GIULIANA TESORO

November, 1976 - June, 1977

Part I

Women in Science and Engineering

MC 86

Oral History Collection

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

ORAL HISTORY PROGRAM
MIT 20D-224
CAMBRIDGE, MASSACHUSETTS 02139
(617) 253-4067

TRANSCRIPT OF A TAPE RECORDED INTERVIEW WITH
GIULIANA TESORO

THIS IS A TRANSCRIPT OF A TAPE RECORDED INTERVIEW CONDUCTED WITH GIULIANA TESORO BY Shirlee Sharkan OF THE MIT ORAL HISTORY PROGRAM, ON November 15, 1976, November 23, 1976, November 29, 1976, December 14, 1976, May 4, 1977, May 19, 1977, and June 14, 1977 at Cambridge, Massachusetts.

CORRECTIONS AND MINOR EDITORIAL CHANGES HAVE BEEN MADE, PRINCIPALLY TO INCREASE ACCURACY AND CLARIFY MEANING. CLEARLY NO ATTEMPT HAS BEEN MADE TO PRODUCE A LITERARY DOCUMENT, BUT TATHER A READABLE AND ACCURATE REPRESENTATION OF A CONVERSATION. THE READER SHOULD BEAR IN MIND THAT SHE/HE IS READING A TRANSCRIPT OF THE SPOKEN, RATHER THAN THE WRITTEN, WORD.

Giuliana Tesoro HAS READ AND APPROVED THE TRANSCRIPT AS CORRECTED. RIGHTS TO USE OF THIS TRANSCRIPT ARE GOVERNED BY THE ACCOMPANYING PERMISSION FORM.

INSTITUTE ARCHIVES

ORAL HISTORY COLLECTION

Interview with Giuliana Tesoro,
on Nov. 1976 – June 1977.

SUMMARY OF RIGHTS HELD IN THIS TRANSCRIPT:

Activity:	Permission needed:	
	Institute Archives	Interviewee
Access	unrestricted	
Reproduction[1]	x	
Publication[2]	x	

[1]The Archives will provide photocopies in accordance with the donor's stipulations and fair use practices.

[2]Neither permission to examine materials nor receipt of copied material should be interpreted as permission to publish that material.

Subject Table of Contents for Tape-Recorded Interview with Giuliana Tesoro

15,23,29 November and 14 December 1976;4 and 19 May and 14 June 1977

Pages	Topics
1-4	background; family; parents' educations
4-13	early schooling; impressions of self in childhood
13-18	home life in childhood; relations with parents
18-26	schooling after age twelve; role models, teachers; value of training
26-27	social life during high school period
27-32,34-35	Italian political climate of 1930s; family flight to US, with interlude in Switzerland (1938)
18,32-34	early science interests and schooling in Italy
35-38	growth of self-confidence through experiences; career expectations at age 18 (1938-39)
38-39	general interests before coming to US
40-47	settling in New York City;arrangements to enter Yale graduate school in chemistry (1939)
47-56	Yale graduate school (1939-42);academic success; social life; organic chemistry studies
56-59	receipt of Ph.D and marriage (1943); effect of war on her and husband's families
59-61	first job at Calco Chemical; to Onyx Oil Co., (1944)
60-67,78-79,88	husband's career; family; children
67	opinion on H. Astin tax reform concept
68-74	raising children; domestic help; housework
74-77,97-98	end of industrial employment (1972) and move to academic work
77-78	attitudes on teaching; applied research
79-83	work at Onyx Oil Co., (1944-58); promotions, patents
83-88	work at J.P. Stevens (1958-68) and Textile Research Institute; evaluation
88-89	sex and industrial employment
89-96	work at Burlington Industries (1968-72); atmosphere; closing of research operation (1972)
98-108	MIT fiber science work (1972-); teaching and consulting
108-113	reflections on position at MIT; academic vs. industrial work setting
113-116	opinions on position of women in science
117-120	patents and publications; effect on career
120-122	awards
122-134	committee work; professional societies: memberships and involvements
134-135	recent research work
135-139	opinions on position of women in industry
139-142	opinions on position of women at MIT; engineering, professions
142-145	opinions on current (1977) J.P. Stevens labor dispute
145-152	opinions on women's movement, women's issues, ERA.; personal experience
152-161	personal history: important figures in private and professional life
161-162	hobbies and pastimes
162-169	evaluation of career, past and present; primary interests

MIT ORAL HISTORY PROGRAM

Project on Women as Scientists and Engineers

Interview with Giuliana Tesoro — by Shirlee Sherkow

Cambridge, Massachusetts — November 15, 1976

Session 1 — transcribed by Beth Gould

Sherkow: I thought we would begin with your childhood. First of all, do you have any brothers or sisters?

Tesoro: Yes, I have a brother and a sister, both much older than myself. My sister is twelve years older than I am, and my brother's ten years older than I am, so I was the third in a family of three but I came so much later than my brother and sister that I didn't grow up with them.

Sherkow: Where did you grow up?

Tesoro: I was born in Italy and I was there until age eighteen, essentially.

Sherkow: What is the level of education of your parents?

Tesoro: My father was a civil engineer and had gone through all the stages of a university education. My mother had studied languages in what would be the equivalent of a two-year university or some such. At that time, in that environment, it's hard to compare.

Sherkow: What would be the year, approximately?

Tesoro: Well, my mother died in 1943 at age fifty-nine; now I've got to do some arithmetic to figure it out.

Sherkow: Early 1900s it sounds like.

Tesoro: She was born in, I guess, 1884, or something like that; 1884, I believe, so it was early 1900s, yes.

Sherkow: So the educational system was quite different.

Tesoro: The opportunity and customs for girls' educations were very different then from what they are now; they were different in Italy from what they were here, so it's very hard to make a hard, fast comparison. But I would say both parents had a very advanced education: my father in absolute terms and my mother in relative terms to the time and place.

Sherkow: Were your parents born in Italy?

Tesoro: Yes, both were.

Sherkow: As you were growing up, what occupations did your parents hold?

Tesoro: Did they have?

Sherkow: Yes. Did they both have jobs?

Tesoro: No. My father had a career within the largest insurance company in Italy and ultimately became one of the managing directors of that insurance company. His responsibility was the insurance of buildings because of his

engineering background. My mother did not have jobs, never worked for money in her life, as far as I know.

Sherkow: She was a housewife?

Tesoro: Well, she was a housewife, yes, but a housewife in the middle-class European sense, which is quite different from today's meaning of "housewife" in America --or even in Italy, for that matter--because in a middle-class relatively affluent family, the housewife has the responsibility for the children and the management of the household but does not really have to do any housework. I think you have to consider the difference in time and the difference in environment. So the reason I said this is that she had the opportunity and time, for instance, for reading, for listening to music, for doing a lot of the things that the average housewife does not normally do because she simply doesn't have time. So intellectually there are more opportunities as a housewife in that kind of a situation. The comparable status of "housewife" in the America I know today would bring the woman to a social life, or to social activities, which was not the case; it was more the family and the household and what time was left was more concerned with some kind of relatively intellectual endeavor, not in an applied sense, not in money-making.

Sherkow: You mentioned social activities as opposed to housework. What kind?

Tesoro: Playing bridge, or clubs, or sports--things of that nature which in the affluent middle-class America the housewife will be very active in if she has the time; if she can hire someone to do her housework she's likely to spend her time doing that. That was not customary in the kind of society where

my parents were living.

Sherkow: So you went to grade school in Italy?

Tesoro: I went to grade school. I skipped the first and second grade.

Sherkow: Really?

Tesoro: I entered third grade at age six.

Sherkow: On the basis of what?

Tesoro: On the basis of the fact that I knew how to read and write. When I was six years old and had to go to school it was conventional, going to school; they put me in the third grade. In subsequent years I ended up being a couple of years younger than most of my classmates, which had some disadvantages.

Sherkow: Were your parents very education-oriented? How come you knew how to read and write before first grade?

Tesoro: I don't know, to tell you the truth; I just did. I don't know. Maybe my brother or sister would remember why, but I doubt it. I don't know. Somehow--I remember it distinctly with my own memory, being put in third grade at age six. I remember the school in which this occurred but I don't remember the reasons.

Sherkow: Were your parents particularly encouraging of you while you were going to school?

Tesoro: Oh, yes. They placed a high value on school and education in general. They were very interested in my education, as well as that of my brother and sister. They felt that was an important thing. But I don't have any recollection of a discussion of it; just that was the atmosphere.

Sherkow: So you don't recollect having any kind of special encouragement from your parents in terms of academics?

Tesoro: The parents were both very thoughtful and concerned parents, and very close to each other. I remember the atmosphere; I do not remember any specific instance of discussion or pep talks or anything like that. They cared; they cared about how things went at school; they cared about my school activities; they cared about grades; they cared about all those things, but I don't remember ever it having been made an issue of.

Sherkow: While you were at school, do you remember some of the interests of your closest friends?

Tesoro: School at what level?

Sherkow: I'm talking about grade school.

Tesoro: Grade school?

Sherkow: Yes. What is that in Italy--is that until the eighth grade?

Tesoro: You have five years of elementary school; then you have five years of what they call "gymnasium" which is a middle school, a middle-education type thing. Then three years of "Liceo." The latter eight combined correspond to high school, (approximately). I don't remember any special

interests of my friends, in general, no.

Sherkow: How about your childhood friends? Could you just talk about what you were like as a child, and what you were interested in, and your friends?

Tesoro: What I was like?

Sherkow: Yes.

Tesoro: I was a tomboy, essentially. I liked a lot of physically active things. I liked less the traditional sewing and playing-house type things, although I did that too. I remember some of my childhood friends. Yes, there was a child--a boy, as it happened--with whom I played very often. What he ended up doing I do not know. But from age six to ten or so, I remember seeing a lot of this kid. I have rather foggy and confused memories. I could sort them out, probably, if I spent a great deal of time thinking about it and about some of my friends. There was a girl who used to live in the same apartment building downstairs and I remember being very friendly with her and playing games, like having mail. We were on the third or fourth floor, and she was on the first floor, and we had a basket going from my terrace to her garden and we used to get mail back and forth. I remember another friend with whom I did homework occasionally. I have a very specific recollection of some of my childhood friends, but nothing with any impact, frankly, that I can remember.

Sherkow: You mentioned that you were a tomboy. Were you active in sports?

Tesoro: Yes. Later, though--not at age six. I played basketball at some stage. I liked to play ball. I liked to run around when I went outside.
--[Interview interrupted]--

Sherkow: I was asking you about the sports activities that you were interested in.

Tesoro: Yes. I remember this enjoying--I still do, in ways: I still like to hike. But I remember that I wasn't that concerned with very--I did have dolls; I did play with dolls, but they were not my only, or my primary leisure interest. Even that, I remember I used to frequently fall and have scratches on my knees and things that very girlish little girls don't do, in that sense.

Sherkow: You seem to be saying that your primary interest was not in the typical "feminine" areas of dolls.

Tesoro: I can't say that I focused on that, then, or for a long time to come. Don't put words into my mouth.

Sherkow: That's what I thought you were saying. You weren't?

Tesoro: No. The only thing is, I knew girls my age at that time who enjoyed things differently than I did, and that was a fact. It was just like I had blond hair and some of them had dark hair; it was not something that I ever in my own mind made an issue of. People did remark that I was always falling and scratching my knees, or that I didn't like dresses with a lot of lace, or things like that. But so what? I also gave away very recently a kind of costume, a very fancy ballet-type--not tights--big gown, ballerina-type thing, that I wore at a big affair that I went to. So it was not at the exclusion of anything; it was just a very large number of things that I enjoyed. I remember enjoying outdoor things very much.

Sherkow: So you didn't feel any different from any other classmates?

Tesoro: No.

Sherkow: What about some of your other extracurricular activities? Did you take music lessons of any kind?

Tesoro: I took piano lessons for a time, until age twelve. Then I didn't particularly enjoy it. It's not that I didn't like music; I didn't particularly like the piano lessons and practice. At age twelve my father died, and I asked my mother, "Let me out of this. I really don't want to do it." I didn't pursue that. That's about it, I think.

Sherkow: What about reading?

Tesoro: Yes, I read a lot. I always [have] read a lot since I knew how to read, primarily appropriate children's books. I always felt that I liked to read about real things, or potentially real things, more than fairy tales or things like that. That is very clear in my mind, that I liked the books that dealt with people, not imaginary things.

Sherkow: You mean historical books?

Tesoro: No, I don't mean historical. I mean the real world as opposed to the fairy tale world.

Sherkow: I see. I'm just wondering if fairy tales were more important then than they are now? I don't remember.

Tesoro: I don't know. Lots of kids read fairy tales, Andersen's fairy tales

and things like that. I didn't particularly look after that. I liked the things like Heidi; kids still read those things. That type of thing. But potentially real children, and real families, real events.

Sherkow: Any other extracurricular activities that you can remember? Horseback riding?

Tesoro: No. In the summer we used to go away for a month in the mountains almost every summer that I can remember, and I liked very much to go hiking and climbing, in a modest way, not big--that I enjoyed very much.

Sherkow: Did you have a cabin?

Tesoro: No. We went to hotels, usually, a resort hotel-type place with the family.

Sherkow: In Italy?

Tesoro: Yes, generally.

Sherkow: As you were growing up--I'm thinking more of the pre-teen ages--did you feel or notice a lot of peer pressure? And if so, towards what?

Tesoro: No. The only pressure that I can remember was the pressure of doing your homework and getting good grades; that I can remember distinctly. The fact that there were two, or three, or six people in the class who were very good students. I was always a very good student, and there were always a number of other good students in the class, and there was the feeling that I was in that bunch. I remember some of these people I liked, who were good, and some of them I didn't like. Some of my friends were in that bunch, and

some were not, but I don't really remember. I remember incidents. Like--I guess I must have been, maybe ten, or something like that--and I remember a classmate would go to the little place in school where you could buy candy and snacks, and she went and charged them to me. I remember how upset I got because here I got some charges for things I didn't buy, and I felt very strongly about how unfair that was.

Sherkow: Was she a friend of yours?

Tesoro: No. But just incidents like that. I remember many, but nothing of any significance.

Sherkow: No general peer pressure?

Tesoro: No.

Sherkow: There were stores in your school?

Tesoro: In the school there was a kind of a--

Sherkow: In a cafeteria or something like that?

Tesoro: Not a cafeteria, because we went home for lunch; we brought from home anything we would eat at break. But there was a guy, a janitor or something, who was selling little snacks and candies and things to the kids. When he knew the kids, he would allow them to charge it. The kid goes and says, "I'm buying this for somebody else," then he comes to you with a charge. That kind of incident I remember, but that was not a big deal.

Sherkow: Can you, in a general way, describe what grade school was like?

Especially I'm thinking because I'm not familiar with Italy; in fact, I've never been to Europe, and I can imagine that a lot of people who will be reading this don't know of any differences in the schooling.

Tesoro: Grade school--you went to school usually just [in] the morning, not all day. You went from eight o'clock to twelve, I think.

--[Interview interrupted]--

Sherkow: I was asking you about grade school, and in what ways it might be different from an American grade school.

Tesoro: Yes. You'd go to school at eight. You'd have a room teacher; I've seen it with my kids here, the equivalent of a room teacher, someone who would carry most of the subjects. The same teacher would teach most subjects in the lower grades. She would teach language and writing, reading, and spelling, and things like that. We'd get through usually at twelve, sometimes at one, and go home and do our homework for the next day, and that's it. The classes were fairly large. There were probably thirty or forty kids in a class. There was no attempt, like there was here, at least with my kids, to divide the class in groups, or get the smart ones and the dumb ones separated, or anything of this sort. All the kids were there and were exposed to the same thing. They got good or bad grades; they passed or they failed, and that was it.

Sherkow: Did you have to take traditional things like sewing and cooking?

Tesoro: Yes; not cooking.

Sherkow: Just sewing.

Tesoro: Sewing we did take. We had a project; you made this or made that.

Sherkow: What about what they call here--shop or industrial shop--something like that?

Tesoro: Not that I can remember, but don't forget that the whole do-it-yourself theory was different in Italy. Cooking, either you learned because you had to, or it didn't matter. I didn't know how to cook; when I got married, I didn't know how to make eggs. So, I think you have to keep in mind that the tradition and the background of the middle-class person, boy or girl, in Western Europe was different, and so you cannot make an immediate comparison to what goes on here.

Sherkow: I see. What about attitudes towards girls and boys? Did you feel that there was any kind of difference at all?

Tesoro: Oh, sure; there was. There was definitely a difference. There was no conscious distinction, other than the obvious one. But, yes, it was different.

Sherkow: What was it like? How would you describe the different attitudes?

Tesoro: I don't know how to describe it because, as I said, there was no conscious verbalizing or articulating of this difference. It was a fact of life that boys and girls were two different kinds of kids. Boys would play soccer, and girls wouldn't, usually. Girls would take sewing, and boys wouldn't. But that was that. I mean, the whole questioning that goes on today wasn't so. A lot of things got taken for granted, they were accepted, you lived with them, and there was no--you wouldn't ask yourself whether you

liked it or not; that's the way it is. Like, when it gets dark, you turn on the light; that's the way it is. So at that time, I think probably for that reason, this was the way it was.

Sherkow: Could you basically describe what your home life, your family life, was like as a child?

Tesoro: Oh, yes: very easily. As I said, my brother and sister were much older, so they had a life that was very different and distinct from mine, even in the years that they were home. Then after awhile, they were not. But my father was relatively more remote than my mother, not only in terms of the hours that he was away, but also because the entire running of the family was essentially Mother's. Father had been more strict with the older children than he was with me, and I was told this by my brother and sister all the time. All of the matters concerning meals, clothing, trivial decisions on how to spend the day, and who would look after me, and whether I could or could not play with certain friends, and things like that, were Mother's. We were very well off when I was a child. There was no financial constraint that I could notice. I had, materially, everything I could possibly hope to have. I don't remember at what age, but at some early age and for a long time, I had some governess who would come in the afternoon and take me out, and also taught me German.

Sherkow: Like a babysitter?

Tesoro: Well, yes, but not exactly, though. I would get up and I would go to school, and I would come home, and I would have lunch, and then this person would show up, and I would go out if the weather was decent and play

outside and talk to my friends if I was lucky enough to meet them. Then I'd come back and I'd do homework, and then I would have dinner and then I'd go to bed. Family meals were, I remember, as everybody was sitting down to a dinner. We had someone serve meals. Lunch is a big meal in Italy; it's not a snack, it's a big meal. I would say lunch was the most important meal in the family.

Sherkow: Was everybody home for lunch?

Tesoro: Yes. My father would, as a matter of fact, take a nap after lunch, a brief one. One of the things he liked was to have me to go wake him up when it was time for him to go back to the office. If I was home, I'd do that, and sometimes I would extract from him some trivial amount of money to buy something; just a very loving kind of thing. Father died when I was twelve and things changed, obviously, at that point. But the family life was just very straightforward. Sometimes we had relatives visit. I liked that, because there were other people in the house and they brought presents, and they brought activity, and I enjoyed that; cousins, or uncles, or aunts. That's it.

Sherkow: You mentioned earlier that during the summers, you usually went away as a family.

Tesoro: Yes. Summers, normally, we would go to either the beach or go out for the day during the month of July. Then during the month of August, we would go to the mountains. My father would be there at least part of the time, and the family would be there for a whole month. That was a fairly well-established routine. So July and August was vacation time; that also was

fairly straightforward. We usually went to a resort hotel. My greatest concern was whether in that hotel, at that particular time, I would find kids my age to play with, and sometimes I did, and sometimes I didn't. If I didn't, I was moping, because I was bored. If I did, I was happy. Sometimes the kids I found were very palatable to my parents, and sometimes not so palatable to my parents, but that was it. They might have been boys or girls.

Sherkow: How would you characterize your relationship to your mother and to your father, as a child?

Tesoro: Well, I think they were very different. The relationship to my mother, I don't remember ever considering it as a "relationship." It was just that Mother was there, and she had things to say about a lot of things, and that was it. She was always the person that I'd go to with questions, with asking permissions, with complaints, with anything. Father was more remote, as I said, and more intimidating, in a way, you know, even though he was a very gentle person; he was considered as the big decision maker. As I mentioned, since Father died when I was twelve, I don't remember ever having a conversation with my father when I was a child, except about specifics. Like he would ask, "How did you do in school?" Or, I would say, "May I go somewhere?" But not beyond that. So, I can't really call that a "relationship." I was very attached to him, and he to me, but it was not any kind of-- I mean, we tend to formalize certain things that were very instinctive. I don't know that that's accurate, frankly.

Sherkow: Well, twelve is fairly young, too. It could have developed as you got older.

Tesoro: Yes, of course.

Sherkow: How did things change, from twelve on?

Tesoro: Oh, they changed in several ways. First of all, my mother definitely had always had the position that Father was the ultimate, not only in authority, but also in every affection, and every other way. So she was devastated, really, when he died. Secondly, my sister was married; my brother was away because he was at a university in a different city, and therefore it was just Mother and I. Thirdly, we moved back to Venice because my mother felt that it was a better place for her and for me, under the circumstances.

Sherkow: Where had you been living?

Tesoro: In Trieste, where my father was working for a number of years. He had been in Venice before and then moved to Trieste, and then we moved back. So we moved. So things changed very much. My brother gradually assumed a fairly fatherly role, head of the family type of role, and did come to see us. Financially, things changed probably some, but not significantly, not so I could notice. We still had a very comfortable kind of situation. So it changed the city, and it changed the family structure, and it changed a number of things.

Sherkow: Was your father's death a sudden thing?

Tesoro: Yes. He died of an acute disease, septicemia. An acute illness, a virus pneumonia-type thing. So, yes, it was sudden.

Sherkow: How old was he?

Tesoro: Fifty-eight.

Sherkow: That's pretty young. So you had to establish all new friendships and went to new schools.

Tesoro: Yes. Also, the age of twelve or thirteen is not particullarly an easy one. Also, at that age, I felt very acutely the fact that my classmates were all older, because that was the age where their interests began to change, and mine hadn't, yet. That was very tough. I would say my twelfth, or thirteenth to sixteenth or seventeenth years were very tough, psychologically, not materially.

Sherkow: You've mentioned that your mother didn't work.

Tesoro: No.

Sherkow: Did your brother help out?

Tesoro: No. My father left some money. I don't even know the details of the situation because I was too young. But there was no financial strain.

Sherkow: That's fortunate.

Tesoro: There was never a question of being millionaires, but there was no financial strain; there was no need, ever, for the family.

Sherkow: Did you ever feel lonely in your family? You mentioned that your brother and sister were so much older that you weren't really close to them.

Tesoro: I felt lonely, but more because I felt that I was younger than my

classmates, and I didn't find the friends I wanted, rather than feeling the need for brothers or sisters, or anything like that. I don't think that that was important. I don't think so, at least; I don't know.

Sherkow: So the transition was hard for you?

Tesoro: It was a very hard transition, but not because I didn't have brothers and sisters my own age, or at least I did not see it that way. Maybe it was, and I didn't know it, but I don't remember it as being that way.

Sherkow: From twelve to eighteen, were you in that one location, Venice?

Tesoro: Yes. Twelve to eighteen, exactly.

Sherkow: Moving on to what in America is the junior high, and then high school, era. It's different, depending on where you're from in America, but it's the four or five years from eight to twelve. I was wondering when and how you developed an interest in chemistry?

