels." I just remember going in and my feeling was, "All I hope to do is get through this and be almost invisible to the students," because by the end of the course, they have to evaluate each instructor. I knew I had never done this kind of teaching before. Many of the lectures I had to teach, I had never taken a course in myself. So the thought of getting the best evaluations was not anywhere in my mind. The reward for being the best is doing it again and again and again and again, so you really have to love it. I was teaching something that I didn't love. I was doing it because it was assigned to me.

COHEN: Plus, it's a lot of work if you don't know the subject. I mean, preparing is a huge amount of-

CHARRON: Of course, of course. It was a huge amount of work and so [much] stress at many levels.

So my goal was to be the one who didn't do the worst; I didn't want to do the worst job, because I would be outstanding for a bad reason. I hoped to be almost invisible so that when it got to the end of the course, I didn't stand out. I knew I wasn't going to stand out for being the best, so the only way that I could have stood out would have been for being an absolute disaster.

The first year I considered a victory because I didn't drop dead during the lectures. They didn't blurt out something that was so horrifying. There was one who blurted something out that was not— It was clear he was disgusted because I didn't know the answer to a question. Really, he had asked me something that was going to come later in the lecture, and because it was something I didn't know— I had my lecture material prepared in a way that when I shot the slide up, the answers or all the cues that I would need to remember what I taught myself would be there. He asked me a question about ten minutes before it would have come up in the lecture.

I said, "Well, we'll cover that in a few minutes."

He said, "I want to know the answer now."

And then I said, "Well, off the top of my head, I don't know." I was too honest. "Can we advance the slides?"

Then I was a little bit frazzled and the slide was a complicated one and it was a pretty far distance away, so I had to stand there and study the slide at the moment. I really should have just said, "You have bad manners, and we're going to follow the course that I wanted to take. Just hold your horses. We'll be there in a few minutes." Or, "Well, figure it out after lecture." But I was not savvy in that way. I just felt I had to get the answer.

So what I used to do was tell the guy who ran the slide projector— Because you're in a giant auditorium and the lecture is down at the bottom, and there's a podium that's huge with a light on it. And the podium is about level with the top of my head, and I felt uncomfortable being behind there. There were several kinds of lighting you could have in the room. There were fluorescent lights that were over the center blackboards, so I would go in really early and I would write all over the blackboards because I needed my— These were my security blankets. These were my notes. I'm not the kind of person— I can't read lecture notes to two people much less two hundred. I'm not able to do that. So I needed to have an outline that was somewhere; it had to be a combination of what I put on the board and what was in the slides, and I had to be able to get through it with that and nothing else. And the notes were there so that if I completely went blank, hopefully, then I could read something to give an answer. I'm not the kind of person who can stand and read. Some people can do it, but many people don't appreciate it when you do that either.

So I used to tell the guy who ran the slide projector—he'd been doing it for, like, thirty

years; Angelo was a wonderful person—"Angelo, do not for any reason turn on the house lights. I don't want to see their faces. I don't want to know that they're there. It's much more calming for me if you just keep the bare minimum lights that are necessary for them to see their notebook so that they can write their notes. But I don't want high lighting. I'm going to use slide after slide after slide after slide, and only if I go to the board—and I'm not going to the slides for quite a while—should you turn on the ceiling lights. Otherwise, the board lights are adequate for what I need and I feel much better because I don't want to stand behind the podium, because it'll look like I'm hiding from them." [laughs]

Every so often I would go behind the podium, and I just felt like, "I wish there was a trapdoor here that I could just—" Because I had a mobile mike; you know, they wire you for everything. I had power packs for everything, for the laser dots—to change the slides—for my volume on my mike. You know, you were just wired all over the place. So there were some times where I would be walking around, going from here to there or using this part of the board, and then I would end up behind the podium. And for one second, the thought would cross my mind, "If there were a button here that I could push and have the bottom drop out"—because they still hear me because of the microphone, but they couldn't see me for beans— "I can just stay on casually, give the rest of the lecture." Many of them would put their tape recorders up in front of you, and I often felt, "Well, maybe if they just left me and the tape recorder together, I would just turn the tape over when necessary and we would all feel much better."

COHEN: Now, when you give a guest lecture somewhere—not to students, but you're invited someplace to give a lecture—are you as nervous or—?

CHARRON: Oh, no.

COHEN: No, it's only the students that do this to you?

CHARRON: The medical students. All I heard for several years were horror stories about the first-year medical students and how they can just tear you apart in their evaluations and they're really cruel. Or some of them will sit there with the New York Times open wide and they're not paying any attention to you, and then they throw the paper down on the floor and they'll get up and walk out in a state of disgust.

