

## Ernie Cohen '64 in His Own Words (2014)

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### Early Years

This is a short story about Ernest Cohen, a young person from Charlotte, North Carolina, who wanted to be an Electrical Engineer. I grew up, in the late 1950's, the child of two teachers, a mother who taught in Middle School, and a father who taught classes in Masonry. Though some would call our surroundings as humble, I was surrounded by books, ideas, aspirations and opportunities to build things. I began with toy blocks and logs, tinker toys, and an Erector set to build things using steel girders with motors and pulleys. I built many wood and paper model airplanes and flew them, as gliders, then with rubber band power, and then with gas motor power. I built and drove two Soap Box Derby racers.

Later I worked beside my father and uncles, building buildings. My teachers, at my all-Black, segregated schools, were always helpful and gave me additional readings and problem sets, and many supplementary experiences, like science fairs and Summer Science Institutes, and performing on the clarinet. I had to enroll in an Auto Mechanics course for a year, to be allowed to transfer into this Second Ward High School in 10th grade, in segregated Charlotte NC. This turned out to be fun and I even went to state and regional competitions. This saved me much repair money in later life.

I had played with magnets and crystal radios, and simple electrical circuits and I was fascinated by pictures of the machinery in chemical processing plants I saw in my books. Going to college, I had already settled on becoming an Electrical or a Chemical engineer.

Meanwhile, the Russians had orbited the earth with Sputnik, the first artificial satellite, and more technical education for Americans became a US government priority. One result was an early morning television show, "Continental Classroom" in which a UC Berkeley Professor Harvey White lectured on high school physics. Later my physics teacher, Mr. Louis Levi, had us buy our

own copies of Prof. White's book, since the local school system would not buy them for us.

Mr. Levi loaned me his own college chemistry book in 11th grade. So I had first class physics, mathematics, chemistry, biology from my Black teachers, all of whom had Master's degrees from Northern schools and knew what should be taught. They were very encouraging, and even gave me a scholarship, when it was time to go to college, and my father was in the hospital. MIT was more than encouraging and generous in a financial support package of grants, loans, and work.

### **Freshman Year**

So I arrived at MIT to stay in a Burton House triple in September 1960 working for Graduate House Dining Staff (GHDS) and my adventure was off and running. GHDS, which had a couple minorities, was a great boost to my social life. They provided trips to the opera, softball games, and parties which expanded my socializing beyond the one or two other people I knew in the Boston area.

At the time, there were 3 Blacks in my class, and only 12 Blacks in MIT's undergraduate school of about 3600 students. After finding Burton very noisy, in first term, I moved to a roomy East Campus single for second term. It was still noisy, so I studied in the stacks at Hayden library, which were as quiet as a tomb. This helped me get on Dean's list by end of second term. Though my very first computer course (fall 1960) was a disaster, I learned more than I realized. I also learned how to swim well and dive (who me?!) and to sail boats which was, and would continue to be great fun.

### **Sophomore Year**

In sophomore year, I thoroughly enjoyed my Electrical Engineering courses (course VI-2) especially the EE labs and physics labs, building electronic circuits and making things work! Oh boy! A second, much better computer course was successful. At the time, there was no personal computer, and very few display monitors as we know them today. Programs were punched into cards, one card per line of code, and left in the basement of building 26. Technicians ran these on a main frame computer, which took up a room on the first floor of building 26. The results were printed on folding paper and left in the basement to be picked up. You never got close to the actual computer. My current smart phone has more computing power than this top of the line, mainframe computer in 1960! I lived off-campus in what is now Random House, in a shoe-box single.

### **Junior Year**

In Junior year I interned (we called it co-op then) at General Radio company in Concord MA and got into some really fancy electrical measurement labs and even made an improved null-detector preamp, using one of the first production field-effect transistors, which later became a GenRad product. There I also got a jump on other MIT students in a later junior year circuit design course. I had fun at MIT in the EE High Voltage lab, and learning magneto hydrodynamics theory (the submarine worm drive in the movie "Red October"), quantum physics, and more programming. I moved off campus with **Bill Eagleson** '64 to Lee Street, near Central Square and developed Black friends at both MIT and Harvard.

