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The Princeton Mathematics Community in the 1930s
Transcript Number 26 (PMC26)
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MALCOLM ROBERTSON
RECOLLECTIONS OF PRINCETON

This is a written contribution, dated 11 October 1984, by Malcolm Robertson.

During the hot Ontario summer of 1931, when I had just completed two years of graduate studies in mathematics at the University of Toronto, I looked forward with great expectation to my upcoming admission to Princeton University in September. Another Canadian graduate student in mathematics, Albert W. Tucker, had preceded me there two years earlier. It was not surprising that he was doing well in his continuing studies, since he already had a very fine scholastic record in Toronto. Fortunately for me, he also had a kind concern for the needs of others. I have felt grateful ever since that, according to plan, he and a fellow Princeton student, Edwin W. Titt, appeared in Hamilton, Ontario, about two-thirty in the morning one day in September to pick me up by car. Ed Titt, later to become my dormitory room-mate, had a well used but sturdy open car in which we all drove to New Jersey, stopping briefly in Buffalo to pick up another student, Frank Cubello.

It was a beautiful autumn day, filled with sunshine and the riotous colors of the changing leaves, and the drive was most enjoyable. We stopped briefly to admire the campus at Cornell and eventually arrived in Princeton just before dark. This was my first glimpse of the charming college town that was to play such a large part in my life, and a joyful and exhilarating experience it was indeed. I have never forgotten that first encounter, and my feeling of excitement and awe at the lovely stately homes among the old trees, the magnificent university campus with both new and old stone buildings, acres of well-kept lawns, and even a lake and a peaceful golf course. I had to live there for three years even to begin to appreciate the richness and character

of the place, preserved so well in the interesting stores and restaurants in the town, the friendly relations with the small black community, the enveloping sense of history, and the general feeling that here are customs and traditions which must somehow be maintained by each generation. This all came later, but that first evening made an indelible impression upon me as a young, idealistic, but inexperienced and no doubt apprehensive graduate student.

The early 1930s were a unique period of time. Although many were living through serious economic hardships following the stock market crash in 1929, we as graduate students, while by no means living in opulence, were to some degree insulated from the strictures of the outside world. We were living in ivory towers in an Ivy League college comprised of many elite intellectuals who were deeply immersed in their all-absorbing abstractions. Discovery in mathematics was considered important because it was so basic in the pursuit of knowledge and understanding of the world we live in, but it also produced its own world among those who were participating in the discoveries.

This was a time when Fine Hall, for graduate studies in mathematics at Princeton, had just been completed; Fuld Hall, at the Institute for Advanced Studies, was not yet built. Fine Hall was an ideal place for quiet study, equipped as it was with a very good library, classrooms and seminar rooms, individual study facilities, and, of course, faculty offices, recreation and reception rooms, and kitchen facilities for afternoon teas.

Dean Luther P. Eisenhart and Professors James Alexander, Solomon Lefschetz, Tracy Thomas, and Oswald Veblen were prominent in the geometry, topology, and tensor-analysis group, with Professor J.H.M. Wedderburn in algebra, Professor Einar Hille in analysis, and Professor Alonzo Church in logic. All of us took courses in these fields, but my own main interest was in geometric function theory and branches of complex analysis. Professor Hille was one of the outstanding scholars of his time in both real and complex analysis, and he was particularly helpful and inspiring to me. During my first year at Princeton I served as a research assistant to Hille, my job being primarily to gather together and edit his lecture notes in function theory before they were printed. He introduced me to early research papers, in those days originating largely in Europe, in the field of univalent functions and closely allied topics of complex analysis, out of which interest my Ph.D. thesis was to emerge. During my third year at Princeton Hille moved on to Yale University, but rather than go with him to complete my thesis work there I chose to remain in Princeton. I liked Princeton, and I wanted a Princeton degree. I was, on the other hand, very fond of Hille and greatly admired him, and I was sorry to have to make a difficult choice.

