

## Chapter 5

### College - Manchester University

In the spring of 1955 my parents drove my eventual classmate Paul Masterson, Emmert, and me to Manchester College to check out entrance requirements. I was able to qualify for a \$200 scholarship which was one fifth of the \$1000/year which we estimated college to cost. On September 4 of that year my folks drove me to North Manchester, Indiana, to enroll in college.

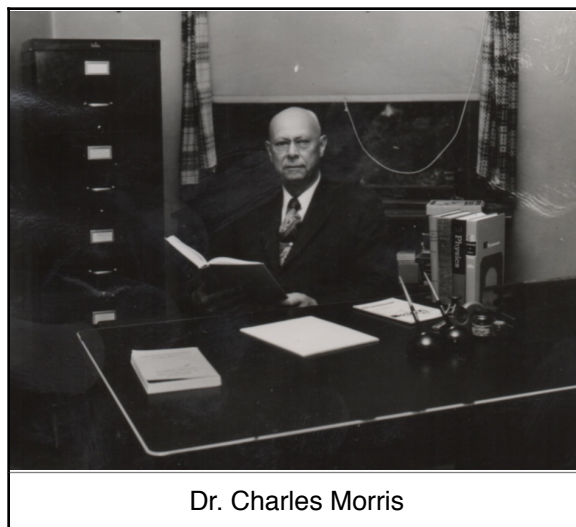
I was assigned Dr. Charles Morris, professor of physics, as my faculty advisor to help me enroll. He asked what I was interested in majoring in. I said "Either chemistry or physics." He said "You'll major in physics!" So with this simple declaration Dr. Morris became my life long friend and advisor. He would become a huge influence in shaping my career as a physicist.

During Career Day my Junior year in high school I had debated between science and law as a profession. I liked science because I had enjoyed the science labs and had been good at it. Because I had enjoyed debate class and the art of making good arguments, I was inclined to law where such skills are valuable.

However, after hearing both a lawyer and a scientist describe their profession and the training it requires, I decided that I much preferred working in the lab as opposed to reading dozens of precedent setting court cases. Much as I enjoyed debating I decided I preferred working in the lab. So Dr. Morris did not have to work too hard to direct me towards physics.

I did, however, continue taking all the chemistry courses Manchester offered. Of course I took all of the physics courses offered and taught by Dr. Morris, except in one case. I also took all the mathematics courses offered, starting with calculus. Most Freeport high graduates began with calculus because of the excellent math background offered by Mr. Baumgartner. The chemistry courses, qual and quant, were instrumental in getting my first professional job as a chemist at the Freeport Microswitch Company.

One of the benefits of doing well in physics and math classes is that one got invited to join the honor societies in these fields. So I joined Mu Pi Sigma and Sigma Pi Sigma in physics and Kappa Mu Epsilon in mathematics. These societies offered programs in their respective disciplines and were important in indicating our interest on our resumes.



Dr. Charles Morris

My first campus job was shoveling coal. Manchester had ground level coal bins, and coal was delivered in simple coal cars carrying 64 tons with no bottom spouts. So coal was shoveled out of the cars by four shovelers, each handling 16 tons of coal. It was hard, exhausting work.

When Dr. Morris learned about my need for campus work, he offered me the job of janitor for the physics department. This included sprinkling damp sawdust on the hardwood floors, sweeping them, and reorganizing all the physics labs to their starting state. It was rather tedious work but sure beat shoveling coal! And I got familiar with much of the lab equipment.

After several months Dr. Morris called me into his office and said "I take it you're not too fond of janitoring." I admitted it. Then he said "How would you like to work for me as an assistant in the Radiation lab?". It turns out that he had been a visiting scientist at Argonne National Laboratory the previous summer, learning how to do gamma ray spectroscopy. He applied to the Cotrell Research Corporation and received a grant for \$3000 to establish a radiation laboratory at Manchester. And he invited me to be a research assistant in this laboratory.



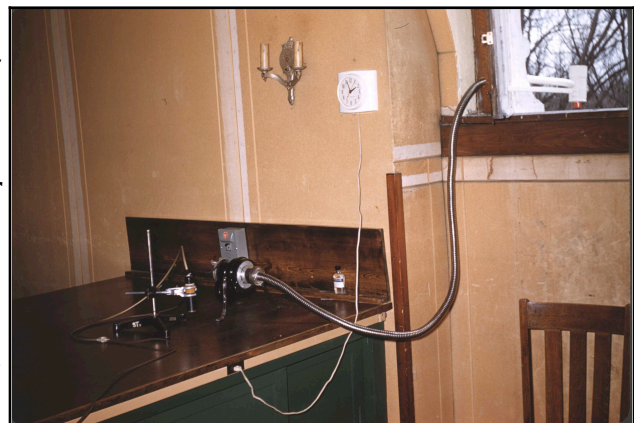
The single channel analyzer

The first purchase for the laboratory was a gamma ray single channel analyzer. This used a sodium iodide detector, a photomultiplier tube, an amplifier and a voltage discriminator to analyze and plot the gamma ray spectra from radioactive samples.

