

MC.0356

Interviews of the Margaret MacVicar Memorial AMITA Oral History Project

Elizabeth Sajdel-Sulkowska– Class of 1967

(interviewed by Tatiana Mamaliga)

March 16, 2013

Dr. Sajdel-Sulkowska

Class of 1967

Tatiana Mamaliga

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MAMALIGA :

Could you please tell me about your childhood a bit – about your upbringing, where were you born, and how was it leading up to MIT?

SAJDEL-SULKOWSKA:

I was born in Warsaw, three months before the Warsaw Uprising. I was actually lost for three months, and then reconciled with my parents. My mother was a chemist. She graduated from Warsaw Polytechnic. My father attended Kiev Polytechnic, and then all the papers were burned during the Russian Revolution. He came to Warsaw, repeated his studies, and got a PhD in biological sciences – in agriculture, in 1939. After the War, he was offered a professorship position in Lodz. Therefore, we moved from Warsaw to Lodz, because Warsaw was totally destroyed. My father died three years later, in 1947. My mother went back to work. That was after the War; the conditions were very poor. My mother went back to work, but we didn't have a telephone, television, or a car, or a radio, which was a big thing to have. But somehow, I never felt that we were poor. We didn't have all these amenities, but there were always books. There was always an emphasis on attending concerts, going to museums, and talking about things. I was sent initially for three years to nuns, because my mom was working, and there was no childcare. It was called "half-orphanage," for the children who did not have parents or had only one parent. Then my mother remarried and took me back. We actually had a woman help us at home. She too took care of me and cooked while my mother was traveling a lot, because she was in charge of a laboratory for food testing – she had a traveling job. When I was away with the nuns, I was in a small town near Lodz . When I came back,

I was enrolled in an all-girls school. I graduated from an all-girls high school, which is a big thing to remember when I transitioned to MIT, because it was an all-boys school. At the all-girls school I was very interested in science, but I wasn't going to be a chemist like my mother. I wasn't going to be a biologist, like my father. I was going to do something very different - go into physics. On top of it, at the age of fifteen or sixteen, very naively, I said I wanted to do particle physics. That's very important to keep in mind for MIT. I graduated from high school in 1961. That same year, a relative came from the U.S. to Poland. He was related to my father. He studied with him in Kiev, and he got his Master's from MIT in the '20s. He met my mother and me, and he wanted to help me because I was a relative. He heard that I was so interested in physics, and he said, "Oh, I have a perfect place for you to go and study - MIT." I had not a clue about MIT. Remember, we had no internet, no facebook, no media whatsoever; even to make a telephone call, you had to go to a physical place, place a call, then wait for several days, and then get a message that now you can call. There were no cell phones, and the newspaper was restricted. So how would I know what MIT is? He said, "If you get accepted to the Warsaw University, then you'll come for a vacation, and we'll see what we can do." When I graduated, I applied to Warsaw University, which was very important because otherwise, I wouldn't have been able to get out. When I applied to Warsaw there were five people competing for one place. Their physics department was very competitive in 1962. Somehow, getting out of an all-girls high school, I managed to pass the entrance exams, and I was accepted. And that was the key for being able to come to the U.S. later. When I had my interview for a visa to come to U.S., they were very strict in seeing whether I belonged to any organization, political or any other. Remember, it was full-fledged Communism in Poland at the time. The final thing I was told in regards to my visa was, "Okay, if you are accepted to the Warsaw University, then we can allow you to go on a vacation to the U.S." When I was taking

the exams for admission to Warsaw University – the exam had a written and an oral component – I was trying to pass it, not only to get accepted into the Warsaw University but also to get a visa to the U.S. So it was double pressure. When I was taking the exam, I saw all the guys and everyone else turning things in very quickly. And I was from an all-girls high school. Sure, I was very good in my high school, but I was competing against girls who at that time were not too interested in physics but mathematics. I got accepted to the Warsaw University, and I came here to the U.S. In the meantime, my relative took my papers to MIT. I arrived in Canada and then the U.S. in July 1962, and I had an interview in August 1963 at MIT with Mr. Chamberlain.

