

William R. Dickson Oral History Project  
Interviewers: Stephen Immerman and Susan Crowley  
January 12, 2005

INT: We are with Bill Dickson. And the first thing we're going to talk about is how he got to MIT.

WD: Well, I'm going to sort of ramble on. So, obviously, this can be edited as necessary. I'm going to start at the beginning. I was born in Framingham, Massachusetts, on April 9, 1935, at the Framingham Union Hospital, an institution that I later became Chairman of. I attended public schools in the town of Framingham throughout my 12 years and was -- particularly in the latter part of the high school curriculum -- was very interested in a variety of things other than just academic work. My senior year, for instance, I was captain of the football team, was assistant editor of the school yearbook, vice president of the student council and a member of the cast of the senior play. I can remember vividly I was Bowman T. Jackson from Texas in *Mother Is A Freshman*. Along about January of my senior year, my father said to me, if you're going to go to college don't you think you better start thinking about it, which I had not spent a lot of time contrary to current times when people spend years thinking of college. And so, I'm not sure how but I either sent for or received an application from MIT, figuring I would like to be an engineer, really not having much of a planned future. And I filled it out and sent it in January. And in the first week of February, I had an interview with B. Alden Thresher, sort of known as the Dean of Admissions throughout the country. And Thresher and I had a long discussion. It must have taken all of two minutes, and he said to me, why would you like to come to MIT? In my worldly way I said, well, I think I want to be an engineer, and I hear it's a pretty good school. He thanked me and said that I would be notified in April as to admission or not. And I left. By letter dated the 13th of February, I received a letter from MIT that said in my case I would not be required to take any admissions examinations.

INT: Really?

WD: So, I never took the world famous SATs or whatever they were called at that point in time. But they would let me know in April. And I said to myself and my father if

they're not going to make me take a test, how can they then turn around in April and not let me in? So, I just went along my merry way. And on the 28th of February, I received another letter from MIT. which admitted me to the Class of 1956. So, my whole college admissions process took place in the month of February of 1952.

INT: You didn't apply anywhere else?

WD: I did not apply anywhere else so that it wasn't complicated. Of course, it shows how times were different at that point in time than they are now. So, I entered the Class of 1956 in September of 1952. Everyone took exactly the same thing -- every freshman. There was no variation. So I think there were something like 900 students in the entering class, and they just divided it up. I remember there were 33 sections. And everybody had a section number. I was 13. And you had all your classes together, your section. So, those were your classmates for the whole first year. And, of course, you had no option as to what you took. You took chemistry, physics, calculus, humanities -- I think it was ancient civilization -- and engineering drawing and ROTC and maybe something else that I'm missing.

INT: Everybody was in ROTC?

WD: Everybody for the first two years -- everybody was in ROTC.

INT: How many women were in your class -- not many, huh?

WD: Six. And they didn't all graduate. So it was not a very heavily populated class. So, everyone had a list of topics that they might pursue or a course when they entered, and I listed chemical engineering. And I grew to hate chemistry. Without much trouble, I hated it. Probably some of that was due to the fact that many of the students in the class had been to technical high schools. I can remember the chemistry guy apologizing. When he gave his first lecture, he said that so many of you will have had this that I hope I don't bore you for the first few weeks. And I never knew what the hell he was talking about. I had had chemistry, but I had nothing like he was talking about. So, it was a very difficult subject for me. I really didn't like it. I can remember we had classes -- we went to school basically from 9:00 o'clock in the morning until 4:00 in the afternoon. We had classes on Saturday mornings -- laboratory. And I had chemistry laboratory on Saturday mornings for at least one term.

INT: And you commuted, right?