### **Senior Year**

In senior year, there were courses in Automatic control (my future dream), solid state physics, and my thesis at Research laboratory of Electronics, building a very high gain operational amplifier, and Beethoven's String quartets (Music was my Humanities minor) and more elaborate systems at General Radio, and more programming computers.

### Post-MIT

In 1964 I graduated in VI-A with a SB EE and took a Master of Science Degree in Control Engineering from Case Institute of Technology two years later. There I was a teaching and then research assistant and was exposed to such exotica as optimal control theory and artificial intelligence. I did a Master's thesis in Identification (determining the parameters of a system's differential equation by computations on only its inputs and outputs).

Case was an urban campus. I worked in the Cleveland Tutorial Project, tutoring a Black inner city high school student. I was very close to the summer 1965 riots in Cleveland and heard much gunfire, saw a fire-bombing near the graduate dorm, and got several hard looks from National Guardsmen in jeeps with mounted, loaded machine guns. Fortunately, we survived, unscathed. There were less than 10 blacks in the Case Western Reserve Graduate Dormitory, all of whom became well-recognized professionals (e.g. Dr. David Satcher, former Surgeon General of the US).

I went to the Foxboro Company, 1966-2000, as a Systems Application Engineer on industrial process units and plant-wide control systems in Pulp and Paper, Recycle Paper, Chemical, Mining, Textiles, Waste Treatment, Water purification, and Food. I used several generations of computer process control systems, throughout the United States. I retired from Invensys Foxboro Co in 2000 and then consulted independently as Accresyn Inc. for two years, and then re-retired.



Ernie Cohen (center), undated [MIT Museum]



MIT alums, undated. Ernie Cohen at for right. *Courtesy: MIT Museum*

### **Retirement**

I have played clarinet since 8th grade, and I played many concerts in bands, orchestras, and in church and sang tenor in the church choir; and now record others' music. I was lead engineer for a church wheelchair lift project, among many other roles.

I have been shooting still photographs and videos since 1970. After learning to sail at MIT, I have been cruising on Narraganset Bay and over to Nantucket Island, in several sailboat types.

I joined the Snow Rovers Ski Club of Boston, an interracial ski club, and skied on many mountains from the US Northeast to the US Rockies, British Columbia, and Innsbruck and Kitzbuhl in Austria.

### **Red Jacket**

I have been an MIT Educational Councilor since the 80's, and am now retired. I worked on five Black Students' Conferences at MIT in the 80's. I was involved in the creation of Black Alumni of MIT (BAMIT) and was President for two years. I helped create, and have contributed to the Ronald McNair Scholarship Fund, which has now granted scholarships to dozens of MIT minority

students.

Returning to MIT at the 50th Reunion of the Class of 1964 was like returning through a time warp. I was very impressed by the Cardinal and Gray uniform with its red jacket and large Class of 1964 pocket badge.

It was a big thrill to be recognized immediately, with a big smile, by several old classmates at breakfast, like Richard Carpenter, a VI-2 classmate. A spoken welcome back to the campus by young MIT students was also a thrill, when they saw the uniform and knew what it meant. This happened over and over all day, right through to the reception at **President Reif's** residence, and the dinner gala afterward, even with people and their spouses I had never known before.

We are mostly grayer, and more plump, but we still have a twinkle in the eye and enthusiasm in the voice when talking about our career activities and current interests. We still have the optimism of youth, though now much more reserved in expression. We were all MIT that day.

A good part of the thrill comes from knowing all these people have made the long march, and been through many personal wars, similar to my own, and come out stronger. The people I met have been everywhere, done some really big things (some far beyond my scope), and yet they still come across as decent, thoughtful, pleasant people. I think that is what makes me proud to wear the Red Jacket of the 50th MIT reunion.