COHEN: In the middle of the lecture?

CHARRON: In the middle of the lecture. That's their way of showing that they don't like you as a lecturer. You hear these horror stories, which I'm sure are not generally true but have happened. And then on top of that, you're teaching something that, in my case, I was not

comfortable with. It wasn't a pleasant experience.

What I can say had come out of it was the first year— The victory was that my evaluations were reasonable. They weren't great; they weren't bad. The written part—there was only one that was truly bad and that comment was, "I found Charron to be completely useless." And that was it. Other people would rage with plenty of adjectives that were unappealing, so I considered this a victory, that out of two hundred people that had the opportunity to fill out this form, only one of them that did fill it out— So two hundred don't turn it in. Only one had said that I was useless.

The other criticism that had come through was that I spent too much time on diabetes and glucose transport. That was because those were the things that I like and I can teach so much. I kept trying to impart to them that that was something that I could make them feel as a clinician. Irrespective of what specialty or not you go into, many of your patients are going to be diabetic. That number's getting worse, getting bigger and bigger and bigger, and you're going to have to know what the signs are and pick it up. If you're an internist, you're the first line of detection. If you're an endocrinologist, you'll be a main line of treatment. But if you're a cardiologist, a nephrologist, if you're an orthopedist, a rheumatologist, you are going to have a significant diabetic patient population, so you better understand the importance of regulated glucose homeostasis. Those lectures I knew a lot about, so I could get really excited about them. And there, I said to myself, "This one thought I did too much on this. Wait until he or she sees how many patients they have that are diabetics and how tough it is to control and how helpless they're going to feel. Maybe they'll understand why I tried in a course, where they may not care to hear about how Pep CK is regulated or how important phosphofructokinase is in glycolysis—" They should be able to understand that insulin stimulated glucose transport and glucagon action are extremely important to any physician. So the first year, that was my victory—to come out sort of unscathed.

The second year I was less apprehensive. Not that I knew so much more, it just was the second time that I was having to say things that I was uncomfortable with. But my discomfort was less so because, one, the students hadn't shredded me the year before, so why assume that they would do it this year? But also because I felt that if I could get through it once, I could get through it twice.

The second year, what I found was that several of the women in the class came up to me after lecture and told me how much they admired me for my strength and my courage and that they saw me as a positive role model. In the meantime, I wanted to say, "Do you know what my intestines are like? My God! I have colitis. I'm falling apart at the seams. I'm a nervous wreck when I teach these lectures. I go home and I pray that you guys don't do anything bad to me." What she said was that for weeks and weeks they had been in medical school and hadn't really seen women teaching them, so they were wondering where we were. They were getting mostly basic science courses—I guess they get a little bit of clinical introduction at that point—but they hadn't really seen a female presence. And if you look around the class, about half of the class are women, so that—to me—kind of hit home. In a way I felt good and, in a way, I felt bad. I felt good because, "Okay, they must be looking for this and some of them found it and went out of

their way to tell me that they found it." Then I thought, "I can be a much better role model at other things. If they think this is me as a role model—no." I don't think of this part of me as a role model. It's not what I do best. I can be a much better role model at other things. But I decided that whatever burden or benefits went with that, I would take it.

That year, there were several lectures that I gave, and at the end the students clapped. I didn't really know what to do with that. Like, do I curtsy? Do I clap back? What some people said to me is, "It's so hard to get the first-year med students in a basic science course to do that. That meant they really enjoyed your lecture. They really appreciated it." I can't say that I noticed a big difference in the evaluations at the end of that year, but that wasn't really my objective. My objective was to get through it and not have a heart attack in the process.

So I guess the worst part of my teaching load would be when I had to teach the graduate students and the medical students, because my misfortune—and it was accidental—was that the timing of my lectures in the graduate course and the timing of when my lectures would be in the medical course were that I had to deliver them with less than a week of separation between the two. So I would be with the pressure of grading sixty essays from the graduate student course, and then sixty exams and multiple essays— It took a lot of time to read through all of those. Then every week for the medical students [I had] to make up a quiz, and they would be multiple-choice questions— As I've admitted, I can't answer a multiple-choice question. I'm even worse at making up-

COHEN: They're hard to write, yeah.