MAMALIGA: Was he a Dean?

SAJDEL-SULKOWSKA: Perhaps, an Admissions Dean. He would be right now in his nineties. I was eighteen when I came in 1962. He must have been in his thirties. Maybe he's still around. Anyway, I had an interview with him, and I remember I was nervous. I didn't know any English – very, very little, because I hadn't been preparing for going to MIT. All the developments were very sudden for me. But he said that because I was accepted to the Warsaw University, and Warsaw University was in good standing, comparable to MIT at the time, they could take me as a transfer student. But I had to go and get some English preparation. I went to the University of Michigan and, after six weeks of studying, took the proficiency test in English. I got it through. I barely squeezed.

MAMALIGA: TOEFL?

SAJDEL-SULKOWSKA: Yes. It was English proficiency allowing you to study. I came back and entered MIT in the winter,

second semester of 1962, which was already 1963. I thought I could push it and graduate in three and a half years, but no. So that's how I arrived here.

MAMALIGA: Did you major in physics?

SAJDEL-SULKOWSKA: During the interview I said I wanted to study particle physics. We had to establish majors sophomore year. So I went in with the idea of going into physics, but my sophomore year I realized that my math skills did not balance with the competition that was just too much. That was a time when we had to take five courses, starting freshman year. It was chemistry, physics, mathematics, biology, and one elective. First time I took Russian, which was a big mistake because Russian and Polish mix up in your mind and have a different alphabet. Then I took some courses in architecture - drawing. I love drawing and painting as well, so I took that. But we had to take five courses all five years.

MAMALIGA: That is intense.

SAJDEL-SULKOWSKA: It was just too much. But there was also a lot of very specialized reading, and English was a new language for me. I only now realize how challenging it was for me. Last year I started lecturing in Poland, in the School of Veterinary Medicine, and I have to give lectures in Polish. I speak fluent Polish, but my technical language is not there. I sit with the dictionary, looking up how to say parts of the brain.

MAMALIGA: So English was very fresh for you when you started MIT?

SAJDEL-SULKOWSKA: Yes, nonexistent almost. When I started I wanted to graduate in three and a half years, which was totally nonsensical. But also, when I came here, I found out that as a freshman, you could retake a course that you didn't pass the first semester. So I was competing against those who have already taken the course. I remember they were using this weird thing, a slide rule, and they were doing calculations very quickly. I had never held a slide rule in my hands in my life. Do you know how slide rules work?

MAMALIGA: No.

SAJDEL-SULKOWSKA: I wish I had one to show you. Probably the MIT Archives have it. You could do all the divisions and calculations for chemistry.

MAMALIGA: Was this instead of a calculator?

SAJDEL-SULKOWSKA: There were no calculators. There were only the wooden slide rules. There were two sets of rulers that you moved around and aligned to give you the answers and logarithms. I don't know what I did with mine. Then we had to take five courses. The first semester I was fine; my preparation was good enough. But second year we got into differential equations, and for physics you really had to have had good math preparation because physics required calculus. I had never had calculus before, and I was taking calculus along with other four courses. It was very difficult for me. I struggled. So I switched to biology. It was 1963, just after the double helix structure had been discovered. There were no textbooks about DNA, and all the enzyme discoveries were brand new. There were mimeograph sheets. We put carbon copies to copy on. Mimeographs were very different from Xerox. We didn't have textbooks to learn from, but it was fascinating because it was new science. So after a

couple of lectures of biology I said I wanted to go with biology. But that meant more chemistry. The course that was almost impossible for me was statistical thermodynamics. I don't know how I did and what I did to pass it. Did you have to take it?

MAMALIGA: Yes, we had to take thermodynamics.

SAJDEL-SULKOWSKA: Did you enjoy it?