WD: Yes. So, I remember that everybody would find the unknown, and I was the most careful person there was. I followed directions right down to the letter. I'll be darned if I could ever find the unknown, however -- where the other kids would throw stuff together and come up with it. So, it was discouraging. So, somewhere through probably near the end of the first year I decided that chemical engineering was probably not the course to pursue. And my father who was in the lumber business had nothing to do with my education. But I was acquainted with construction. And I decided that of all the courses that they offered that I might pursue one in building, engineering and construction, which was then Course 17 -- done away with in the '60s and 17 is now political science. I did commute for all four years. The first year I rode with two crazy men from Framingham; one of them who was a retired professor now from MIT -- Bill Bertozzi and the other was Ned Kingsbury, who went to Framingham High School. They were both seniors, and I was a freshman, and I drove with them. They used to fight like cats and dogs. Ned was basically -- would have loved to have been a farmer and Bertozzi was just a genius. To give you an example, Bertozzi went with a girl from Wellesley, and I did also -- a different girl. And they compared notes one day. And the girl that he was going with said Bill came over last night as he often does, and we went for a walk. And I answered the door, knowing it was him, and all he said was don't say a word. So, she didn't. They went out, and they walked. She said about 20 minutes into the walk, he goes -- wrong answer! So, he was doing a problem in his head. He also called me in later years after I was working in MIT. He called me at 1:00 o'clock in the morning. And I was sound asleep. And I got up. And he said this is Bill Bertozzi. I said hi. How are you? Why are you calling at this time? He said, well, you know, I'm building a house in Lexington. I said, yes. He said, well, I was trying to figure what size the steel beam ought to be running down the middle of the basement, and I needed some help. So, I thought I'd call you. I said, do you know what time it is? Oh, well, I didn't realize it was that late. So, he was quite a guy, and I had a lot of association with him over the years because of the physics he was in had to do with the accelerator.

INT: Were all your classes in the same general buildings? Do you remember where they were?

WD: The classes, basically, were in your original main group except for ROTC, which was in the -- well, the first two years ROTC was mandatory for everyone. It was basically a drill thing. And once a week you had to wear your uniform so you had all these little guys running around with uniforms on. In one of my years, the cadet -- was Paul Gray. So, that was my first contact with him, although I didn't really know him at the time. So, as time went by at the Institute, I got heavily involved in the building construction area and frankly the courses were much more to my liking than chemistry, although we had to take physics for four terms. The fourth term was atomic physics. I can remember one exam where some guy was sitting in the room with the window open, smoking. And the particles were a certain size. The question ended up being how long does it take for a particle -- after he exhaled it to get out the window or something. I frankly had not the slightest idea. I should have said that he shouldn't be smoking. I, actually, enjoyed the building constructing curriculum and turned out doing quite well in it. The last term I either got a 5.0 or close to it. It was very enjoyable. I enjoyed the teachers, professors. Many of the names are well known. The head of the department was Al Dietz who was perhaps the smartest guy about materials of construction and stuff that I ever met. And I continued my association with him for years. I got to talk with him a lot when I went to work at MIT. And we often talked about various things. I had LeMessurier for steel design. Of course, LeMessurier ended up being one of the foremost structural engineers in New England. Howard Simpson for concrete design of Simpson, Gumpertz & Hager. Vernon Gumpertz in job organization, and Frank Hager in wood design. So, you could see they all went into their businesses probably as a result of the course closing and just other outside interests. So that it was a very interesting time, and I do believe I learned a lot -- actually, learned it rather than committed something to memory and was able to repeat it back for a test.

INT: Were you required to do a thesis?

WD: I did do a thesis. Everyone was required to do a thesis. And mine was so interesting that I have a hard time remembering it. No. I know exactly what it was. One of my

classmates was a Swede, who was older than we were and had worked in construction in Sweden as a mason and was sent to MIT to get a degree by his company. And he built a brick wall about four feet long and maybe three feet high. And I put it in a constant temperature room where you could vary the temperature over a wide range that we borrowed it from mechanical engineering. And then I took measurements on what happened to the size of the wall as the temperature varied a lot. In other words, when it got very cold, it would tend to shrink, and when it was very warm, it would tend to grow. The theory being that I was trying to prove why parapet walls failed so often because they're basically just a freestanding wall attached at the base. And people in the business know that they were constant source of problems. And, then, I guess, he built two walls identical. And the other one I borrowed lead bricks from the physics department, and I put a fairly substantial load on it with the lead bricks. They were heavy suckers -- and then made the same kind of measurements. And to see that would represent more a wall within a structure where it had both tied at the base and at the top and, actually, at the sides. And I wouldn't say that it's the world's most conclusive statement, but there was no doubt that the wall that was unloaded moved much more than the wall that was loaded. And I don't think I really finished as far as I might at the end of the term. So, the project was taken over by a guy that was a senior the next year who happened to be Steve Hawkins. And Hawkins once said to me as I got to know him in business -- where the hell did you get those readings that you had? I said what do you mean? I used a -- I can't remember what the device was called -- but had a couple of points set, and you would stick this thing in the point and read the difference. He said, oh, I thought you made them up. So, anyway, that was the thesis. I still have it kicking around somewhere. I did go into the advanced ROTC, which was not required of people. That was optional. And we had a boatload of units at the Institute. We had not only the air force and navy but about eight or nine army units, engineers -- I can't even remember them all -- army security agency -- we had a bunch of them. And I was in the engineering -- and, of course, we had to go to ROTC summer camp between the junior and senior years.