Tesoro: Oh, very late.

Sherkow: Very late? Later than high school?

Tesoro: Yes, I'll tell you, but not today because I don't want to get involved. I'll tell you the circumstances, but it was very late. My interest, by the way, during those years--if I had to pick an interest, it would have been math. The change came for a number of reasons that we can talk about next time.

Sherkow: You moved to Venice and you had to go to a different school. Was

this the middle years? It wasn't the elementary school anymore.

Tesoro: No, it was not elementary school. It was the rough equivalent of, I guess, junior high and high school.

Sherkow: In this second school, did you have approving or encouraging teachers?

Tesoro: Some. In that kind of a school, you have different teachers for different subjects. Therefore, there were a large number of teachers, even though some taught more than one subject, and some were very good, and some were very bad; and some I liked, and some I didn't; they varied quite a bit.

Sherkow: Did you have guidance counselors, anything like that?

Tesoro: No.

Sherkow: In high school, were you allowed to take whatever you wanted to?

Tesoro: No, entirely prescribed.

Sherkow: Everything?

Tesoro: Everything. In that school. I could have gone to a different school.

Sherkow: Was this a public school?

Tesoro: It was a public school, but it was "Liceo Classico" which is a type of school. There are other schools that prepare you for different things and are somewhat different. So there are essentially three kinds: there's a

classical, which is where I went; there's a scientific, which is something where people will go if they have a technical career in mind at a very early age; then there is what they call "Magistrali" for people who are not going to go to university but want to become grade and high school teachers. I went to the classical, and by going to the classical, I subscribed to a curriculum which was prescribed; it was fixed.

--[END OF SESSION]--

MIT ORAL HISTORY PROGRAM

Project on Women as Scientists and Engineers

Interview with Giuliana Tesoro by Shirlee Sherkow

Cambridge, Massachusetts November 23, 1976

Session 2 transcribed by Beth Gould

Sherkow: Last time we concluded in the junior high, high school time period. I left off asking you about significant role models as you were growing up.

Tesoro: As I recall, I have no specific answer to that. I had very little awareness of that problem when I was a child. I mentioned, more or less, the kind of person my mother was. I have an older sister, twelve years older than myself, who was fairly distant, both in age and in communication when I was growing up. I had friends, obviously, but I don't remember any specific situation where I could focus on a person who was important or in any way stands out as an influence. So, I really can't answer that in any significant way.

Sherkow: You didn't feel that your mother was a [role model]?

Tesoro: I was very attached to my mother. I was very close to her in many ways. I just didn't focus on the question. At the time I was growing up,

and the place I was growing up, perhaps, there was a lot more accepting of the situation as it was than there is today. So the problem was not formulated.

Sherkow: I don't think for anybody that there was any special kind of awareness. I'm simply asking, were there any women that you looked up to, or admired, or were important to you?

Tesoro: I do not remember any specific person about whom I felt in any important way during that age period. I just can't offhand remember any. I had different degrees of closeness and fondness for some of my friends and their families. For instance, I had a very close friend during that period who had several sisters, all older than herself, and I remember thinking, "One sister is very beautiful, and the other is nicer," and things of that nature, but they were very trivial; they were not important at all, in my life, or in general.

Sherkow: How did your teachers influence you, in terms of being serious about any kind of a career?

Tesoro: Overall, I don't know that I can answer that. I had teachers I liked very much who were very good, I thought, who explained the subjects well and put it across in a way that was both interesting and challenging. I had, for instance, a math teacher during that period who was extremely good, and whom I remember. He was a man; I don't remember how old he was; he seemed old at that time, but that doesn't mean that he was. I felt that he was extremely good, and I enjoyed very much the subject, the teaching, and the challenge of the work that he was asking for. I had other teachers,

like a history teacher, for instance, whom I thought little of and who was a bore. Perhaps as a result of that, I found history rather boring. But it's very hard in this perspective to decide whether I liked the teacher particularly because I liked the subject, or vice versa, or perhaps a little of each. That kind of feeling I remember distinctly about specific teachers. Some I liked, some I disliked, and some I was indifferent to. The only teacher who stands out in my thoughts as being especially clever and especially skillful in conveying the material was this math teacher.

Sherkow: What grade was that?

Tesoro: I guess that was in my teens; it was what you would call high school equivalent.

Sherkow: How do you feel now that your high school prepared you in science and math subjects?

Tesoro: The curriculum of the European high school is very different from the curriculum of the American high school. First of all, there are no electives; the curriculum is all set and you take what you take. There's no matter of choice. Obviously, then, there are some subjects that I studied for a long time that were totally useless, or seemingly useless, in later studies, and some subjects that were, of course, very important. Since I had a high school education in Europe, and I skipped, essentially, a college education and went to graduate school here, I am certainly not a prototype to speak about how I was prepared, because I didn't really have the standard or conventional preparation that one might, partly because I studied

in Europe, and partly because I skipped a few years. I would say that the emphasis of the European education that I had, the middle high school education that I had, has always been, on principle, rather than practical applications of principles, and therefore I believe in that. I believe that that kind of an education is better than the pragmatic description of one fact after another. At least it's better for people who have reasonable intelligence and can apply it; it may not be so good for people who haven't got the imagination to apply it. But for people of reasonable intelligence, once you learn the principles, you can go much further, by yourself, than if all you learn is a bunch of facts. To that extent, I think the education was very good. Whether it would be, in fact, good for everybody, I don't know.

Sherkow: You've indicated, now, that you went straight from school in Italy to graduate school here.

Tesoro: Yes. There was a period of adjustment to learn the language; a period of adjustment to try and fill some of the gaps I had. But, in fact, in terms of formal education, that's correct.

Sherkow: What were some of the gaps?

Tesoro: Oh, tremendous gaps, because I found myself in first-year graduate school with people who had had chemistry for some four years in college, very intense preparation in chemistry, and I had, essentially, none, except some self-taught, and except some high school chemistry equivalent that I had had. So, the gaps were enormous.

Sherkow: What did you do about that?

Tesoro: I studied. I filled the urgent gaps by studying. Then, the remainder of those gaps got filled in the course of my graduate school education and subsequent years. So it was a very intense combination of exposure to a first-class, really, graduate school education, together with a very large amount of self-motivated studying and catching up.

Sherkow: Back to your high school--was there any interest in your high school to directly or indirectly channel women into traditional careers?

Tesoro: No, there wasn't. There was none that I was aware of. There was no discussion, no exposure, no awareness of that at all.

Sherkow: When you were in high school, what kind of interest did the high school have in getting the students interested in careers?

Tesosor: None. The purpose of the school I was in was to teach the students certain subjects in a prescribed way and get as much information and knowledge drummed into them as they were capable of absorbing. If they were not capable, it was too bad for them, essentially. It was very rigid in that respect, not personal at all. The students varied in ability, in intelligence, in diligence, like they always do. Those who did well, did well; those who didn't do well, didn't do well; those who flunked, flunked and repeated. That was essentially the attitude.

Sherkow: How do you feel about high school in general? What was it like?

Tesoro: About my high school?

Sherkow: Yes. What was it like for you?

Tesoro: Oh, I was mixed; intellectually, I guess I enjoyed it in part or entirely; I enjoyed parts very much, others less. But I enjoyed it. I enjoyed the challenge of doing things, of learning things; that was very positive. Socially it was a bad period for me, because I was younger than all my classmates. I felt somewhat displaced, socially. I was not particularly aggressive socially and did not have the kind of leisure or fun life that some of my classmates had and was aware of that; it was something I missed. It wasn't that I didn't have it and didn't care; I didn't have it, and I did care.

Family-wise, my father had died when I was twelve and I was living alone with my mother, because my brother and my sister were out of the house. It was very comfortable materially, but it was relatively restrictive in terms of family life, so I would say that the social activities and the emotional time were not easy during that period; that the specific school activities and learning activities were relatively easy, and certainly satisfying. I had no real problem. I had some trivial problems of not liking, or not doing well in this test or that, like everybody does, but not any traumatic feelings about the work at all at any time.

Sherkow: Did you feel lonely, socially?

Tesoro: Yes, I guess in ways I felt lonely. I felt <u>envious</u> of classmates who had far more active social lives. I was not lonely in the sense of not having any friends, because I did have friends I got together with and spent time with, and went to the movies, and went for a walk, and so on, but a relatively small number, and mostly girls, during that period. I just felt that others had it better in that sense; that's all.

Sherkow: Are you referring to dating at all?

Tesoro: Dating was something that was different when I grew up than it is here, or than it was, even, here. The habit of dating in the sense of going out with boys was not common, but there were social activities. One of the common things, for example, was when a boy was courting or somehow paying attention to a girl he'd walk her home from school. Another thing is he would hang around in a place where she was likely to show up on Sunday afternoon, things of that nature. It was a little more reserved than the open dating that is common here. In that sense also, some of my friends were more advanced, or more popular, or more successful than I was, and I felt that. There were some boys who did walk me home from school but it was much less frequent and I was not a particularly popular girl at that age. I was aware of that.

Sherkow: You were living [in Italy] during the time of Mussolini?

Tesoro: Yes.

Sherkow: Do you have any particular feelings about the political climate of the times? How did it affect you?

Tesoro: Yes. It affected me then, but it affected my thoughts much later. The story is this: Mussolini had a hold, really, on the youth in Italy during that time. Practically everybody, including myself, was involved to varying degrees in these youth activities, in the Fascist youth activities, meetings, parades, and stuff like that. And I was also. To me, at that time frankly, it was not anything I thought very much about in a political way. I shouldn't

say very much--I should say, not at all. It was in the same class as a basketball game or a school activity, or a social activity. I did not focus on the political meaning of this at all. I was very young and I was very naive, if you wish.

The jolt came in 1939, because 1939 is the year where Mussolini decided to enact anti-Semitic laws and I was from a Jewish family and that affected me directly, even though I had not been aware of this in a religious way at all. My family was essentially non-practicing any religion. But in 1939, when politically this became an issue, I became very much aware of it. I was prevented from attending university because of it; that was one reason for coming to this country.

Sherkow: So your parents were Jewish?

Tesoro: Yes. As I say, not in a religious sense, but in terms of Mussolini's definition, very much so. The thinking and the understanding of the meaning of Mussolini's Italy became suddenly very clear. But I say "suddenly" advisedly, because I really hadn't thought about it very much before that. This was not uncommon; it was not just me. I know a lot of people my age who were equally naive and ignorant and unaware, so it evidently was just the way it was, in most instances. Then that changed. So 1938-39 was the period of awakening, if you wish, in a political way, and in a worldly way, of getting out of the cocoon.

Sherkow: What were these youth activities like that you were involved in?

Tesoro: The youth activities were: you wore a uniform which was specified by

age for girls and boys, and you had these uniforms. On national holidays of one kind or another the youth gathered in bunches depending on the age group, and sometimes marched, sometimes sang, and sometimes just sat there. They had these--what they called, "adunate", which is "gathering" of the youth, and demonstrations. If Mussolini was speaking somewhere they would gather all these kids and have them there, and they would applaud, and so on. For girls, in particular, there was no special activity involved. Boys sometimes had things like exercises. But girls, except for physical-education type activities, had no prescribed role. You meet at ten o'clock at such and such a square and you gather there, then you walk to some other place, then you sit through the speech, then you disperse, you go and drink coffee--or whatever--with your friends, and then you go home. That kind of thing. So it was not an intense experience in that way; it was, as I said, a social experience. The fact that it should have been different didn't become really clear to me until much later.

Sherkow: How did the anti-semitic laws affect your family? What did it involve?

Tesoro: Well, it affected the family very much. My brother was an architect, had finished school. My sister was married, so that her life was tied to her husband's, obviously. But in terms of employment, in terms of opportunities, and in terms of education, it imposed severe restrictions on everybody. At that time, my father had died and my brother was considered the head of the family. He decided that Italy was no place to be. He took off in '38 for this country and came here looking for work with the idea that he would then have Mother and me come here, which we did, sometime later.

In the meanwhile, however, I went to Switzerland; he had me go to Switzerland. His intent was for me to take some kind of professional course in Switzerland that did not involve a university education that would be quick, that would be some kind of one-year course. He had wanted me to take a very popular course at that time in Switzerland, namely learning to be a baby nurse, or something like that; that was the intent. I didn't want to do that, so when I got to Switzerland I looked around and found a course in the hospital in Geneva for X-ray technicians. I proposed that as an alternative, because I really didn't want to be a baby nurse. I took that and got a diploma from there. It was a one-year course which I did in nine months, because after that I came to this country. But I learned French; I learned to be an X-ray technician; I got my diploma. I came here with this as a possible tool for making a living; that was the idea.

Sherkow: Were you living alone in Switzerland?

Tesoro: I was living in a boarding house.

herkow: How did you like that?

Tesoro: Not particularly.

Sherkow: You didn't really know anybody, right?

Tesoro: I didn't know anybody. I'd met some of the people there; I made some friends. I had a reasonable life during that period. I was pretty depressed; depressed about not going to school, depressed about learning French, and depressed about getting away from everything I knew. So it was

not particularly easy, but I don't want to make it tragic. It wasn't tragic. I had a reasonably comfortable set-up. I was not looking forward to coming to this country, but I knew I would. I knew it was temporary there. I accepted it as the least of the things that could happen in 1939 in Europe.

Sherkow: Why were you not looking forward to coming here.

Tesoro: Because I didn't know a damn thing about it. It was just very clearly unknown--I had no way in which I could figure out what I would do; where I would be; what I would study; what I would accomplish. I felt that I had only limited control over my own life. I did want to go to school and didn't know if I could. It just wasn't very comfortable, psychologically.

Sherkow: Did you go to New York?

Tesoro: When I arrived, yes. My mother and I took an apartment in New York. My brother was working in Baltimore at the time. He got us an apartment in New York. I started scrounging around for ways that I could manage going to school. Financially, some of the money we had had been transferred, and it was intended and was in fact used primarily as security for my mother, who was at that time not young anymore [and] alone. So the funds that were available for an education and that kind of thing were limited, but nevertheless real, because my brother by that time was working. So when I found a channel to get an education in a relatively small number of years, I could take it.

Sherkow: Was your brother married?

Tesoro: No, he was not. He married here. He married much later an American woman. But he at that time had a job in an architect's office and was working; he then also went into the Army and a lot of things happened.

Sherkow: The nine months that you were in Switzerland--how did you feel about the X-ray technician school? What was that like?

Tesoro: Well, it was okay. I didn't particularly enjoy the hospital atmosphere; I'm not that anxious to be in an environment of sick people. In terms of learning the technology or the techniques of X-ray, there was no problem.

Sherkow: Was it challenging?

Tesoro: No. As a matter of fact, there was a girl living in the same boarding house who was a medical student, and I felt I didn't want to study medicine, particularly. There were miles and miles and miles between being an X-ray technician and being a medical student; I felt that very keenly. I just felt I would have liked something that was a bit more of a challenge.

Sherkow: Did you have anything to say about leaving Italy?

Tesoro: About leaving Italy? No. I didn't have anything to say in terms of decision making. The decision was made primarily by my brother and my mother. I was young; I was seventeen or eighteen. No, I was not asked about leaving Italy. But I was aware that my life was a big part of that decision, that the desire on the part of my family that I should have some opportunities was very much a part of that decision.

Sherkow: When did you become interested in science?

Tesoro: I became interested in science, generally, at a very early age--I would say my teens, when I was going to high school. My thought, at that time, was that I would study math, because that interested me and I was good at it. But later on, partly I guess because of practical considerations, and partly also because of change in my own attitude, I thought math was a bit dry at that time; a lot has happened to math since, but we're talking about '39 and math was relatively limited to teaching and some very specific fields at that time. Then I thought in terms of physics, and I thought in terms of chemistry. How and why I wound up talking about chemistry--which happened about '39 or '40, deciding on chemistry rather than these other things--I can't tell you; I don't know. It was some kind of rather fuzzy evolutionary thought on my part. I can't say that I ever regretted it; I've been very satisfied with the choice. It's not something that I wish I'd done differently.

Sherkow: When you were interested in math and science, were there a lot of girls in your classes?

Tesoro: Yes.

Sherkow: It wasn't an unusual thing to be interested in that type of subject?

Tesoro: No.

Sherkow: Did you ever feel different from the other girls?

Tesoro: For that reason? No.

Sherkow: Any academic reason, or your interests?

Tesoro: No. I felt different in that I was younger. I felt different in that I was academically better than most, and socially worse than most, if you want to put it in a nutshell. If I have to go back and think on how I felt about myself, I felt that I was very good academically, that I was a real drag socially, and that maybe my being younger was connected with both.

Sherkow: Were you serious about going on in a career?

Tesoro: When?

Sherkow: In late high school.

Tesoro: The answer to that is "yes," but I don't remember when that seriousness really became formalized. I surely was serious after '38. Whether I was that serious before, I can't tell you; I don't know. I just don't know.

Sherkow: You said that your parents weren't religious.

Tesoro: No, they were not.

Sherkow: So you were not brought up in any kind of [religious background?]

Tesoro: No, I was not. I was skipping religious education in school because that was Catholic religion and I was not attending that class, so that was really all I knew, formally, until much later.

Sherkow: How did you feel about these anti-Semitic laws applying to you, when you didn't really feel very "Jewish?"

Tesoro: I felt the whole thing was a fraud [laughter.] I told you that was

the beginning of my political awakening. There's no better way to wake up than to have somebody prod you personally.

Sherkow: Pretty depressing. So around '39 you became serious about a career?

Tesoro: Yes. I think that's a fair statement. I don't know if I became serious around '39, but not later than '39.

Sherkow: Did you feel that you probably would be a professional and also get married at some point and have a family, and just combine everything?

Tesoro: Well, I felt that if you do anything--anything that's worth doing is worth doing well as you know how. Whenever I got involved,--even the X-ray technician deal--I decided that I had to do it [and] I would do as good a job as I knew how. That's been pretty much my attitude on the things I have done, and it still is. It never occurred to me, frankly, that going after a professional career would exclude a family life. It's a question that never entered my mind. What can I say? I just went after the professional development and assumed that at some stage in life I would also get married and have a family, but did not really, really sort that out in my own mind. When I got married I was twenty-one; I wasn't that old, so I didn't really have time to ask myself so many questions. I got a PhD; I got married the year I was twenty-one; I did both the year I was twenty-one.

Sherkow: How did your mother feel about your pursuing some career seriously?

Tesoro: She was encouraging, I think. She was a very intelligent woman;

very "soft," if you know what that means; if you see what that means; very aware of her role as a wife and mother in life, but never gave me the impression that to be a wife and mother meant in any way to stop thinking or doing. I would say she was encouraging.

Sherkow: How did you feel about leaving all your friends in Italy?

Tesoro: Well, I felt bad about leaving all my friends. I don't remember that being a trauma; I was sad about it, but I was overall depressed, overall confused, overall asking myself a lot of questions all of a sudden about life that I'd never asked myself before. I don't remember that the business of leaving my friends was at the top of the list. Maybe it was, but I don't remember that.

Sherkow: This is a summary question: What in your early home environment and your early educational experiences led to the development of your own self-esteem and feelings of confidence and competency?

Tesoro: Say it again.

Sherkow: It's asking you to pinpoint early home environment and early educational experiences that might have contributed to your own feelings of confidence and self-competency.

Tesoro: Home environment, I think [is] the most important posture that contributed to that. The feeling conveyed to me, even by my father when I was small, by my brother, by my mother, by all the members of my family, that education was important, that intelligence was worthwhile, that accomplishment was something not to be taken lightly. This is an atmosphere; nobody made

speeches. But I was exposed to that kind of an atmosphere. The respect for professional activities and the work needed to have them was something that I grew up with. There was probably some talk about a distinction between professional people and commercial activities, or other ways of making a living, but I don't specifically remember it. I only remember the result. So I think that's easy to answer. I think that the entire atmosphere of my growing-up years was pointing towards the importance of using your head, if you have it. In comments made about other people, these things are subtle but they add up. I felt at an early stage that I could do it; I just never questioned my ability because I was good in school, because I never had any problems in school, because I skipped years and I didn't flunk, and when I had to do homework, I did it. When I had a test, I passed it.

In terms of professional accomplishment, I think that my first feeling that I could do it and I could do anything I decided to do within reason, came when I had this opportunity to go to grad school, and, in fact, did. And accomplished it, which was pretty tough. It was a lot of work. But it was not an easy thing to do, and I learned how not easy it was by contact with my peers. Here I was--I didn't know the language and I didn't know chemistry, and I hadn't been to college. All these other people around me were born here and they did know chemistry, and they did know English, and who am I to make it?

I'll tell you a little story; I think it is partly an answer to that question. I took some special oral exams to get into grad school given by the head of the Chemistry Department and by another professor at Yale Graduate School of Chemistry. After I took these, the head of the Chemistry Department

told me, "All right. You can get in. We'll work out the curriculum. You can get in." He took me around to see various professors. He took me around to see Professor Bergmann, who was German and was teaching at Yale. Professor Bergmann said to me, "Where did you go to school?" I told him. "How much chemistry did you have?" I told him. He said, "Did you ever study chemistry in between?" I said, "No." He said, "And you want to go to Yale Graduate School?" I said, "I'm told by Professor Hill that I can." So he shook his head and he said, "You'll never make it." Two and a half years later, I had my thesis accepted and I went to say "good-bye" to all the professors I had had during the period, and I went to see Professor Bergmann--I had classes with him--and I said, "I came to say 'good-bye'." I did not choose him as the thesis advisor, mind you, for obvious reasons. [Laughs] But I went to say 'good-bye' to him, and I said, "I'm going. I have a job with American Cyanamid, and I'm leaving, and I want to say, 'good-bye." He shook his head and said, "I guess you made it." That really tells you what convinced me that I could do it. Then he died a couple of years later.

Sherkow: So there was nothing, really, prior to graduate school?

Tesoro: No, I don't think so. I don't think there was anything that really told me what I could and could not do in a significant way until then. Because the other things I did, I did, and others did. Grad school was the first experience where I felt I did something that was not commonly done.

Sherkow: What kind of outside activities did you do in high school before you came here? What were some of your outside interests: sports, music, reading?

Tesoro: Reading. I read always a lot, mostly junk; not anything real serious, but novels, and occasionally something else. But even trying to read novels that were somewhat meaningful, but fiction, largely. I always read a lot. Sports I always liked. I was always mediocre in sports; I was never a great sportswoman, but I always enjoyed doing [things]. I played basketball in high school. I played a little tennis when I had the chance. I loved to go skiing but didn't go very often. I loved to hike in the mountains in the summer and did quite a bit of that, and I was pretty good at that. I met with my friends, gossiped about other friends.

Sherkow: What about music?

Tesoro: I did go to opera and concerts occasionally and enjoyed them; listened to the radio and records, and enjoyed them. Classical music. But not seriously; I enjoyed them. I went to the opera in the same way I would go to a play; it's something I enjoyed listening to.

Sherkow: But you didn't take any music?

esoro: No, I took piano lessons for a number of years, but didn't like it, didn't enjoy playing the piano, particularly. No. Music was a good form of relaxation, but nothing more than that. What else did I do? Nothing. I wrote letters. I mean, what <u>do</u> people do? I was very busy all my life; I don't <u>ever</u> remember, not ever, in all my fifty-five years, having an hour to myself, saying "What do I do with myself now?" I just never had that opportunity.

