Ever a Biochemist!

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As part of our Centennial Celebration, we asked members to contribute reminiscences of their early thoughts about becoming a scientist, their experience as postdocs, their first paper published, their first lecture at an ASBMB Meeting, the friendships and connections they formed with other ASBMB members, their impressions of the first ASBMB meeting they attended, and anything else they thought pertinent. Here is another contribution. We believe you will find it interesting, and we look forward to receiving and publishing more reminiscences. Please send them to editor@asbmb.org.

I grew up in Montreal and Quebec, where I had good schooling, but not until my final years of high school did I have any contact with science. It was then that excellent teachers introduced me to chemistry and physics. This experience was so exciting that it decided me to register in the science faculty at McGill University in 1935. The combination of chemistry and biology offered by biochemistry appealed to me, and in my second year I opted for that subject.

Upon graduation I took a job in what is now Canada’s Health Protection Branch in Ottawa. The work dealt with bioassay of sex hormones, so that I had an education in biostatistics and the design of experiments, all of which stood me in good stead in succeeding years. I followed this with a year at Queen’s University in Kingston, Ontario, studying pharmacology. We were now well into the Second World War and, ineligible for the army, I proceeded to take jobs in essential industry.

In August 1945 I returned to McGill to take the M.Sc. course in animal nutrition and chemistry, working under Earle Crampton, Canada’s leading nutritionist at the time. At the end of the year he recommended me for Ph.D. studies at Cornell, and in the fall of 1946 I entered the Department of Biochemistry there. Because I now wished to focus on enzymology, I chose Professor James Batcheller Sumner as my research director. Shortly after arriving in Ithaca I learned that Sumner had just won the Nobel Prize in Chemistry.

My years at Cornell were an exciting period in my life. I had left what was at that time a small university in Canada’s major metropolitan center, and had come to a very large university in a small American town. I was impressed in my new surroundings by the diversity of the university population, the availability of cultural pursuits, and the beauty of the Cornell campus. What an environment in which to study hard and carry on research!

Armed with a Ph.D. I took a teaching post at Georgetown Medical School in Washington, D.C. for two years. I had developed an interest in the biochemical mode of action of drugs, so that when an opening became available at the Merck Institute for Therapeutic Research in Rahway, New Jersey, for an enzyme chemist with knowledge of pharmacology, I applied, and was successful. I was directed to the department headed by Wayne Umbreit, an outstanding bacterial physiologist-biochemist. One of the problems I was given was the search for potential antihypertensive compounds. At that time the antimetabolite hypothesis was especially prominent in the drug field, and accordingly the Merck chemists had synthesised a series of analogues of dihydroxyphenylalanine (DOPA), one of which, it was
hoped, might inhibit DOPA decarboxylase, and reduce the production of norepinephrine. Out of this work came the finding that alpha-methyl-DOPA (Aldomet) is clinically effective in hypertension, and for many years it was the treatment of choice for that disorder.

In 1953 I returned to McGill University, now as a member of the research-oriented Department of Psychiatry. My program gradually expanded to embrace many topics in neurochemistry and biological psychiatry, and included the writing of a book, “Biochemistry of Mental Disease.” Collaborations with experts in other fields led to the detection of dopamine dysfunction and the ameliorative action of L-DOPA in Parkinson’s disease. This was followed by our discovery of the dopaminergic nigrostriatal tract in the brain, whose function gradually fails in that disorder. These fundamental findings led to the widespread reorientation of research on Parkinson’s disease, and to its successful treatment.

My research on biochemical activities of the nervous system, registered in numerous publications, continued until 1991 when I retired. As professor emeritus, I continue investigating and publishing, but now on neurochemical history, a subject that I find eminently satisfying.

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