CHARRON: —multiple-choice questions. So I would write them, and I felt like I was banging my head against the wall. Because there would be a committee in the department for this course, and the elders who had been teaching the course for twenty years would take my questions and shred them to bits. And I felt, "I'm learning nothing. I have no time. I have to write the lectures. I have to learn the lectures. I have to get the slides ready. I'm grading the graduate exams. I am not going to learn how to write medical biochemistry multiple-choice questions for their quizzes." Then you have to quickly write your section for their exam. That would always come in too concentrated a period. So even though my total number of lectures between the two and clinical conferences that I ran would be in the ballpark of fourteen or fifteen appearances, how many hours and hours and hours did each appearance require in preparation—and then post time for grading things? It all came within less than a month, so that made it crummy. If it were spread out over the year

So I was eager to not have to teach that again. It also came right around an NIH [National Institutes of Health] grant deadline, which was right in sync with when my grant had to go in, so it just made for way too much. I don't think that any one of those alone would have been enough to make me feel so terrible, but when you put it all together, it was— It just painted a horrible picture. So that was a little bit unfortunate. I can say that when medical students ask a question other than, "What do I need to know for the exam?" they ask excellent questions, and that I

appreciated. A really good question, I like—one that made me think; not the simple, "What is the regulator of this enzyme?" Something that had a disease application made me see that they had gone beyond the basic science. I really liked that, and I saw that regularly in my medical school lectures.

COHEN: Now, are you still teaching those?

CHARRON: No, they revamped the whole beginning curriculum. Now it's a very integrated program where the basic sciences are melded together. I guess

COHEN: That's the trend.

CHARRON: —some of the Ivy League schools had gone that way first and others then followed. And [there are] a lot of small group discussions.

I had begged out of the teaching. I had a good reason to beg out. I had a rupture in one of my retinas, and I felt that teaching the medical school course— I was so dependent on being able to quickly read my slides. And when that happened— It could have taken a year, six months. They didn't know how long it was going to take in itself and I didn't want to have surgery at that point in my life, so I told my chairman about a month after it happened that I had no idea when it was going to resolve and that I felt really uncomfortable with having to do those lectures. I said, "I can do the graduate student lectures, because that I don't need to see things for." I was able to give my own seminar talks, because as long as I had an idea of what slide I had up there, I knew what the data was that was on the slide. But I couldn't do the medical lectures.

They had recruited some new faculty to the department, and some were more senior to myself and had been teaching these kinds of lectures at other medical schools. So someone else picked that up. Then the course was completely put into perspective with the new curriculum. I have no idea now who's doing those lectures, but because I was on sabbatical last year, they wouldn't have asked me to do it. And this year, no one has come and knocked on my door. So I view that in a positive way. [laughs]

[END OF TAPE 6, SIDE 1]

COHEN: We talked a little bit about your administrative responsibilities before, but I noticed that you do quite a few things. You're on some editorial boards and some study sections and you are a trainer for a training grant, which I'm not exactly sure what that means. Maybe you could tell me what that's about?

CHARRON: We have a number of NIH-sponsored training grants that specialize in different programs. For example, the Medical Scientist Training Program has one. The aging training grant has one. And individual faculty who have researched in the area of the topic of the training grant—for example, aging or membrane biology or some cancer biology— The PI [principal investigator] of the program grant or those who are running the program grant try to get together faculty whose research programs are in the area that the grant is supposed to be training people in. I'm someone who has a research program. Thus, I'm a legal trainer of students and fellows that are sponsored by that grant. So in the program, if somebody's selecting a lab to work with or a trainer, my research program will be described in that brochure that they'll get.

COHEN: I see. I also noticed that you, I guess, helped plan these Pew meetings. So we have you to thank for the great meetings, right?

CHARRON: Yeah, I participated in two out of four for the years that I was a Pew scholar [in the Biomedical Sciences]. I volunteered for the reunion, but I suspect many people volunteered. [mutual laughter]

COHEN: Well, Puerto Vallarta in January sounds pretty nice.

CHARRON: Well, I would have gotten invited anyway, so I didn't— I like to do those kinds of things because you might be able to, you know, sway the tone of the meeting. But also, particularly for Pew, I have always felt that they have done everything within their meetings and things about the organization— Like, they sent me a birthday card. They remember your birthday. How sweet is that? They're just very thoughtful. They want to make you feel comfortable or good about things, and that kind of thing makes a difference. My feeling was, "Well, how can I do something to repay them"—a form of gratitude—"or to participate in how they make things nice?" I felt that a way to help out would be to help in planning meetings. So not only would I maybe have a chance to voice an opinion about what speaker would be invited or what format the meeting itself would have, but also to help serve them, because they need input from people and I know they realize our time is valuable and our opinions are important. So I did it sort of with my conscience speaking to me at the time.

COHEN: Since we're talking about all the things that keep you busy, we haven't touched on the process of writing for publication. I know that writing the grants is a major headache for you. How about writing papers?

