

MC.0356

Interviews of the Margaret MacVicar Memorial AMITA Oral History Project

Theresa Uhrich Adams – Class of 1949

(interviewed by Margo Harbaugh)

January 6, 1996

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INTERVIEWER: Margo Harbaugh
DATE: January 5, 1996

MH: Tell me about your childhood, you grew up in Gettysburg?

TA: I was born in Philadelphia and we moved to Gettysburg, Pennsylvania in 1933 while I was in kindergarten. I grew up in Gettysburg and started high school there. This was during WWII. My father owned an automobile business in Gettysburg, Pennsylvania; he sold cars, gasoline and repairs. During the war he was unable to procure automobiles or gasoline and had four children to support. His profession was a CPA, certified public accountant, and he took a job with the Reconstruction Finance Corporation in Washington, DC. All my schooling, from first grade on, had been in Gettysburg, and I had completed my freshman and sophomore years at Gettysburg High School when we moved. Gettysburg High School was a four-year high school and there were about 400 students in the whole school. Woodrow Wilson was a three-year high school, beginning with the tenth grade and had approximately 2000 students. It was a culture shock to have such a large building and that many students. It took me some time to adapt to all of this, but the teachers and students were very kind and I did enjoy all the benefits that were available.

MH: And how did you get to MIT?

TA: A nationwide Westinghouse Science Talent Search gave me the opportunity to attend MIT. During the school year 1944/1945, when I was a senior at Woodrow Wilson High School, my chemistry teacher had heard about the Talent Search and encouraged several of the seniors to enter. We were required to take a test similar to the SAT. I can't remember exactly how many students won the Search and received money, perhaps 50 or more. There were another 200 or 250 who won an Honorable Mention. I was one of those who won Honorable Mention. All the winners were invited to Washington and there was a big party to celebrate. Westinghouse notified many colleges that we were good candidates and I received brochures and catalogs from an unbelievable number of schools. Many offered the opportunity for us to apply for scholarships. MIT offered me a scholarship and since I wanted to study Aeronautical Engineering, I accepted.

MH: When did you become interested in that?

TA: My favorite subject had always been math and I was fascinated by airplanes. The paper I wrote for the Talent Search was about airplanes.

MH: To go back a bit about to Gettysburg, when they had the 75th anniversary. What do you remember about that?

TA: Gettysburg was a small town then, about 2,300 people. Its claim to fame was the Civil War battle there in July 1863, where the South was turned back by the North. I lived

there when the 75th reunion was celebrated (1938). All the living veterans of the battle were invited to come, and could bring a companion. The battlefield was covered with tents, big ones, very sturdy and roomy, with wooden floors and beds for two. In total about 2500 people came. There was line drawn, as far as the South had progressed with the North on one side and the South on the other. Many of the veterans wore their old uniforms, blue or gray. Some of the veterans would not cross the line and yelled when someone from the other side would cross. As children, we ran around and got autographs from both sides. A lot of these veterans were fighting at the age of twelve or fifteen, quite young. I remember asking a black man what he did in the war, he told me he was a drummer boy and didn't know when he was born. I couldn't believe anyone didn't know when they had been born or how old they were. Some of the blacks who had been freed joined to help, fight or cook or do whatever. There was a man dressed like Lincoln and he was yelled at when he crossed the line into the South area. Some of the veterans were quite feisty.

MH: So before the celebration, it was just another tiny town?

TA: Yes, but it had the history of the battle, where the South was finally turned back. People came that were interested in the battlefield, but the celebration really brought it to the attention of a lot of people. The reunion was a big thing for Gettysburg, and now it is famous as well for President Eisenhower's home there.

MH: You went to high school during World War II. How did the war affect your classes?

TA: I did go to high school during World War II, but I don't believe the war affected my classes at all, certainly not the students, maybe the teachers. We were aware of what the British people were going through, the bombing and shortage of food. We had food stamps for meat, sugar and flour, so many allotted to each person. We were limited to what we could buy, and even when we had the stamps, often the product wasn't available. Many of us thought it would be fun to have air raid shelters underground and to spend the night there, like they did in England. But of course we didn't want the Germans to come and bomb Washington DC.

MH: Did you have to practice?

TA: Yes, we had air raid drills in school and there were Air Raid Wardens in our communities. Some of us helped out at USO's. We were young and didn't dance or come in much contact with the servicemen; we helped with donuts and coffee. There were shortages of people to work everywhere. If you were a senior in high school and had good grades you could be excused from school during December to work. I was only 16, but got my first job in a near-by Sears store. Because of my age I was not allowed to work after 6:00 PM. We punched time cards and I was told upon threat of dismissal not to punch out too close to 6. If I checked out even one minute after 6, the

store would have to pay a huge penalty because of the child labor laws. And I could only work a limited number of hours a week.

MH: Were soldiers there, or whom did you meet?

TA: Whoever happened to be in Washington. And in general the USO we went to wasn't a big deal, we didn't meet any officers or any of the older troops. It was the young kids who came to play checkers and have coffee. We didn't serve alcohol, it was very low key, or I'm sure I wouldn't have been allowed to go.