--[END OF SESSION]--

MIT ORAL HISTORY PROGRAM

Project on Women as Scientists and Engineers

Interview with Giuliana Tesoro by Shirlee Sherkow

MIT, Cambridge, Massachusetts November 29, 1976

Session 3 transcribed by Beth Gould

Sherkow: Last time we more or less ended with high school and your moving over to the States after being in Switzerland for about a year. And you came to New York?

Tesoro: Yes.

Sherkow: You lived with your mother in an apartment that your brother had set up?

Tesoro: Yes.

Sherkow: You did talk a little bit about your decision to go to Yale.

Tesoro: Well, it wasn't exactly my decision to go to Yale. It wasn't that simple.

Sherkow: Why don't you just discuss what happened?

Tesoro: What happened is that I thought I very much wanted to study. I was determined, more or less, to the extent that it was possible to pursue some kind of professional study. I had, by that time, more or less decided in my own mind that I wanted to study chemistry. I had had no chemistry other than high school chemistry, but, nevertheless, that level. I tried to apply in various colleges. I had a range of answers, but, in general, I was told that my credentials would admit me to the second or third year of college; this was the gist of the thing. Places like Hunter College and New York University--places in New York are primarily the ones I considered.

Sherkow: For undergraduate work?

Tesoro: This was the situation. The impression in the family was that I could go to school, but that I had a limited period of time in which to go to school and then I'd have to get busy and do something, because we didn't have enough money to contemplate ten years of going to school for me. At that point, I was asking around of people I knew whether they knew of anyone who could give me some advice, who could be helpful; that was the general trend of the conversations. Somebody told me, "I know someone at Yale who is a professor of oriental languages. He's a very nice man, so why don't you go talk to him and perhaps he has some words of wisdom for you." Now clearly, I did not want to study oriental languages; I did not have the slightest interest in oriental languages, but I thought just to get into the university and find out a little bit about it, I would go talk to him.

I went to see this gentleman, whose name was Professor Obermann. He was

indeed a very nice gentleman. He seemed very old; I don't know if he was as old as he seemed to me at age eighteen. But in fact, he said to me, "I can't do anything for you because, obviously, you don't want to study oriental languages and I'm teaching that in the Graduate School. But what I can do since you're here [and] you came to New Haven, is I'll take you over to meet the head of the Chemistry Department. You talk to him." He did; he picked up the phone and said, "I have a young girl here from Europe," and blah, blah.

Professor [Arthur] Hill, who was at that time head of the Chemistry Department, agreed to talk to me. This was, as it turned out, a very momentous kind of--even though it started very casually, [it] turned out to be very important, because I went to see Professor Hill--this was between November of '39 and January of '40, I don't know exactly, but that time span--I went to see Professor Hill and told him that I wanted to study chemistry and that I had a limited time in which to do it, and that I had been asking around and had been told that my credentials were such that the best I could do was to get into, at the most I guess, the third year of college. And did he have any advice? Then I got to chatting with him. He said, "Where did you learn English?" I said, "Whatever English I know I've learned in the last three months since I've been here, and a few weeks before that. I've never had any formal instruction in English." Then he asked me a number of questions about my prior education, which I answered truthfully, (but in retrospect I would say perhaps not as completely as I should have, although this was not deliberate.) I mean, he asked me a question, I gave him an answer. Like, "How many years of Latin did you have?" I said, "Eight." Well, that was true; I did study Latin for eight years. Then he said, "What foreign languages do you know?" I told him.

So that conversation went on for awhile. He apparently was impressed by something. He said, "Look, there are no girls in the Undergraduate School at Yale, so you can't get into the Undergraduate School because there aren't any girls. The only thing I could do for you, if you'd like, is give you a chance to attend some undergraduate courses as an auditor. "Then," he said, "in September," which was some months off, obviously, "I could give you some exams and see if you would be qualified to enter graduate school. And if you are, then we'd take you on in graduate school because there are girls in the Graduate School. That's that."

I don't think I really understood the implications of this, but I came away with the impression that here was an opportunity to get into Yale Graduate School and get out of it with a PhD in three years. I knew enough about the educational system in the United States to know that this was pretty fast going, starting from where I sat at age eighteen. So I went home and discussed it with my family. I thought, "Isn't that nice? I'd like to try it," basically. So Mother and I moved to New Haven. I, first of all, said to Professor Hill, "Yes, I'd like to try it." Second, we moved to New Haven.

I started very briefly going to school as an auditor for a week or so. I was taking a course in thermodynamics; I was taking a course in physical chemistry. I didn't understand anything; I didn't know English. It looked like a pretty tough--but anyhow, what made it worse was that Yale had a medical examination requirement and I went through it, and I had pleurisy, so they put me to bed for three months. I thought this was the collapse of the whole thing. Hill, very kindly said, "There's no reason why it should collapse. I'm willing to give you those exams. If you pass them, you pass them.

Even if you're not attending the courses, maybe you can talk some of the people you've met into giving you some notes. You can study in bed." In fact, that's what I did.

I was in bed for six weeks. I studied then, and I studied through the summer. I got some Italian math and physics books because I felt that it would expedite [it] a little bit because I didn't have to struggle with the science and the English at the same time. Then in September, I took these special exams which consisted of two sets of oral exams, just for me; they were not routine. I doubt they'd do that now, but at that time the whole policy was somewhat more flexible than it is. One in organic chemistry, and one in physical chemistry. Several professors quizzed me, and they asked me questions which I answered apparently to their satisfaction. And when I got through, the chairman of the department said, "I think you can get in as a first-year student, but you will have to take some senior courses to make up for the things you don't know." And there I was, a graduate student at Yale, having skipped college entirely, essentially! And that's it.

Then I really worked extremely hard, because the first year I had to go through a good part of the senior curriculum, all of the first year curriculum. Then by the time I got through with that I had to choose a thesis topic and start laboratory research for the dissertation. By the time I got through with that, I had to study for doctoral exams, comprehensives. Furthermore, the war came, and they started a three-semester year so that my last year at Yale I did not have the summer off. I went to school all summer and did research all summer, so I really worked like a dog for two and a half years. But I got out in two and a half years. I wrote a thesis, I passed the doctoral

exams, and I got a PhD from Yale.

As it turned out, I got a job [and] I got married, all at the same time. That was in '43. As it turned out, there were many gaps in my education that I realized later, because I was able to keep up with the courses, pass the exams, write the papers, do the research and write the thesis. But there were many things that I really never had a chance to study. I suppose many kids study it and forget it, so I wasn't at that much of a disadvantage. But that's the way it went, and that's why I got finished with school at age twenty-one, which is pretty early. And I got a job. My experience at Yale was one of really coping with a lot of work and very little time for anything but--very little. I was young. But once I had gotten involved in this effort, I was determined to make it! I got a job with American Cyanamid [Company] when I got through. I had a summer job during that period for three months; that was my first exposure to American employment, but I remember that period as just primarily work; work-study-work type [of] thing.

Sherkow: How did the language obstacle work out?

Tesoro: I would say by the time I got into graduate school at Yale that was not much of a problem because I had been in this country by then for ten or eleven months, and I had made a very deliberate effort to pick up English, and did. I was not in any great difficulty because of the language. I was in considerable difficulty on other grounds, because I really didn't know how the university operated; I really found myself taking courses for which I was ill-prepared. I never had enough math, and it wasn't easy, because I had to go back some on many of the things I studied. Also, I chose

to do my thesis with an advisor who was very demanding, which I suppose didn't help. But, all in all, it was quite difficult, but not because of the language.

Sherkow: When you talked this over with your mother, about going to Yale, she apparently was in favor [of it]? What was her advice?

Tesoro: I don't really remember in great detail what was said. I do remember that, obviously, the opportunity was presented; I discussed it with my mother and with my brother, who was more or less head of the family, in a sense. Also, for several reasons, first of all because it had some impact on where my mother lived, which was obviously important. It did [so] because she wasn't about to stay alone in New York while I stayed alone in New Haven; it just didn't jibe with--it obviously had an impact on the financial situation and it was important for that reason. It obviously was a gamble because--what the heck--I could go there and get in and then get kicked out. I don't think any of us realized just how likely that was. I just think that we assumed the success of this much more than we had a right to; everybody, starting with me. I think it was crazy to try it. Knowing what I know now, I wouldn't try it.

Sherkow: It was difficult.

Tesoro: Yes. But if I had known what the <u>demands</u> were, I wouldn't have had the guts to do it. I only had the guts to do it because I think I was naive enough to think that it was easier than it really was. It was lucky, I guess, that I did, but surely it was not with full knowledge of what I was getting into.

Sherkow: So you didn't consider going to any other graduate school? This opportunity came up at Yale and you just took it?

Tesoro: Oh, yes. This was obviously not the kind of routine thing that one could do any comparison shopping on.

Sherkow: Now, at some point, you decided to specialize in organic chemisty, is that correct?

Tesoro: Yes. There were only two ways to go in Yale Graduate School, organic and physical. Some of these other specialized graduate activities are a consequence of technology that has come since. There was no such thing as polymer or analytical specializing at that time; either it was organic or it was physical, and I chose organic. I chose organic--but don't ask me why. I don't really remember why. I did this consciously, but I don't remember the motivation. Probably because the kind of thesis topics, the kind of lab work, the kind of research that was on-going at the time appealed to me more. I think it was the application of the science rather than the science that appealed to me more. Possibly, although this just may be hindsight, I was aware of the gaps in my math and in my theoretical background and thought that it would matter less in organic, which, in fact, they would. So I think that may have been a good decision from that point of view.

Sherkow: In your classes, were there a number of other women students?

Tesoro: In the Graduate School of Chemistry, throughout my two and a half years there, there were four other women students, I think, other than myself. But not all in my year; there was only one, as far as I can remember,

who was in the same year I was in. The other three were ahead, had been there longer.

Sherkow: How did you feel about being one of the only women in many of your classes?

Tesoro: I frankly don't remember that I really focused on that. I was aware that chemistry was not a field where many women were; there were some. I don't think I ever really paid much attention to that question. I probably was too busy.

Sherkow: Yes, it sounds like you were studying a lot, a great deal. So you never felt isolated or unusual as a woman?

Tesoro: Oh, I felt isolated and unusual in many ways, but not because I was a woman. I mean, here I was a foreigner. There was a fair amount of what now I would call--I wouldn't then, because I didn't know--just a WASP environment, which was not--which I felt a little self-conscious about, and which was much more true, incidentally, in the Chemistry Department, than--for example, I met some graduate students in the Drama Department, or in the Art Department, and the atmosphere there was much more receptive to people from Europe, to people with mixed backgrounds, than it was in my department. So I felt isolated from that point of view. I felt I didn't know the language that much. I felt insecure because I had so damn much to catch up with and I never knew whether I'd make it or not until I did. So, that I had questions in my mind there's no doubt, but the business of being a woman was not at the top of the list.

Sherkow: Did you do well? You obviously made it and got the PhD.

Tesoro: Yes, I did very well. I got a fellowship my last year, which at the time--this was funny. This may have something to do with being a woman. The kind of financial aids that were available--it was not set up like it it now, with a research assistantship, and if you don't get it you don't go to school. This is all new. But what did happen was that graduate students could have a laboratory assistantship; they could get a job assisting in the undergraduate labs. I wasn't qualified for that anyway because I'd never had undergraduate lab myself. So it never occurred to me to try for it. But in retrospect, if I had, probably I wouldn't have gotten it because I was a woman. But that's speculation, because I never tried.

The other kind of financial aid that was available was an outright fellowship that varied in amount and was given, essentially, on merit, to good students. It wasn't very large, but it was something. Then one could work, of course. I did some baby-sitting. I did some part-time work, and I worked for one summer. But that's the size of it. I don't believe, honestly, that my feelings of isolation or concern had anything to do with my being a woman. But probably it's just because I didn't focus on it. I don't know how I would have felt if I had.

Sherkow: What kind of extracurricular activities were you involved in. Any?

Tesoro: No. Well, I went out once in a while on a date. If I had the time, I'd go to the movies, or go to the theater, or to the hockey game, or whatever. Occasionally, to a party or a dance, but not very much. The kind of social activity was--a modest amount of that. I didn't have time for anything else.

Sherkow: How do you feel now about the education that you did get at Yale?

Tesoro: Oh, I think it was great. In a specialized field, I think it was great. I think it was only in a specialized field, which I suppose was reasonable and to be expected, but I think it was great. Of course, I'm not typical, but I have no criticism of the way I was educated in my field. None, really. My advisor on the thesis, as I said, was very demanding, but he was relatively young at the time and pushing towards the peak of his own research career; very enthusiastic, he worked very hard. He gave a lot of time to his students. He wasn't hard to catch. He explained why he asked what he asked. I think it was fine.

Sherkow: Could you talk about the summer job that you had?

Tesoro: Yes. I had a summer job doing library research on a topic that happened to be a pet interest of the Research Director of American Cyanamid, a man by the name of Dr. Crosley; the bigshot at American Cyanamid. He hired Yale graduate students. He was a friend of Hill. In a very casual way, he interviewed and hired Yale graduate students for the summer, when he could, for his research organization. There was also an interviewing program for graduates, some of whom got offers from Cyanamid; I did, later. So there was some give and take there between Cyanamid and Yale. Crosley interviewed me for this job. One of the assets I had was that I knew foreign languages which, for library research, is obviously very helpful. The topic he was interested in was magnesium in medicine. Most of my work was done between the library in Bound Brook and the library at the New York Academy of Medicine. I was tracking down references and putting together the information. It was a bore, a terrible

bore, and I didn't get very much money, either. But it was a job and it was some kind of exposure to a big chemical company. That was it. When I was about to get my degree I was interviewed for a job there in the laboratory, and I got the job, in fact; worked there for a year after I got my PhD.

Sherkow: Now, what was the name of this place?

Tesoro: American Cyanamid. It's one of the biggest chemical companies in the country.

Sherkow: What place did mentors play in your life? Were there important male or female professors, in terms of your career at Yale?

Tesoro: From Yale, no. I had people subsequently with whom or for whom I worked who did become professionally very important mentors, in that sense, in my life, but not from school.

Sherkow: From your jobs?

Tesoro: Yes. In school, I had some professors I liked more, and some I liked less, like we all do. Some subjects I liked more, and some less. But there was no strong influence, or anything of this sort. There weren't any female professors, by the way. [Laughter]

Sherkow: Did you have friends while you were at Yale?

Tesoro: Yes, some. I say, my social life was limited by the amount of time I spent on it. I had some. I must say male, because the few friends I had were male, because the other four women in the Graduate School of Chemistry, for various reasons, did not become close friends. And other female friends, I just didn't pick up. I didn't have a chance to make--I had a few male

friends who were at Yale, I guess not in the Chemistry Department as it turns out, with whom I got friendly, not really close, but friendly. And that's it. I got married after I got my PhD, but I got involved, let's say, before I got my PhD.

Sherkow: How did you meet your husband?

Tesoro: I met him originally at a party shortly after I'd come to this country, in New York. Then he went to school in Missouri, and I only saw him that once. Then I met him again in '42 when he was working in New York. But he was from Italy; he's from Rome, and came [here] about the same time. So in a sense we had something in common.

Sherkow: Did you date him while you were at Yale?

Tesoro: Yes. Except, he was in Missouri and I was at Yale, so it was rather aloof. --[Interview interrupted]--

Sherkow: While you were at Yale, did you have expectations about having children, having a career, and getting married?

Tesoro: In a vague sort of way, yes; not in very sharp focus, but yes, in general, that's the way I thought of it.

Sherkow: Did you feel that there was any evidence of any kind of discrimination concerning fellowships, scholarships, things of that nature?

Tesoro: I don't think so, but I don't really think I thought about it very much. I think I was very glib or superficial about that whole business.

Sherkow: You got a fellowship in your final year?

Tesoro: Yes.

Sherkow: But it wasn't very much?

Tesoro: It wasn't very much, but I don't think I ever knew what others got, or cared in a sense. I just didn't.

Sherkow: I know what you mean, yes. I've gone to graduate school and you really don't care about anybody else, as long as you get one.

Tesoro: Yes. And the group in graduate school was very small; I think my graduating class that year--there were, if I'm not mistaken, twelve PhD's granted the year I got it--in that group. That's a fairly small group. There were a couple of people in graduate school who were supposed to get their PhD and didn't make it, because they didn't finish their thesis; because they hadn't done things. It was a very much less intense and questioning kind of relationship than there is now. I think that that is one of the major things that has changed, for people that age don't take anything in stride, anymore, it seems.

Sherkow: Maybe it's not so easy to do that.

Tesoro: I'm not saying it's changed for the better or for the worse; I'm not passing any judgment. I'm just saying it's different, and probably better in some ways and not as good in others.

Sherkow: What did you do your thesis on, and how did you decide what your topic was going to be?

Tesoro: Really, I didn't pick the topic; I picked the advisor. Once I

picked the advisor; he had two kinds of interests. One was in growth hormones, and the other was in this problem, which was a theoretical problem of organic chemistry; it had no immediate practical application, but it had potential practical application that interested me. I said, "I prefer this one." I don't know why, it just appealed to me more, probably because there was no one else working on it, which I thought was a challenge. It was a good problem and I learned a lot, and I worked on it very hard. I did not get positive results; I got negative results. It was a question, "Can one do this?" And the answer turned out to be, "no." And then, why? Which, from the viewpoint of a problem in organic chemistry, was an excellent problem. I wasn't particularly upset that it didn't work, although [I] probably would have liked it if it had. I think, in terms of applications, it certainly would have been more fun if it had worked, but from the viewpoint of solving the problem for the thesis, that was just as good.

Sherkow: What was the problem?

Tesoro: Well, if you are not a chemist, I don't think it'll mean anything to you.

Sherkow: I'd just like to know what it was.

Tesoro: Let me explain to you that in many natural products, including cholesterol, of which you have undobutedly heard, there is a methyl group in a certain position in the molecule. This is called "angular." The problem I worked on was whether a particular reaction of organic chemistry called "pinacol-pinacolone rearrangement" could be used to introduce an angular methyl group. The answer was "no."

It was a very specific and specialized question. If the answer had been "yes," the work would have provided a viable way of synthesizing materials related to natural products. Because it didn't work, because something else happened instead, it was just an exercise, really.

Sherkow: Did you make discoveries through working on the thesis topic?

Tesoro: No. I would say no, there were no discoveries. It was some new work in the sense of making experiments and running reactions that had not been run before, and characterizing materials which had never been made before. But not discoveries.

Sherkow: What was it like going to an American university in the '40s?

Tesoro: What was it like? Well, I don't know if I really can say that I did go, because I can only speak about graduate school and I can only speak about the Graduate School of Chemistry. I don't know, really, how it was in some of the other departments. What it was like was that you had a number of classes which were partly required and partly optional. But many of them were required in the sense that if you wanted to specialize in organic chemistry, there are certain basic graduate, advanced courses in organic chemistry you had to take. The courses included some lab courses in advanced organic and things of that nature, and they were of course more loose than the classroom lectures but were also at a specified time and place, and so on. Each of these gave you a certain number of assignments, papers to write and things to do, just like they would now. At the end of your first year, you picked a thesis topic and an advisor and started your research. How much

time you spent on your research was up to you. The requirement was to produce a respectable amount of results for the thesis. People spent varying amounts of time. Some spent all night and Saturdays and Sundays, and some spent a lot of time, and others came for a couple of hours in the lab. The advisor partly determined that, because if he was around a great deal and looking for you, then you were more likely to be around to answer his questions. That's it. The labs were open day and night. The only strict rule was that you couldn't work in the lab alone. So if you did work in the lab, you had to be sure somebody else was there.

Sherkow: Did you work on weekends?

Tesoro: Yes, I worked on weekends, I'm sure; I don't specifically remember it, but I worked a lot. And sometimes at night. The lab was very close to the place where I lived. There was a married student who took his wife there to wash the glassware and was there almost every night. So the problem of being alone in the lab was not that great.

Sherkow: Now, you got married upon receipt of your PhD degree?

Tesoro: Shortly after. I finished all the requirements for the PhD. I had no formal graduation because of the war. The degree was mailed to me. But the requirements were fulfilled as of February, and I got married in April of the same year.

Sherkow: Now was this 19--?

Tesoro: '43.

Sherkow: What kind of effect did the war have on you and your family?

Tesoro: Oh, dear--I don't know. First--in what way? The war was very important in a variety of ways.

Sherkow: For one thing, the fact that you were Jewish precipitated your leaving Italy, and then the war was so much centered around that issue to begin with.

Tesoro: Well, no. The war wasn't centered around that issue. Hitler was.

Sherkow: That was one of Hitler's big issues, right?

Tesoro: Yes. Well, I don't know how to answer that. The war--I was very much interested in and involved in what was going on; much more, probably than the average person my age in this country would have been. My sister did not get out of Italy until late 1940, so until then there was the concern whether she would get here with her children or not. And she did. When she did, then our entire close family was here. On the other hand, when I married, my husband's family was not [here]. Most of his family was in Italy. So there were all kinds of really very personal concerns for the people you didn't hear from, didn't know anything about.

Sherkow: Was your husband also Jewish?

Tesoro: Yes. It was a big thing. My brother was in the Army and was in Europe with the Engineering Corps and was relatively close behind the D-Day Invasion forces, so that he was not actually at the front but he was close enough to it and there was a fair amount of concern about that. My husband was inducted

into the Army but then un-inducted because of some legislation that affected so-called "enemy aliens." His file got snarled into red tape and he never did get into the Army even though he had volunteered. That was a situation that was never resolved, in fact. He got in; he did not get in; and any day, he could have been in; so there was that question [of] whether he'd get drafted or not. The technicality was that "enemy aliens" could not volunteer.

Sherkow: Why was he considered an "enemy alien?"

Tesoro: Because Italy went to war with the United States. In between, you see, he volunteered, and then the legislation came and so he could not volunteer, so they told him, "You've got to wait to be drafted." They never drafted him.

Sherkow: But that didn't affect your brother?

Tesoro: No, my brother was drafted: he didn't volunteer; he got drafted. Everybody got drafted if you had any kind of declaration of intention of getting citizenship, you were draftable, so my brother got drafted and got in. My husband volunteered and as it turned out it kept him out. Until the war was over there was no certainty of that, obviously.

Sherkow: Your brother didn't get hurt or anything, did he?

Tesoro: No, but he was overseas. My husband's brother was overseas; obviously at a different place, but he was also in the Army for three or four years. So, yes, the war affected us greatly.

Sherkow: Did your husband's family have to go to ghettos?

Tesoro: No. They were in the country, primarily, in Italy and the Italians were very good about helping people out and saving them, and keeping them away from the Germans. The immediate family did not really suffer all that much. But they didn't go home until the war was over.

Sherkow: Could you talk about your first job? According to the American Men and Women of Science--I don't know if this is right . . . I wanted to ask you about this. Your first job was at the Calco Chemical Company?

Tesoro: Which was a division of American Cyanamid.

Sherkow: But the dates were 1934 to 1944.

Tesoro: No, that's a misprint. It's 1943 to 1944.

Sherkow: I see. That would make sense, because you weren't even over here then in 1934.

Tesoro: No, in 1934 I was a kid; that's a misprint.

Sherkow: So what did you do there? You were there for a year, right?

Tesoro: Yes. I was a research chemist and just worked in the lab on problems that were assigned to me.