One of our first experiments was to set up an air sampling system to draw outside air through a filter and search for radioactive fallout. This was the period of atomic bomb and hydrogen bomb testing for both the U. S.

and Russia, and we hoped that we could detect the fallout of their bombs, particularly strontium-90.

Unfortunately, the experiment did not produce the results we had hoped. Our next experiment was to analyze the gamma ray spectrum from an isotope of tin. By careful analysis of the spectrum we could determine the decay scheme of this isotope. I presented our findings in a paper before the physics meeting at Ball State University.



The fallout sampling experiment





Working in the radiation laboratory

It was my first scientific paper.

One of the disappointments in my early days on campus was the debate club. I had had such fun and camaraderie in high school debate that I assumed I would be greeted by the same reception in college. In particular, as first string debate team member from high school I expected to be greet-

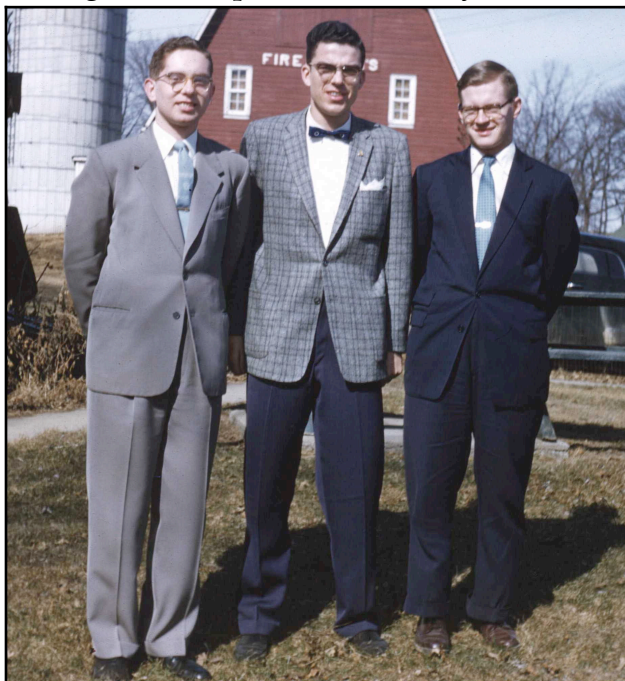
ed with open arms, but it was not to be. It was one of the very few unhappy events in college.

There were two men's dorms on campus - the "new men's dorm" (Calvin Urey) and the "old men's dorm" (Blokewood). A friend I had made on the Washing trip, Bud Tully and I agreed to room in the old men's dorm.

The next three years I roomed with John Barr, whose older brother, Ernie, was a scientist who toured our physics club through the GE plant in Fort Wayne.



Dwayne Wrightsman and Bud Tully



John Barr, me, and Dwayne Beery

Somehow John and I became acquainted, and we were roommates my last three college years. John and I became life long friends, and he set the poem *She Walks in Beauty* to music and accompanied Joyce's cousin, Carol Jo, to sing it at our wedding.

Of course, college life was not all study. About my Junior year, John and my dear physics friend and class mate, Dwight Beery, visited us at our home in Freeport. As the pictures show we generally had a great time!

The summer of 1956 was significant in a number of ways. Our family took a serious fishing trip to Moose Lake, MN; I got my first job as a scientist at Microswitch, a division of Minneapolis-Honeywell in Freeport, and I met a talented and attractive girl from Pearl City.

The first photo showed Dad, Doug, and Robert Johansen loading up the car to head to Moose Lake. The second shows the lake with a canoe from the bluffs surrounding the lake. This was as far north as we ever got on a fishing trip, and was within portage distance of Canada.



Having fun



Heading for Moose Lake

Robert, Doug, and I did, in fact, portage into Canada. It was a rather uneventful affair, with no customs offices or passports required. The main fish we caught were walleyed pike. The fishing was good, and we rarely returned empty-handed.