INT: Where was that?

WD: I had to go to engineer -- down in Fort Belvoir in Virginia, in July -- the hottest place I've ever been in July. And it was like basic training essentially. I think it was six weeks that we had to go. I sort of liked course work in the ROTC. When I got through, I was one of nine or ten people in the class to be designated as distinguished military graduate. All that would do for you was to let you get a commission in the regular army as opposed to the reserve army corps. I decided before I went into service that it probably was a mistake in my case. I didn't think I really wanted to spend 20 or 30 years in the army. So, I gave it up and took the reserve army corps. You were supposed to serve two years after you got out of school. But because the Korean War had ended a couple years before -- that's one of the reasons why there was so many people in the reserve corps because, really, if the war had kept on that would let them finish their studies before they had to go to service. I deferred going in the service for a year, which was probably as much as I could, and I went to work when I graduated in '56 at Lincoln Laboratory. And I worked there initially for the summer because I had gotten admitted to graduate school. But, then, I decided that with the military coming up and having recently been married and stuff that perhaps I would not go to school at that point in time. So, I stayed on at Lincoln and ended up being there basically for a year. I worked in the construction engineering group and gained some notoriety as the person that was able to figure out the deflections of a very large antenna that was going up on Boston Hill -- somewhere in one of those northern cities in Massachusetts -- North Andover or something. And I was able to do it by using something called the bar chain method, which I had learned in structural design at the Institute. And no one else that worked out there -- there were some very sharp guys you'd ever heard of because they were all considerably older. So, I stayed out there for a year. And in June of 1957 I went in the service for my tour of duty, and there were so many second lieutenants in the army at that time because of everyone that had taken ROTC during the Korean War and right afterwards that the army came along and said we'll give you an option. You can go in for your two-year tour as planned and be in the reserves for six years, or you could go in for six months and be in the reserve for seven and a half years. And I elected to do the latter. So, my military tour was six months.

INT: Where was that?

WD: Well, I actually spent the first part of it in training again at Fort Belvoir, which was the engineer school. And, then, I was assigned to Fort Devens. Then, we spent a little time up at Camp Drum --

INT: Oh, yes, upstate New York.

WD: And, then, back to Fort Devens, and I was discharged. So, I didn't do any worldly traveling during my military career. To finish that up, I had to be in the reserves for a seven and a half year period. And I ended up in the Ten Hundred and First Research and Development Group which met at MIT. So, that meant that I could -- well, that's a long story -- I shouldn't get ahead of myself. I'll come back to that. I went back to Lincoln Lab after I got out of the service. And I was there another six months. So, I was there a year -- went in the service for six months and then was there for another six months and actually enjoyed the work quite a bit. And we used to design field sites for the radar systems all over the world. And that was sort of interesting. Instead of big buildings, you'd work mostly with portable structures and trailers. So, one day my group leader who was a guy named Bill Theriault, who happened to be one of the partners in the firm that built Building 20, and the division head, which consisted of three or four other groups called me in and told me that they just wanted to let me know that there was a lot of talk about the government cutting back on the funding of the laboratory. And if that happened, they would all have to share, and they felt that one person from our group would have to go. And they said we wanted to tell you that if it happens, you'll probably be the one to go. And I said, well, thank you for telling me. But just a week or so ago you both sat here saying that I was probably the brightest young guy that they had seen in years working there. They said, well, that's true. But you don't have a family.

INT: No kidding.

WD: Of course, the others were older, and they had families. So, times were different then. So, I said to myself I don't have to get kicked in the ass too many times. I started thinking about doing something else. And I answered an ad in the newspaper for Avco Corporation -- Research and Advanced Development Division who were then in Lawrence, Mass. at an old mill but was soon to move to Wilmington in brand new