CHARRON: I have a policy with the people in my lab that I require them to write the papers. A

lot of people will tell you that it's a mistake, it's a big time sink, it's traumatic for everybody. I view it as part of my responsibility in training them. I already know how to write papers. I wrote my papers when I was a graduate student. I wrote the papers when I was a postdoc. I had a heavier hand in the first few manuscripts that came out of my independent lab, but if I'm training graduate students and postdocs to do what I do, they have to be able to write their own science, not just do the experiments or try to put into perspective what it means. They have to be able to put down in words in a professional way what that is. So I require, almost until the last draft, that the students and the fellows write their own.

What I've learned in the process is that very few people know how to make an outline. I always start out by telling them, "Make an outline and make your display items." Then we'll sit and talk about it if I see things can flow better a different way. I'm not sure if it has to do with the fact that I'm dealing with a lot of people from different countries who have had different educational experiences. Maybe outlines aren't taught; they're not standard in these places. But even some of the Americans that I've had—their ability to write an outline is sort of [not] there. It's not what I would have expected it to be. I remember when I was a student, I would sit down, look at my work, and then start making an outline. No one told me, "Make an outline." I would make an outline, prepare figures, and then I would go to my mentor and say, "I think I have a story that we can write." Then we would discuss it. And I know it was easier for her to critique that way. It was easier for me to figure out how to rearrange. Then after the whole thing is written and if it's going in a direction that it shouldn't be going— It's so much more labor.

The writing of manuscripts—that's a different kind of a labor. At times it's tough, but I view that as a main job role or job function that I have—to teach people how to write manuscripts. So I'll write margin notes. Sometimes, if it's just bad English, I'll try and make it better English. I'm not the best grammarian that's out there, but I can see mistakes that other people make in their written text [better] than I can in my own. That I view as part of my job. That's an important part of my job.

And I think that as much as my students have sometimes complained about it—the postdocs haven't really complained about it—they realize how valuable it is. I had one who said, "One of my friends in so-and-so's lab doesn't have to write any of her papers." Another one—"Any of his papers. The mentor just takes the paper and writes it up." And I said, "Is your friend ever going to be able to write a manuscript? When is he or she going to learn to do that? How are you going to build a CV without publications?"

So the labor I consider to be, yes, labor. It's a different kind of labor. I like writing manuscripts because it's important to get the data out there so that people know what we've found and see if others can find similar things or whatever. That's a very important part—that it get out there in a timely way. But I also think that if the path of least resistance is having me take their data away and write it, then I'm really not serving anyone other than myself. So I don't do that.

When it gets to the very end and the manuscript is nearly ripe, then I will add some sentences. But by that point, I've had so many margin notes and so many discussions back and

forth that my influence has already been there. It's going to have my tone to it. There will be certain signature characteristics that are mine, but they will not have been my sentences. And I will not rewrite somebody else's stuff. I don't care what country they were born in and how bad their English is. They were trained in an English-speaking country; they shall write in English. That is the accepted language among scientists. So the sooner they get good at it, the better.

COHEN: Okay. You use mice in your research—mice being mammals. How do you feel about animal research in general? I know you're doing it, but does it bother you at all? Or [does it] feel okay?

CHARRON: Feels okay. I'm allergic to some animals, so sometimes it doesn't feel okay.

COHEN: Has PETA [People for the Ethical Treatment of Animals] been after you at all?

CHARRON: PETA has never bothered me. Everyone is entitled to their right to object to something. We're not going to do experiments on people to find out basic research, basic answers, or even to find out if a drug that might be good is going to be good. I think it's necessary. People have to acknowledge it's necessary that we have some mammalian system, something close to the human system that will give us the opportunity to make a reasonable judgment about whether or not a therapy will be effective in humans. That's the only way we're going to be able to make progress, so I have no problem with it and I don't understand that others should have a problem. But if they can propose a better way to do biomedical research and drug development and therapy development and understanding mechanisms of disease, then I guess they should write that up and disseminate it among all the animal researchers so that we can consider it as an option.

COHEN: Are there committees about animal use? I know some of the

CHARRON: I'm on it. If you use the animals, you have to write your animal-use protocols. It's reviewed by the Animal Institute [Purchasing and Protocol Systems] committee. After several years of being here and using many animals, I was invited to be a member of the committee. On top of that, I was then recruited to the subcommittee on animal protocol review. You have to be aware of what government guidelines are acceptable practices for research on animals of all sorts.