One of the benefits of my class in chemistry my Senior year in high school was to get acquainted with Professor John

Hull. He was working as a visiting scientist for Microswitch in Freeport during the summer. Through his influence I was able to get a job at Microswitch as a chemist. About the time I joined, Microswitch had been having problems with the switches they were supplying for the U.S. Government. The thickness of the tin/zinc layer electroplated on the brass terminals was the wrong thickness for optimum solder-



Moose Lake from the Bluffs



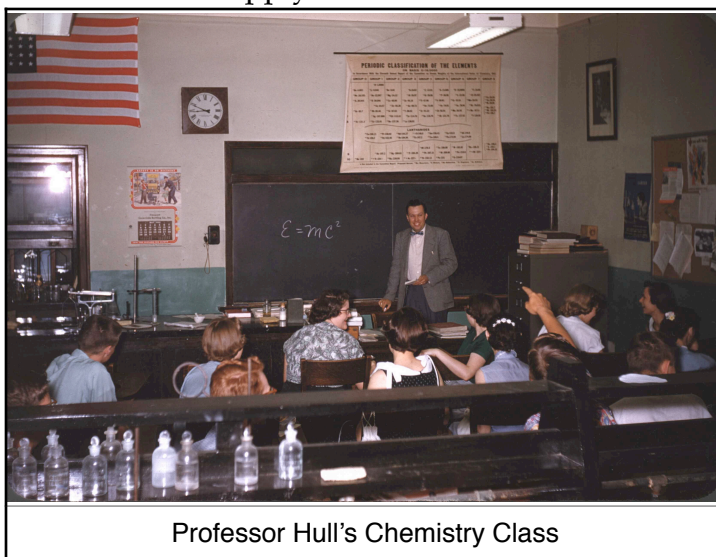


Walleyes from Moose Lake

ing. To measure the thickness of this layer on the terminals, several terminals were carefully placed in epoxy resin, the resin was left to harden overnight, then the metallurgists sliced the epoxy matrix, carefully polished the result, and then used measuring microscopes to get several readings of the thickness of the tin/zinc layer. This complicated procedure typically took several days and great effort.

My first (and only) project was to develop and test an electroplating technique for measuring the average thickness of the tin/zinc layer. It turned out that the tin/zinc layer had a certain electroplating potential, while that of the underlying brass stock had a much different potential with respect to a standard mercury (calomel) cell.

I ordered the parts from a standard chemical supply house. Included were an electro-depleting cell, calomel electrode, voltmeter, ammeter, batteries, and the appropriate acid for deplating the tin/zinc layer. The Microswitch terminal served as one electrode and the mercury cell the second. By carefully observing the time, amperage, and, knowing the terminal's area, the average thickness of the tin/zinc layer was simply calculated by a single equation. The whole process could be completed in minutes rather than the days required by the metallurgists. Some years later I heard that the equipment was still being used.



Professor Hull's Chemistry Class

My supervisor at Microswitch was actively involved with a men's singing club called the Micro-Mens Chorus. He suggested that I join, and we had a good time singing together. We were invited to perform with the Freeport Concert Band in the band shell of Krape's Park. One of the songs that stuck in my memory was Romberg's *Stout-hearted Men*. I can still recall lines from the piece, and, accompanied by the band, it was pretty impressive.

One of my friends, Van Blumel who was a Senior in high school when I was a Freshman, played in the band and knew one of the French horn players, Connie Ashmore. She was an attractive and talented girl from Pearl City, and we got acquainted.

Connie and I dated some in the summer of 1956. My friend, Ray Harner from Lena, Nellie Mease, Connie and I apparently double dated at some affair in Pearl City, Lena, or Freeport and got our picture taken. I remember getting her a gardenia corsage and she, in turn, got me a carnation. I really do wish that I could recall the event we danced.



Nellie, Ray, Connie, and me

My Manchester years were not without social interactions. The most important was with Flora Rousch. She was a good looking and intelligent classmate of mine who went on to become a professor at Purdue University.

Flora and I had many interests in common. We were both interested in peace studies and attended a conference at Camp Mack together in this area. We were both from farm families so we understood each others background.

In the midst of our romance she invited me for a weekend to her home

in Bremen, Indiana, to meet her family. I met her brother, John, who was to become one of my brother's friends in college. I also got to meet her mother and sisters, one of whom was graduating from high school. This was Norma who, through a strange twist of fate, we would learn to know well in our retirement community in Florida.

We attended Norma's graduation, and I got several pictures of this event and of the family. Her father seemed to be out of the picture, but the rest of the family was very kindly and warm. Here Norma is in the white dress.

Our association with Norma is curious and quite fortuitous. Nearly 60 years after these photos were taken, Norma came to our door in our winter home in Florida and asked, "Is this where Dr. Morris Fire-



Flora Rousch





Flora's Sisters and Mom

baugh lives?" Joyce said "Yes", invited her in, and they spent the next hour catching up on old times. She and Al Hartman are now married and live about one block south of us in Sun City Center, FL.

Flora and I had many serious discussions about the issues of life. As I recall, we may even have discussed marriage, but both concluded that we were too young. However,

there just didn't seem to be that spark which seem so essential to a successful long-term relationship. And so the interaction died away.