Sherkow: Why did you decide to go to work there?

Tesoro: Why there? I don't know. I got a job offer. It sounded like a

reasonable opportunity and I accepted it. It was $300 a month.

Sherkow: Is your husband also a chemist?

Tesoro: No.

Sherkow: What field is he in?

Tesoro: He's trained as a journalist, and he was a journalist when we married and for some years after. Then he got fed up with journalism. He's in business; he's a businessman, primarily raw material exports.

--[BEGIN TAPE ONE, SIDE TWO]--

Sherkow: Your second job was at Onyx Oil and Chemical Company?

Tesoro: Yes, that's right.

Sherkow: Why did you leave the first position? --[Interview interrupted]-- What made you leave Calco Chemical after one year?

Tesoro: Oh, a number of things. First of all, the immediate reason was that I'd gotten married. My husband had two jobs and worked sixteen hours a day, so he had to live in Manhattan. Commuting from Manhattan to Bound Brook was a pain in the neck. I had to take a subway, a ferry boat, a train, and it took a long time. So it ended up that I never saw my husband except on Saturday afternoons. So geography was one very important reason. Second, I got very upset--<u>extremely</u> upset regarding Cyanamid when my mother died in December of '43, (I'd been there seven or eight months), because they

docked my salary when I went home because my mother died. I was gone for a week and they docked my salary. I got very incensed, not about the money, but just it seemed to me so totally inhuman that I thought, "I don't want to work for a large company anymore." So I left. I looked for a job that would be more convenient.

Sherkow: In Manhattan?

Tesoro: It turned out to be in Jersey City, but that would be more convenient, and for a small company, and I got it. That was it. That was the major set of considerations.

Sherkow: Now, you got married to your husband in 1943, right?

Tesoro: April, yes.

Sherkow: When did you have your two children?

Tesoro: Oh, much later. My daughter was born in 1950, and my son in '52.

Sherkow: You were working up to the time you had your children?

Tesoro: Yes.

Sherkow: Right through?

Tesoro: Yes, pretty much. When the children were born I took some time off, obviously, but yes, pretty much.

Sherkow: Did you ever feel that you had to make a choice between marriage and a career?

Tesoro: It's a pretty complicated--it's a kind of cliché question, but it's much more complicated than it sounds. The answer is, "not really." But the question of a choice came up in my own mind many times, in many different circumstances and in many instances. I have had mixed feelings about the necessity or not the necessity. It's not something that can be answered in six words or sixteen.

Sherkow: But what was the question? Does the question involve having a career and also being married?

Tesoro: The question's never "black and white." It's not that simple. But it's a question of what you lose, and what you avoid, in a sense, and what opportunities you miss in each of those areas by trying to do both. It's a very complicated question, in my opinion, and in my experience.

Sherkow: But you didn't have any trouble having a career and also being married?

Tesoro: Sure, plenty of trouble. I had plenty of trouble with, if nothing else, getting a maid to look after the children. I had plenty of trouble getting a competent person. There are all kinds of troubles on all kinds of levels that one has and copes with as best one can. Some people cope with it, and some people don't. Those who don't,end up having to make a choice. But it's not a simple issue.

Sherkow: Oh, I know. That's why I'm interested in it.

Tesoro: It's a very complicated issue, and it's bound to be, and it can

never be resolved by any kind of rule or any kind of regulation or generalization. It's very dependent on the individuals involved. It's very dependent on the circumstances of the family, including financial. If you have to work because you don't eat otherwise, it's simple.

Sherkow: But you didn't have to work?

Tesoro: But I never had to work. Then it gets very complicated. I imagine that if you're a total genius, it's simple, too, because then the question never comes up of not doing it. But most people are in a very broad range of situations which take in all kinds of things. Things change not only from year to year, but even from month to month. Circumstances change and feelings change, and it's very complicated.

Sherkow: Did you always want to work? Did you always want to have a career?

Tesoro: Not always. I did, in general, yes, but with some periods where I really wasn't sure.

Sherkow: How did you manage your career with the two children?

Tesoro: By having a housekeeper full-time, essentially. The practical answer is simple.

Sherkow: Did somebody live in?

Tesoro: Yes. I had someone live in. The reason I think I could manage at all, was that for the first seven years of my daughter's life I had a very good person and, therefore, I had the feeling that a good person could be had. After that, I had all kinds of trouble. If those troubles had happened

earlier, I would have quit, I'm sure. I didn't quit, because I had had the experience of someone who was very good.

Sherkow: When did you have time to spend with your kids, and also your husband?

Tesoro: I spent a lot of time with my kids. I spent a lot of time with my kids because I was very aware of the fact that I was working and, therefore, partly in establishing their routine and partly in establishing my own, I made damn sure that there would be time to spend with them. They went to bed fairly late, for instance, for little kids. They ate their meals with us, always; even when they ate earlier because they were messing everything up, they sat down at the table with us when we ate, again, and picked on whatever we were having. For a long time I worked four days a week and spent Fridays with them. I spent a lot of time with them.

Sherkow: How about your husband? Did he always carry these two jobs?

Tesoro: No, not after he quit journalism. As a matter of fact, even before that, he decided one job was enough. He had carried two jobs because he was working for the United Press, which he thought was an entry into a career, but didn't pay him enough to eat on. Then he had another job which paid reasonably well at the Office of War Information. One was for the money and one was for the career. But then when he got a job with CBS, he quit both others, which he thought was a reasonable thing. He stayed with that until he quit journalism.

Sherkow: How did he make the transition from journalism to business? Was that difficult?

Tesoro: He started with some friends of his doing business on the side a little bit. Then at some stage he had an offer from a man who had a business in New York (he turned out to be the father of the girl who married his brother.) This man became the father-in-law of his brother. He had this business in New York and decided to move back to Italy and wanted to find someone to look after that, and so asked my husband to work there for a time before he went back to Italy and then take on the responsibility of running the office. So that's how he got started. So he had a relatively easy start, in a sense.

Sherkow: Did your husband also have time to spend with the children?

Tesoro: Yes, he did. We did, together, on weekends and vacations. He was not particularly interested in spending time with them, doing things with them or for them, when they were small. But, yes, I would say he spent at least as much time with the children as the average father does, although in a somewhat different way. The typical American father might feed them and bathe them and put them to bed, and he never did any of that. But he did take them out, and he did play with them from time to time. Yes, I think he spent a reasonable amount of time with the children, even when they were small.

Sherkow: Do you feel that your husband's career ever affected your career mobility?

Tesoro: Yes, very much so, still does.

Sherkow: Right. He's in New York, and you're here.

Tesoro: No, I'm in New York part of the time, too. That's been a very strong and real effect in my decisions.

Sherkow: Has it been a problem?

Tesoro: It's not been a problem because it was never formulated as a problem. It was an assumption that he would be where he would be, and I would make the adjustments. There's no point in arguing whether that's fair or not. That's the assumption that was made. Yes, it's a problem; of course it's a problem, because it's a hell of a drive here, or a trip to make once a week. And I mean, I've had that kind of problem before.

Sherkow: When you were pregnant, did you take off time from work?

Tesoro: Only a few weeks before the children were born.

Sherkow: Then you went right back to work?

Tesoro: A few weeks after.

I worked four days a week most of the time--not most of the time, but for a time after--well, after my daughter was born, I worked four days a week. Then I had the second child and I was still working four days a week. Then I continued to work four days a week. Then, at a certain moment--which I don't remember, frankly--I went back to work full-time; I guess when they

went to school, or something. I don't remember.

Sherkow: Helen Astin has come up with an idea of having new tax laws allowing professional women or working women to deduct expenses that they incur by employing domestic assistance.

Tesoro: Yes.

Sherkow: How do you feel about this? If such a thing could ever be legislated in the past, and so on?

Tesoro: I can tell you very clearly how I feel. I feel that it's a very good thing, but it would be terribly abused. I think on paper, in principle, it's a very fair and just thing to do. I think if there were such a law, people would use it for their own purposes and not fairly. Such a law would lend itself very easily to abuse. Everybody who wants to have domestic help would juggle.

--[END OF SESSION]--

GIULIANA TESORO

November, 1976 - June, 1977

Part II

Women in Science and Engineering

Oral History Collection

MIT ORAL HISTORY PROGRAM

Project on Women as Scientists and Engineers

Interview with Giuliana Tesoro by Shirlee Sherkow

Cambridge, Massachusetts December 14, 1976

Session 4 transcribed by Beth Gould

Sherkow: Last time we were in the middle of talking about employing domestic help and how you raise kids when you have a full-time career, and your husband has a full-time career. My next question was: Did you have any help in raising your kids, a live-in housekeeper, or something like that?

Tesoro: Yes, I did. Actually, the first seven years of my daughter's life--she's the older one--we had a very nice and wonderful person who lived in and who made it a good start, because after that I had considerable difficulty getting proper, appropriate people. I would have been terribly discouraged if that had happened in the beginning. I might have quit. But for seven years I had this person who was very, very good, from every point of view.

Sherkow: Did she live in with you?

Tesoro: She lived with us. She was a spinster from a family in Connecticut, not particularly bright, but very good-hearted, full of common-sense, very honest, really loved the kids and the family. Her job was not to be a maid; her job was to look after the children, but she was willing to help with the housework as well. So that situation was very satisfactory for seven years. Then her parents--I guess her father died and her mother moved to Florida, and she decided she had to go to Florida with her mother, and she left. At that point my daughter was seven and my boy was five. We started looking for a replacement and we had varying degrees of luck with the people we got. For a time that turned out to be for a number of years, it was a hassle, because if we had someone who was not satisfactory, not only it was not a good arrangement but also I was terribly frazzled by it. But, fortunately, by that time the children were going to school, you see, so it wasn't quite as critical as it would have been earlier. So the presence of my friend, Ruth Quitman, for seven years was lucky. We're still in touch with her; she still sends Christmas cards to the children.

Sherkow: Oh, your first housekeeper?

Tesoro: Yes. By now she's on Social Security.

Sherkow: She's old.

Tesoro: At the time she was in her late forties, so, I mean, she's old. But that was the start of that. After she left we had a succession of people, some who were good for a long time, but some for a very short time because it turned out that there was something unsatisfactory about them. That was

a very difficult time. I'm sure you don't want all the details.

Sherkow: How long did you have live-in housekeepers, until what age of your children?

Tesoro: I don't remember exactly, but I think the boy was fourteen or fifteen. The type of live-in help changed when the children were older, because by the time my daughter got to be thirteen or fourteen then I was looking for a maid, somebody who would be in the house. The children didn't need looking after. As a matter of fact, the last housekeeper we had was a remarkable person and she was with us for several years. It was the in-between these two that was tough. But the last person we had was a minister; she was studying for the ministry.

Sherkow: Oh, it was a woman?

Tesoro: Yes, of course it was a woman! What did you expect! Her husband had left her with four kids, I guess. She worked for us for four years. She was really a remarkable person. But she was a maid, she was not intended to take care of the children. She was intended to take care of the house and be there, and look after them if they needed anything when I was not there. So, of the fifteen years I had help, roughly, the first seven and the last four were very good, and the in-between was a hassle.

Sherkow: What about now? Do you have any maids?

Tesoro: I have a person who comes in twice a week to clean and wash and iron.

Sherkow: Now your children--they don't live at home, right?

Tesoro: Oh, no. They haven't lived at home for some time. My daughter's just finished law school and is working in Atlanta now. She's been away eight years. And the boy, who finished college a couple of years ago--architecture--is now in Italy with a Fulbright scholarship. He also was in boarding school for a year and a half before he went to college, because, for various reasons, he wanted to go; it wasn't a desire on our part to have him out, but it was a combination of factors that decided that. So that approximately since '68, the children have been away. I mean, they come home when they can.

Sherkow: When is your son coming back?

Tesoro: It's one academic year that he's there, and that will be over in July, 1977. He worked for an architect before he left. Whether he'll choose to come back and work here or what he will do, I don't know. He's very dedicated to his profession, so I think what he will want to do is work as an architect when this is finished.

Sherkow: In the United States?

Tesoro: I don't know.

Sherkow: So you don't see him.

Tesoro: I haven't. He's been away. He left last April. He went for a trip around the world and ended up picking up his Fulbright fellows in Rome last September. The fellowship is for ten months, so he'll be there until July.

But we may go see him for New Year's.

Sherkow: Really? That would be nice.

Tesoro: Because my husband has to go to Rome anyway, so what we may do is go for a week together.

Sherkow: How old is he now?

Tesoro: Twenty-four.

Sherkow: Back to this domestic help. How much time do you spend, for example, in a typical week on domestic chores or jobs?

Tesoro: Now or ten years ago?

Sherkow: Yes, now.

Tesoro: Because it's very different.

Sherkow: Okay. What's the difference? Did you spend more time then?

Tesoro: Oh, much more, because first of all when the children were small and at home, even though I had help, I spent a lot of time with the children and I made a point when I came home in the evening of spending as much time with them as possible. Second, I've always cooked the meals, because my husband is fussy; he doesn't like everybody's cooking, etc. Third, I'm relatively fussy, you might say, in that I like my house orderly and so I tend to straighten out, put things way, and like things in their place, etc. All of which is much easier when there's just two of us, of course, because

the cooking and the straightening out is much reduced. When the children were home, all that required a fair amount of time. Now I think that the only domestic chores I spend any time at are meals, cooking, and cleaning-up. If we're alone, or if we have company, obviously the time increases. I make the bed in the morning, but really very little housework other than the meals I spend [time on] now. We have, fairly often, someone to [dinner.] I don't know how many hours I spend on chores, but not many, now.

Sherkow: Are either one of your children married?

Tesoro: No.

Sherkow: Where did your son go to school?

Tesoro: Carnegie-Mellon University at Pittsburgh.

Sherkow: That's where he got his BA?

Tesoro: That's right, Bachelor of Architecture. Then he worked and now he's in Rome on a Fulbright. And the girl went two years to Tufts and then transferred to Princeton, graduated from Princeton in sociology. Then she went to law school at Northeastern in Boston, working on the co-op program. Now she has a job in Atlanta.

Sherkow: Were you working here at MIT when she was going to Northeastern?

Tesoro: Part of the time, yes. As a matter of fact, all the time. She was here three months on and three months off in the co-op program. Yes, I saw her frequently when I was here and she was at Northeastern. She lived with

various roommates, and various other girls, at various times.

Sherkow: The situation in terms of this commuting is that you work here at MIT two days, and the rest of the time you're in New York; is that right?

Tesoro: Roughly speaking, yes. I work here half-time, and I'm usually here early in the week, and the rest of the time I'm at home. I say "usually," because, first of all, sometimes for one reason or another, I'm here more or less. Second, I have other professional commitments that I run around for. I have to go to Washington; I'm on boards and committees in Washington, professional societies' meetings, and so on. So I'm not necessarily at home the rest of the time. I do a considerable amount of running around.

Sherkow: Why do you do this heavy commuting?

Tesoro: It sure is! [Laughter]

Sherkow: Why do you do it?

Tesoro: Well, one has to look at the alternatives. I don't understand the question as to "why?"

Sherkow: Why don't you work in New York?

Tesoro: Why don't I work in New York? Because I did not find a satisfactory professional activity in the area. And so, not having found it in the area, and having the opportunity here, I'm trying to keep it going.

Sherkow: One of the things that I was interested in is why you left industry.

You left industry for an academic situation, right?

Tesoro: Not quite. The industry job I had collapsed in '72; I did not leave there.

Sherkow: What do you mean by "collapsed?"

Tesoro: The company, which is the largest textile company in the world, had a corporate research and development organization, of which I was part. In 1972 they decided to give it up, so they sold the facilities, and they essentially fired--for lack of a better word--the entire staff.

Sherkow: Was this Burlington Industries?

Tesoro: Yes. So I was out of that job largely for reasons that were--I mean, I wasn't crazy about that job for various reasons, but I probably would have stayed with it if the organization had continued the activity. But when that collapsed, I considered and tried, not very intensely, but tried, to get a reasonable job--what I considered a reasonable job--acceptable, within commuting distance of my home. And I didn't. I didn't partly because there are not that many available, [and] partly because it's hard to get into a new industrial job at some level; if you're twenty or thirty, people hire you more easily than when you're older and have reached some kind of responsibility. So I decided at that point to more or less work independently as a consultant. And meanwhile there was a project here in which I was asked to participate. I thought that would be nice because it would get me into an environment I did not know, particularly. At that time, that project required my presence here maybe one or two days a month, so it was a very easy thing to negotiate,

to come up here every couple of weeks for a day was not [difficult.] Then things grew from there, and here I am. --[Interview interrupted]--

Sherkow: Does your husband work in New York?

Tesoro: Yes.

Sherkow: What was this project that you initially took on here that was about once a month? --[Interview interrupted]--

Tesoro: MIT had a grant to evaluate a program that had been carried out by government and industry, jointly, on textile flammability, which is one of the fields I've been quite active in. We eventually got a final report together, and eventually got it printed as a book; the MIT Press published it. That was the project I came in on. I had been on the government-industry committee, representing industry, and they needed someone who could be familiar with the work of the program and also work on the evaluation of the program from the point of view of people who are not physicists or chemists in universities, but who are working in the field in industry, and so on. So that was my contribution. The program being evaluated was primarily physics, and therefore, not in my field. But there was a component where I, apparently, could make a contribution. So that's why I was asked to come in on it.

Sherkow: What happened from there after that project was over?

Tesoro: Well, it didn't happen after it was over, I don't think. It was still in progress. I don't remember how it came about or exactly when, but it must have been in the spring of '73 that the head of the department here at the time

was Professor Shapiro, and Professor Backer suggested that I should have an appointment as visiting professor for the next academic year so that in addition to the work on that project--that project strung out over a long period of time--I might also lecture in some of Professor Backer's courses on fibers and become more involved. That's what happened. I had, after that, funding for a research project from the National Bureau of Standards here, and then things sort of evolved.

Sherkow: One of the things I was interested in was, have you always been interested in teaching?

Tesoro: No, I can't say that. I always found it very easy to talk informally about my work. I gave lots of talks and lectures and papers. I always found it easy to do so. Also, I always, in my professional activities, found it interesting to teach young people how to do things, to explain things to them. So I always found it came fairly natural to me to convey what I know to others. But I had never done so, or thought about doing so, in any formal way. I had not primarily focused on the idea of teaching, for reasons I don't know. In retrospect, I frequently wish I had done it much earlier, but I didn't.

Sherkow: Do you miss not working in applied research work in industry?

Tesoro: I'm doing applied research work in ways.

Sherkow: You are?

Tesoro: Yes. In this group, the work is applied. It's not fundamental.

I've always liked applied work which is related to principles, not hit-and-miss. So applied work is not necessarily unsuitable for the university environment, if it's done properly. I am doing applied work, but I do not miss the industrial environment; no, I do not miss it at all.

Sherkow: Did you like the industrial environment?

Tesoro: For a very long time in the industrial environment I was fairly sheltered from the business aspects of it. In the last five or six years that I was working in industry, I was less so. But, no, I did not like the features of the industrial environment that are specific to industry; the concern for justifying every dollar; the concern for profit; the relatively uncertain nature of every research activity, in terms of how long it will last and whether it will be permitted or not, I did not particularly like. There are very different problems in the university; there are problems, too, but they are very different. I don't miss that; no, not at all.

Sherkow: One of the things I wanted to ask you about: in our last session was discussed some of your first jobs, at Calco [Chemical Company] and Onyx [Oil and Chemical Company], and I wanted to go on to some of your later jobs; but one of the things that I wanted to ask you about earlier and that I forgot, was: you have an older brother and sister, and what are their occupations?

Tesoro: My brother is an architect and my sister teaches French. She had a degree in French and is teaching French, actually, now; she's about to retire, in fact, but she's teaching French at the Professional Children's School in New York.

Sherkow: Both your brother and sister live in New York?

Tesoro: Yes.

Sherkow: In 1946 you were promoted from Research Chemist at Onyx to head of the Organic Research Section.

Tesoro: That's right.

Sherkow: So how did that come about? Was advancement any kind of a problem in this company?

Tesoro: No. It was a very small company. Onyx was not a typical corporate situation. It was a small chemical company, a relatively small laboratory group, and a very informal R & D group atmosphere. The director of R & D was a man who relied on the people who accomplished something. There was really no structural concern for promotion. First of all, at that particular time, and second, in that particular company, things were a lot more informal than they would be now.

Sherkow: Were you primarily in charge of men?

Tesoro: Yes. Throughout my life in industry, that was so--not entirely, but primarily.

Sherkow: What kind of projects were you involved in? How long were you there?

Tesoro: I was at Onyx until '57.

Sherkow: You started in '44, so you were there--

Tesoro: Quite a long time.

Sherkow: I suppose you were involved in a number of different research projects.

Tesoro: Oh, many, and they varied, too, because the head of the organization changed on several occasions so company plans changed. So that the kind of projects that I was involved in varied, and I was involved in many. They were primarily concerned with new chemicals in the field of interest of the company and new processes for making chemicals. Product development, but product development in the sense of invention and innovation, not taking a product and making it a cheaper kind of thing, or not primarily that, certainly.

Sherkow: You have a whole long list of patents.

Tesoro: Yes.

Sherkow: Did some of those come out of your work at Onyx?

Tesoro: Oh, yes. Some of them did and some of them made a lot of money for Onyx, too.

Sherkow: What kind of products are these? You can be scientific.

Tesoro: That's very easy. Onyx had two divisions, one was called the Industrial Division; the products that were primarily of interest for that division were surface active agents--detergents, germicides, and products of that nature. Then they had a Textile Division where they marketed, primarily,

textile auxiliaries, products that the textile industry used; they cover a multitude of types, including polymers, softeners, finishes, and a number of different things. I was active in all of those areas while I was there. In some of them the work was relatively pedestrian, and in some it was very creative. Some of the patents cover products in those areas or processes in those areas, and some cover materials and compounds, and processes that never were commercialized, of course. That was my work at Onyx.

Sherkow: Which ones made a lot of money?

Tesoro: There are several. There are some patents on germicides, quaternary ammonium germicides, that were very successful. There were some patents on durable anti-static finishes for textiles that the company made, manufactured and sold for--oh, I guess, ten, fifteen years at a considerable profit. The third type that was very successful was a new process for making--what would you call them . . . they're actually components of shampoo formulations, and things like that; it wasn't a formulation, it was components called 'foam boosters.'

Sherkow: Foam boosters?

Tesoro: Yes, surface chemistry type things that were known, but these new processes made them more effective and the company did very well with that. Those three major areas are those where the patents made a lot of money, for a time.

Sherkow: What did "head of Organic Research" entail?

Tesoro: A small group of people doing research on organic compounds.

Sherkow: How big was the group?

Tesoro: Oh, I don't remember exactly, but three or four professional people, something like that.

Sherkow: Were you a supervisor?

Tesoro: I was working along with them, as I say; it was a very informal group, but I was responsible for what these people did.

Sherkow: Then in 1955, you became Assistant Director of Research.

Tesoro: Yes. Those were just increased responsibilities; instead of being responsible only for the four or five people, other small groups that were involved in process research, or in testing, or something, became a part of my responsibilities. But there was no rigid--I just had more people reporting to me and more people I was responsible for.

Sherkow: Did you feel like you were a manager of people?

Tesoro: I was, in some ways, yes.

Sherkow: How did you feel about that role?