quarters. And I had an interview with the head of the applied mechanics section, and I was hired or offered a job and took it. So, I was, therefore, hired. And I went to work up there, I think, in June of 1958. The main job was to do structural analysis on the Titan and Minuteman reentry vehicles. And I don't know how, but I soon became quite skilled at mathematics that I thought I would never see. And I actually designed a mathematical formula for the forces on a reentry vehicle and got a fair amount of notoriety. We ended up giving a paper at the fourth symposium on international and space technology at UCLA. It was an interesting time. We had cocktails on one of the nights we were out there at Jimmy Doolittle's house, who lived in Bel Air fairly close to UCLA. So I had an opportunity to speak a fair amount with Jimmy Doolittle. I got promoted at Avco probably because of this work on the forces and reentry -- and was promoted to -- I think I might have been an associate engineer. Anyway, I think I became associate scientist. And there was a group of seven or eight of us that literally were housed in a penthouse. It was almost all glass on top the building. It was called the advanced projects research staff. The object was to invent ideas, proposals, for submission to the government for possible funding. And I can remember vividly that the last thing I worked on was called the effects of high altitude nuclear blasts on incoming ballistic missiles. And while I was sitting there one day pondering my navel, the telephone rang, and there was a lady at the other end who said her name was Elizabeth Young, and she was a secretary at MIT. That turned out not only to be true but probably the premier secretary at MIT. She had been there since 1923 but used to run the Credit Union when it was first formed. She'd go down with her lunch and take in money for the people.

INT: What did she do? She used to keep it in a box?

WD: Yes. They had a shoebox. Absolutely. Down in Building 10. You know that place down there that has a glass door with a little hole in it. That's where it was. So, she said that they were wondering if I would be interested in having dinner with Mr. Peterson who was director of buildings and grounds -- it was called -- and a Mr. Stoddard who was vice treasurer. I said, well, why not. So, I had dinner in a week or so with them at the Faculty Club, and they explained to me how they were going to be going into an ambitious building program during the '60s. And that people -- there

weren't many -- were all getting along in age and that they wanted someone young to come in who could help in this effort and would also possibly want to stay on after the effort was over.

INT: How did they find you?

WD: Well, I found out later on how they found me. Phil Stoddard went to Bud Wilbur who was the head of civil engineering and Al Dietz who was still the head of building construction and asked them to come up with three names of students over the last ten years -- and he explained what they wanted the person to do -- and they did. They came up with three names. I found this later on. Stoddard told me. The three names were myself, Jack Curry, and Jim Champy.

INT: No way. You're kidding. What a crew.

WD: So, they looked at what everybody was doing, although it was quite limited, and decided that I might be the best fit. So, I think they probably interviewed me first. And I'm not sure they interviewed anyone else because I was offered the job within two days.

INT: Did Jack and Jim know this?

WD: Eventually, Jack knew it.

INT: What about Jim?

WD: He probably knew, too.

INT: So, in two days they hired you.

WD: Two days they gave me an offer. It was fairly nondescript. My title was going to be assistant to the director of buildings and grounds. So, on the first of June in 1960, I went to work there. I was sort of unsure even who I was working for because it was quite clear to me that Peterson wasn't the guy who was going to sit around and spend a lot of time working with me. We had a so-called construction manager. His name was Ed Piper. And I worked with Ed. I wouldn't say that I ever worked for him. Or if I did, it was short lived because he ended up working for me. And my first three projects that first summer I was there was an addition to the eighth floor of Building 16 -- the East Parking Garage and the dining hall at Burton-Conner. So, that's how I spent my first time there for the summer. And, then, somehow I got involved in design work in the Green Building, which was called the Center for Earth Sciences. I

spent a considerable amount of time working on it. As most projects did at the time of any size, they had a guy that represented sort of the faculty. His name was Harry Morse. He wasn't a faculty member, but he was one of the Morses whose family had owned Simplex Wire & Cable.

INT: In Morris Hall.

WD: And so, he and I worked closely together. And one day he said to me -- and I doubt that I had been there a year -- he said to me -- you know, things get all mixed up. They send some things to Peterson. They say they send some things to me and some things to you. And we need to pull them all together somehow. So, they said to me why don't you take over the job of coordinating all of those things, and only you deal with the architect. And then, when they want to know things, you decide who you got to talk to -- whether it's me or whether it's Peterson or Barraford or whoever it is. I said, well, it sounds all right to me. So, I went to Peterson and told him about the idea. He said good idea. Why don't you do it? So, I promoted myself and ever since that took place, on any new job that came along I was the principal representative of the Institute.

INT: This was on the Green Building?