MAMALIGA: It's difficult.

SAJDEL-SULKOWSKA: Yes. So I switched from course 8 to course 7.

MAMALIGA: How many students were in the biology department? You mentioned that it was a new department....

SAJDEL-SULKOWSKA: No, no. What I said was that the material of the biology courses, the DNA, the RNA, the enzymes, was very new. This was just the beginning. My Master's degree thesis was on DNA-dependent polymerase II, which you probably know by heart. That particular enzyme is alpha amanitin sensitive, which differentiates it from bacterial enzyme. That was part of my Master's thesis, and I was working here, purifying the polymerase II. We didn't know how many enzymes there were, polymerase I for ribosomal, polymerase II for messenger RNA, polymerase III, and so on. The reverse transcriptase was discovered after I was in graduate school. These were the beginnings of molecular biology.

MAMALIGA: You were on the cutting-edge of research.

SAJDEL-SULKOWSKA: Yes. It was exciting.

MAMALIGA: Do you remember how many students were in the biology department?

SAJDEL-SULKOWSKA: Probably around thirty or forty my year. I don't know about the whole department. There were around three or four women in the biology department, but there could be as few as two. When I came to a reunion, there was only one other woman student. There were very few of us. I think there were around thirty women students in my class. It was very intimidating to come from an all-girls school to a boys' school. I was competitive by nature, and I was always afraid to ask questions because I thought that all these guys were so smart. In graduate school when I was preparing for an exam, one of the guys - he might be a professor here - Bill , said, "You have to prepare for the exam." Then I realized, "Relax, the boys are not that smart." Another difficult thing was that in Poland, we had much more progressive relationships with guys. I had a lot of guys as friends, not boyfriends. We could go to a movie, but it didn't mean anything. But here, if you went out, immediately the assumption would be that it was a relationship. If I looked or smiled at a guy, it didn't mean anything. This was part of another culture. In my class, there were only twenty women that graduated. My sophomore year I went out with a guy, which in modern day terminology wouldn't count as going out - it was a little bit more than friendship. I went with a friend of mine from MIT to Washington DC, whose father was in the publishing business. The women (wives) there would look at me and ask me, "Where do you go to school?" And I was so proud to say MIT. But they would answer, "Oh, how enchanting," which was very derogatory. It was the same as saying, "Oh, really? What are you doing *there*?"

MAMALIGA: And was that coming from the women?

SAJDEL-SULKOWSKA: Yes, from the women. That was the time when 60% or 70% of women were staying at home. There were very few women professionals. That was the time that you would rather go to a college. When I was studying English, visiting University of Michigan, in Ann Arbor, my cousins there didn't think it was a good idea for me to go to MIT. They said it was better to go to a small college because I wouldn't find a husband.

MAMALIGA: Was that different from Poland? In Poland, was it okay for girls to go to universities?

SAJDEL-SULKOWSKA: Yes. Poland was part of a Communist rule. Women had equal rights, officially, that is. We could apply to any university. My mother was an engineer. That was very unusual in her days. The majority of doctors and teachers were women. Part of the reason was because a lot of men lost their lives during the revolution, and then, the war. Therefore, women were allowed to pursue things. No one looked at me strangely if I was attending a university. The other reason is that in Poland there was a big emphasis on education. Your status in the society did not depend on material possessions like a car or a big house. It depended on education. You were very proud of your achievements. Here guys were the ones to pursue a career. Guys were the ones to secure a good living. A woman's place was at home, with children. So, definitely, that was very different.

MAMALIGA: Where did you live on campus?