MH: When did you start to be interested in math and science? Was it something that was always with you, or is there anything that really pushed you toward it?

TA: My ninth grade math teacher, Mr. Fred Troxel, was just great. Math was very easy for me and a lot of fun. I've always been interested in the games or puzzles that have mathematics involved. I like things that are methodical.

MH: After Westinghouse, did you know for sure that you wanted to go to a science school?

TA: Yes, I knew that before hand.

MH: Did your parents encourage you to do that?

TA: Since I was the eldest child, my parents were not thrilled with the discipline I had chosen and that I would go so far away. But, just that year (1949) MIT opened a women's dorm at 120 Bay State Road in Boston. It was a house owned by MIT, and 14 students lived there. We had a housemother, a cook and ate our meals there. I was a freshman and my roommate was the only other undergraduate in the house. She had gone to Trinity College in Hartford, Connecticut and entered MIT as a sophomore. She was new to MIT as I was. All the others were graduate students, a bit older and most had attended MIT before.

MH: What was your roommate's name?

TA: Marjorie House. She was only there for one year. My class had over 900 students. Most of them had been in the war and had entered on the GI bill. They were older and many were married and lived in Westgate, a community for veterans with families at MIT. Some of them had children, their wives worked in the Coop, the library or as a secretary. They were a lot more serious than my high school friends. I had several in my class that had been in the Navy and were at Pearl Harbor on December 7, 1941, when the Japanese attacked. A few of them were hotshot pilots who had been trained to fly and wanted the education to go with it. They were young and hadn't been to college. My class was quite a mixture of diverse people.

MH: Did you find that you had trouble being taken seriously around these people who had been off to war?

TA: I don't think so. I think, partly, I was accepted because they were older. Also I did do well and got good grades. There was no competition between us, for some reason. I had a good relationship with all of them. Some of the professors were not really happy to have me in their class. In all my classes, I was the only woman. Perhaps they felt that they couldn't say all that they wanted to.

MH: Do you remember any specific examples?

TA: Not really, but they might start to say something, like they were going to swear or say something off color, and they would start and they'd sort of go, "Well, let's see. We'll get on with it." Do you still use Sears' books for physics?

MH: Not that I know of, but it's possible.

TA: We had the professors that wrote the books we used, which was great. I had Francis Weston Sears for physics, who lectured in the big hall, 10-250, and he was quite a character.

MH: They had that then?

TA: Yes, that is where we had our Sears lectures. Then we had smaller classes, with teaching assistants or research assistants, who were younger, and they were good also.

MH: Were they all men?

TA: Yes, they were all men. I didn't have any women professors, teachers or instructors. I'm not sure there were any at that time. Maybe, but I never had any of them.

MH: What was Sears like?

TA: He was just very good. He was a good lecturer. He knew his subject inside out. Sometimes that means that you are unable to bring yourself down to someone who knows next to nothing about the subject. He could, and when he was demonstrating, or doing an experiment, it was explained in the simplest terms and we all got it.

MH: Some of the professors weren't happy that you were there, but were there other ones who were more supportive of you?

TA: I believe most of them, I wouldn't say supported, but took me the same as anyone else, not bad or good, not one way or the other.

MH: How did you make friends? Did you find that your friends were from your classes or from the dorm?

TA: The dorm was such a special little group of people that we did things together. There was a cottage that belonged to MIT, and groups of students could use it. It was at Nantasket on the beach. Is that still available?

MH: Not that I know of, they do have cottages, but I'm not sure if they still have that one.

TA: We used to go there every late spring. You did have to sign up, but you could reserve it for a weekend and our dorm did. Of course, my roommate and I did a lot of things together because we were both new in Boston. We went to movies, museums, wandered around Filenes' basement. There was no physical education program for women at all. We did things on our own.

MH: We have to take the swim test now. You said there were five women in your class at MIT?

TA: Five entered. Three were in chemistry and one in math and me. The others all lived in the area with their families. Do you know who Norbert Weiner was?

MH: Yes.

TA: His daughter, Barbara, was the one in math, but she didn't graduate. One of the chemistry students graduated with me, so there were only two of us.

MH: Your roommate left after one year?

TA: Yes.

MH: Why was that?

TA: She was engaged when she came to MIT and she went home to get married. I still see her once in a while. The other two who were in my class did go back and finish, but they didn't graduate with my class.

MH: Did you get together with your classmates?

TA: Because our classes were so different, we saw each other often in the Margaret Cheney room. Is it still there?

MH: Yes it is.

TA: I got to know all the other women students there. The Margaret Cheney room was a very nice place to go and escape, rather than the library. There were not that many women students, so we got to know each other there. Most of them were graduate students. There were probably not more than ten to fifteen undergraduates at that time. We got to know the ones that came in after us, too.

MH: Did you feel like you had to be sort of a big sister to them?

TA: They didn't have official big sisters by the time I was a junior, but we certainly helped the newer students. When I first came, I had a big sister. Her name was Virginia Ferguson, and she lived in the area. She was a junior in chemistry, when I entered, and she did graduate. She married an MIT grad in aeronautical engineering who went to work for Boeing. She lives in Seattle, Washington. I have not seen her for a long time, but we do correspond.