WD: Yes. So, at the same time I had a lot of things coming my way. And I said to Peterson one day -- I said, you know, I haven't been in this business too long. Do you want me to check with you on these things? I won't say the whole thing because it's not good. He said if I had wanted you sitting in my office checking everything out, I would have hired a chimpanzee. So, I said to myself, I just got the license. And obviously, I thought I was smart enough so that if I had things that I really should be checking with that I would. So, it was off and running from there. We finished the design of the Green Building. It was completely different than it is now - - had a 5 million dollar budget. And when we received bids from the select list of four or five it was 1 million dollars over budget. And Pei had in his agreement the fact that if it was so much over budget, he had to redesign it at his cost. So, they did redesign it. The original building had oval windows, was a series of concrete Vierendeel trusses. Those were done away with. And it became somewhat more conventional.

END OF SIDE ONE

SIDE TWO

WD: Well, that's pretty much the story of how I got into my position. I stayed and worked through many new buildings during the '60s. We built a lot of buildings. I can remember one year we bid 11 projects in 12 months. And some of them were not brand new. Eventually, not too long after I started, we realized the scope of the work. There really was -- well, three or four people who worked at all of these jobs. That's it -- myself -- Peterson did a lot of work in the mechanical area. Jerry Barraford did a lot of work in the electrical area. And Pieper who was a very knowledgeable guy, but he did a lot of talking. I used to plot how I could go in his office and get out of there without having to listen to it all. I soon came to just standing in the doorway so that I could turn around and get out whenever I needed to. As I said, Ed was quite a brilliant guy in this whole area, but he talked too much. And, eventually, he left and he went to be maybe the architect's representative on the National Gallery in Washington. Later on, he became quite enamored with the stock market, and I think he spent full time analyzing and playing the stock market. I haven't seen him in years. I don't know whether he's even still alive.

INT: Can we go back to when you were a student? I wanted to make sure that I asked you about the NRSA because it doesn't exist anymore. Were there other student activities you were involved in besides -- well, I guess, you can't call [inaudible word] a student activity, but you were a member of NRSA, right? And were there other things that you were involved in?

WD: Oh, yes. That's the 5:15 Club?

INT: Yes. Right.

WD: We used to have a room over at Walker, and I used to eat lunch over there and play ping-pong. We had a lot of ping-pong going on over there. Some of the people in that club were Terry Meehan and some other guys. Being a commuter, I wasn't involved in a lot of activities. Most of them tended to be military oriented. I was a member of [inaudible word] of Blade and things like that. I didn't play any sports again because of time constraint.

INT: You didn't play baseball?

WD: No. Phil played baseball. Well, another interesting thing, though, was after my first year at MIT, which was okay, but like I said, it wasn't my best academic year ever because I didn't like a lot of the stuff I had to take. Lo and behold I was offered an appointment to West Point, and I had to do a lot of soul searching and rather quickly decided that it would probably be a mistake in my case. But I thought it was interesting anyway.

INT: Who did you hang out with?

WD: Well, as I got into building construction, it was mainly those people. Trussell was one of them. He came down in the 3/2 Plan from Bowdoin. So, I think, I probably was a junior when he came. And he probably came to be my best friend there -- and Willy Joy, another guy that came in a 3/2 Plan -- and Chuck Ladd who has been a professor in civil engineering. But not too many people. As I said, the first year was all divided into sections, and I really didn't get to know many people then.

INT: So, when Phil came down for the 3/2, you actually had classes together?

WD: Oh, yes.

INT: So, he did three years at Bowdoin, and he did two years at MIT?

WD: Right. We had a lot of classes together. We both got accused of cheating together.

INT: You did?

WD: Yes. We had a course in civil mechanics. We had a final. And we got very good grades on it. And we studied together with another guy, Walter Conrad. And we could tell what this guy -- what he was going to ask. So, we knew that he'd ask about flocculation. And it was a paragraph and a half in the book on flocculation. We memorized it. And he did ask about flocculation, and we recited it verbatim back on the paper. And he called us in afterwards. He said we obviously were cheating. We said, why do you say that? He said, well, look at this. And I said would you like us to recite it right now while you're here? And we convinced him that we were able to figure out what he was going to ask and just learn it.

INT: Didn't you used to go to Maine and survey, too?

WD: That ended the year before I would have gone. That was the famous MIT survey camp. We had to take surveying in the summer one year. And we surveyed a park

out in Newton. I'm sure the professor probably got paid for it. But we didn't go to Maine.

INT: Did you have an advisor at MIT?

WD: I met him once.

INT: Who was it?

WD: Ed Gilliland in chemistry. I met him once. Well, I'm going to have to call it in.

[End of interview]