SAJDEL-SULKOWSKA: When I first came back from the English course in Michigan, I lived on Symphony Road, next to Symphony Hall, in Boston. I was taking care of a

boy and twins while preparing for MIT, which I entered second semester, in February 1963. Then my mom came here, and we lived on Beacon Street. There was no dormitory for women when I came. I lived there with my mom, in a basement in really bad conditions. We didn't have any money, and the conditions were very bad, with pipes sticking out and no separate kitchen. We shared the bathroom. Finally, when my advisor, Margaret Freeman, who was in the department of Russian studies, came and saw the conditions that we were living in, she said, "That's not a good place for you to study and go to MIT." So she took us to a beautiful place in Belmont, her own home, and all of a sudden, I went to this mansion and thought, oh my God! People really live in something like that? That was my sophomore year. The following year I transitioned from physics to biology. I was taking five courses. Things started getting really hard, and my grades slipped. At that time McCormick Hall had just been built. I was told that I should not be living with my mother. I was told I should immerse myself in English and move to McCormick Hall for a year. This was a turning point in my studies. When I just came to MIT, I was thinking that everyone was smarter than I was and that I shouldn't ask questions because otherwise, they'll find out that I'm not "as smart as them." But when I moved into the dorm, I started noticing all the networking, that all the students helped each other and shared copies of exams from past years. There was a lot of backing and interaction among the students which I didn't have before moving into the dorm. That made a tremendous difference for me for a year, but financing was very difficult, and I couldn't afford to live another year in the dormitory. I was getting a little bit of financial aid, but my relative thought I may be able to get full scholarship. But because of the grades it wasn't that easy. My mom got some money from Catholic sources. She was basically trying to patch it. The following year, I went off-campus and lived with a family in Chestnut Hill. I was taking care of a boy and commuted from Chestnut Hill to MIT. When I graduated in 1967, there were twenty of us out of all the departments of nine hundred guys.

Then I knew that I wanted to go to graduate school because I was planning to go back to Poland, and how could I go with a Bachelor's degree? There is no such a degree in Europe. So I knew I had to get at least a Master's degree. I couldn't get in immediately into MIT with my grades. My senior year I started to do a senior thesis in the Nutrition Department. I don't think it exists anymore; it was the department of Nutrition and Food Science.

MAMALIGA:

They changed it now. Course 20 is now Biological Engineering, but I heard that there was a Nutrition and Food Science department.

SAJDEL-SULKOWSKA:

I was doing a project involving diet, muscle mass, and organ weight; I had to weigh a lot of animals. I got to know the nutrition department. The difference between biology and the nutrition department was that the biology department was very molecular. We never had an anatomy course or a botany course in course 7. So when you applied to graduate school, your preparation in general biology was not adequate and one-sided.

MAMALIGA:

So being in course 7, one didn't get to apply his/her studies in biology? But you had the project in the nutrition department...

SAJDEL-SULKOWSKA:

But still, it wouldn't prepare you for medical school, definitely. The nutrition department at that point had a lot of different things going on. There was molecular biology as applied to mammalian systems. Richard Wortman was working on neurotransmitters. It was the beginning of neuroendocrinology. I knew that that's where I wanted to go, and I knew that it would be a long shot to be accepted. I went to one of the graduate school admissions people and said, "What do I have to do to be a candidate?" He said, "Well, if you take two courses a semester and get very

good grades, you will have the preparation." A lot of graduate students had to take undergraduate courses in biochemistry and molecular biology when they came here. That is something I didn't mention. When we were taking microbiology, biochemistry, and other biology courses as undergraduates, we would take them along with the graduate students that came as graduate students to MIT. The graduate students' average was a B because that's what you had to get in graduate school, but we were getting C's as undergraduates. After graduation, I applied for a job in the nutrition department. I was working and taking two courses, and I did very well. Next year, I went to the graduate admissions office and said, "I wanted to get a Master's degree." But there was a change in the administration in the admissions office. I talked to another person than the one I saw the year before, and they said, "We can't honor the promise made by the previous admissions officer." To which I objected, "How can you not honor it? I did my part." In the end they allowed me to pursue a Master's degree. I did my Master's thesis in 1969. That was on purification of DNA dependent polymerase II. Then I stayed on, got my written exam for a D.Sc., and I stayed. Because of all of the undergraduate courses I had taken already, I got my D.Sc. in only three years. Once I was in the D.Sc. degree program, I started to get NIH funding. It paid for all the tuition and even paid \$200 a month, maybe even \$300. I was giving my mum half of that for living expenses and saving the other.