MH: What kinds of things would you two do together?

TA: Since she lived in the area, quite frequently she would invite me to her house for the weekend. She had five in her family, two boys and two other girls. When I arrived in Boston, she met me at the airport and took me to her house. My parents didn't go with me when I first came. She helped me a lot at the beginning. I ran into her quite frequently in Margaret Cheney room, as well. All the women were very helpful if you needed anything. The wife of the dean of students, Mrs. Baker, was very nice and would invite our dorm to dinner. Our housemother invited MIT people for dinner at the dorm. Dr. Killian and his wife came, the Strattons and some of the professors too. Since there were only twelve or fourteen of us we felt we got to know them. I think we had a better recognition of them, not that they could have picked us out of a group, particularly, but I felt like I knew them, and that helped. Years later, I saw the Killians at the Smithsonian in Washington. I introduced myself and spoke to them. I would have known them anywhere.

MH: Which classes do you remember were the most interesting, or the worst?

TA: One that was very interesting was M22, Differential Equations. I had Professor Dirk Struik who was an outspoken Marxist. It was a time when most people who had these beliefs were quiet about it. When they went to meetings for example, they didn't want others to know. He was a Dutchman, very tall, thin, almost anemic looking, mostly bones. One day he came in and said, "Today we're going to take up a new subject. We're going to study surfaces of ..." And then he stopped. Of course it got everyone's attention, and then he said "revolution". I will never forget it, the class just howled. He was making fun, and he did that sort of thing all the time. Whenever he would say the word red, he would make some comment. And I enjoyed Professor Sears' classes immensely. And I liked Professor Ken Wadleigh, who taught mechanical engineering. He was quite young at the time, I think he had been a research assistant and then became a professor.

MH: Now all the aero/astro majors have to take Unified their sophomore year. Did you have to take anything like that?

TA: No, I have never heard of it. What is it?

MH: I'm not sure, exactly, but it's a class they all dread and it's a lab, a problem set, and a test, practically every week. What classes did you have?

TA: The first year, most of us took the same courses. And our grades were different than any other school. H for Honors (A), C for Credit (B), P for pass (C), L for low (D), F for Conditional Failure, and FF for absolute failure (F). The second year, I probably didn't take anything special, some in the departments of mechanical engineering and metallurgy. In the third year and fourth year I took classes in the aeronautical engineering department. There our classes were all pertaining to airplanes, structures, engine theory, stresses and strains. Had to take economics, which I didn't like at all. I had Paul Samuelson. But he hadn't completed writing his book yet. We had it all on mimeographed sheets. I had to take some history class, and of course English. I didn't have to take a language, and I'm sorry I didn't. I could have, but since I wasn't forced to I didn't. Do you have to take a language now?

MH: No, you don't. What were your aeronautical classes like?

TA: I really enjoyed them, because most of them had to do with math. We had some very good professors there.

MH: Did you have lab classes?

TA: Yes, we did and I took machine tool lab. Do you have to take it?

MH: No, not for math.

TA: I had to take it. We had to make screw threads on a pipe, countersink a piece, make gears. Nothing I had ever done before. The problem was all the machines we used were driven by belts that came from gears on the ceiling. The instructor was worried that my hair would get caught in one of the belts. So, I got to use the instructor's machine, which was a new one and was electric. When it came time to stop, we were given two minutes to finish our piece and the belts would be turned off. This was very hard because you could never get the piece quite lined up the same the next day. But my machine did not get turned off, and nobody thought that was fair. I still have all the pieces that I made.

MH: I've done a little of that during workweek at my dorm, but nothing that serious.

TA: It was interesting and I enjoyed it. We had to take a metallurgy course and do some welding and soldering, and I found that fun. Professor Wolfe taught it. He was quite a character, and charming. So many interesting people.

MH: How many people graduated with you in aeronautical engineering?

TA: That's a good question, between 30 and 40. That's a guess.

MH: Which were the most popular majors at that time?

TA: I think Chemistry was a big one. Quite a few were in Physics and Mechanical Engineering was huge.

MH: It still is.

TA: I think Civil was big. I don't think Math was very big and Metallurgy was very small, I believe there were only five that graduated that year. What's nine called? General?

MH: Right now, it's Cognitive Science.

TA: No, that is not what it was. It was something like General Engineering. No one had computers or calculators. We used slide rules.

MH: During IAP in January, they have all these activities that people do and one of them is how to use a slide rule, so they still teach that.

TA: Interesting! You certainly wouldn't want to use it anymore, but it is kind of like an abacus. That's something that has been around for a long time. Have you ever gone into an old Chinese store, and buy three or four things and watch the man figure it out on the abacus? Have you ever tried one?

MH: No, I haven't.

TA: It is fascinating. And I think the slide rule is a piece of history as well. I had a straight one, a long one, but my husband had a round one, which I never have learned to use. You got more accurate answers on the round one, because you could get more numbers on a spiral than on a straight one, in a limited amount of space.

MH: How did you meet your husband?