Obviously, the head veterinarians are being updated constantly if anything is questionable. If procedures come by my desk that I don't know the answer to, I don't just approve it assuming that, "This is reasonable; it's been in publications before." It could be that now this procedure has been considered unacceptable; there's a better way to anesthetize an

animal or to drug an animal. Many studies on drug addiction and withdrawal include dosing animals to make them dependent, then withdrawing and looking at certain signs of withdrawal, and then when to readminister the drug versus a placebo. Certain things— You know, a person that would be going through that— It's terrible. So I just am not sure because it's outside the area that I'm up-to-date on. Often, I will question, "Is this reasonable? Is there another way that this can be done?"

There are agencies and checkpoints at various levels. There's no need to be using protocols that are outdated, that we now have a better, more quote, unquote "humane" way of doing an experiment. There's no need to be using those outdated protocols. But the other thing is that nobody wants to have—because one person isn't adhering to the rules—the entire operation closed down, because that's what can happen.

So everyone involved is aware. And the awareness is all in the best interests of everyone and everything. So I do spend time on that as well. I get lots of homework from them, because every grant deadline, every single protocol, has to be approved. And you see every one of those come by your desk— So when my grant deadlines are coming up, that's when my homework increases, because I'll get a stack of twenty or so protocols that I have to read that other people are using that I have to say, "Does it seem appropriate? Are they following all the right guidelines? Is there anything of concern?" I raised a concern among the committee members and then dah, dah, dah, dah. My homework ends up coming up at the worst possible times.

COHEN:: Well, given all of the things that are on your plate, what is the thing that you like the most about being a scientist? Then I'm going to ask you about what you like the least. But let's start with the most.

CHARRON: The most is training people to do research. That's what I like the most. I like the freedom that I have as an academician to ask whatever question I think is important and to try to answer it the best way I can. But to take people that want to learn how to do this and to train them to be able to do it so that it will carry on—that is my greatest joy. I think what I'm most proud of is that everyone that has trained with me so far has gone on to do diabetes and/or obesity research beyond that. They more or less have stayed in the field, which says to me that they liked it. It was a positive experience.

One of my students who was M.D./Ph.D. is doing her residency now. So we'll see when she is beyond that and she starts establishing herself as an independent how her research program will develop with her clinical program. Right now that's a little bit up in the air, but those who are in the next phase of their career are all in the field. And that is my greatest joy.

The worst, the least favorite— I guess I've said it enough that grant writing is stressful. That makes it not a favorite thing. It has a purpose. It makes you think about things a little bit more critically. It makes you focus your ideas. To a certain degree, there's enough uncertainty linked to it because you can't stand up in front of the committee that's reading it, and if you

didn't write it clear enough, explain to them something that could have been a simple answer— I think that's my least favorite part.

COHEN: You talked about when experiments go awry. I think you were talking about when you were in Harvey's lab and how you'd bounce ideas off of him on Saturdays and whatnot. You referred to those things as "mysterious happenings" in the lab. A lot of times, great discoveries happen by accident or by serendipity. Has that ever happened to you?

CHARRON: No. I don't think I can pinpoint something as being so accidental. I can say that I've started lines of research for one reason, which I thought were important and that's why we continued to pursue them, but they became important for a much different reason. But no, these mysterious happenings that I would be talking about would be a more routine protocol that works suddenly one day, and that day just goes on for a lot of days. Like, for one month, it won't work. It's something that you just know how to do; it's simple. "Why isn't it working?" It would be more silliness, where you would say, "The gremlins are back." Then for reasons that you often don't understand, suddenly it starts working again, and then you just let it go. I don't care why it wasn't working before; all I care is that it is working now. And you go on.

But I haven't been as lucky, maybe, as to have had something go really wrong and it become a great discovery for me.

COHEN: Not yet.

CHARRON: Not yet. And I'll welcome it if it happens.

But I also have not been unfortunate enough to have ever followed an unproductive track for a very, very, very, very long time. It's second nature. I don't necessarily credit myself for having purposefully developed insight to when to say no and let go—when it is enough and when you should really keep trying. I just consider myself lucky that I have made those kinds of decisions—the ones where we have held on and it seemed to be a money sink—and suddenly, thankfully, the good that I thought would come out of it did.

Other things I feel that I have stopped, it was appropriate, because then I'll look in the literature and not see anyone else making progress on it. I believe there's a certain point where hitting your head against the wall—you have to say, "Ouch, that hurts," and stop. Sometimes it's just not you; it isn't ready to be happening now. You have to be good at making that decision. I don't know what has ever guided me or in my career development, who taught me this. It could be everybody; it could be nobody. But I'm fortunate in that respect.