MAMALIGA:

Did you stay in McCormick for all of your undergraduate years?

SAJDEL-SULKOWSKA:

For only one year. It was either sophomore or junior year, but it was a very important year because I realized I was all of a sudden a part of a group of students. I realized that not everybody was super smart, people helped each other and got copies of the exams. It was networking, which I

didn't have experience with. One thing I didn't tell you is that I almost didn't end up in biology. It was one of the very first few laboratory courses. We had to insert some electrodes into rats. I did not have a partner for one of the courses, or maybe my partner wasn't there. I had to go upstairs to the animal farm and bring a rat. The rats were huge. I had never touched a rat before in my life. I went up to the room, saw cages with giant rats and started to shake. I tried overcoming my fear, but I couldn't do it. I went downstairs and the instructor, who was very nasty, said, "If you're afraid, it is not your place here in biology." I went to the ladies room and cried. What can you do? I was afraid. I have now worked for forty years with rats and have never been bitten by a rat. There is a way of handling them. But the instructor was really mean, saying "Go and get it." So I went again, and there was a graduate student. I said, "Could you please help me?" He put these huge gloves on, put the gloved hand in the cage and the rat bit him. He said, "I'm not going to touch it." In the meantime the experiment was going on downstairs. For me it felt like an eternity. I went again to the ladies room and cried. I went again to the instructor. Finally, I think he saw that I'm not going to give up, but at the same time I couldn't do it. Somehow I survived that experiment. For the laboratory courses, I always had good grades because I could do it, I could observe. But that experience was so stressful. In the past, the whole attitude towards animals was much more relaxed. You could have many animals in small cages and no one worried that they are kept like that. Animal welfare laws were completely relaxed. Now it's very different. At that time, occasionally someone would come and release the rats. But in general, the whole thing was very relaxed. Now you have to write a whole Institutional Care and Notarization Protocol to use animals, and you have to justify every single animal. In the past that wasn't there.

MAMALIGA:

As a woman in your classes or in your department, did you feel any judgment from the boys or from

the instructors if you were the only woman in the class?

SAJDEL-SULKOWSKA: Yes, probably. I definitely did not feel free, but how much of that was due to the transition from a female high school to a male dominated institution, I'm not sure. I don't remember anything particular from my undergraduate years. However, in graduate school there were definitely instances of sexual harassment. Being a female you could not have a place to complain. You were in a very peculiar position. Admitting sexual harassment would stigmatize you, so you were trapped. No one would believe you as a student. You had a choice - either quit or tolerate such treatment. I've been a faculty member in the Psychiatry Department at the Harvard Medical School. At a meeting regarding sexual harassment a female psychiatrist commented that nowadays even touching someone is not acceptable because some people may feel uncomfortable. All this seems to be a backfire of the previous situation and just led to another extreme. Sexual harassment was happening probably everywhere. I think I had more problems with guys assuming that if you talked to him or went to a movie, that you were going out. There was a lot of this kind of misunderstanding. Sometimes I had to use a different route of walking, of entering the class, or watching out whom I sat next to. Professors were outstanding. There was Eugene Brown, Salvador E. Luria, Boris Magasanik. There were really incredible professors. But as undergraduates, you were often taught in small sections by foreign students. So you are a foreigner and you are taught by foreign TAs. Then there was one more thing. Some guys had this fixation that if you went out with them once, you were dating them. However, on the other hand MIT women were called "co-eds." If you were a woman who went to MIT you were called a "co-ed." Guys would not admit that they were dating a "co-ed," because a "co-ed" was usually not very pretty but was very smart, very brainy. It was very derogatory. Things changed a year or two after