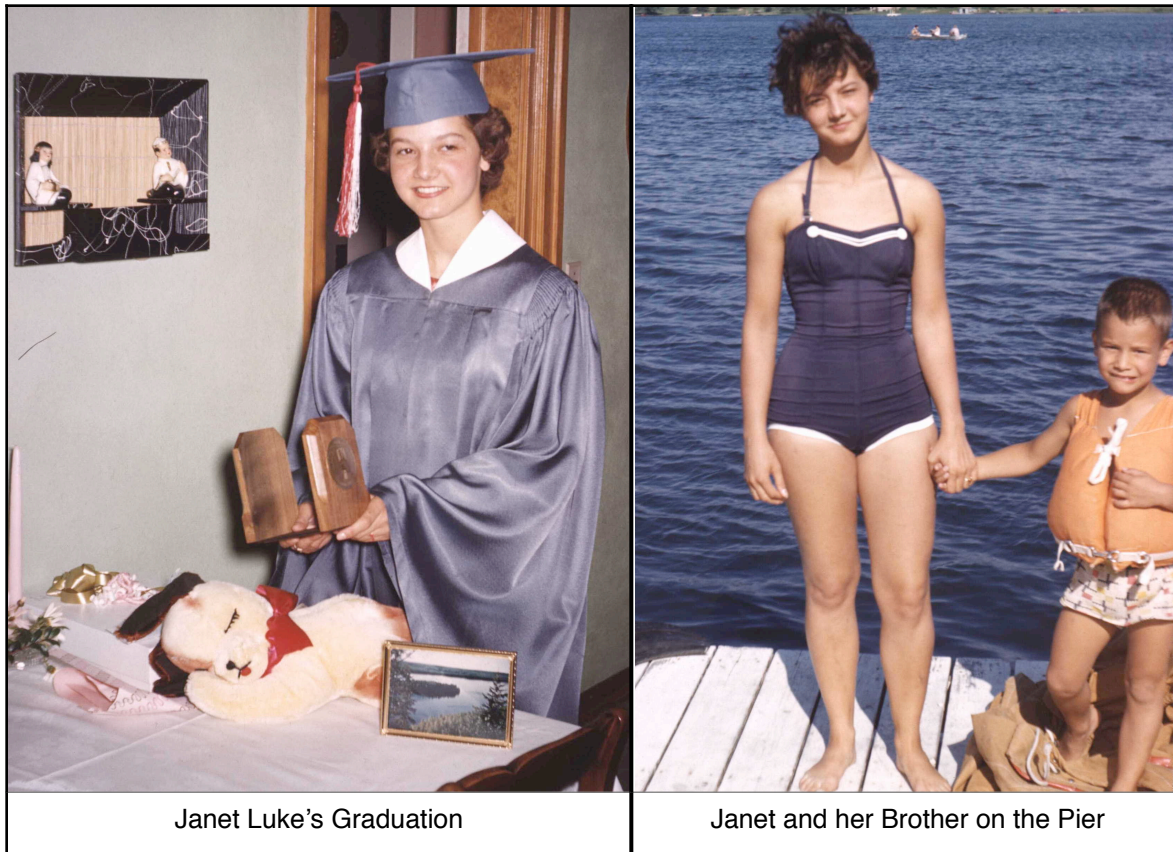
Although I dated several other Manchester girls during my college years, the only one that got at all serious was with Janet Luke. She was a "preacher's kid" from Goshen, Indiana, as I recall, and I still can't remember how I got to meet her. But I did get invited to her home for her graduation from high school. She then invited me to her family's cottage on a lake in southern Michigan for a week end of water skiing.

In reviewing my memoirs from Manchester I found several programs for cultural events on which I had noted that Janet had attended with me. And the really amazing thing is that I recognized one of her gifts. It is the "Moose Lake from the Bluffs" photo from the adventure with Robert and my family. Janet became a Manchester girl as a Freshman the year I was a Senior. From the evidence of the picture, she was the last Manchester girl in which I was interested.

During my Sophomore year Dr. Morris's Cottrell Research Grant was renewed for another \$3000.00. In those days this was enough money to considerably improve the Radiation Laboratory. Based on his earlier Argonne National Laboratory experience,



Norma Rousch Graduating



Janet Luke's Graduation

Janet and her Brother on the Pier

Dr. Morris suggested that I apply for a student assistantship there. Through his influence and the supporting letters from Micro Switch, I was accepted and spent the next four summers at Argonne. This experience proved to be a powerful influence on both my professional and personal life.

When my classmate, Jerry Royer, heard that I was going to Argonne, he inquired "Do you have a place to live?" I did not, and he suggested that I take his room since he would be spending the next year in Japan with John D. Rockefeller, IV, as his roommate. I gratefully accepted since I already knew Rev. Byron Royer, his father, from my work in the Northern Illinois youth work at Camp Emmaus. And it turned out that Nancy Royer, his sister, was Joyce Maier's best friend. This was to have great implications for my life!