Tesoro: I don't know that I can say that--I just felt I had the responsibility for what these people did, and some were good and some were not.

Sherkow: Did you have to hire and fire people?

Tesoro: Yes. Not so much at Onyx, though, because the Research Director did most of the hiring and firing, although I was involved in the decisions when the people concerned were in my group. But at Onyx, I did not do much; I did a lot of hiring and firing, theoretically, in my later employments, but at Onyx I did not do very much of that.

Sherkow: You were at Onyx for fourteen years. For one year, from '57-'58, you were Associate Director.

Tesoro: That was just because a boss didn't like my title and I got a new title. It was not--

Sherkow: I see. Why did you leave Onyx? You left Onyx in '58 for J. P. Stevens Company.

Tesoro: Not for J. P. Stevens. I left Onyx, and then I went with J. P. Stevens. I left Onyx--it's a long, involved story, but the Research Director at Onyx had left because he had gotten into conflict with the new President there. The new President was a salesman by training; his approach was that of a salesman. He came to Onyx from Colgate and he had big ideas about advertising, marketing, and [all] that. He did not have any appreciation, in my opinion, for the role of research in the company or the contributions that research had made. He was looking for rather short-range, quick, gimmick-type developments, and I just wasn't interested in working that way.

Sherkow: He came in the year before you left?

Tesoro: He came in a year or two before I left. But when the Research

Director was there, for a time he was a kind of buffer; he was fighting. He preserved some of the original intent for the people under him. But after he left there was no buffer at all, and it was just a completely different scope. I just didn't want to bother, and I left. Then I got a job with Stevens. But I didn't leave to take another job, I left.

Sherkow: You quit and then found another job.

Tesoro: Then found another job, exactly.

Sherkow: At J. P. Stevens you started out as head of Organic Research.

Tesoro: Yes. J. P. Stevens at that time, in '58, had just made the decision to get into corporate R & D; there had been none. They had just bought a laboratory facility in Garfield [New Jersey] from the previous owner, the Forstman Woolen Company, and inherited three or four people, a few people, from the Forstman Woolen Company as research personnel. But there was no research group at J. P. Stevens; there was no research program, and there was no research facility. A man was hired as R & D Director (at that time he was not Vice President), to set up an R & D group at Stevens. He went looking for people to set it up. The first thing you do, you look for people. He hired me to set up this Organic Research Group, starting from ground zero; I was the first. I went out looking for people, gradually, over a period of time, to build this group into the overall R & D organization at Stevens, and that's what I did.

Sherkow: How did you feel about starting right from the beginning?

Tesoro: Impatient, I guess, is the only word.

Sherkow: In '61 you were made Assistant Director of Research.

Tesoro: Yes, by that time it was a group.

Sherkow: You were there from '58 to '68, for ten years.

Tesoro: Right.

Sherkow: What happened in those ten years? How do you feel about what you did there?

Tesoro: Oh, those were great years: very successful, personally, and from the viewpoint of the company, and from the viewpoint of personal association with the people who worked with me. I don't mean every day or every month; obviously there were failures, too; I don't mean that. But overall, those were ten very good, productive years from every point of view. That was, probably, from the viewpoint of overall evaluation, those were my best years, professionally, I think, in terms of what was accomplished and in terms of the use that was made of what was accomplished.

Sherkow: So what kind of research were you doing there? You were doing different research than at Onyx?

Tesoro: Somewhat different. I was doing several kinds of things. The primary thrust was chemical modification of fibers. There was also work on the fundamentals, or interdisciplinary aspects of fiber chemistry, that I had never done before. I became much more conversant with polymer chemistry than

I had been in the past. Also, at some point during those ten years the company decided to start a chemical manufacturing operation for internal use, captive use. I was responsible for setting that up. So I had many activities and many of them resulted in successful processes that the company used.

The group grew from zero to roughly fifty people. I would probably have stayed there forever if it hadn't been that Stevens, following the typical pattern of the textile industry, decided that--this is what later happened at Burlington more drastically--Stevens reorganized its thinking insofar as programs and decided to do less research, and practically no chemical research. I left of my own accord. In the reorganization, Stevens hired a new R & D Director, who was hired primarily because they wanted to change the scope of the activities, so I found myself with a research philosophy that just--it was, to some degree, not unrelated to the thing that had happened at Onyx, but a very different company, a very different corporate image, and, obviously, a very different stage in my own life. But it wasn't really that different, from my point of view, in terms of not being able to accept a philosophy of doing things that just didn't make any sense to me in terms of research.

Sherkow: So they wanted to cut back on their chemical research?

Tesoro: They cut back on the chemical research and they viewed the textile industry as utilizing suppliers' research rather than doing its own, and doing more technical service-oriented work. At that time, when I left--I made one very serious mistake in that I attributed the changes to the person who was R & D Director; I thought that <u>his</u> philosophy, <u>his</u> point of view were prevailing,

and that was wrong. It was very much an expression of the industry and the times, more than of the person, so my mistake was in going to another textile company, which I should really not have done. If I had understood the reasons for what happened at Stevens I would not have gone to work for another textile company, but I was asked to work for Burlington by a person who had been director at Stevens, you see, and so I assumed that he could carry on at Burlington the kind of philosophy that had been so [successful before]. But it turned out that he couldn't, because he got fired from Burlington when everybody else did. I misread the industry at that point completely; now I know.

Sherkow: Is that when you did a lot of work on cottons and flammability?

Tesoro: The work on flammability came later. The work on cotton and cross-linking was done primarily at Stevens. As for the work on flammability, interest in the industry started in the late '60s, so that didn't happen until later.

Sherkow: When you left Stevens you became Senior Scientist at Textile Research Institute.

Tesoro: Yes, when I left Stevens I was looking for a job, essentially. I took on this work at TRI on a part-time basis, not really with the intention of making a career of it but with the intention of keeping in touch with what was going on in textile research until I would get myself organized with another job. I never saw TRI as a solution for me. It is a very good institution but it has its limitations and I did not feel that this was what

I wanted to do for the rest of my days, but it did keep me in touch with what was going on in the industry.

Sherkow: You mentioned earlier that at some point in your husband's career he switched from journalism to a businessman. How did that correlate with your life? When was that?

Tesoro: When it was, I can tell you. It didn't correlate at all. He did it in the late '40s.

Sherkow: While you were at Onyx?

Tesoro: Yes. And he did it because he decided that he didn't want to be a journalist, for reasons of his own, and having been trained as one he decided that he was more interested in setting up some kind of business activity. That had no relationship to what I was doing.

Sherkow: In any of these companies, did you have problems with nepotism rules? You weren't working with your husband, but did they have nepotism rules? Academic institutions have nepotism rules.

Tesoro: Yes, some of them did. I think Burlington did, but Stevens did not. These companies are so large that they could have people from a different family, but my husband never really was interested in that kind of job.

Sherkow: It didn't affect you.

Tesoro: It didn't come up.

Sherkow: Were you always just one of the very few women in these companies?

Tesoro: Pretty much.

Sherkow: How did you feel about that? Did that bother you at all?

Tesoro: Oh, that varied from--I can't tell you how I felt in terms of--Yes, it bothered me at times, and in some situations.

--[BEGIN TAPE ONE, SIDE TWO]--

Tesoro: Sometimes, and in some situations, yes, it bothered me. It bothered me more for trivial and unimportant reasons, I guess, than for--
--[Interview interrupted]--

Tesoro: It bothered me in small things from time to time, not seriously, but it was something I was aware of. --[Interview interrupted]--

Sherkow: So after one year at Textile Research Institute, you became Director of Chemical Research at Burlington.

Tesoro: Yes. What happened was that the former VP from Stevens was now at Burlington. They were in the process of expanding the chemical and corporate research organization. They had beautiful new buildings in Greensboro, North Carolina, and he knew very well that I wasn't about to move to Greensboro, North Carolina, but what he proposed was for me to have an office at Burlington House in New York and operate from there, and go to Greensboro, when necessary, to talk with the people who were doing the work. This is, essentially, what happened. There were a number of organizational questions and changes through the first year or so. I did work out of the New York Office, but did go to Greensboro almost every week to talk to the people there, and ran a chemical research program there which was doing

relatively well when the company decided to squelch it.

Sherkow: You were at Burlington from '68 to '72; what kind of research work were you involved in there? Was that the flammability [work]?

Tesoro: Similar to Stevens. Times had changed, the problems had changed, and, therefore, it was not the same project, but the scope was similar to what I had been doing at Stevens. The group was constituted not unlike the group at Stevens had been, but the company rules, philosophy, posture were very different. The organization was much more rigid; the approval of projects and budgets was much more formal, and the productivity was much less. I would say that probably in terms of productivity, that group which was comparable in abilities probably produced maybe a third as much.

Sherkow: Why was that, because of bureaucracy?

Tesoro: Because of all this formality, rigid structure, accountability, planning, computer measurements of accomplishment, and the supervisor or the manager, and the technician couldn't overstep each other's bounds; it was a much less freewheeling, much less rewarding, and much less productive way of doing research. I would say the people at Burlington were probably as good as the people at Stevens. It was not a matter of ability, it was just a matter of the way the thing was constituted. To get started on a project if one had an idea, it was a very elaborate thing. One had to write the proposal. It had to be evaluated by the Project Evaluation Committee. It was debated. There were colleagues who criticized. They had to decide exactly how many dollars it was going to cost. Your fiscal responsibilities were

taken very seriously, so if your project had an overrun it took you days to explain it. It was really a pain in the neck way of working. The result was that the amount of good work produced was much less.

Sherkow: What kind of work were you involved in there?

Tesoro: Same; I was involved in flame retardants. I was involved in fiber modification. I was involved in textile problems that the company viewed as important: soil release, water repellants. All the gamut of the fiber chemistry problems that the company would be involved in.

Sherkow: Did some patents come out of your four years there?

Tesoro: Yes, some did. Four years is a relatively short time for those things to mature. The patent filing policy at Burlington was also much more rigid. At Stevens what happened was, if you had a good idea that was patentable, the company would pay for a filing and if there was no prior art, the patent would issue. Some the company would use, and some it wouldn't, but it was a very liberal patent filing policy. At Burlington, there was much more debate and discussion and many more people [were] involved; many more red tape approvals [were] needed for filing, and so on, so a much smaller number of potential patents got filed. Also, the prosecution of the patents was entirely by lawyers; the people involved in the inventions didn't really participate, so it was a very different way of operating.

Sherkow: Was Burlington a much larger organization than Stevens?

Tesoro: Somewhat larger, but not much larger; just very different.

Sherkow: The decision was made to just close down the whole research operation at Burlington?

Tesoro: Yes. They sold the buildings to Ciba-Geigy, a Swiss chemical company. They sold the facilities. The whole thing was really, I think, an incredible performance in terms of the way that people were handled and the way the transition was handled. I often thought that this would make a hair-raising story if somebody knew how to write about it without distorting the truth, or anything else. What happened was that in May of '72 the Vice President of R & D was out; that was the first step.

Sherkow: Fired?

Tesoro: Presumably, I think; it was never said. Another vice president of the company, who had been with the company for a very long time (who was not a scientist), was asked to take on the running of R & D. The man operated from May to July leading everybody to believe that he would make some changes; that there would be some projects approved, and some not; and that things would change somewhat, but continue. Throughout this time, it turns out, Burlington was negotiating closing down the shop; that was their privilege, I suppose.

Sherkow: And so this vice president actually knew what was going on?

Tesoro: Yes. He would ask me, for example, to do something over the weekend; to make a proposal on how the budget would look for my group, because we would be cut twenty percent; and I would work on it from Friday to Monday. He asked these things, obviously, I now know, just as a smoke screen, because

he didn't really ever intend to have a next year for my group. Then what happened was that in July, twenty-four hours before the announcement was made to the press, I was told that the buildings had been sold and that the entire R & D group would be dispersed--there were two-hundred and thirty people--and that some of those two-hundred and thirty people, a small group, had been asked to stay to work with the divisions, etc., and that the rest would be fired. I don't remember the day of the week, but let's say I was told on Tuesday; the New York Times was told on Wednesday, and on Wednesday two-hundred and thirty people were called in, in one room, and were informed that they would be out of work a month later--except for those who had been told otherwise.

Sherkow: You were one of those that was going to be out of work?

Tesoro: I wasn't even there. I was told the day before and I was going on vacation for a few days. That was also something that infuriated me. I asked the boss, I said, "I was supposed to go away tomorrow, but since this bombshell is coming, I think I'll stay here." He said, "Oh, that's not necessary. Go on ahead." That's it! Then I was asked to stay on for two or three months to wind up some projects in which other companies were involved because Burlington didn't want to give these other companies a bad impression. It was convenient for me, so I stayed a few months working out of the New York Office.

Sherkow: For all the people that were fired, the company didn't make any effort to find other jobs for them?

Tesoro: They did make some effort to transfer to other places within the company. --[Interview interrupted]--

Sherkow: They did make some effort with some people, or how exactly was the situation handled?

Tesoro: Ciba-Geigy, this chemical company, bought the laboratories and had need for people, obviously, because they had to staff the laboratory, so they allowed the Burlington people to be interviewed [by them]. I thought that since my group, which was the Chemical Research Group, it would be of primary interest to Ciba-Geigy, which was a chemical company. I called the people at Ciba, whom I knew, to tell them, "Look, I have a large number of professional people in my group. I will talk to you about them and tell you what their skills are, and try to steer you to hire those that you can." My purpose was to help the people in my group. Ciba-Geigy did not accept my offer to talk to them; they obviously did not want to talk to me. It turns out that they had a deal, Burlington and Ciba; that the cross-hiring that was going on, the hiring of Burlington people by Ciba-Geigy, could only be handled through Burlington personnel channels. So my efforts to tell these people, "Joe Blow is very good and you should take him," were refused, because Burlington is a customer of Ciba-Geigy and they didn't want to do anything which might upset the relationship. So the fact that we are dealing with people here--

Sherkow: Didn't make any difference--

Tesoro: --and not with pieces of furniture, didn't have a bearing at all.

There were people who had been working for the company in various capacities for twenty, twenty-five years, who were told on August first, "You're out of a job September first!"

Sherkow: Did they ever hire any of them?

Tesoro: Ciba-Geigy hired quite a number of them, yes, on their own, through this channel thing.

Sherkow: But you weren't interested?

Tesoro: Oh, I wouldn't want to live in Greensboro, and Ciba-Geigy was not interested in the kind of arrangement that I had.

--[END OF SESSION]--

MIT ORAL HISTORY PROGRAM

Project on Women in Science and Engineering

Interview with Giuliana Tesoro by Shirlee Sherkow

Cambridge, Massachusetts May 4, 1977

Session 5 transcribed by Beth Gould

Sherkow: In reviewing all the transcripts, since it's been so long since we got together last (it was before Christmas), what you finished talking about was--[Interview interrupted]--

Sherkow: What I was saying was that in the last interview that I have reviewed, the last thing that you talked about was how your job had ended at Burlington Industries. That was it. I think we were a little bit abrupt, but in reviewing it I felt that you probably said everything that you had wanted to say.

Tesoro: I don't know. I don't remember.

Sherkow: You had talked about how you had found out a couple of hours before the New York Times had found out. It just wasn't a good situation. You had briefly talked about how you had come to MIT. But I thought maybe you could just review that, since that's where you came next and it was just very briefly commented on.

Tesoro: At MIT at that time there was an ongoing project involving a compilation and critique of work done on fabric flammability by joint sponsorship of government and industry. Four research projects had been carried for two years, and it was felt that it was necessary to take the results of those projects and put them together in a coherent way, with some--not review, but some identification of the most important results, so that project was going on in this group here at MIT. I was invited to join that group for that project: a specific assignment which brought me here initially as a Senior Research Associate, with involvement into this particular project and the possibility of looking into other things but no decision or commitment. I started to work on the project. What happened was--it was in the spring of '73, if I'm not mistaken--I'm sure that can be checked--Professor [Ascher] Shapiro, who was head of the Mechanical Engineering Department at the time, made available, or offered, an appointment as a Visiting Professor for the following year, for the '73-'74 year, with, of course, more extended obligations and responsibilities in terms of generating other work and so on; also with the responsibility of lecturing in classes that Professor [Stanley] Backer had, and seminars that he had. He was covering the mechanical engineering or mechanical aspects; I would cover some of the chemical aspects. Basically that is how my situation at MIT got settled into a pattern or a routine.

I was a Visiting Professor until this year. The appointment as Adjunct Professor was very desirable because it was not a year-to-year affair, but a much more extended thing. Also, it made a point of utilizing my industrial experience.

I personally felt better about utilizing my industrial experience as a requirement or as an objective, rather than having the industrial experience almost as excess baggage that I was carrying. So that's it. In the last year I did not do anything drastically different from what I'd done the year before. I taught a course in the chemical modification of fibers, and I had some research projects going where I interacted with the students working on it, so it was not really very different but it was a more long-range situation, and so on. The last three months are something else.

Sherkow: Why were you located in the Mechanical Engineering Department?

Tesoro: I'm an organic chemist, and I'm a polymer chemist, essentially, with a lot of experience in fiber chemistry. These are the areas in which I have done research and in which I have been more knowledgeable, so the fiber science portion of the Institute, such as it is, and its relationship to polymer science is a task that happens to be in this division of the Mechanical Engineering Department. The Fibers and Polymers Laboratory of the Mechanical Engineering Department is where Professor Backer is, and where the fiber science interests lie, so that's why I wound up here. Now, the original assignment, which was this report of the work on textile flammability, ended up in a book published by the MIT Press. That landed here in this group also because it was a textile-oriented problem or project, so it's not by design, but there is some logic to it.

Sherkow: I thought when I initially talked you ~~you~~, months and months ago, you had said something about a different department would have been more appropriate. Is that correct at all?

Tesoro: I don't think I said "more appropriate." I think a different department would, on the face of it, been more logical, because I'm a chemist. The question is: in a different department I would have had exposure to other chemists and interaction with other chemists, which here is not easy. But on the other hand, in a different department I could not have merged my knowledge of fiber chemistry with knowledge of other aspects of fiber science, as I do here. So it's not a matter of appropriateness. It's a matter of where the better contribution might come. I don't know; it's a guess, really.

Sherkow: So you feel good about being in this particular department?

Tesoro: I feel good, because I enjoy some of the interdisciplinary aspects of what I'm doing. Sometimes I'm concerned by the fact that I get involved in things I don't know anything about, but on the other hand, I prefer it in some ways. For example, I'm now involved with Professor [T. Y.] Toong in a project where the thrust is not chemistry but there is a chemistry component which I'm expected to contribute. You can look at that both ways. You can look at it and say, "It's great because they need somebody who knows some chemistry, and here I am to do it, and it's a great way to work on a problem." Or you can look at it and say, "Much of the research they're doing is alien to me to some degree, because it's physics-oriented, combustion engineering-oriented, and those are not my areas." But that depends on the individuals; that depends on the circumstances. I don't think you can generalize, really.

Sherkow: So you've been at MIT since 1973?

Tesoro: Right.

Sherkow: Have you been teaching since that time?

Tesoro: No. I've been teaching occasionally since--I've lectured since that time. The only times that I have taught a regular course have been the fall of '76-'77, and the fall of '75-76. Also, I've been involved in IAP [Independent Activities Period] activities and other things. But as far as a regular course teaching, those two semesters are the only ones where I've done so.

Sherkow: What did you teach those two semesters?

Tesoro: Chemical modification of fibers--fiber structure, and chemical modification of fibers. In the first year the group was fairly large because there were--I mean, not large, but a number of students--because there were students in mechanical engineering who had some knowledge of fibers but no knowledge of the chemistry of fibers, who were interested, and there were some students in chemical engineering who were interested. Last year the mechanical engineering students in the division here, in the group, were fewer, because Professor Backer was on sabbatical and he deliberately reduced the number of students involved. The total number of students in the course was small and the course was changed to a special reading type thing rather than a routine course, but I don't know really how we're going to plan it for the fall of this year.

Sherkow: You've been working together with Professor Backer on this course?

Tesoro: Yes, very definitely. I mean this is his group and he makes the decisions.

Sherkow: I see. How do you feel about teaching this course?

Tesoro: I enjoy it. I like it. I like it very much. I like it more when I can deal with students who have some specific interest and knowledge of chemistry so that I don't feel that I'm pushing knowledge down their throats. But I enjoy the teaching part. I've done a lot of lecturing in presenting my own research work. I'm not new to getting up and talking, but the teaching is somewhat different. It's more explanatory and so on, and I've enjoyed it.

Sherkow: Would you like to teach more courses?

Tesoro: I'm limited in time, basically, both in the time I spend here, physically, and in the overall time that I can devote to teaching preparation. I have a number of research projects I'm involved in, and between them and teaching and running around, and a couple of consulting commitments, I'm normally pretty busy.

Sherkow: Just before I go on to something else, were these courses that you taught in the fall for graduate students?

Tesoro: Yes. They were, I think, perfectly suitable for some seniors or something like that, but primarily aimed at graduate students who, by interest or by assignment, were involved in a branch of polymer chemistry that made this interesting to them.

Sherkow: Could you elaborate on the number of research projects that you're

involved in?

Tesoro: Those vary, because one works on projects for which one can get money. I'm sure that's true for everybody, but I have, at the moment, three projects of varying scope; one is very small, for the others I'm principal investigator which means I have responsibility for what gets turned out. Two are funded by government agencies and one by industry. Then I'm involved, as co-investigator, with two other projects, the one I mentioned with Professor Toong and the other is with Professor [Cho] Rha in the Department of Nutrition and Food Science. Now actually all but one are scheduled, for instance, to terminate at some point during the summer, so there are project continuation proposals to be written, and maybe we'll get continuation [and] maybe we won't. One never knows.

Sherkow: What do the three projects that you are the principal investigator for involve? Can you briefly describe what they are?

Tesoro: Yes. All three of them happen to be concerned with flammability and fire safety of textile materials. One of them is involved with a vastly improved approach to making cotton fabrics flame resistant. It's fairly technical to go into why it's vastly improved, so I think maybe we better skip it. That is supported by Cotton, Incorporated with United States Department of Agriculture funds, because the United States Department of Agriculture is interested, obviously, in the marketing of cotton. One is a NASA project and it, again, involves fire safety and is specifically concerned with the polymers for making aircraft seats. This is commercial

aircraft seats, not military. The third one, which is an industry-supported project, is simply a small amount of unrestricted funds to investigate some fundamental aspects of flammability problems that they are concerned with, so all three projects deal with fire. As I say, the continuation of this research is subject to getting funded. In some cases it's going to be easy, and in some cases it looks like it may be very difficult.

Sherkow: But you do expect that some of these will probably be funded for next year?

Tesoro: I don't know, and if not these, others. That's the life one leads.

Sherkow: There's the other two that you're co-investigator for. Are they also going to be ending this summer?

Tesoro: Technically yes, but both have proposals due, one in July and one in September. These proposals have to be submitted. These are less demanding in terms of my involvement because somebody else has primary responsibility, but the game of getting money always goes on. You cannot support a student if you don't have money to support a student with.

Sherkow: Has it been difficult in the four years that you've been here to have the research projects granted?

Tesoro: Oh, very--very. But not only for me. That's a very difficult game.

Sherkow: But you've always managed to continue working here and supporting students; isn't that right?

Tesoro: Yes, but it's a lot of work. You have to keep having ideas and you have to keep putting them together, and you have to find somebody who is interested enough to support the research. I mean, that's the way it goes.