And other people in the lab have noticed that. I've had students who have turned and said to me, "I don't understand how you know when is enough or that we should have gone in that

direction. What was the clue?" Sometimes the clue is— You can't put logic to it. You can't put science to it. It's a hunch. "I think we should go in this direction." Often, I didn't just pull it out of thin air, but it's clear there's some gamble attached to it.

Then other times—when to stop—they've said, "We don't think we're ever going to get to a point that we can make these kinds of decisions as efficiently." And I said, "This didn't happen overnight. It just is. It will come with time. Don't worry about it." Or, "How do you balance so many things?" I say, "First off, I'm not sure I do balance. Secondly, that didn't happen overnight. If I look good at balancing it now, it's because for a lot of years I couldn't balance it. Then you realize you develop skills or ways to deal with it that then make it seem, at least externally, that you are balancing it."

I've even had one of my students say, "I can't get as excited about science as you do, so I'll never be successful." That made me very sad. I said, "Maybe you haven't found your absolute passion yet. Obviously, this is my passion and I'm glad that you can see that it's my passion, but my passion doesn't have to be your passion. It just has to be enough for you to do your thesis. But I'm sure someday you'll find what yours is and go and run with it, and people will know just by looking at your face that this is what you like."

But it kind of upset me. I think she was saying it as a compliment. She's originally from China—this student.

I said, "Maybe some of it is cultural." But I said, "Look, I have an Italian mother. I'm very expressive, and that could be why. It just may be my mannerisms. Don't obsess on that."

She just looked and said, "I will never be like you."

And I said, "Don't say 'never.' You don't know that. I have not always been this way."

So it's interesting how they pick up different things or take something that you would think is a positive and reflect it onto themselves and then see it as a bad thing.

COHEN: Well, the part about that sort of sixth sense about when to go on, when to shift gears— Among clinical people, that's called "good clinical judgment." Some people have it and some people never get it, and the ones that have it are the ones that are really good clinicians. The ones that don't, aren't. I'm not sure that everybody gets it eventually. I don't know.

CHARRON: It might be good, even if that's so, to just tell them. Because if you tell them that, "I'm not sure everybody will get it," then they could be convinced that they're not going to get it. So I don't want to be the one to tell them that. I'm sure you're right about that, because some people do make mistakes. But I think that making those kinds of mistakes doesn't have to be fatal in your career.

Maybe for clinicians it could be fatal to some of the patients, but for scientists, if every one of your decisions is bad, well, I suspect that you're not going to be in the business your whole life, or certainly research is not going to be your main focus. You can go down wrong paths; that's how you learn. So just because I feel I've been lucky in that I haven't stayed on any wrong path or hopped too soon— Because there were times with some things where you could say, "She's doggedly persistent at that." At the same time, someone else could say, "She's out of her cotton-picking mind. That's never going to happen." Right? And then it happened. If it hadn't, people who felt that I was out of my mind would have said, "Well, she was a glutton for punishment. I told her to drop that." And the others would have said, "Gee, I never would have guessed, but I could see where it could have gone that way." I don't know why I know when, but truthfully, I have never even started a project that hasn't ultimately worked.

One project has been a bear, and there have been times where we've slowed down. I think it was more "take a breather," because sometimes you can just start feeling consumed by something that's not wanting to go forward at that time. But I've always considered it luck, because I don't know why I make those decisions. I just feel that way, which is so unscientific, but it's true.

COHEN: Well, you've just mentioned you can get consumed by something. So what do you do for fun so that you don't get consumed?

CHARRON: Oh, I love sports. I love volleyball, softball. I work out in the gym. I love to sing. I used to play the guitar. I realized at a young age that I could be good at it, but I was never going to be great and relaxed with it—it was not going to ever come easy to me—so I stopped playing. I love to sing. I love rock music, pop music, so I go to concerts—not the kind of concerts that many of my colleagues go to, but that's what I enjoy. I bicycle ride.

COHEN: Do you sing anywhere but in your shower? I mean, do you belong to a choral group or a choir or karaoke?

CHARRON: No. [mutual laughter] Well, when I go to church, I make sure to go to a mass that sings because it gives me an opportunity to bellow as loud as I want in a way that is productive. Around the house I'm always [singing]. In the car I'm always [singing]. With my nephew [Patrick S. Lennon], when he was little—the songs that I used to sing to him—my mother [Marie A. Sena Chan-on] would go crazy. "Why are you singing those songs to him?" I would be singing Talking Heads songs—very hard rock or punk rock at the time—and she would say, "'Psycho Killer'? Why are you singing this to him?" And I just said, "It has a good beat, doesn't it?" [mutual laughter] He'd be three years old and singing these tunes back, and my mother would go crazy. And I said, "Oh, but it's good to make him feel comfortable with singing and expressing himself." Still—now he's ten and a half—whenever we go anywhere, in the car, I put on the radio or a tape, and if he doesn't know the words, I teach him the words.

