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Donald M. Solitar
1932-2008



Photograph by Roy Nicholls

Donald Solitar, a dynamic and influential mathematician, teacher and administrator, died on April 25, 2008, in Toronto.

Donald attended Boys High School in Brooklyn, N.Y., where he met his life-long friend and close collaborator Abe Karrass (1931-1998). He obtained an undergraduate degree from Brooklyn College, and did his graduate work at Princeton University and then at New York University, under the supervision of Wilhelm Magnus. He and Abe Karrass soon became internationally known experts in combinatorial group theory, especially with the publication in 1966 with W. Magnus of their monograph by that name, which became a classic and is still in print (Dover Publications). They both worked for some years at Adelphi University, Long Island, before moving to the fledgling main campus of York University, in suburban Toronto, in 1968, Donald becoming Chairman of the Department of Mathematics. He immediately set about making the Department into a world centre of general group theory by hiring several young specialists in that and neighboring fields, and organizing a seminar that was to flourish for about ten years, and at which most of the luminaries in the field---and adjoining fields---were invited to perform at one time or another. This was a period of intense research activity in group theory at York, led by Karrass and Solitar.

It was also a transition period at York University when individual Chairs still had a lot of power but changes were occurring leading to a move away from the school's somewhat elitist beginnings and to an emphasis on accessibility and increased enrollments. For Donald it was a case of being in the right place at the right time. Accessibility, for him, did not mean just growth or the same programs for larger numbers, but a reason for creating new programs. He was influential in the early planning of York's Faculty of Education. In the Department, he was effectively the founder, with Abe Karrass, of the MA Program for Teachers, which still flourishes and is still practically unique in Canada. Donald was a champion of York's uniqueness and was never satisfied to merely reproduce what happened at other places.

Donald Solitar published close to 40 research papers, most in the field of combinatorial group theory, and most with Karrass. While many, if not all, of these will continue to have impact on the research of others in the field, there are two results that have influenced the development of general group theory in an essential way. The first of these was achieved in collaboration with G. Baumslag (*Bull. Amer. Math. Soc.* 68 (1962), 199-201), and consists in the construction of an example of a "two-generator, one-relator Hopf group", or, roughly speaking, the simplest possible example of a group with the extraordinary property that when one attempts to simplify it in a certain way (in technical language, take a certain proper quotient) one obtains the same abstract group. One might say that the group is the "smallest" that has this astonishing reflexivity built into it. The second result, obtained in collaboration with Abe Karrass (*Trans. Amer. Math. Soc.* 150 (1970), 227-255), is a complete structure theorem for the subgroups of a "free product of two groups with an amalgamated subgroup". In this paper one sees for the first time that a cognate construction introduced by G. Higman, B. H. Neumann, and Hanna Neumann in 1949 is essential to the description of the subgroups in question. (For this reason Karrass and Solitar gave the name "HNN group" to this construction, later changed to "HNN extension". It is interesting that the so-called "Baumslag-Solitar group" mentioned above is in fact a particular HNN extension. His legacy to combinatorial group theory is permanent.

Solitar had ten Ph. D. students, mostly dating from the years before he came to York, since there was at that time and for many years afterwards no doctoral program in mathematics at York University.

Solitar was equally dedicated to research and teaching. He was proud to have been elected to Fellowship in the Royal Society of Canada in 1982 for his scientific contributions. He obtained an OCUFA Teaching Award a few years later; about 10 of these are given each year by the province-wide umbrella group representing faculty members and academic librarians in Ontario. He was a superb expositor. In his heyday he was an exceptionally clear and sometimes even enthralling speaker.

He was known for his generosity with his time and resources. He could be brusque when crossed but did not hold a grudge and was never happier than when promoting a sense of community in the department and beyond. His Chinese dinners were legendary. He had a unique ability to pry money from deans and other administrators to finance such gatherings.

Solitar was a man of broad culture with a deep interest in music, especially grand opera. He could be depended on to mark important occasions with a poem. The MacTutor History of Mathematics archive gives further information on this many-sided character; see <http://turnbull.mcs.st-and.ac.uk/history/Mathematicians/Solitar.html>

Donald leaves his wife Francien and a large extended family.

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(Authors' titles given as of the time of writing)