Sherkow: Have you had a number of research proposals not funded?

Tesoro: Oh, sure. Some yes and some no, and some are pending for two years and you don't get an answer.

Sherkow: So it does sound difficult.

Tesoro: We have a proposal which we submitted a year ago in March and it looked like it was decided, and then budget (it was a government agency) problems came up and they said that they would let us know in the fall; in the fall, they said they'd let us know in the spring, and we haven't got an answer yet.

Sherkow: Yes, that's really a long time.

Tesoro: They haven't said no, but they haven't said yes. It's very frustrating. You also lose the enthusiasm for it when you sit around for a year without knowing whether you're going to do them or not; but that's life.

Sherkow: In the four years that you've been here, has most of your research work been in the area of flammability?

Tesoro: Probably yes, most of it. That is the demand of the times. That's what's of interest, and that's where I've accumulated a certain amount of

knowledge, experience and reputation. So you make the proposals in that area because they have a better chance of being funded than if you make proposals in an area that you're not known for.

Sherkow: But you are interested in this area?

Tesoro: Of course. That may or may not continue. Things change and one has to be aware of the change, because it's perfectly possible that next year it will not be so important and other things will take its place.

Sherkow: But you have other research interests that you could get into?

Tesoro: Oh, yes. But whether they would properly apply to the specialized industry that this group is intended to address, that I don't know. But that doesn't bother me either because, as you can see, I got involved in the food science project without ever having known anything about the chemistry of foods. So one can learn, I guess.

Sherkow: What does that project involve?

Tesoro: It involves protein products, synthetic meats. That's also an applied project. My work has been applied, not fundamental, but that's all right.

Sherkow: What consulting work do you do?

Tesoro: I do very little of it at the moment, but I do consulting work, as it turns out, for the chemical industry, rather than for the textile industry.

I have a couple of what you might call 'retainer agreements' with chemical companies for doing consulting work. One involves a very small amount of time; one involves a larger amount of time, but even the larger amount of time is not so large.

Sherkow: What kind of problems have they been asking you to be involved in?

Tesoro: I can't tell you, because it varies a great deal: all kinds. All kinds that I feel qualified to be involved in. Obviously, there are some problems where I say, "It's not my bag."

Sherkow: What are you currently doing? Is it flammability problems?

Tesoro: In one case. In the other case, it's actually hair dyes.

Sherkow: I was wondering: how do you get asked to do this sort of thing?

Tesoro: What do you mean, "how?"

Sherkow: I'm just interested in the process of an academic person who has been involved in a lot of research work and a lot of applied work, just being asked by industry to do consulting work.

Tesoro: It's a matter of people who know the name, or I know personally, or I don't know personally who are calling me at the suggestion of somebody I know personally. In some cases, it's based on my publications--you know, they read something I've published and they think I know a subject that's of interest to them. It's very varied. It's not at all uniform. But, largely it depends on some kind of reputation established in some fields and

through publications, through hearsay, through meetings, and things like that.

Sherkow: What are your feelings about doing consulting work? Do you enjoy doing it? Do you have the time to do it? Would you like to continue doing it?

Tesoro: I like to do some of it because I like to keep in touch with industry, to some extent. I think that otherwise you can stagnate pretty much if you lose touch with what's going on. For a person with my interests, I think if you lose touch with what's going on in the real world you may end up losing sight of how things change. You cannot really keep in touch unless you see people and talk to them and do things, because what you read in the press is usually stale and incomplete. For that reason, I like to do it. The financial reward is not of great importance to me, but that's another reason. Really the main reason is to keep in touch with what's going on and to keep in touch with the people who make it happen, too, particularly because I'm not here full-time, and I'm not here enough to chat with people about problems without any immediate motivation. You can't just ignore that stimulation, and that's one way to get it.

Sherkow: So in the future, you will probably continue to do consulting work?

Tesoro: Yes, some, I think. I would say I would not like to do consulting work exclusively, that's sure. I've made up my mind on that, because it's fragmented, because you have no control over what you do in the research. You give your opinion, and they can use it or junk it. The business of working on a problem and coming up with ideas and then having no control at

all over how these ideas are implemented is not particularly appealing to me, so I certainly would not like to do that exclusively. But as I say, as an activity in addition to something else, it's fine.

Sherkow: So the main thrust of what you do here at MIT is the research projects that you're either the principal investigator for, or you're co-investigator?

Tesoro: Yes, I would think so.

herkow: Then you do some teaching, and you do some lecturing, and you do some consulting work? Would that be a proper way of describing it?

Tesoro: Yes, I guess so.

Sherkow: Is there something I've left out?

Tesoro: No. It's a matter of emphasis, because it's not always the same, but I don't think that's incorrect.

Sherkow: How would you describe your professional relationships with colleagues here at MIT?

Tesoro: I think my professional relations with colleagues at MIT are very good with a limited number of faculty members whom I know. There are a very large number of faculty members I don't know, even in the department, so I can't say it's very good across-the-board. But with the people with whom I have either cooperation going, or even just a good acquaintance, or common interest or something, it's very good. I personally feel it's very

good; I don't know how they feel.

Sherkow: How would you sum up your feelings about being at MIT, working at MIT?

Tesoro: That's not easy. I think MIT is an exceptional place, and I think it has a very large number of exceptional virtues. I also think it has a number of difficult things. My own position here is made somewhat more difficult by the fact that I've got to run back and forth between here and New York, and that's my fault, not MIT's fault. But that creates some limitations, so it's not that easy to sum it up in a few words. But overall, I think that to be here and to have the feeling that I exist, that I make a contribution--I don't have visions of shaking the world, but to participate and contribute to what is going on I think is a good feeling. It's a feeling of reasonable accomplishment, especially having started rather late. It's a <u>better</u> feeling, I think, in terms of personal accomplishment than the accomplishment in industry where you get a promotion or something like that. Perhaps rightly, perhaps wrongly, I view it as a greater challenge and a more difficult thing to get to, to make, to accomplish, and therefore better if you accomplish it. I think it's harder to reach some kind of reasonable, decent status at MIT than to reach a decent status in an industry.

Sherkow: You're saying the academic setting is more challenging?

Tesoro: Not all academic settings.

Sherkow: This academic setting?

Tesoro: The first-class academic setting is a greater challenge than an industry setting. You have to know different things, and there are some things that you need to know in industry that you don't need at all here, and vice-versa. But overall, I think it's a greater challenge, as I see it.

Sherkow: So do you anticipate, then, in the future, that you will probably be here at MIT?

Tesoro: Yes, if I get myself put together entirely, and if I can continue to produce some useful work here; yes, I hope so.

Sherkow: You briefly just mentioned this commuting problem. In past interviews, again, you've briefly discussed this commuting between New York and Boston. How is that working out?

Tesoro: With a lot of wear and tear, that's how it's working out, in any event. It's wear and tear on many levels! It's wear and tear physically, because it's a long two hundred miles; it's a long commute. It's wear and tear in terms of the time I spend here, normally; not so much now, because I'm a little slower, but normally when I'm here I feel I have to make the most of the time I spend here, and therefore, if I spend two days here I work twelve hours each day so that it really counts, so it's a lot of wear and tear in that sense. It's some wear and tear in terms of the family life, because, obviously, if I'm here, I'm not home. My husband complains--there are no complaints; he doesn't complain. But he doesn't enjoy the business of having to make his own bed or get his own dinner, so there is an element of moderate strain that adds to it. It's expensive, frankly, so it's not an

easy way to live, obviously. I wouldn't do it if I didn't enjoy it, because it's not easy.

Sherkow: Would you ever consider living here in Boston?

Tesoro: I personally would find it very easy to live in Boston, but my husband, first of all, doesn't want to move, and above all doesn't want to move to Boston. You have to establish some priorities, and I don't want to break up my family to move to Boston, so I don't.

Sherkow: Your husband's business is in New York.

Tesoro: He could probably operate out of Boston if he really wanted to, but he doesn't really want to because he doesn't like Boston, among other reasons. Also, we have a home which we built when the children were small. The children are adults now, and they're working and they're independent, but, at least until they have a family, (if they get married, it would be different), the probability that they come home is much greater if they come home to a home they know and a town they know--my daughter likes New York very much--than if we move somewhere else, anywhere else. I'd like that opportunity to exist because I enjoy it when they come home. So by moving, I think we would forego some of that, and I don't want to.

Sherkow: What are your feelings about continuing this commuting between New York and Boston in the future?

Tesoro: I haven't focused on it. For various reasons, I haven't focused on long-range planning. At the moment I think that I'll be here next year, and

I'll pretty much try to operate in the same way I did. If nothing happens, I assume I will.

Sherkow: Are you in a tenured position here?

Tesoro: No.

Sherkow: You're not. But your appointment is not from year-to-year?

Tesoro: No, I have a three-year appointment and this is only the first year. It's renewable. So I don't know what's going to happen. Theoretically, I'm here for another two years, anyway, and then we'll see. But we'll see. The tenure thing is more complicated, because it's much more closely tied to full-time activities.

Sherkow: That's something that you probably wouldn't be able to do unless you lived here? You couldn't do that and commute?

Tesoro: I don't know. I don't really know. I haven't really looked into it. The only thing I can tell you is that they say in Tech Talk and in the various statements that this adjunct professor appointment was a difficult and demanding kind of thing that was--and my gosh, I mean, Professor Richardson showed me a huge file of references, and letters, and statements, and so on--it had to have approval on many levels, all committees, the Engineering School, the Institute, Wiesner, and I don't know what else. So evidently they don't do it lightly. Now they make mistakes, I suppose. As far as I know, they've only made two appointments.

Sherkow: You and another individual?

Tesoro: Yes. They may have made more since; I don't know.

Sherkow: So tenure might be a really difficult thing to achieve.

Tesoro: I don't know.

Sherkow: I was wondering if you could comment on the particular problem of having so few women in science?

Tesoro: Comment in what way?

Sherkow: Why? Do you have any feelings about why that is true?

Tesoro: Yes. I think there are few women, in general, in responsible positions.

Sherkow: In science?

Tesoro: Not only in science.

Sherkow: In anything?

Tesoro: Yes, in anything. I think that's a long-standing problem, and I think it's changing, but I think it takes a <u>generation</u> before it really changes. I just think that every small step in the right direction is good, but overall it will take another twenty years before the change is dramatic. I think the situation of women in science is really a part of that bigger problem. I don't think it's a problem in itself.

There are many reasons. The major reason is probably the upbringing and philosophy of the male population. I would think that's probably the most important reason, not the only reason. I think that women are perhaps somewhat less stable. You hire a young woman and she may get married and move; she may have children and leave. Things of that nature preoccupy the male population greatly. I don't think that even now there is that much concern with the ability of women. That has improved, I think, faster than other aspects, probably because the women who have pushed around a little bit in the last ten years have been capable ones--the stupid ones didn't--so they have created a new impression of competence amongst women which is being accepted fairly well, I think, in many fields. I don't know if all fields, but in many fields. But the number is still small.

Somebody told this story of a woman lawyer who went to a very good law school and was looking for a job, and she got hired by a very important law firm with lots of lawyers. She got hired, and she got a very good job. She got a glass-encased office right across from the receptionist, but she got no assignments, so she was really like a piece of furniture. Anybody who came, saw her, and therefore gained the impression that the firm was hiring women. But nobody bothered to give her anything to do, so she quit. This kind of thing is not as funny as it sounds. There are many people who feel that way. So that's the way it is.

I think the only thing it takes is time. Also, it takes a rational approach on the part of women. I think women have to make their demands in proportion to what they can deliver. I think this is done in some cases, and not in others. In other words, if a woman has the ability to have a particular

responsibility, a particular job, a particular assignment, then she should certainly fight for it. But I don't think she should fight for it just because she's a woman. But maybe you will see the change; I won't.

Sherkow: Do you feel that there is still a lot of discrimination?

Tesoro: Yes, I do.

Sherkow: I would think, obviously--it goes without saying--that some women are getting on the bandwagon just because they're women and maybe they're not so qualified. But I would think that would be a minority.

Tesoro: I don't know. It depends on the fields, and certainly that would be a minority at MIT; it would be a minority in any first-rate institution, but it's not necessarily a minority everywhere. I think there is still, on the part of the people who make decisions, a lot of reluctance and a lot of prejudice, you might call it. Maybe I'm wrong.

Sherkow: I personally don't think you're wrong. I think there's a lot of attitude change that has to take place.

Tesoro: Probably less than there was ten years ago, five years--much less.

Sherkow: I think it goes without saying again that there are improvements, but you have to say, "How far do we have to go from here?"

Tesoro: Yes, right.

Sherkow: I think there must be a lot of attitudes that have to change on the part of a lot of people; not just men, some women, too.

Tesoro: Yes. The women have to learn to accept and fight, constructively, for the things that need to be fought [for].

SHerkow: This is the end of this particular side.

Tesoro: I'd rather not go on because I have a lot of things to do, and I don't want to drag [out] the day too much. I want to leave fairly early.

--[END OF SESSION]--

MIT ORAL HISTORY PROGRAM

Project on Women in Science and Engineering

Interview with Giuliana Tesoro by Shirlee Sherkow

Cambridge, Massachusetts May 19, 1977

Session 6 transcribed by Beth Gould

Sherkow: You have a great number of patents, and you've previously discussed some of the research work which has culminated in patents. I was wondering now if you had any additional comments about that. You're the only interviewee who has that kind of information; it seems to be a little bit different from the average person.

Tesoro: It is the result of working in industry for long years. In industry, the encouragement is much more geared to patents than to scientific publication. This is obviously not true in an academic environment. Also, obviously, like in all other instances, it depends on the particular individuals in industry who are making the decisions. I happened to work, at least for one period of time of ten years, for an executive who was very conscious of the value of patents to the company and, therefore, prone to encourage any kind of work that led to that kind of result, so it's a matter of having the opportunity, and it's obviously a matter of using it, too.

Now, patents vary greatly in quality and some of the patents one sees are really very poor as technical documents; they may be valuable, but they're very poor as technical documents. Others, instead, also may or may not be valuable, but they're very reasonable documents and rather close to the kind of document that a publication would make, so my own feeling about patents has always been that if you wish to count them in your professional baggage as part of your accomplishment, they have to be decent documents; they can't be just left to the attorneys to build on something. So I've always tried, at least, to make these acceptable from the viewpoint of technical accuracy, from the viewpoint of contents, and so on and so forth. I think they are. I don't think that's the kind of thing that's necessarily obvious to people who are not in the particular field, but that's the way it is. So not only am I not ashamed of them, but I'm not reluctant to have people look at them even if they want to look at the kind of work I've done, because they reflect it rather reasonably well. I mean, obviously they're not long-range, and they're not fundamental because it's not the nature of patents to be, but they are adequate descriptions of new work.

Sherkow: You've also had a number of publications.

Tesoro: Yes. I've always felt that in order to build a professional reputation which has to do with your own personal accomplishment and knowledge and so on, you have to publish something other than patents. But the patents have been primarily for the pleasure and for the profit of the employer. But whenever possible and permitted, I think technical

publications of a different nature are very important. I've had a reasonable number of these. Not many, but a few are review article type things, and a couple of encyclopedia articles, and things like that, but most of them are results of my own work which were published after the company had gotten its patent protection, after a patent was applied for, and so on. I have a few--not many now, but some that I publish, as well.

Sherkow: I just think your vitae is very impressive. You have over a hundred patents, and you have four pages of publications; I think that is impressive. I don't know how to compare it to anybody else, but I guess most of the other people I've interviewed are purely academic types and they have a number of scientific publications, but you certainly rival the number of publications that they have. So in addition to that, you have these hundred or so patents; it's very impressive.

Tesoro: The quality is what counts, obviously, but if you publish in reputable technical journals you are subject to a review process. You can't publish junk. There are some journals that publish junk, but most of the people you'd be talking to would avoid those. A reputable journal generally only publishes something that has some merit; I mean, obviously, the opinion can vary. Some people may think it's not great and some people may even think it's bad, but it has to have some merit before some of these journals accept it. Publications in that sense are always a good yardstick of what one has accomplished.

Sherkow: You have two books in the process of being published?

Tesoro: No, one book that's now published; your vitae is probably out of date. That book on flammability has been published by the MIT Press; I think it was January of '76.

Sherkow: What are these last two, Journal of Pure and Applied Chemistry?

Tesoro: That has been published, also. That's a paper which I gave two years ago at the International Congress on Macromolecular Science in Israel, and that has now been published.

Sherkow: And this last one, The Journal of Applied Polymer Science, has that one been published?

Tesoro: Yes, that has been published but I haven't seen it. I found out that it has been published because I've had requests for reprints, but I haven't seen it because I don't subscribe to the journal and I don't see it regularly. So I'm going to go look at it tomorrow in the library, or today, if I have time, and get myself some xerox copies. I have the reference from the people who have asked for reprints.

Sherkow: You've also received a few awards. I was wondering if you could just briefly indicate what these awards signify and any other comments you'd like to make. The first one was in 1959, The American Dyestuff Reporter Award.

Tesoro: That's a very unpretentious award given by the technical journal. The contents of the journal have not changed, but the ownership has changed and I don't really know who's publishing it now. That journal aims at the textile industry and prints technical papers that have to do with textile

coloration or finishing; that is the field it covers. They used to have this award for the best paper of the year. They would give a plaque and diploma for the best paper of the year, once a year, and that's one of them.

The more significant one is the Olney Medal, which is given in the same kind of field but which is a rather prestigious kind of award; if you look at the list of the people who have gotten it, there are people you like to--good company. It is supposed to be for accomplishment in the field without any specific connotation or any special reference to a piece of work or another. It's given once a year. There's a committee who looks it over, people who recommend it, and the selection has to be unanimous. So presumably, this committee--I don't know how many people there are on it--has to agree that the person they give it to is worthy.

Sherkow: What did you get it for?

Tesoro: I didn't get it for anything in particular.

Sherkow: But for your work in what field?

Tesoro: In finishing, I would say; in textile treatment, modification of fibers--fiber chemistry, you would call it. I got it--when was it? '63?

Sherkow: 1963.

Tesoro: That's it. I got it. I've got a gold medal in a drawer at home.

Sherkow: Gold medal. Was that when you were at J. P. Stevens?

Tesoro: Yes. I was at J. P. Stevens in '63.

Sherkow: The next thing I wanted to talk about was, you have a rather long list of board and committee work. I was wondering if you could just very briefly discuss what work you did in each one, and then maybe comment about your feelings about your own contributions to the committee or the board, and then maybe just simply what the committee or the board normally does. The first one was the Fiber Society Lecturer, from 1972 to '73.

Tesoro: I've been active in the Fiber Society, which is a very small scientific organization; I think there are three hundred, four hundred members, not a large group at all. It's a professional scientific organization which includes people in the field of fiber science with any discipline, physicists, chemists, engineers, etc. Membership has to be supported. You can't just join and pay the dues. You apply and there is a group there that decides whether you've published enough and whether you're good enough to be a member. It's not a big deal, but it's screened. I've been president of that society, in 1974.

That society has some activities that deal with the dissemination, you might say, of fiber science in various places. One of them is this Fiber Society Lecture. The Fiber Society people select one and sometimes two individuals, who go to various universities and lecture on one or more topics. Usually the topics are selected previously. The letters are sent out to the universities, "Do you want a lecture by this person on this subject?" If the universities say yes, then a lecture sequence is arranged. The year I was a lecturer, I think I gave six or seven over the academic year. They

like to have more than two or three, but certainly not more than ten and preferably less, because nobody's got time to run around. That's what I did. I lectured at the University of Maryland. I lectured at North Carolina State. I lectured here; I was not with MIT then, but did give a lecture here. At Georgia Tech. I don't remember the others.

Sherkow: What did you do in the year that you were president of the Fiber Society? That was actually the next year, 1974.

Tesoro: I was at MIT then. I was president of the Fiber Society and tried to fulfill my duties as president. It was very minor, actually, because the conferences are organized with the aid of program chairmen and technical program committees, so the president is sort of a policy-making person. Twice a year the Governing Council meets and the president listens to nominations for membership, selection of sites and programs for the annual conference, things like that. It is just a professional society activity without great pretense. The important thing about the Fiber Society is that it includes people from many disciplines. It's not all for chemists or all for physicists, and that, I think, is unusual.

Sherkow: Are you still in this society?

Tesoro: Oh, I'm still a member, yes. I'm still a member of the Governing Council, in fact, because outgoing presidents remain in the Governing Council for a year, or something like that. It's all part of the bylaws.

Sherkow: You had to be elected by the general membership?

Tesoro: Yes. What happens is that they present a slate of president, vice president, Governing Council members, to the business meeting and then the people vote.

Sherkow: You are also a member of the Editorial Board of the Textile Research Journal.

Tesoro: Yes. They asked me to do it and I said yes, and now I do it. It consists of reviewing papers that are submitted for the journal and answering questions if they come up on policy matters, things like page charges, and things like that. But the major function is to screen the papers that are submitted for publication in the journal.

Sherkow: This next one I think is interesting. From 1973 to the present, you've been a member of a particular committee of the National Materials Advisory Board (NMAB) of the National Academy of Sciences.

Tesoro: Yes. That would finish its business this year, that committee. It's been a very long time.

Sherkow: What does that consist of?

Tesoro: The National Academy of Sciences has committee groups that meet and study certain specific topics and write reports on those topics as a public service. This particular committee is unusual in some respects--I'm just a member of the committee--one being that it will wind up with ten reports on ten different aspects of this problem which is really a big--that's why it took so long. The other is that the chairman of the committee is Dr. Mark,

who is a very well-known polymer chemist. He's old; he's eighty-two, but he's as active as much younger people are. He's probably the founder of polymer chemistry and polymer science, so it was a very distinguished kind of committee because of the chairmanship and also because of the membership. The membership was really very good as far as the people in the field were concerned.

Sherkow: What problem were you discussing?

Tesoro: Fire safety of polymers. Four of the reports are currently being printed, and the others are supposed to be done by the end of the year. I haven't done much in the last six months on that committee, but I'm still with it. They're having a symposium in Washington the first week in June, presenting some of the findings. I want to show you this. That's the symposium. These are the sponsoring organizations. This is the program.

Sherkow: Are you going to be a speaker?

Tesoro: I'm going to be chairman of one session; I'm not going to be a speaker.

Sherkow: That sounds like it has involved a lot of work.

Tesoro: Yes, that involved a lot of work, and very slow. The review was spread out over a long period of time, but a lot of writing, a lot of editing, a lot of discussion. Then every six or seven weeks the committee had a meeting of two days. That, in itself, is a fair amount of time.

Sherkow: That's in Washington, D. C., isn't it?

Tesoro: Many meetings were in Washington. Some of them were elsewhere for specific reasons, to see a research facility or a piece of work that was going on, or something of that nature. So I've been traveling with that committee, some.

Sherkow: What are polymers? I probably should have asked you that before.

Tesoro: Polymers are big molecules.

Sherkow: When you say "fire safety of polymers"--?

Tesoro: Polymers are all over, because polymers are, for instance, the clothes you wear, textile fibers are polymers; plastics are polymers; wood is a polymer; meat is a polymer.

Sherkow: Everything is?

Tesoro: Not everything, but many things. They are large organic molecules, essentially. To get an accurate description is complicated. But as a field of chemistry it began in 1930 or in the early 1930s. So it's a relatively new field--a fantastic technology; just fantastic technology, and new materials in this period.