TA: He had been in the war, the Navy Seabees and returned to MIT in the fall of 1946. He had had one year at MIT before he went into the service, and had lived in a fraternity house in Brookline. MIT owned the house in Brookline, and Simmons College owned a house at 119 Bay State Road in Boston. Simmons wanted the house in Brookline to be the president's house because it was a great big, beautiful house. During the war a deal was made, and the fraternity got 119 Bay State Road and of course, it was across the street from 120. The fraternity occupied it in the fall of 1946, when I was a sophomore. Our

housemother had the big master bedroom in the front of our house that faced Bay State Road. She was not happy with these fraternity men, who had parties out on the street that went on until midnight or 2:00 AM in the morning. And they kept beer bottles on their windowsills, so whenever she looked out, that is what she saw. I don't know personally, whether she complained or whether the word got around; but the fraternity had a meeting and decided that they had better do something to calm down our housemother, or they were going to be in deep trouble. They sent the president of the fraternity over one evening, just at dinnertime. He was dressed to the nines, in gray pants, blue blazer and tie. He was gorgeous. We were all sitting at the dinner table and could see the front door. Our housemother was smitten. He invited us all over for coffee and dessert after dinner the next week. When we got there they were all as beautifully dressed as they could possibly be, and our housemother thought they were wonderful. What a snow job! But Mel (Clyde Melvin Adams), now my husband, was a member of the fraternity and that is how I met him.

MH: That was your sophomore year?

TA: Yes.

MH: So did you two date all the way through?

TA: Yes. We lived right across the street from each other, so we walked to school together and home every day. We walked across the Harvard Bridge every day, too. We got engaged in the middle of my junior year, which did not make my parents very happy. I was the eldest in the family, and this was a shock to them and they wanted me to finish school. I did finish, but they desperately wanted me to come home for a year before I did anything else. That is one of the reasons why I didn't go on to get a master's, they really wanted me to come home.

MH: So when you first went to MIT, were they just expecting you to go for four years and then come home?

TA: Probably. I guess we never discussed it, but naturally, I would come home, right?

MH: I was just wondering because, as soon as I was gone, my mother packed up all my stuff. I don't have a room anymore.

TA: Oh, no. I think they thought I'd probably come back. But, then things were different. Anyway, I did go back home and I lived at home for a year and I worked for Atlantic Research Corporation, which was in Virginia. They had a Navy contract on solid propellant rockets that I worked on. After a year, I got married and we moved back to Boston and MIT.

MH: So, while you were at home, was your fiancée back at school?

TA: Yes. He was in graduate school. He took his exam for his master's degree two days before we got married. I'm not sure whether he had to write a thesis. I didn't have to write one, I could take a course instead. Can you still do that?

MH: I don't know. What other activities were you involved in at MIT?

TA: The only one I can remember was a time when different groups got together and put on a show. I don't know what it was called. Our dorm and some other women students formed a group and sang a song from "Oklahoma", "I Cain't Say No." It was fun and we got a lot of comments. Some of us did some cheer leading for the football team. The team wasn't very good and they didn't play anybody good either. And we went to swim meets.

MH: Did you practice cheers?

TA: Yes.

MH: Did you have the cheer, E to the U, du dx?

TA: Yes. And the songs. I'm not happy that they changed the song "Arise, Ye Sons of MIT. How do they sing it now?

MH: Arise, All Ye of MIT.

TA: We went to Tech night at the Pops, about seven years ago and we got up to sing it and they're not singing the same words anymore. Here in Annapolis, they call the Naval Academy students midshipmen; there aren't any midshipwomen and there aren't midshippersons. They are all midshipmen. It's a term. Why change it? There was another song, it was a funny one. I can't think of any of the lines.

MH: Did you do sailing also? Was there a sailing team or a sailing club?

TA: Yes, I belonged to the sailing club and Mr. Wood was in charge of it. I can't remember his first name, but the sailing pavilion was named for him.

MH: The one that is right across from the Hayden Library?

TA: Yes. We had to take a course and learn how to tie all these knots, not very hard. You had to learn how to take the dinghies out. Then you had to pass some kind of a test to be able to take one out as the captain, in other words, without somebody more experienced. The way I passed my test was a little different. I went down one day to go out as crew, the person who wasn't the captain and didn't control the boat. I was asked if I would like to take a boat out myself. I thought it was a little strange, but why not? I had spent time on the boats and had practiced. They put someone in the front with me as crew, so I sailed, and it was really rough. Sometimes the Charles River gets very wavy.

When I brought the boat back they were really disappointed. I was then told the reason they let me take the boat out was that someone wanted to pass a higher level test. What he needed to do was to rescue somebody who had turned over. They were hoping I would turn over so he could rescue me. I didn't think it was very nice thing to do to me, but fortunately I didn't turn the boat over. Anyhow, I passed the test and I was then allowed to take the boats out as captain. When my younger sister came to graduation, all she wanted to do was go out in the dinghy. She couldn't have cared less about graduation. The minute the graduation was over, we went out in the dinghy.

MH: You weren't still wearing your cap and gown, were you?

TA: Oh, no. I took it off. It brings back all kinds of wonderful memories.

MH: Did you find that the friends you made at MIT were more from the activities you did, from the dorm or from the classes?