me. There were more females coming. The year after me, 30 or 40 new female students arrived because the new dormitory McCormick was built. There was more mingling. So probably the class of '68 or '69 was more different in this respect. At MIT there was this tradition of "being pinned," if you started to go out with someone. You've probably never heard of it. It was a fairly innocent gesture to get a pin from the guy. Everybody had to be pinned. It was very important for a girl to get pinned before she was in her junior year or sophomore, even better, because that meant that you were someone's girlfriend. I felt that there was a lot of that kind of pressure, which now probably doesn't exist. By the time I was a senior, that was not there anymore.

MAMALIGA:

What was the major support for you at MIT?

SAJDEL-SULKOWSKA:

The person who gave me a lot of support at MIT was my advisor, Ms. Margaret Freeman. She talked to me, she took us from the basement, she actually was negotiating my case. I ended up at one point on probation, and she helped me work through that. That was very important. Then, that year I lived in the dormitory played an important role. But otherwise, in my senior year another source of support was another female student, Barbara. She was in the biology department. We were both struggling, so we took tutoring lessons in statistical thermodynamics together. The funny thing was that when we were with the tutor, we could do things, but during the exams, we froze. We were just so uptight, and it was a question of passing that one course. If we didn't pass that statistical thermodynamics, we wouldn't graduate. So it was important for us to pass, and at that point, we had each other's support. The advisor was very important for two years, and then the year at McCormick was very important. But otherwise, I didn't really feel that I had much support. Maybe part of it was my own doing. In Poland I was a star. I could do everything. All of a

sudden here, I couldn't do it. It was almost like a trauma, covering it. Not admitting but rather covering the struggle. So my undergraduate time was a struggle. I had a cousin who was a role model for me. He was both a priest and a biochemist. He spent a year at Harvard, in a biological laboratory. He was my role model. Occasionally when I saw him, we could talk about it. That was very important. I think the drive was a lot about pure stubbornness. I decided it was very important for me to do that. My undergrad career was interesting but it was also a matter of not letting go of my goal; I felt I had to stick with it. Overall, looking back, it was probably too much, taking five courses. But so many people survived it. There was a boy whom I went out with. We were friends since sophomore year. He was very smart. We all had to take computer science. We worked on giant computers. I remember one project we had for Easter, sophomore year. We had to write a Fortran program. The thing that I remember about that program was that somehow, if you follow the program, you got the Easter Bunny made out of X's. Somehow my Easter Bunny had extra X's. The computers were giant. To do any kind of research project you had a whole room of machines. That was probably my strongest memory of my friendship with that boy. He was probably in electrical engineering, course 6. He was brilliant, but he was prepared very well because he went to the Groton private school, a superb school. By the time students from that school came to MIT, they had already taken Calculus. They were very well prepared. I must say that without his help I wouldn't have survived. He was really progressive. So he was helping me. Aside from a six-week long course of English, I had never taken English before MIT. You had to take all these courses. There was no time to catch up, so writing assignments were very difficult. Sometimes I would write an assignment and would get everything crossed, or I'd receive a note saying, "See me." I would go to the professor, and he would talk to me. They came to the realization that I was getting things but couldn't write it. Some professors were understanding, some of them would let it slide,

and some of them could not read my hand-writing. Sometimes I would get these bizarre grades, not good grades, and I realized that they couldn't read what I was writing. But there was no organized support system. Actually, there was a source of support later on in my undergraduate years. In the main building, on the third floor, there was a women's room called, the Cheney room. That was a good place because that's where guys were not allowed to enter. It had three or four beds. That's how I wrote my D.Sc. thesis. I moved to the Cheney room for a few weeks, and I wrote the thesis around the clock. I had this arrangement where I worked for three hours, slept for fifteen minutes, worked for three hours, and so on. There was a kitchen, couches, and a telephone booth, and a bedroom. That was another part of the support system during my time at MIT.