Sherkow: Which ones were you studying?

Tesoro: All polymers, in principle, in that committee.

Sherkow: From clothes to tables?

Tesoro: Yes, in principle, all polymers. Now, actually, you cannot go into detail, but as a general use category, all polymers. Not foods, because they obviously present no fire hazards.

Sherkow: Were you focusing on clothes?

Tesoro: No, focusing on fire. Fire hazard. Flammability and fire hazard.

Sherkow: You've really been very involved in fire topics.

Tesoro: Yes, in the last six or seven years.

Sherkow: How did you get into that?

Tesoro: A lot of people did. It became a very important concern in the country, and it became a very important field. It turned out to be a field about which relatively little was known, so that there was plenty to be done.

Sherkow: You just got into it.

Tesoro: Yes. It was a matter of interest. Just like now, there's a great deal of interest in health and safety. There are these cycles in the technical world and you just--depending when you live--get involved in one or the other of these things.

Sherkow: You're still involved in safety aspects, aren't you?

Tesoro: I'm still involved in the fire aspects. I've tried to remain involved in other things because I didn't want to become too specialized. I didn't want to know more and more about less and less, until I knew everything about nothing. But I still have a fair amount of work going in flammability and fire.

Sherkow: In fact, I saw something on TV the other night about children's pajamas and how it caused cancer. They're talking about it.

Tesoro: They banned it.

Sherkow: They did?

Tesoro: They did more than talk about it, they banned it. That's a very long story, though. I don't think we've got time to go through the details, but I'm very familiar with it. There are a lot of philosophical questions attached there, but I don't think we should get into that.

Sherkow: Yes, I just wondered if you had been involved in that area at all.

Tesoro: Yes, I've been involved in terms of working with it. I've been involved in terms of following it. I am still involved, in a sense, in terms of considering alternatives. I still believe that there are scientific aspects of that question that ought to be answered that have not been. I would like to have the opportunity to study them, but whether I will or not depends on whether I can get money.

Sherkow: Are you involved in any food studies?

Tesoro: Yes. I'm participating in a project in the Department of Nutrition and Food Science that Professor Cho Rha is principal investigator on. I'm involved even though the original project was conceived as being much broader than it is now. We didn't get that much money; we only got a fraction of it. So by narrowing it, my contribution has become smaller because if you narrow the projects you've got to deal with the major objectives. So I haven't done

very much--even aside from being sick. Maybe I'll get the opportunity to do more next year.

Sherkow: Are you at all familiar or involved in this saccharine controversy?

Tesoro: I'm familiar with it; I'm not involved.

Sherkow: It's a big issue.

Tesoro: Yes, it's a big issue, and it's part of this concern with health and safety which is very widespread at the moment.

Sherkow: In 1974 you were also a Fellow of the Textile Institute of Great Britain.

Tesoro: Yes, I still am. That is a lifetime honor, I guess, if you can call it that. I mean, it's sort of like the Fiber Society, only it's British. It's similar in concept in that you cannot join just by paying the dues, but it is probably more selective and prestigious in ways. Yes, I am a Fellow of the British Textile Institute.

Sherkow: What does that mean?

Tesoro: Nothing.

Sherkow: Are you involved in any committee work?

Tesoro: No, I'm not.

Sherkow: It's just an honorary kind of thing.

Tesoro: It's just an honorary kind of thing; it really doesn't mean that much.

Sherkow: Also in 1976, you were a member of the National Materials Advisory Board (NMAB) of the National Academy of Sciences.

Tesoro: Yes, I was elected in 1976, and that's a three-year term, actually. Incidentally, I'm the first woman ever on that body.

Sherkow: Really?

Tesoro: But that is also a prestige kind of thing. It's an honor. I have to go to their meetings. They have meetings twice a year. In principle, they oversee the committee work of the Academy, so that to some degree that body of NMAB supervises all of the committee activities and decides--There are quite a few people from MIT, by the way--Professor Walter Owen is a member of NMAB. And there was one other person, with the Lincoln Lab, I believe, but I do not remember the name.

Sherkow: As I understand it, the National Academy of Sciences isn't very good about having a number of women in their membership.

Tesoro: No, they have no women members. There are a few women on their staff. The staff scientists I have met have all been men, which doesn't mean anything because that happens in a lot of places. I don't know whether they have staff scientists who are women or not, because I've only met staff scientists in conjunction with my activities. As far as the committees, yes, I think there were a few women on that committee I was on. As far as the National Materials Advisory Board, as I mentioned, I was the first woman there.

A very conservative group of people, and a very--how should I say?--very conscious of their national role. They feel like they're asked to advise on matters of national interest only. Strictly speaking, it's true. In fact, some of the things they produce are outstandingly good, and some of the things they produce are terrible. Ultimately, it all depends on who is on the committees and how hard they work.

Sherkow: Now the last one that you had down here was Co-Chairman of the American Association for the Advancement of Science (AAAS)-Gordon Research Conference.

Tesoro: Yes. That's this summer, in August of '77.

Sherkow: It just said '77, so I didn't know when.

Tesoro: The previous conference on this topic was in '75 and they nominated chairmen for the '77 conference: John Lyons and myself. We will chair the 1977 Conference. We've been responsible for putting together the program. We will be responsible for going through the applications and accepting the ones who should be accepted. Then we'll be responsible for running the conference. That's it.

Sherkow: Is that going to involve a lot of work on your part?

Tesoro: Most of the work was getting the program together. Then there's the week in New Hampshire, where the conference actually takes place, and you've got to be there.

Sherkow: And it's on polymer combustion?

Tesoro: Yes.

Sherkow: That's the fire again.

Tesoro: Yes.

Sherkow: I think it's really important work. When you actually think about it, it is a potential safety hazard, obviously. It's fire.

Tesoro: Oh, it's not potential; it's an actual hazard.

Sherkow: It's a devastating one, too.

Tesoro: There has been a report in 1973 of a national commission appointed by President--Nixon, I guess it was--on the problem of fire, called "America Burning." --[Interview interrupted]--

Tesoro: This document brought on a considerable amount of activity in the government and, obviously, outside the government, and stimulated increased effort. If anybody wants to read about the fire problem in the United States, that's a good thing to read. It's not scientific. It's policy-oriented.

Sherkow: Did you say 1963?

Tesoro: '73.

Sherkow: Because I was going to say that Nixon was not in, in 1963--'73, yes, that would be Nixon.

Tesoro: Yes, he was elected in '72.

Sherkow: Yes, right, and was kicked out in--

Tesoro: Lasted until '74.

Sherkow: He didn't last too long, did he?

Tesoro: Oh well, he had been there four years before.

Sherkow: Then you've also been in a number of professional societies. From speaking to other interviewees, I know that a lot of professional society work is typical and normal and average, and there isn't anything, sometimes, special that people do. You've been in nine, actually, professional societies. Could you briefly say if there's anything special that you'd like to say about any one of those? You don't have to mention all of them.

Tesoro: Some of them we talked about. The Fiber Society we talked about. The American Association of Textile Chemists and Colorists again, is the one with the medal. But really, there is really nothing much that needs to be said. These vary in size and scope. The American Chemical Society has 15,000 members, or something like that, but the ones I've been active in have been the ones we've mentioned, plus the Information Council on Fabric Flammability, which is obviously very specialized. I have not been active in the major national societies' committees, or anything like that, recently.

Sherkow: So you've been active in the Fiber Society?

Tesoro: Yes, in the Fiber Society, the American Association of Textile Chemists and Colorists; the Textile Research Institute; the Information Council on Fabric Flammability, I've had some activity; but there is really no reason to chat about them. Whatever I've done, anybody else could have done, too.

Sherkow: Well, that's probably not true.

Tesoro: Yes, yes.

Sherkow: What would you classify as being your recent independent discoveries and your fields of specialization? I mean, right now--the last year or two.

Tesoro: Oh, gee. I don't know.

Sherkow: You say "I don't know" because there are so many?

Tesoro: No. I don't know, because the kind of work that I've done in the last couple of years has been much less directly pointed at, discoveries and things of that nature, and also has been much broader because any interdisciplinary work I'm doing here includes a lot of work which is not my field which I know very little or nothing about [and] where my contribution is only a segment of the total. So it's very hard in terms of realistic statements to summarize. I think that the interest in fire, and the interest in fibers, and the interest in polymers is still with me, but I don't think it's easy to go beyond that.

Sherkow: For instance, this biographical sketch that the Historical Collection has put out on you lists about six areas that are your specializations: organic intermediates, surface--

Tesoro: I don't work in organic intermediates now, obviously.

Sherkow: --surface active agents--

Tesoro: I don't work with surface active agents now. That is, I did for many years; my knowledge in that field is reasonably good, but I'm not active in that field. If I were active in that field, I would start not from zero, but from a lot of experience. But I'm not now working in that area.

Sherkow: Polymers.

Tesoro: Polymers, yes. That remains, I think, as a major field of interest.

Sherkow: Then chemical modification of fibers, flammability, and fire retardants.

Tesoro: Right. Those are the more recent ones.

Sherkow: I have some questions that relate to women, partially because of the nature of the project. I wanted to, first of all, ask you about the situation for women in industries. What is that like? I know that it's been a little while since you've been in industrial work . . .

Tesoro: Yes. I don't know how much has changed in the last three or four years. I really have no way to gauge that. I suspect that while the numbers may have changed, the underlying philosophy hasn't changed all that much; but I don't know for a fact. My impression is very, very simply that in any industry, in any group, in any situation, the fate of a woman is going to depend primarily, surely, if not entirely, on the one or two or three people she deals with, and the boss. If they are progressive and relatively young, or relatively oriented towards allowing women to have their opportunities

then she'll be doing reasonably well. If, on the other hand, she is dealing with a conservative group, or conservative individuals, then she's going to have lots of trouble and it's going to be difficult, because it's not going to be trouble that she can see, measure and object to; it's going to be much more subtle than that. This, I think, has been the major problem in the last five, seven, eight years, that on the surface a lot of things have changed, but much of that change has been perfunctory and not really with conviction. There are exceptions; there are situations that are very good; there are opportunities that exist today that did not exist ten years ago, there's no doubt about that. But I think it's all changing, and I think it's changing very slowly; and I think as the people who are there now are replaced by new people with the passing of time, it will get better and better. But I think that it'll take another twenty years.

Sherkow: Another individual that I am interviewing is in industry and always has been in industry, and she is an engineer who graduated from MIT in metallurgy. She has felt a lot of discrimination, herself. She feels it is changing, but I think she would agree with you that it's very, very slow.

Tesoro: Very slow. But it's got to be slow, because the people who aren't with it and don't agree are not going to be convinced from one day to the next because there's a program on television or an article in a magazine. I mean, they're going to do what they have to do, as they usually would. If they are honest and intelligent people, then they try to comply, but until they're gone and there's a new batch, it's not going to really change.

I don't think women are likely to encounter any nasty or warlike atmospheres. I don't think so, frankly.

Sherkow: Well, I'm not sure. --[Interview interrupted]--
She has been active at Ventron, which is in a conservative community of Beverly. I don't think she would use the word "nasty," but she was the first woman manager there, and some of the men still don't accept her. She's been there a couple of years. I don't think they're nasty; they're just not nice. Some of them just don't like the fact that she's there; but then, some do, and it's okay with some of them.

Tesoro: The individual position makes a lot of difference. What I have found in my own experience is that even the most progressive, and even the most sincerely open-minded people, when it comes down to the crunch, have some reservations. It's not something that you can accuse them of, because I'm talking about the best, now; I'm not talking about the ones who are problems. They may be trivial things like "you can't ask a woman to travel"--they may have to do with detail, or they may have to do with substance, but they're still there.

Sherkow: Yes. What do you think might change this kind of attitude?

Tesoro: Time.

Sherkow: Just time?

Tesoro: Time. Also, I'll tell you frankly, I think women can change it, but I think women have to be objective and realistic in their attitudes, and

I think women can interfere with change if their approach and their demands are in any way wrong. I think women have to get all the opportunities they should get on the basis of merit, on the basis of accomplishment, on the basis of what they do, what they know. If they try to gear their demands only to the fact of being women, I think they're going to wreck it.

Sherkow: You mentioned this last time, and I was thinking about that comment. I personally don't feel that the majority of women who are filing suit against companies or really demanding in some way to be elevated, are unqualified. I think a minority may be jumping on the bandwagon and saying, "Because we're women, we've got to get ahead," and doing things like that. But from everything that I've read, from Ms. to other things that I've read, and people I've talked to, I think it's a minority of women who are doing it the wrong way.

Tesoro: I don't know if it's a minority or not. I think it might well be a minority in the intellectual group, in the educated, and the people who have had exposure to--[Interview interrupted]--

Tesoro: It may well be, but I don't know if you could generalize and apply this to--

Sherkow: Have you come across a large number of women who do feel this way?

Tesoro: No, not certainly a large number. But I'm basing what I say also on what I read. I may not read the same things you read. What I read, what I hear--it's very easy to say that I got fired or I didn't get promoted because I was a woman; if I weren't, I would by now be chairman of the board.

There's nothing easier than to say that. I have very little in the way of judging whether this is reasonable or not.

Sherkow: Right. Unless you know each and every woman's qualifications.

Tesoro: Yes, which I obviously don't.

Sherkow: Could you comment on MIT's interest in getting more women into every level of the organization, from graduates to undergraduates to professional people--?

Tesoro: I don't know anything specific about it. I've heard about it. Some people have talked to me about it. Conceptually, what they want to do is fine. Whether they'll do it, that I don't know. I don't know enough about the goings on here at MIT to--

--BEGIN TAPE ONE, SIDE TWO--

Tesoro: I have no way of knowing how MIT pursues this, and how strongly and how effectively, I don't know. I just don't know.

Sherkow: What about in this department?

Tesoro: In this department I've talked to Professor Richardson, and there are other people who have occasion to talk to me and say that he wants to encourage women on all levels. But what he does about it, I don't know. I'm just not sufficiently in, in terms of activities at the Institute, to have any yardstick.

Sherkow: Are there a number of women in your courses?

Tesoro: No. There are very few in the department. There are some students; I forget how many, but that number is available. I don't know how many there are. I guess there's no faculty.

Sherkow: In Mechanical Engineering?

Tesoro: Yes. No women faculty, other than myself.

Sherkow: I don't know. I thought you were the only one.

Tesoro: I don't know. There was one who left, and I don't know, offhand, whether there was another one or not. I haven't been to any faculty meetings in a long time.

Sherkow: I've done a lot of background research in engineering, and one of the topics that kept coming up, over and over and over, was the statement that engineering is a masculine profession, and that's one reason why women don't want to be in it perhaps as much as men do, because they conceive it as a male profession and their parents conceive it as a male profession, and from Day One they don't conceive it as something they really want to do. You've been in the Engineering Department now for a few years. Do you feel that there's any validity to that kind of comment?

Tesoro: I think it's true that it's been seen as a male profession, whether correctly or incorrectly, I don't know. Whether it's subject to change and revision, I don't know. I don't see any reason why a woman engineer, if she's good, couldn't do as well as a man engineer. Many, many applications

are much more likely to think of a woman as an engineer than as a West Point cadet. I mean from the viewpoint of stamina, from the viewpoint of physiological response to the demands of the work, that's a stupid thing. Or a truck driver. I mean, there's nothing wrong with a woman driving a truck. It's just that if she has to change a tire on a truck, it can be sort of hairy. But maybe that's the effect of tradition, or the way I was brought up. Maybe it's not so. I believe that there are some professions that make more sense for men, and some professions that make more sense for women.

Sherkow: But that wouldn't be true of engineering?

Tesoro: No, not particularly of engineering. But I think that this is a valid distinction, and not necessarily discriminatory.

Sherkow: But you're talking about blue collar jobs. You're not talking about the academic world, are you?

Tesoro: Yes, I'm talking about blue collar jobs or white collar jobs, even, because if you talk about a baby nurse, it makes more sense for a woman than for a man, which doesn't mean a man couldn't do it. It means that in general, the percentage of women who can do it is greater.

Sherkow: How about being a secretary? Anybody can do that. Why does it have to be women? It's 99.9% women. I think a nurse is different than being a secretary.

Tesoro: That's the way it's been. And I think men like it that way.

Sherkow: Yes, and I think women don't like it. I think a lot of women like

to be secretaries, and I think a lot of women who are secretaries would prefer to be in management or on a different level.

Tesoro: Yes. And some would be perfectly capable of doing so, and some not.

Sherkow: Obviously, depending on the individual. I agree with you in terms of certain blue collar jobs; I can see a guy who's 6' 4" and weighs 250 pounds could change a tire a lot better than a woman truck driver. But I'm not sure that that goes for a lot of other jobs; especially in the academic world, I think women can do anything men do.

Tesoro: Yes, in the academic world, I think women can do anything. In order for a woman to do a job effectively, she has to do it in an environment where the prejudice is overcome; otherwise, she's so busy fighting the prejudice that she can't do a decent job.

Sherkow: So MIT's a good place, because there is a lot of support for women here. Other places, it might not be so good.

Tesoro: Right. But it has to be a place where--for instance, a professorship, where the woman has encouragement from bosses and from students and from everybody else. Otherwise, it doesn't work.

--[END OF SESSION]--

MIT ORAL HISTORY PROGRAM

Project on Women in Science and Engineering

Interview with Giuliana Tesoro — by Shirlee Sherkow

Cambridge, Massachusetts — June 14, 1977

Session 7 — transcribed by Beth Gould

Sherkow: One of the things that I wanted to ask you about was J. P. Stevens. You worked there for ten years.

Tesoro: Yes.

Sherkow: I've just been reading a lot of information about the boycott of J. P. Stevens. Are you familiar with that?

Tesoro: Yes. That has to do with their labor policy.

Sherkow: I was just wondering what your opinion was about that?

Tesoro: That situation started when I was working there, actually. They had a couple of occasions, I think, where there was voting in some of the mills as to whether to join the union or not. Of course, management was hoping that the voting would come out "no" and some of the people were hoping that the voting would come out "yes." At that time I was fairly close to

the issues. I'm much less so now, and I'm much more influenced by what I read in the papers now. My impression is that, as is often the case, the issue is not that clean-cut. I think the claims that the company is exploiting the workers and mistreating them are probably excessive. I've seen the mills. I have seen the workers. I knew then what their wages were and I felt that they were not necessarily mistreated or exploited. On the other hand, however, there are certain philosophies or policies of the industry as a whole, Stevens is one--Stevens is no different or worse than any other company. It was picked as an illustrative case, and so on. There are certainly some policies that could be better and that are not really very progressive or very advanced, and so on; so it's a kind of a round about way to say that things probably lie somewhere in between. But I think that both sides are probably polarized and aggressive to a degree that is not required.

When I was with Burlington there was a group of people giving talks about how awful the unions were, and they went and gave talks to various groups. They went to the plants, but they also went to the R & D group. I thought their posture and the level at which they pitched their presentation was absolutely awful and just terrible. They were talking about all the wrong doings and the bad things that the unions did. Obviously that had to be their position, but they were really treating the audience as if it was made up of morons or second-graders, and exaggerating, I'm sure, the things that the unions probably did that were wrong; nobody's perfect, and I'm sure they had their share of stupid and violent and unwarranted things, but the way in which they presented it was certainly not, I think, informative.

I'm not an extremist, certainly, on either side. I think that if the employers do not provide a fair and reasonable environment in which to work then the union demands are fully justified. It's a matter of opinion as to just how close the employer comes to providing that. I didn't really answer your question, but it's very hard to generalize.

Sherkow: Since you worked there for ten years--

Tesoro: I frankly feel that Stevens, as an employer, is more human--not progressive, but more considerate of the employees' needs than, for example, a place like Burlington. That's my opinion. That's based on my own experience and my observations. And I may be wrong but that's because Burlington, I think, has 80,000 employees and Stevens has 65,000, so I'm a long way from knowing any number of them. But on the other hand, that's all I've got to go by.

Sherkow: Last time we had just begun to talk about some women's issues, and I wanted to finish talking about those kinds of things now. I was wondering how your ideas about women's rights have evolved over time?

Tesoro: They haven't. My ideas about women's rights are very simple, and they are not really valuable in terms of detail or in terms of philosophy. My idea is that women are people, that there are good ones and bad ones and smart ones and dumb ones like there are in everything else; women are entitled to be considered as people, and they're entitled to be considered for their abilities, their personalities, their contributions, for whatever operation or institution or job or academic standing, or whatever.

They're often not. That's a fact. Also, however, it is a fact that they often demand to be considered only on the basis of being women without adequate consideration for what they can contribute or produce, and that's wrong, too. That's straightforward, as far as I'm concerned. Whether they want or do not want to be at West Point is a quirk, as far as I'm concerned. In today's society it doesn't make any sense for a young woman to go to West Point. If she wants to go, she should be allowed, but it is not a reasonable desire in a society that's not geared that way. And society changes slowly, and maybe twenty years from now things will be different.

Sherkow: Are you a member of any national organizations or local organizations that deal with women's rights?

Tesoro: No. As I said, I'm not a radical. I am very conscious of rights and opportunities as they apply to women and every other minority, but I do not really feel that special privileges--perhaps opportunities should be stressed to allow the period of time of evolution to be shortened. But opportunities is a different thing from privileges. The opportunities should be presented, but I think there are obligations as well as rights, that's all. That's not a very popular position, I can tell you that.

Sherkow: Really?

Tesoro: Yes. There are people who feel much more strongly on both sides. This particular fairly moderate--and fairly rigid, in spite of being moderate--evaluation is not common. I don't know if it's good or bad; it's just the way I feel.

Sherkow: How do you feel about the women's movement in general?

Tesoro: I don't know very much about it. I only know what's been presented in the press. I have scanned but not read many of the books that have been published. I have very limited participation or sympathy or involvement, and, therefore, my judgment is likely to be very superficial. What I have read tells me that many of these things are presented as being black and white issues, either it's this way or it's that way, and that's a lot of baloney.

There was some story in the New York papers--maybe two years ago, about women not having reached executive positions as magazine publishers or some professional and perfectly non-controversial activity for women. I mean, it wasn't truck drivers. It was writers. I read that thing and it was incredible. These women were asking for being vice presidents or being in very high positions without any consideration as to whether they were qualified or not, and I think that's a lot of baloney. You cannot make a woman a president of an organization if she's not capable of being a president, any more than a man. Now, the fact that one is more likely to find that men are given the positions without being qualified than women; that's also true. That's got to change. But my brief would be for qualifications being the paramount consideration. That's the way it goes. I know it sounds wishy-washy. It's not, really. As I say, it's not a popular view. It's not a common view. But that's the way I feel.

Sherkow: Do you feel there's a trend towards real positive changes for women in chemistry, industry, engineering, the areas that you would be familiar with?

Tesoro: Yes, I think there is, but I think it's very slow. I think it's much slower than people are inclined to think. Much slower. Because I think a whole new generation of executives has to come in before the change is really felt. There are small islands of change. But before the change has a drastic effect, you have to see a transition in the group of people and the specific people who lead. They have to be not necessarily women, but they have to be oriented toward a philosophy that is different. It's like wearing a tie at work. Twenty years ago it was a must in most places; now it is not. It took awhile. Some of these things change, but they change very slowly. I think this will change. I think it's changing; I think it has changed; but I think before the change is dramatically evident, it will take more time.