TA: I've lost track of most of them in the dorm, except for my roommate. Marjorie House. And several that I had gotten to know at the Margaret Cheney room. And then, in my sophomore year I had a Chinese roommate.

MH: What was her name?

TA: MIT thought her name was Ying Lee or Ling Yee. They had her down as two people which irritated her no end. She didn't really want to come to MIT, she wanted to go to Harvard and study under Walter Gropius in architecture, but she couldn't enter the country unless she was funded. So somebody told her to apply to MIT and they would give her a scholarship. MIT did give her one so she was able to enter the country. She stayed at MIT for one year and then she went to Harvard. She was very nice. She was from Shanghai and her father was physician; they were quite well off, but they couldn't take any money out of China at that time. I've lost track of her too. Someday I keep thinking I'll see some article about her. We did a lot of exploring in Chinatown, to Chinese restaurants and groceries. I got to meet all different kinds of people and enjoyed all my relationships.

MH: So you graduated from MIT in 1949 with a degree in aeronautical engineering and then you went home for a year. What did you do there?

TA: I worked for Atlantic Research Corporation on a project for the Navy on solid propellant rockets. I did just mathematical sort of things. The president of the company was Arch Scurlock, who had a doctorate degree from MIT in chemical engineering. It became quite a large company. I worked for them for a year.

MH: So they were building engines and you were doing the math?

TA: No. They weren't building, it was just research. It was not production at all. After a year I got married and went back to Boston and MIT. My husband went back to get his doctorate. He has a ScD in Metallurgy. I worked at MIT on a project for the aero-elastic lab, funded by the Air Force. It was a top-secret project. It was the group that placed the airplanes during the atom bomb drop on Eniwetok Atoll in 1952. It was to study the effects on various planes at various distances from the bomb. We all had to have a top-secret clearance from the Air Force. We each were assigned an airplane, mine was the XB-47. It was positioned so that you record the effects of the shock waves and to study the stresses and strains on all parts of the plane. We were married in June 1950 and I worked there from August or September 1950 until my first child was born, which was a year and half later.

MH: 1952?

TA: Yes.

MH: Where were you living?

TA: Our first place was 77 Gainsborough Street behind Symphony Hall. That's the place where the Boston Strangler struck for the first time. We, fortunately, weren't still living there. But it was a pretty neighborhood, with lots of students and cheap. One day we ran into a fraternity brother of my husband, Tom Lacy. He told us of a gardener's cottage on his parents' land that was going to be available in the next month or so. He asked if we would be interested in living there. Tom's parents lived in Newton Centre in a very large house with eight or ten acres of land. And they had a gardener's cottage that they wanted someone to live in so it would be kept up. We decided to move and it was wonderful. We were on the middle of this estate with all this land, and we lived there until we bought our first house.

MH: Were you living there when your first child was born?

TA: No, we had rented an apartment in Brighton just before he was born. He was only 2 or 3 months old when we moved out to the Lacy's place.

MH: So, at that time, you had stopped working?

TA: Yes, they wanted me to come back, but I didn't really want to. I wanted to stay home and raise my baby.

MH: Did you always plan to raise a family?

TA: Yes. I don't know whether I was planning to stay home. I had never really thought about it. I think women don't know what they want to do until they actually have a baby. But I wanted to stay home, so I did. I didn't go back to work until my fifth child was in high school, twenty-six years later.

MH: So during those years, from your resume, it looks like you did a lot of other things.

TA: I did all kinds of things, but I did not have a full time paying job. I volunteered and got involved in museums, which I enjoyed very much. I was a docent at the Milwaukee Public museum, gave tours on many subjects. Cincinnati has quite a lovely, big old art museum and in order to be a guide, you had to take an art course, and learn about their treasures and displays, for a year. I gave many tours there. Cincinnati has a historical village out in the woods where they have assembled old buildings to represent a typical middle 1800's village. The kind of a village that could have been in Ohio or the surrounding area. The same idea as Sturbridge Village, but more of a farming community. I think I am into children and children's education. I helped start a children's program there for children to tour and learn about what life was like then. I hate to collect money, or ask people for money, but I have done some of that for various organizations. I taught calculus at the University of Cincinnati to engineers. I enjoyed doing that.

MH: Were those things similar to, or building on, what you had done at MIT before, like working on airplanes at all?

TA: No, but I do like to silk screen and have made my Christmas cards every year since I have had children. I have gone into the schools and taught children how to do it. They could make a simple design to print on little paper napkins for their family to use at Christmas. One of my children was in an advanced middle school in Milwaukee where they were really outgoing and trying all kinds of new things, and parents were encouraged to come in and suggest things to do. Somehow I got involved in the English department, which is not my usual cup of tea. We put on a play for the school of Agatha Christie's "And Then There Were None." It was a great time and fun. Mel was a full professor at MIT when Alan Slichter of Pelton Foundry wanted him to come to Milwaukee and build up the Metallurgy Department at the University of Wisconsin-Milwaukee. He set up a Pelton Professor chair for Mel, so that he could bring, not just people, but research as well and increase the stature of the whole department. We lived there about nine years. In 1975 the University of Cincinnati was looking for the head of the engineering department and Mel took it. Five or six years later the engineering faculty voted to join a teachers union. Mel does not believe that professors should belong to a union, so he resigned and went into full time consulting.