This summer I took him to his first concert. We went to the Lilith Fair, which, if you're not familiar, was organized by Sarah McLachlan, who's a Canadian pop singer/guitarist/piano player, who several years ago ran into the situation where several venues would not book her because the lead act was also a female artist. What they said was that they would never be able to sell out. They wouldn't pull in the money that they hoped to pull in. That got under her skin, and she decided that she was going to prove the point that women were a significant presence in music and that all-female billings can indeed pull in huge audiences. And for the past three summers she's toured with many, many female artists in different stages of their career development.

There are several stages that are set up. It's a fair—it's about a five-, six-hour-long event—and there are many booths that are set up. Many of them are for good causes for women: fighting against breast cancer, domestic violence. Then they sell records or CDs of the younger artists—the upcoming ones. So they have village stages and small stages where you can get very close to the artists, and new ones kind of participate in a lottery to get time on those stages. Then very popular ones are on the main stage. So as the day goes on, the last four or five artists are all on the main stage.

So we went out to Jones Beach—it's an open-air theater—and I told him that, "We're going to go. I'm going to take you to a rock concert and it's all women." Several of my friends and some of their husbands were coming with us. We went around—he was so excited; this was his first concert—to one of the smaller stages and a lesser artist got out there, and suddenly Sheryl Crow comes out and joins her on the stage. I grab his shoulders—he's as tall as I am now—and I stick him right in front of me, and I say, "Look! She's famous! That's Sheryl Crow!" Then a minute or two later, out came Sarah McLachlan, and I went, "She's famous! That's Sarah McLachlan!" Then he goes, "You said that there were going to be all women singers here. Where's Jennifer Lopez?" I said, "We don't do that kind of music! No!" I said, "Memorize this: Sheryl Crow! Sarah McLachlan!"

Then one of the groups that was playing on the main stage later was Chrissy Hines and The Pretenders. Chrissy Hines is fifty-something years old, and she's still rocking. Patrick was aware of some of her music because I used to sing Talking Heads and Pretenders songs to him when he was little. And he looks, and he was so proud, and he says to my friends, "I know that song!" when she was singing. When Sheryl Crow got out onto the main stage, she then sort of acknowledged that Chrissy Hines was the best female rocker ever. She said, "And I'm honored to play with the best female rocker ever." And my nephew jumps up and he goes, "Aunt Maureen!" [mutual laughter] And my friends look at me and— I was so embarrassed! Of course I jumped up, and then he goes, "The Pretenders is the best female rocker ever?" And I said, "That's okay. I'm happy you think it's me!" [mutual laughter]

COHEN: That's cute.

CHARRON: Now I have the ability to bring my hobbies to my nephew, so I play sports with him. And now it seems as though my little habit of singing songs to him— He's old enough now that I can take him with me to some of these concerts. He was just so excited that he could go and probably thinks that all concerts now also have beach parties associated with them, because my friends and I made a big picnic and brought that with us. So I'm sure he has a convoluted view or thinks that you get ten acts that come out.

COHEN: Well, he'll find out.

CHARRON: Yeah.

COHEN: Do you spend much time with TV or the Internet? Those are big time sinks for a lot of people.

CHARRON: Neither.

COHEN: Neither?

CHARRON: A little bit of TV, a few times a week. I tend to watch shows that are completely decadent. A little science fiction: I love The X-Files. I often think, "When I retire, I think I could sit on my porch and write such fantasy. I think I could have juiced that plot up a lot better than what they had." Shows like that. Sometimes I'll watch a comedy. I think it's healthy to be able to laugh at regular things. Mostly in the evenings, I'll listen to CDs that I have.

Internet— I am such a nontechnocrat. I'm not fond of computers. If you asked me to list my best friends, I could go on and on and on. Or things that I love the most—Computers are not my friend. I'm all thumbs with them. The other thing is that I see that the few times that I jump onto the Internet and start surfing around, I see you can really get absorbed in that. So I don't have it at home. I'm going to try to do that for as long as possible. And I'm content to not do it because I think that I could be one of the people that would be— You know, you log on and five hours later you realize, "Holy mackerel! It's three o'clock in the morning! I better get to bed; I have to get up soon."

No thank you.

COHEN: Well, it's interesting that you said you're-

CHARRON: I'm not a technocrat?