Sherkow: Did you personally ever experience differences in salaries with co-workers who were men or women?

Tesoro: I do not think so. It's hard to know because I've never made it my business to find out what my co-workers were earning. I was always concerned with what I was earning and whether that was a fair amount of money for the job I was asked to do. I never really got into what male co-workers in similar positions made, so I don't really know. But I do not think so. I think that by and large, I did not suffer financial inequities.

Sherkow: How do you feel that we can tackle the problems for women in science?

Tesoro: I think starting with school. I've given that a lot of thought. A

big step was certainly the coed colleges. I think that was a very important step, not because of the social aspects of it, but because the opportunity became more evenly distributed. I have a daughter who went to Princeton. I don't know that she couldn't have gotten a comparable education elsewhere, but if she wanted to go to Princeton, she should have the chance to go. So in that sense, I think it was very important, equalizing opportunities for education. As a consequence of that, the job opportunities also were affected to some degree, so I think that was very important.

I think that the rest will come as women grow up with slightly or greatly different views of what a woman's role is in a professional life. I don't think that necessarily conflicts with what a woman's role is in a personal sense. I think that that is something that's got to be worked out too. But I know there's a tendency to say either a woman has a family--in general; there are many, many exceptions, but in general--either a woman wants to get married and have kids or she wants to work. Well, why? It takes a lot of effort to do both, but it can be done. Men have to participate in that change because otherwise it can't be done. Nothing can be done one-sided.

Sherkow: Do you feel that that's happening; that change is taking place in both men and women?

Tesoro: It's taking place slowly and less slowly in women than in men, so that takes awhile. That's the path of least resistance. It's convenient. It's much more convenient for men to feel the way they've felt for the last fifty years or a hundred years, but even if you look at that, it's very

different from the Victorian Age. So changes do occur; they just take a long time.

Sherkow: I don't think there's any question that things are better.

Tesoro: Oh, I don't think there's any doubt.

Sherkow: And I think things will keep getting better.

Tesoro: Yes.

Sherkow: But I think you're right that people hope that things would be happening faster than they really are.

Tesoro: I really feel strongly about this: small people are to some degree unwilling, even women are to some degree unwilling, to make the effort it takes to make things better. The effort it takes is not to go shout in a public meeting; I don't consider that either an effort or very useful. I think the effort it takes is, once you have the opportunity to take it, to do the job, to talk, to select the kind of people you're talking to, to advance your ideas in a subdued--if you wish--but in a very honest and sincere way, and perform. I think it takes a long time. It takes a lot of effort. I think people are generally lazy and therefore it's taken longer than it might.

Sherkow: Do you feel that the passage of the Equal Rights Amendment would be helpful?

Tesoro: It probably would, in the long run, be another step. I think it's probably a way to get at certain strata that are not easily attacked

in any other way. When we talk about a professorship at MIT, or even admission to school at MIT, we're talking about a social group that is fairly select. It's not common; it's not run-of-the-mill. The lower you go in the intellectual and cultural level, the more difficult it becomes to make certain progress. I think something like the Equal Rights Amendment is very useful in that area. I personally don't feel very strongly about it, but I'd like it to pass.

Sherkow: I don't know if it's going to.

Tesoro: I don't know if it's going to, and I don't get excited about it.

Sherkow: It passed here, in Massachusetts.

Tesoro: Yes. It didn't in New York.

Sherkow: It did and then they had another vote and they repealed it. That's too bad.

Tesoro: That surprised me. I consider New York more advanced than many other places. Not necessarily more advanced than Massachusetts, but more advanced that a lot of other places.

Sherkow: Yes, I know what you mean. When it fails in a place like Alabama, you understand.

Tesoro: Yes, but it fails in a place like New York, it has no chance in many other places. That's what I'm saying.

Sherkow: Do you feel that women scientists could use some kind of a national

spokesperson?

Tesoro: No, I think not. I think the government has done relatively well in hiring competent women for very responsible positions in government agencies. I know specifically of some who have been--or are--in very high positions in government agencies. There is one commissioner (or two) in the Consumer Products Safety Commission. The head of EPA is a woman. There was an Assistant Secretary of Commerce who was a woman. So there are women in really high positions in the government; the government has done well, and for obvious reasons has done well in going out and looking for them and finding them. I think that is much more important than a spokesman. If you have a group representing women and lobbying, so to say, you get a positive effect and a negative one, and to a very large extent they kill each other and make a lot of noise. That's the way I feel about this. If you get resentment in some areas and you get acknowledgement in other, the areas where you get the resentment, if they are relatively powerful and financially well-funded, are capable of neutralizing the effect very nicely. I just don't think it's useful. But maybe that's naive on my part. Maybe you need that kind of thing more than I give it credit for.

Sherkow: Did you personally ever feel that you had to make a choice between a career and a marriage and a family?

Tesoro: "Choice" is a strong word. But there are times where these are difficult to pursue simultaneously, there is no doubt. There are cycles, and there are ups and downs, depending on how both situations evolve. There's not a straightforward, routine kind of thing, there's no doubt of that.

I don't think I ever was faced with saying, "I've got to make up my mind and go one way or the other." But sometimes it seemed relatively easy to pursue both and relatively very rewarding, without tremendous strain. And some other times there was considerable strain. All you can do is play it by ear and day-by-day or week-by-week or month-by-month, and do the best you can according to your lights. I could not, with any kind of seriousness, make any suggestions that would be applicable at large. Each situation demands consideration on its own. You cannot generalize very much.

Sherkow: When your children were small, though, you had to have outside help?

Tesoro: Yes, I did. And it was very difficult to get the kind of help I wanted. When I had it, things were much easier than when I didn't. It's also a matter of money, but not only a matter of money. That's one of the factors that makes it difficult.

Sherkow: Almost everybody who I've talked to in this project that has had a family and a career has had either a live-in helper housekeeper or somebody who comes in almost every day. When they've had that kind of arrangement and they've liked the person and they feel that they've been very responsible--some of them had problems like you've mentioned, that the girl or the person is just not good enough. But when they do have this kind of person, most of them have felt that then they can work things out. As long as they don't have to take care of all the kids and do all the housework by themselves, they were able to handle it pretty nicely. And financially it was worth it. That's what they usually would say.

Tesoro: Yes. But this is the first level at which you make your decision. If you cannot accomplish that, if you have tremendous troubles on that level, then everything else doesn't count. But if you don't have trouble on that level, you still have other levels on which you have to consider the situation which have nothing to do with the practical matter of who makes dinner or who washes the kids' clothes, all of which has to be done. I think it's more complicated than that, frankly. I think that is only a first step. I think even when everything goes smoothly in that respect and therefore you get the feeling you can cope with it, you get the feeling you can do both and you can get the feeling it's worthwhile, but there are ups and downs and there are problems of one nature or another at many stages in life. Those are very specific to the person or the family or the situation.

Frankly, my impression has been from very superficial knowledge of people who have been in this position; some solve it and some don't. At some stage, some decide that they can't cope with both. I have a good friend who's an artist and her children are the age of mine, so they're adults, and there came a time when she decided that she couldn't handle both. She and her husband divorced. There may have been other factors that pushed her in that direction that I don't even know, even being a good friend of hers, but certainly there came a time when she felt that she just wasn't willing to give up things in one area in order to take care of the other. You have to do that constantly. You are constantly going like this, on a seesaw.

Sherkow: I think all the women have also stressed the relationship, in a general way, with their husbands.

Tesoro: Yes, it's very important.

Sherkow: Some women have said, "My husband is really supportive; he really splits the activities with me." Other women--that hasn't been true; they are the ones who had to chauffeur the kids to the dentist, and they were the ones who had to do those things.

Tesoro: That's very important. My husband never split a thing. He was always willing and happy to help find a person or to pay a person more; in that sense, he was always good. But in terms of doing things in the household, he's never done anything unless I was sick.

Sherkow: That makes it more difficult.

Tesoro: If I was sick, okay, he'd do anything. But if I was not sick, he wouldn't do anything. He's just very European in that sense. I mean, he's never done anything. But I think that the role of the husband is very important in terms of making life pleasant or unpleasant, because whether or not he helps with the dishes is subject to discussion; he may or may not, but the point is that if he resents and interferes and fights the activities of the woman, it is very hard. If he is moderately in favor or neutral, it can be dealt with. If he is really supportive in terms of actually encouraging doing and sharing, and so on, then it makes life very much easier. Judging from my experience, most husbands are not on a plateau. There are times where their own life is shaping up in a manner that pushes them to be extremely helpful, and other times when they're less helpful; and other times where they're not helpful at all.

Sherkow: Throughout your life history I have asked you about role models and teachers who you felt encouraged you, the attitude of your parents towards you, and the relationship with the people in your family, but now that we're coming to an end I wanted to ask you: who are the important people in your life?

Tesoro: Are you talking about professional life, or are you talking about personal life, or both--because that's very different.

Sherkow: Right. I have asked both.

Tesoro: There are really very few, actually, in number, if your definition of "important" is the same as mine, which it may or may not be. By "important" I mean really important, in a deep and continuing sense. The number of people who've been important in that sense has been very small. My parents have been important, but for relatively short periods of my life because they both died while I was young. My father died when I was twelve; my mother died when I was twenty-one. But they were important. My brother and sister were important; my brother more than my sister, for various reasons. Then my husband and children are extremely important, have been and are, perhaps in many ways more now than when I was younger, even. Then a number of close friends and people like that, but the level of importance is a very different thing. They've been important; I would miss them if I didn't have them. The relationships are a different order of magnitude.

Now professionally, I also have a small number of people who have been important. Really, it boils down professionally to half a dozen people who at one time or another in my career have either encouraged me in a special way

and have, therefore, to some extent influenced my decisions or my path that I have taken, and so on. I don't think there are more than half a dozen. Professionally, too, I have a very large number of very good friends and people I'm very fond of, with whom I've had excellent relationships, but that's again a different story from the half dozen I would pick out as very important.

The number of people who are very important is not likely to grow that much. With the passing of time one doesn't add many of either kind, but that's about all I can tell you. Obviously, I can tell you more about who and why and when, but I think as a summary type thing it boils down to half a dozen people in the family and half a dozen people in my professional life who have really made a difference. In my personal life the others are miles and miles apart from these small numbers. In my professional life, the distinction is less clear, obviously, but it nevertheless exists.

Sherkow: In terms of your professional life, have you talked about those people before in other interviews?

Tesoro: Not in detail, no.

Sherkow: Have you mentioned them?

Tesoro: I've mentioned them a couple of times in my life when I've gotten awards. It's customary to refer to those people in your professional life who somehow have led you to that point, and I have, on one or two occasions. But even if I say there are half a dozen, there are probably one or two who are more important than the others. The reason for the closeness of the

professional relationship is probably the community of interest and community of modus operandi in work. These are primarily people I have worked with closely, these half dozen. Not so much professors or teachers, not so much.

Sherkow: Are they people from when you were working in industry?

Tesoro: Some, yes. Very strictly screened; it's not a bunch-type thing, or an organizational chart type of thing. Let me just emphasize that it's not an organizational chart type of thing; these people are not necessarily bosses.

Sherkow: Maybe you could just briefly say who they are, since this is your life history.

Tesoro: A very important person is a man by the name--he died in 1975, and he was actually a Senior Research Associate at MIT when he died--a man by the name of Emery Valko, who was my boss for a time and who was also a mentor. He not only taught me many things, but also introduced me into professional societies and to areas of work that he thought I could do; so he was very important. I think his influence on my professional life was very great over a long period of time, because I worked for him directly from '54 to '58. Then for a fairly long number of years he was a consultant to J. P. Stevens when I was at Stevens, and he was a consultant to Burlington when I was at Burlington. So the professional relationship continued beyond the time when both of us were employed. This, I think, is the most important of the professional influences.

I've had a boss at Stevens whom I respect highly. However, I was older then and therefore less susceptible and open-minded about being taught things. This man has had a considerable professional effect on the way I operated in industry.

Sherkow: What's his name?

Tesoro: Paul Stam. I would say these two people have had probably the broadest kind of influence.

There have been a couple of people who have worked for me in industry who have been not only good friends but also have shared many things in my work experiences. One of them is a very--it's a long story. The guy was sort of a genius-type boy who worked for me when I was with Onyx and at that time was going to night school to get a college degree. He went to work when he got out of high school; a brilliant kid. Then when I went to work with Stevens he wanted to work for me, and he came to work for me at Stevens. Then at some stage in the late '50s, he was struck by an illness which was never really diagnosed properly but was essentially some kind of complex brain malfunction. He was operated on and he was handicapped considerably in many ways; he had reoccurrences of the illness with different symptoms; he was a very sick guy.

He's now forty and still with Stevens, which is something I accomplished because when he came out of this first operation he had worked for me, for Stevens, for a number of years, and I made a big point of not dismissing him because he couldn't perform. So with the help, of course, of Paul Stam and of the people in management, some assignment was always found for him. He's

in a wheelchair now. He has a family. He married when he was eighteen and things have not been easy for a guy in that situation. Anyhow, I don't want to bore you with the details. As a professional relationship with this young man, he was so good and he fell apart so tragically, really, that to some degree I felt very protective and very anxious to get out of him the contribution he could make. I think that was a very important aspect of my professional relationships.

And then I had one or two very good friends amongstthe people I worked with, primarily at Stevens, I'd have to say. My involvement with the people I worked with at Burlington was not as intense, for many reasons.

Sherkow: You were also at Stevens longer. You were at Stevens for ten years.

Tesoro: Yes, but that's not the reason. It was a structure. It was an environment.

Sherkow: Yes, you've talked about some of the problems at Burlington.

Tesoro: But at Stevens, there were a couple of people who worked for me on a supervisory level, with whom I made project advances; not a personal relationship, but a kind of professional relationship which led them to become very involved, for example, when I was sick just now. We have occasional social get-togethers and things like that.

I also have had a very close professional relationship with a person who is in the government and with his wife. I said half a dozen; I think that was a good guess. I don't know whether it will turn out to be seven or five, if you really pare it. They vary, as you can see, very much in reasons and scope. I've always considered the <u>human</u> aspects of professional life very

important. I don't think people are machines. I think those who look at their jobs that way just miss out; I just never could see how anybody could ignore, or even deemphasize the human element in their professional life. I've always been very conscious of it.

Sherkow: What do you do outside of your work at MIT and consulting work?

Tesoro: What do I do outside of it? Nothing. Do you mean hobbies, and things like that?

Sherkow: Yes. How you spend your time.

Tesoro: Well, gee--I haven't got any time. I haven't had time in thirty years. I read. I like to go to a concert once in a while. I go to the theater. I go to the movies once in a while; the conventional entertainments that one has. I very rarely watch television, but I do occasionally. We have friends in for dinner and go to friends for dinner. But these are all very routine leisure activities. I have no dedicated hobby, because I've never had time, literally. Between the home life and the children, and the professional life and all the things that go with each--I play a little tennis. But very uninspiring activities with leisure time. I have no clubs, organizations, or charities. I send a check to charities; that's it.

Sherkow: So you're still pretty wrapped up in the work that you do?

Tesoro: Yes, in the work. And I tend to be--this last period has been different--a perfectionist. If I do something, I tend to want to do it right, and that goes for keeping the house clean--I have a woman coming in twice a week--but keeping the house clean, and cooking dinner, and so on;

also for writing reports and doing things workwise. That takes time. I've got a lot of irons on the fire and I do the best I can. Right now I'm upset because I'm still behind on everything. I just put our winter clothes away; the middle of June is late to put winter clothes away. I really don't have any extra time on my hands.

Sherkow: How do you feel everything has worked out for you, so far, in terms of your career? And then, if you want to comment on your personal life . . .

Tesoro: To the extent that one can wrap that thing up in a few words, I would say, very well. If I had to choose, knowing what I know now, I would choose differently, but I think that's true for everybody.

BEGIN TAPE ONE, SIDE TWO

Tesoro: I'd just say things have worked out pretty well. My children are better than most. I think they are very nice, wonderful young people. There are things I would want to spare them; I'd like them to do differently, but I feel very good about the way they are. My home life has been good. My professional life has been good. I've made some contribution. I've made some reputation. Overall, I have no complaint, which isn't to say everything is perfect, but I have a nice home. My husband and I have no financial problems, in a sense--not that we are wealthy, but we have no pressures anymore which is a reasonably good way to approach our age, so I have no complaints. I have my depressed moments, my depressed times, but nothing traumatic, I guess.

Sherkow: Except for your car accident.

Tesoro: Yes, that's something else. That has nothing to do with--well, look. In retrospect, I was very lucky with that, too.

Sherkow: Yes, that's true.

Tesoro: If one has to make a choice, which obviously one can't, it's better to have that kind of a situation than an incurable disease. So you can look at it that way. Of course at the moment it's a complication and it's an expense and it's a strain, and it's all that. But life is not free of strains for anybody.

Sherkow: When do you feel your expectations did not meet the realities of the situation in terms of your professional life and even your personal life?

Tesoro: My professional life, I think, as long as I deal with people of complete integrity who are concerned with the substance of things, I'm quite comfortable. I may not agree with them; there may be good times, bad times, but I'm quite comfortable. There are, however, in every professional environment, including academia--probably less in academia--a number of people who are politically minded, who are not concerned with substance but with form, who are not what I would consider irreproachable integrity, and when I get involved with any of them in any way, for any reason, I get terribly upset. And then my disappointment with the facts of life gets very acute. But I think that's the single most intense frustration in terms of professional life.

When you do research there are things that work and things that don't, and you make a proposal and you may or may not get the money, and you do the

experiments, and they may or may not come out the way you want them, but that I consider part of the professional mien. If it had happened all the time in a negative sense, okay, I wouldn't be here; but because there are ups and downs, I don't get that upset. There's a point that I get annoyed, but the political environment--and I don't mean political in the sense of senators and congressmen--and the distortion of fact, and the deviation from the straight and narrow, is just terribly hard for me to face and accept. Both my children feel the same way about life, which may or may not be a favor we have done for them, but that's the way it is.

Sherkow: What assets and capabilities are you most proud of, that you feel you possess?

Tesoro: Personal assets? Professional assets?

Sherkow: Both, if you like.

Tesoro: In a personal way, I think that my concern and my aim has been to do the right thing, as I consider it, with the children and with my husband. I mean, that has been my primary consideration in a personal sense. Whether or not I cook or dress well is not important, I don't think. I mean, if it's enjoyable or not is not important. So I would certainly say to the extent that I've accomplished that, that's the thing I'm most proud of.

As far as professional accomplishment, I think I take some pride in the fact that my professional activities have been varied, most recently in changing from industry to a university, but they have been considerably varied even before that. Whenever I have tackled a new kind of professional

challenge I've made good, which doesn't mean I've won the Nobel Prize, but I made a contribution; it was acknowledged; and that is, I think, the thing that makes me feel good about my professional life. These are relative things that one evaluates. There are certainly many people who have done much better, but there are also many who haven't done as well.

Sherkow: Could you indicate what some of your feelings of accomplishment are in terms of discoveries, or patents, or whatever?

Tesoro: Yes. There are maybe four of five inventions that I consider important in a technology sense, at various times. One, in the early or mid-50s, which was the first discovery--if you want to use the word--of certain types of coatings for static dissipation. The principles involved were fairly complex and new. After that there have been many variations, but it's always easy to provide variations when one has all the principles. That's one of them. Another series of what I consider fairly important work was certain principles, and new concepts in the cross-linking of cellulose. This has been, I think, the foundation for much later work by others. The third is probably my initial work on fabric flammability and the chemical principles that were applied. That was more a matter of definition than application, but it led to new applications.

So those three, I think, are the areas where I feel like my work has been most creative and most important. I feel, perhaps wrongly, that if you have a publication or a patent or both, and people keep working and citing it and working on it for twenty years, it must be pretty good, because the stuff that's trivial gets lost very quickly. I think in those three areas I can point to specifics in that category.

Sherkow: What was the first area again?

Tesoro: Anti-static agents. But the important thing there was the timing, because the approaches that were followed and concepts were uncharted, new. So I feel that had some importance to the field.

Sherkow: What are your goals in life, professionally?

Tesoro: Now?

Sherkow: Yes, professionally?

Tesoro: They change, and now I've reached the age where my goal is to do some work I enjoy and do it constructively. I think it sounds like a cliche, but it's really true. I don't want to shake the world. Whatever contribution I could have made--I don't have to prove anything, even to myself. I like to work. I like to be active; I don't need to, desperately. Therefore, I would not do work which bores me all the time. I mean, then what's the use? But professionally--and as I mentioned before--it's very important to me to work with people whom I can respect and feel at home with. That's one philosophy. That's very important. I would not go to work with an unknown industrial group. I just wouldn't get involved. Again, it's a matter of the human element being basically more important than anything else at this stage of my life--perhaps always, but certainly at this stage of my life.

Sherkow: What do you feel the future holds for you?

Tesoro: Well, I hope I'm in good health. That's obviously an important

consideration. I hope I can work in a reasonably satisfying way for a number of years. I mean, I don't know whether I should say five or ten. It depends on other factors in my life that I have no control over, what my husband does, what the kids do. Not that I would necessarily be influenced by what the kids do, but if the kids moved to China it would be different. It's not that likely.

I think if I can live the rest of my life in good health and in a reasonably active way--I mean, if I didn't work, I'd want to do something else. I cannot sit and do nothing. Active and with my own family, with my husband and kids somehow in a reasonable proximity and a good relationship--that's all I care about. Not necessarily in that order, either. But those are the things that matter. Other things are less important. In other words, financial security is important, but whether it permits a high standard of living, a medium standard, I don't care, as long as I don't have to be a burden on the kids. At the moment it looks like that's okay. Physical health is important, because you can't enjoy anything if you're sick.

Sherkow: That's very true.

Tesoro: Not very amusing.

Sherkow: It's true, though. Is there anything else that you'd like to add? I have attempted to get a complete life history. However, I do realize that you can't get everything; you can't talk about everything. But I hope you've talked about all the important things.

Tesoro: I'm sure you have. The only thing I can say is--and we've come close

to that today more than before, even though I'm sure it has been implied before, is this relative importance of factors like abilities, intelligence, health, opportunities--all of these things that people talk about most--as being secondary, really, to the development of long-lasting contact with other human beings. This is true whether it's on a family level--you can talk about family, about husband and children, or whether you talk about professional peers, it is always an interplay of these things which makes the difference between satisfying and not satisfying circumstances. This is one of the things that, incidentally, some of the women's movements neglect. You can have a great deal and still be very unhappy if you cannot satisfy some other emotional need which has nothing to do with the title of your position, or the salary you make.

Sherkow: Is there anything else that you'd like to add?

Tesoro: Not really. I don't know if I'll be around by the time all these problems of women get solved. Oh, it may be another ten or fifteen years before the difference is dramatic, before we see the movies that are made today and say, "Oh, that's the way it was."

Sherkow: I hope you're right. Ten or fifteen years wouldn't be too bad.

Tesoro: Not too bad. The minimum, I think, ten or fifteen years, because there have been already ten years or so. I'm figuring a generation as the time it takes to see a big change, and we haven't had a generation.

Sherkow: Right. I just wanted to personally thank you for doing these interviews.

Tesoro: I thank you for being patient. I'm sorry about the interruption. And I'm sorry about the difficulties in arranging schedules.

--END OF INTERVIEW--