MH: Was that hard for your family when he quit his job?

TA: I don't think it made much difference. He was a lot happier, which made life better. He had his own consulting business and I ran it. I was the office manager, did all the billing, the typing, and getting people he needed to support him. For example, finding a good photographer for evidence in a particular case. His field is metallurgy, and he has been involved in some huge cases. Mostly trying to solve the problem of how and why some metal piece broke. Years ago the Hartford Coliseum's new roof collapsed after ten or fifteen inches of snow fell. Fortunately, it happened at night so no one was hurt. All

the structural supports just bent. And they were metal. He has consulted for many companies here in the US and abroad. One of those was Forensic Technologies, which is here in Annapolis. They wanted him to give up his other consulting contracts and work just for them. They invited him to come work for them for a month. There were many advantages, having all the people that you need to help and support you, right at your fingertips. So we are living in Annapolis.

MH: Where were all your children born? You had five?

TA: They were all born in Massachusetts. They are all about three years apart.

MH: Now what about your experience at GE?

TA: In Cincinnati, GE Aircraft Engines was big there, and I went to work for them and loved it.

MH: You had said before that you were applying for another job but GE said you were overqualified.

TA: Yes. My idea was I would just be a data analyst but Marge Lester, in personnel was not happy with that. She sent me to the personnel office where engineers were hired. I felt I was completely out of touch with engineering because I hadn't done anything in the field for twenty-five years. I interviewed with three different people and in three different areas and the person I liked best hired me. I worked there until we moved to Annapolis.

MH: What did you do there?

TA: I was in an area called "cycles" or "performance." We had a computer program that defined the operation of the whole engine. It encompassed all the parts of the engine, the fan, the compressor, the turbines, etc. It showed all the pressures and temperatures within the engine. We could operate the engine at different conditions, input altitudes, speeds and check how high the temperatures and pressure would get all the way through the engine. We had a computer program for every type of engine. We kept the programs up to date to fit the results of the testing that was going on in the test bays. The tests would yield, through gauges and temperature probes, what is really going on in the engine when it is running. For example, take a turbine blade, if the temperature in the test was different than what we had in the computer model at specific conditions we would change our model. We would keep our computer model up to date on what the real engines were doing in the test bays. These computer models went to our customers, the aircraft companies, like Boeing. They would attach our program of the engine to their program of the airplane and fly it. Then the performance of the aircraft could be determined. What thrust does the plane get with this engine in it, and what is the specific fuel consumption. The commercial aircraft companies are interested in specific fuel consumption, for monetary concerns. The military, for example the Air Force or Navy, wanted thrust. The programs were different for engines going to commercial aircraft companies or military,

because of different needs. I started working in commercial engines and then moved to military. All the engine programs were kept up to date and changed frequently. Whenever something happened in real life and an engine, or some part of an engine, failed we helped determine the cause. For example, when an oil leak occurred. There is always a black box on the aircraft that records almost everything you might want to know. It would show the temperatures and pressures that actually occurred with the leak. We would model these in our computer program and see if we could determine what caused the leak. Our organization was really at the center of all the engines. There were engineers who were fan designers; they might change the shape of the fan blade. Then we would incorporate that change into our whole engine program and see what differences it made to the performance. Or if the turbine designers found a better way to cool a turbine blade, like putting holes in the blade and running water through it, we would model that and determine the changes in temperatures and see if performance was improved. We dealt with all the various designers within GE and all the aircraft designers as well. Performance was the name of the game and everyone worked to improve it. It was a wonderful and fascinating job and I would still be there if we had not moved to Annapolis.

MH: Did the Air Force always come to you?

TA: No, they had contracts with Pratt and Whitney too. There was always a competition when something came up. We were always competing against Pratt and Whitney.

MH: So you were there until you moved to Annapolis?

TA: Yes. Five and half years ago. 1990. I was there for almost twelve years.

MH: Did you have plans for what you wanted to do here?

TA: GE has some offices here, but they are not aircraft engine related and they were not very interesting. I decided I did not want to drive to Washington or Virginia every day. And by this time there was some downsizing in the Navy and Air Force programs. There is a David Taylor Research Center in Annapolis but they were not hiring. I joined a group in Annapolis called "Three Centuries Tours". I took a course to learn all about Annapolis so I could give the tours. I learned a lot and met some wonderful people. There is a community college here and I applied for a job there in the Math Department. I am a part time instructor and teach several math courses. The college also has something called "Math Lab". It is a section of the library that always has an instructor or professor in charge to help or tutor students in any math class they are taking. I love it, it can be very challenging; any student can come with any problem for help. I have private tutoring students too, mostly from high schools. I like working one on one. I have a couple of high school students now. I tutored two for the SATs in the Math II level. They asked some really tough questions. Usually the private students are desperate, and they are interested because their parents are leaning on them. I have also gotten into gardening. I've never lived where it's so warm and everything grows. There is a historic house here that has a two-acre garden right in the middle of downtown Annapolis. It was the house of William

Paca, one of the signers of The Declaration of Independence from Maryland. I volunteer at the garden once a week. I keep busy.