COHEN: —not a technocrat, because in the sciences now, technology is— I mean, it revolutionized genetics.

CHARRON: There are certain technologies that I just want to have: chips, microarrays.

COHEN: Micro—?

CHARRON: Microarrays—being able to put DNA on chips; there are microarrays that go onto these chips. Of course, I want to do that. I realize it's very expensive to do, so I have pitched my projects to major pharmaceutical companies that have the resources and the teams to really do it correctly. So in a certain sense, I'm a bit of a technocrat because I could see that quickly and could see the application, but I also saw the practical end of it.

But I don't have a cell phone. I don't want a cell phone. Only this past Christmas did I even get a cordless phone as a gift; all my other phones have a wire attached. [laughs] So I really am not into all these gadgets. I don't want to read an instruction manual. I don't want to complicate everyday aspects of life.

[END OF TAPE 6, SIDE 2]

CHARRON: None of my friends understand that aspect of me. Everyone just assumes that I must be a real technocrat, that I probably have every gadget on the planet and that I must be logged on constantly. In the meantime, in my life, I have probably gone on the [World Wide] Web twice, and it's with someone else's hand there, clicking, clicking, clicking for me. And they just don't understand that. One of my friends says, "Boy, you're funny. How do you survive?" "I think quite well, thank you."

COHEN: Okay. Well, actually, we've pretty much come to the end of the things that I wanted to ask you about, but usually at the end I just kind of open it up and ask you if there's anything else you'd like to amend or add to the record?

CHARRON: Oh, no. Amendments, I think— After I see— [mutual laughter] It may end up being sealed until the year 3000. No, we've covered all the areas, I think. That's it. I mean, do you ask people where they think they're going to be ten years from now, twenty years from now?

COHEN: Well, you've touched on that, so I didn't-

CHARRON: Oh, because I said I was going to retire in ten years.

COHEN: Right, so I didn't actually go back to it. But I'd love to hear what you plan to be doing in five or ten or twenty years.

CHARRON: I still think that for the next ten years— Maybe I'll be lucky and I will start to view this as less of a stress than I have in the first ten, but I am not sure that it's going to get easier, or significantly easier, for me to change my mind. I do really want to have it that at any point after that, from about age fifty on, I can wake up— If it's no longer fun to do— And I know if I'm talking about something being a stress and then saying, "If it's no longer fun," you could say, "It's stressful. Why would you view that as fun?" I mean, it's very rewarding. It's probably one of the most rewarding jobs I think anyone could have in my opinion, because it has so much freedom attached to it. With the freedoms, you have your prices that you have to pay, which often are the stresses of the competition to get the grants, the competition to publish the papers or to recruit the best people, or to recruit anyone, and to be able to maintain a certain level of productivity.

I would like to try my hand in the business sector. I've considered setting up my own biotech[nology] company. I've looked into it. I don't think it's just my perception that it's not as easy here in the New York City area to do as it seemed to be when I was up in Boston or in Cambridge, where there are so many biotech companies. I mean, every professor at MIT [Massachusetts Institute of Technology] has one or two or ten that they've started or that they sit on the advisory boards of. That's a very different way of doing science than the way I do it now. In some respects, I think I can be very good at it. I don't know if that's a fact or not, so I'd like to give it a shot. I know that I have some good ideas and some good projects that have potential.

For right now, I use my time on the patent committee here to kind of develop some thoughts and skills in that area and I interact with a lot with drug companies, either to do consulting work or collaborative work. Now I've been invited onto the scientific board of one of the companies. I'm learning some new skills, so I might like to go in that direction. It could just be that ten years from now, that will be the right time for me to do it. For twenty years, if I train people to do basic research in an area that I feel passionate about, then that's great. If I can then get into, in a more hands-on way, product development, it would be in that area. Then it would be me being less of a mentor and more into the technology and development end.

I think that that might be a way to spend a portion of my career. I wouldn't just retire and sit on my porch. If I did, at least I would write science fiction, possibly targeting it towards the youth—to get their little minds going and thinking in wild and creative ways that might inspire

them to go into the sciences. That would be another option. But I would probably have to have a good editor that would turn it into English, punctuate it properly for me.

COHEN: But see, with a screenplay, it doesn't have to be proper [English]

CHARRON: Oh, okay.

COHEN: —because people speak the way they speak, right?

CHARRON: That's true, yeah.

COHEN: See, I'm from the land of screenplay writers, so-

CHARRON: Okay. So that's a possibility.

COHEN: Okay, anything else?

CHARRON: No.

COHEN: Well, thank you for your time.

[END OF TAPE 7, SIDE 1]

[END OF INTERVIEW]

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