MAMALIGA:

Did you go into medicine afterwards?

SAJDEL-SULKOWSKA:

I didn't go into medicine. I got my D.Sc., in nutrition, in food science with a minor in neuroendocrinology. Then I was offered a faculty position at Northwestern University. My visit there was delayed because of a lump in my breast, which had to be operated on. During that summer I met my future (now late) husband. He just came from Europe. He was Polish. In the end I gave up the faculty position and stayed here. I did my postdoc at Brandeis and then Harvard Medical School. I was always interested in the practical application of the research that I was doing. For my D.Sc thesis I did neuroendocrinology research. I worked on the regulation of RNA synthesis by glucocorticoids in stress responses. I was more interested in the application of research. My latest research looks at the effects of environmental factors on brain development. This is mostly research on animals, although parts of it apply to human brains. My research has been more a combination of different fields in basic science. I didn't stick to one particular, small, narrow

specialty. I did projects with NASA, projects on autism. While at the Harvard medical School in the Department of Psychiatry, my research focused on regulatory mechanisms first during aging and then development, which are very fascinating. So it was not really medicine, but rather basic science. But I wish I had more medical preparation. The latest research area I am interested in is the development of the gut-brain axis and communication between gut and the brain. For that, it would be really fantastic if I had a global view of medicine. The future of research on the gut microbiome is fascinating. There are ten times more microbial organisms in our bodies than body cells. So my research was always a combination of basic science and applications.

MAMALIGA:

Are you teaching right now at the Harvard Medical School?

SAJDEL-SULKOWSKA:

No. Until last June I had a laboratory at Brigham and Women's Hospital and Harvard Medical School. I'm still on the faculty at the Harvard Medical School, but I didn't have any funding last year, and I turned 68, so there were complications related to changes in the administration. Three years ago I went to Poland and gave a seminar there. They started a veterinary program for foreign students and wanted someone to teach in English at the Warsaw University of Life Sciences. When I saw that the laboratory's future was uncertain I started to consider teaching at the Warsaw University of Life Sciences. In 2011 and 2012, I went there and I was allowed to develop new courses and to teach neurophysiology. So, while being a Visiting Professor, I lecture foreign students in English, but I also have some sections in Polish. But I'm still maintaining a faculty position at Harvard Medical School and have just published a couple of papers; I still have to write a couple more papers from the research I have done at Harvard. At HMS I reached an Assistant Professor many years ago and never got a promotion to a

higher level. I have been an assistant professor for twenty something years, with many publications. This issue really needs addressing. This situation is very complicated. At the time that you establish your career, you need a lot of networking. I have four sons, so networking and family duties together were very demanding. We are not super human beings. Maybe part of it was networking, but partly, the school made it more difficult to advance. I think it's easier for guys to advance in academia. It is getting better, but still very few women reach full professor level. The first woman to reach full professorship at HMS in the department of Psychiatry, was Francine Benes. She got full tenure only about ten years ago.

MAMALIGA:

What did you enjoy the most in your career in teaching?

SAJDEL-SULKOWSKA:

I didn't do much teaching during my career. I love research, the process of coming up with an idea, testing it, finding out the outcomes, being flexible. We had a project about the effect of gravity on brain development with NASA. I went to California, and we had a project there for a few years. I wasn't aware at the time, but it was just the beginning of discovering that the development of brains in females and males is different. The developmental process in females is much faster than in males, and also the structure and the processes are different. We now realize that a lot of things are different in females and males. Not better or worse but different. During a project, the very first week we were looking at the structure of cerebellum and discovered that all the males had much smaller cerebellums. We found that males are much more susceptible to the effect of altered gravity. We weren't prepared for this discovery, so we had to redirect the project, because now we had to look at the gender difference. We couldn't lump together the results from both genders. In another instance we looked at toxic environmental factors and found a similar pattern - males appear

to be more susceptible to those factors. Another example is autism. Autism is much more prevalent in males. Dyslexia is also much more prevalent in males, as well as hyperactivity. It looks like the male is more susceptible to certain factors. It's a weaker sex at some points. What I enjoyed these years is the process of discovery, of altering and developing an idea. I didn't have much opportunity to teach because I'm not an MD. And I worked most of the time at the medical school. An exception was that I had a seminar on sexual dimorphism. I never realized how much I enjoyed teaching until I went to Poland. As I teach, I am developing, and learning, and sharing. Having a contact with students is an incredible thing.