MH: Your tour is called Three Centuries Tours? They're historic tours of Annapolis?

TA: Yes. The State House, or Capitol, has been here for three centuries. There were four signers of the Declaration of Independence from Annapolis and their homes are still here. The Naval Academy is also here. The children in Maryland schools in the fourth and fifth grade study the history of Maryland. In the spring they all come to Annapolis on a field trip. We show them the State House, the Liberty Tree (the only one still standing), one of the old houses and the Naval Academy. It is a walking tour and usually takes about two and a half hours.

MH: How did you first get involved in this?

TA: I saw an ad in the paper. I didn't know anything about Annapolis; I had never been here before. I like to learn. I took a two month course and learned about how Maryland was formed, the people and history. We wore seventeenth century clothes and carried a basket. The basket contained items the children could look at, pass around, like horn-books (that the children of the day used in school), tobacco, (that was used for money), hard biscuits (what the people who came from England had to eat on the trip on the ocean), quill pens (a writing instrument), a tea block, etc.

MH: Back when you were at GE, in the 80's there was a big buildup of weapons under Reagan, did you find there was a boom and then things quieted down?

TA. There were two layoffs while I was there. It did depend on work that GE gets. If we are in a competition with Pratt and Whitney for an engine for a particular airplane, and we are not picked to build it, things go down. But there were many backups in many different fields so usually it wasn't too bad. GE hires a lot of engineers right out of college. They have an on-house course that most of them take, that teaches them about the specific engines that GE makes.

MH: Were you working with a lot of people who were right out of college?

TA: Yes, I did. GE has a program that a new graduate engineer can work in four different areas in their first two years before they decide where they would like to work permanently. They would spend six months with one group, then move on to another for six months, etc. Sometimes they would come back to our group. I almost always had someone who was just out of school. I became a manager and had seven or eight people working for me before I left.

MH: Your resume said you were in Mexico City for a while?

TA: Yes. Mexico City has a problem with air pollution. It is a valley, with mountains all around, so any kind of smog or bad air doesn't have a chance to go away. There are also many cars in Mexico City and they use leaded gasoline, not unleaded, so the air is terrible. I coughed the whole time I was there. To cut down on pollution, they instigated a program that one day of the week you could not drive your car. Everyone had a colored sticker on the back window of their car. I've forgotten the sequence of colors, but for example, if you had a red sticker, you couldn't drive on Monday, blue meant you couldn't drive on Tuesday, and so on. The people who had money, bought themselves another car with a different colored sticker, and they were able to drive every day. So instead of making less traffic, it created more. If you got caught driving with the wrong color sticker, you could always bribe someone if you had enough money. It was crazy. A man in Boston invented a device called the Platinum Vapor Injector. The PVI used platinum vapor to complete the gas combustion in the auto's exhaust. The PVI was put in the carburetor, thus it easily entered into the air stream and thus cut the pollution. It was tested in California. California has stricter pollution rules than most of the states, and the PVI had been accepted there to cut down pollution. The inventor was able to get a group of financiers together in New York who were willing to fund a study in Mexico. I got involved because Mel and the inventor had worked together in Massachusetts.

MH: Did your whole family go?

TA: No, just me. I went and stayed for two weeks out of every three. I would go for two weeks and come home for one. Mel came down several times, instead of me coming home. By the time I got there, the PVI was on a fleet of cars. What the financiers were trying to initiate was for the government to agree that if you had a PVI on your car, you could drive every day. There was a government organization like our Bureau of Standards that tested the PVI and the test came out good sometimes and not so good at other times. I got involved in the testing and writing reports of results. My Spanish was very poor. I could get along, but not real conversation, so I had an interpreter that went with me everywhere. We tried to sell the PVI to companies to use on their cars and trucks. The government was trying to decide whether they would recommend it. They finally decided that they would endorse the product if it passed a dynamometer test, which is supposed to be similar to driving on the highway. The car is put on the rotating disc, which rotates your wheels, so that it seems like you are driving at 60 miles an hour. The only city close to Mexico City with one of these test facilities was Puebla. It is where the biggest Volkswagen plant outside of Germany is located. We hired an engineer from the government facility and he and I went to Puebla to supervise the testing of the PVI. The people at the VW plant wanted it to work because it would be a feather in their cap, so they entertained us like mad. Every day we had a huge four or five course lunch. We started out with some kind of a drink and then course after course. We all had the same thing, but every day the menu was different. We had much wine, and desserts that were really fancy. And we did this every day. We went into a special dining room and all the top people were there. I met some very interesting people, all Germans, of course. I was impressed that the top people at VW spoke not only German, but also Spanish and English fluently. I was there for several weeks. And again, it sort of worked and the inventor said

that the reason the PVI didn't work as well on the dynamometer is that it needed vibration to work. Driving on the road, your whole car is being vibrated and in the test it is not. It was a fascinating experience and went on for almost a year. Then the engineer we hired took over and they didn't need me any more. I had just about had it, being away so much, and was glad to come home. Our company had an apartment in Mexico City with a maid and that is where I lived. Took taxis to work. It was quite an experience. Some of my family came down at times and my sisters came to visit too. The apartment was large and I only took one room. I'm afraid the PVI never got full acceptance the way the inventor would have liked.