Fortunately I was able to keep in touch by making reports to Hille and also to have the capable Professor H.F. Bohnenblust take over the task of reading and suggesting corrections to my nearly completed thesis. In my last year at Princeton Professor Salomon Bochner from Europe had joined the staff at Fine Hall, and on occasion he checked

with me, in informal blackboard sessions, some details of the final proofs. He, like the other mentors, was a scholar of great perception, and I was happy to have the opportunity then, and in subsequent years when I was a professor at nearby Rutgers, to learn much from his lectures.

Apart from my thesis, though, I cannot overlook the great influence on all of us of the sparkling lectures in real analysis given by Professor John von Neumann, a young man who had also come from Germany during this period. How well I remember his hurried arrivals in the classroom, a mere second late but wasting no time. With spectacular fluency he instantly made the hour come alive. No notes were ever needed, for his complete control and mastery of his subject and his lightning-fast blackboard-equations quickly reflected to us some of the greatness of his precocious mind. His audience will remember his beautifully complexioned cheeks that often radiated a cherubic smile, and his bright piercing brown eyes that seemed to glow with great vitality. I remember years later walking down a street in another city with von Neumann and a friend of mine, who later confided to me that as a student he had "worshipped" von Neumann, who was one of his teachers. Such was one reflection of his great influence.

These were times when visiting lecturers from abroad often made their appearance for varying lengths of time. Professor R. Courant from Goettingen gave several lectures on calculus of variations. He presented wire exhibits holding freshly blown soap bubbles to charm us. Professor George Polya from Zurich conducted a few seminars in complex analysis, with one-to-one question-and-answer periods and well-directed enquiring shafts. He would stop to talk informally with students in the library and take an interest in their pursuits. He often asked me questions when I was seeking results for my thesis. Such interest from a great mathematician shown to so many of us who had yet so far to go was exceptional, and the memories live on in our hearts with an influence that is incalculable. Those in charge at Princeton planned well for us.

There is a long list of other mathematicians who came at this time that could be added if space permitted. The examples cited, however, illustrate the heady atmosphere of this intellectual community in which we as graduate students found ourselves. We shall never forget the day Albert Einstein came to take up residence. Suddenly the outside world became interested as hundreds gathered outside Fine Hall, hoping to catch a glimpse of the great man at an open library window. Of course reporters from far afield were everywhere with cameras. I could hardly believe what was happening as I too watched from the lawns below. Princeton was never quite the same as stories grew about the life of Einstein.

It was not all work and no play for the graduate students at Princeton. Of course they were a selected group and were used to long hours of concentrated studies, but such demanding and time-consuming pursuits required relief from time to time to counteract all the tiredness and tension involved. There were three local movie

theatres, and New York City was not too far away. Some of us would drive in to attend plays or concerts, either there or in Philadelphia, when we could afford it. Locally there were occasional visits to "speak-easies" selling beer in defiance of Prohibition. But most pleasant of all were the more frequent leisure times in the large, comfortably furnished common room in Fine Hall. Here, in addition to daily tea-time in the afternoons, there were usually games of chess or go or bridge going on among the large group of graduate students and research fellows—John Landes Barnes, E.F. Beckenbach, Gerrit Bol, Frank Cubello, Merrill Flood, George Garrison, Israel Halperin, Nathan Jacobson, Steve Kleene, Jack Levine, Charles Morrey, Bill Randels, Barkley Rosser, Isaac Schoenberg, A.H. Taub, Edwin Titt, Albert Tucker, John Vanderslice, Robert Walker, and others whose names escape me for the moment. Sometimes a quickly arranged improvised concert would develop. Vanderslice, besides being the chess champion, with his incredible memory, would whistle whole symphonies and concertos of Beethoven, Brahms, and Tschaikovsky, to our applause and appreciation.

Occasionally some of the faculty would show up. It was always a great pleasure to find Professor H.P. Robertson there after lunch enjoying his cigar over a good game of bridge. One never forgets his irrepressible good humor and sometimes pungent observations. The permanent faculty members were always welcome, and of course there were frequent seminar speakers and guests from other universities. Some of the professors entertained generously in their homes, and the graduate students were often invited to such parties and receptions. The atmosphere was always congenial and friendly, and I for one, as I grow older, cannot help but feel some wistful nostalgia for those charming and memorable days a half century ago.