MAMALIGA:

How are the students in Poland different from here?

SAJDEL-SULKOWSKA:

Polish students don't ask you questions. You are the goddess there - you know everything in their view. It's a very scary situation because you as a student have to make sure that you understand everything. But the students in Poland don't ask you questions. At the university there is no tradition of addressing someone on a first name basis. No one would say "Elizabeth." Everyone uses, "Professor." I have some colleagues whom I've known for two years, and they address me as "Professor such and such." This creates an interpersonal distance. I think I have a good relationship with the foreign students. Sometimes they bring up issues that are amazing, but again, you have to almost push them into independence and questioning. I say, "I want your questions, I want comments." An amazing thing is that when I work with second or third year students, I ask them to write a scientific paper, and they have not a clue how to write the scientific paper in scientific format, that there is an abstract, that there are references, that you put references in the text. However, finally when they learn and are thankful, it is very rewarding. That's when I say, "Wow, I am

really enjoying the teaching.” It is a lot of work to keep everything up to date and it is a responsibility. It would be possible for you to relax and say anything, and no one would question you, but it’s your own responsibility. I think it’s different.

MAMALIGA: What would be your advice for someone coming into MIT who is just a freshman?

SAJDEL-SULKOWSKA: Make a lot of connections, meet people, try to overcome this obstacle, because as a scientist, as an engineer, you cannot be afraid. Don’t be afraid to ask questions, don’t be afraid to ask for help, and really try to understand basic things. Don’t take an isolation route. It’s important to realize that that’s what you want to do. It’s a lot of work. Sometimes, some students do it because of family pressure. Yes, it will require a lot of work, but you have to be also realistic about your ability. And then, ask and ask questions. You can ask them as a freshman, you can ask them as a sophomore. Ask for help. So that would be my advice. Don’t do it in isolation.

MAMALIGA: Then, what would be your advice for someone who has graduated and is about to start one’s career?

SAJDEL-SULKOWSKA: Should I suggest advice for female students?

MAMALIGA: Yes, that sounds good.

SAJDEL-SULKOWSKA: I think things are changing. I think, for us, when I was starting my career, we were going through a period of the “super woman.” There was the belief that you can do both the career and the children, and do it perfectly. I think that motherhood is a

very important responsibility. When I look back in time, I realize there were so many times when my children had to wait because I had to finish that or do that. I think that you have a responsibility to yourself to follow what you want to do. But also, you have to realize that being a woman, you have another very important role, as a mother. In some instances the mother is much more important than the father. The more women find themselves in such situations, the more they should arrange things in a way in which they have more flexibility in taking the time off to fulfill that role, to have two to three years off, to be able to come back and continue with your career. Have a lot of support, and work towards more support. Judge, and be very realistic about how you are going to combine family and career. Now you are entering the stage where you will be thinking, considering what to do. Don't try to be a super woman, but definitely follow your interest. I think that I have a good connection with my sons because they are very proud of what I was doing. I'm now almost 70, and I still feel excitement about what I am doing, I always liked what I was doing, and I still like what I am doing. I feel that a lot of people of my age are burned out. I think you should go for the thing that you want to do. But I wouldn't try to run two ships at the same time. The years which are most active for your career correspond to the years that you have kids. I think there are already workplaces in which you can take time off to raise a family and then reenter the workforce, but I think there should be more understanding for that to allow the women to take care of the next generation.