MH: Are they still trying?

TA: I'm sure the inventor will never give up. But the financiers in New York gave up and that kills a project when you run out of money.

MH: Do they still have stickers down there?

TA: They still do as far as I know. And it is only used within the bounds of Mexico City. Once you get outside of Mexico City, you're all right. If you drive an American car down there, you don't have to have a sticker.

MH: So then you can drive all the time.

TA: Yes, but if you rent a car, it has a sticker. I really learned to like Mexico City and I had a good time. When I was there on weekends, I played. I went to their archaeological museum and Maximilian's Castle in Chapultepec Park and many other things.

MH: Your children all went through school. How is your attitude toward their education different from that of your parents?

TA: I think I was more involved than my parents were. I think the schools have changed, too. When I was a parent and my kids were in school, the schools wanted parents involved. The teachers were very happy to have you come in and help in some way, even in the public schools. All our children went to public schools. I don't remember it being that way when I was young. I don't think my mother came in and did anything, and I don't think anybody's mother did. I don't know why, but they didn't. Teachers were for school and parents were for home.

MH: What about putting them through college? Your daughter went to MIT. Were you pleased when that happened?

TA: Yes, we were very excited that she decided to go to MIT. All our children have had quite a bit of schooling and with emphasis in math and science.

Clyde, the eldest, entered Yale University, then went on to study at the University of Wisconsin and the University of Cincinnati. He got heavily into computers and programming. He worked for many years as a senior software engineer at Cincom, a Cincinnati software company. He currently lives and works in Ventura County, California, where he is the webmaster for Semtech, a manufacturer of computer chips. He is also the president of the Smart Battery System Implementers Forum, Inc., an industry group created in 1995 by Intel and others to champion standards for “smart” batteries, batteries with embedded chips.

Joan has had a long circuitous route through the halls of academia – starting at the Art Institute of Chicago, then continuing on to get a degree in Metallurgical Engineering at the University of Wisconsin – Madison, with a year abroad at the French engineering Ecole Centrale in Paris. She was awarded her masters in Materials Science and Engineering (course III) from MIT in 1980, and went back to school to get her MBA at Wharton in 1992. She has lived in New York City for over ten years and runs a small management consultancy; Pierian Resources that specializes in helping small businesses become more profitable and grow.

Bruce has a bachelors of science from Carnegie Mellon University in Applied Math and has continued to live in Pittsburgh ever since. He has worked as a systems engineer, systems tester and is now an enterprise system architect at PNC Financial Services Group. He and his wife have two young boys. He and his family are actively involved in (and live quite near) Calvary Episcopal Church.

Jill went to undergraduate school at the University of Michigan (Ann Arbor), and then did her doctoral work in pharmacology at Emory University. After obtaining her PhD in 1990, she held a series of research posts ending up on the faculty at New York University School of Medicine. She now lives in upstate New York with her husband and three children, and works as a freelance science writer.

Our youngest daughter, Jean, graduated from Bradley University in Biology. She worked for the Wisconsin Department of Natural Resources as a biologist, then received a Masters in statistics from the University of Wisconsin (Madison). She joined the Peace Corps, where she taught high school math and science for two years at a remote (bush) boarding school in Papua New Guinea. She is now the statistician for the U. S. Geological Survey’s Great Lakes Science Center, primarily consulting with research fishery biologists. She lives in Marquette, Michigan with her husband.

MH: Have you gone back to MIT?

TA: Yes, and we are looking forward to going back for our fiftieth reunion, which I can’t believe. We do go back and visit friends in Boston and we went to our fortieth.

MH: Did you stay at a hotel in Boston?

TA: No, we stayed with friends, and we got involved in all the activities and, of course, we knew a lot of people. We lived in Lexington, MA and where many people live who work at MIT or Harvard. You got to know a lot of people, not just professionally, but because your children went to the same schools and you got involved in their activities. Paul and Priscilla Grey lived in Lexington and we knew them then. The last time we went back was about six years ago.

MH: What kinds of activities did you do then?

TA: We always go to Tech night at the Pops and there was a dinner, and a luncheon with a speaker. Nothing terribly exciting except seeing old friends. I think the fiftieth will be a big deal and everyone that can, will come back. I'm certainly glad that I went to MIT.

MH: So you never regretted it?

TA: No. I've gotten to the point where I don't make a point of it.

MH: It's just another thing you did?

TA: Yes. I have a neighbor, who, every time I meet somebody new, the first thing she would say was that I graduated from MIT. It's like you have something the matter with you and I don't feel like I have anything the matter with me.

MH: After you had raised your children and went back to work, did you think of going back to school at all?

TA: I went to school through GE, not to get a degree, but I took several different courses.

MH: So, you didn't want to go back for a master's?

TA: No, I don't really care about a degree. In fact, I'm going to take a writing course in the next two weeks. I have several ideas for a children's book. I am going to take up quilting and who knows what else. And I would like to speak another language fluently.