Robert Steinberg, 1922–2014

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I have had a good life

(Ik heb een goed leven gehad)

This quotation (in English and Dutch) was exactly how Tonny Springer, a famous mathematician from Utrecht in Holland and one of Robert Steinberg's closest friends both personally and mathematically, wanted his life described after his death. It is also a perfect description of Robert Steinberg's life.

Bob was born on 25 May 1922, in Soroki, Bessarabia, Romania (present day Soroca, Moldova) and came to settle in Canada with his parents when he was still very young. He was a student of Richard Brauer in Toronto, receiving his PhD in 1948, and he joined University of California, Los Angeles (UCLA) in 1948, where he stayed until the end. He had 12 PhD students complete their dissertations with him. He married Maria Alice née Weber in 1952 and settled down in Pacific Palisades, a small suburban community of Los Angeles near the Pacific Ocean. They led a simple life, and their house was always open for countless mathematicians and friends. I myself joined UCLA in 1965, and my wife Veda and I became very good friends of theirs, especially because of the closeness of my mathematical interests with his and the proximity of our homes. We were fortunate to go to the lunches Maria arranged on Easter Sundays. Bob and Maria were avid hikers and liked to go camping in the Yosemite and Sequoia National Parks, which they did almost annually. His was a gentle personality, full of humor and good sense, and he and Maria were an inseparable unit, almost like two quarks. They made generous gifts to the American Mathematical Society (AMS) and were members of the President's Associates of the AMS.

He was elected to the National Academy of Sciences in 1985. His comment to me in a letter he wrote to me on that occasion was that it proved he still had friends in the Academy; the letter contained more about the Lakers and Celtics than his honor! He won the Leroy Steele prize of the AMS for

a distinguished career, and the citation singled out several of his great papers. All of his papers can be found in Robert Steinberg, *Collected Papers*, AMS, 1997.

He was awarded the Jeffery–Williams prize of the Canadian Mathematical Society in 1990. He was an invited speaker at the International Congress of Mathematicians in Moscow in 1966. In 2003, the *Journal of Algebra* published a special issue to celebrate his 80th birthday.

He must be regarded as one of the great mathematicians of our time. His main interest was in the theory of algebraic groups, especially semisimple groups, and his discoveries in this area rank him among the subject's greatest innovators with the likes of Armand Borel and Claude Chevalley. His results were profound and yet his methods were ultimately simple and transparent, a characteristic that only a truly great master can achieve.

He discovered new finite simple groups, going beyond what Chevalley had done. He constructed the universal Chevalley group, showed it is a universal central extension of all Chevalley groups, and discovered the essential relations (Steinberg symbols) in the center of this group. His results are heavily used in algebraic K-theory and the construction of covering groups of algebraic groups over local fields and adeles. He solved a famous conjecture of Serre by constructing an affine section of the orbits of maximal dimension of a simply connected semi simple group. He discovered what is now called the Steinberg representation, which occurs all over the place in representation theory and automorphic forms. In all, his impact on the theory of algebraic groups and finite groups has been monumental.

His famous lecture notes on Chevalley groups, written while he lectured on that topic in Yale, in 1967, are a masterpiece of brevity, comprehensiveness, and beauty. They are probably the most famous unpublished

Robert Steinberg. Image courtesy of David Weisbart.

notes in mathematics that I can think of. The theory of groups and algebras is littered with concepts and ideas originating from him: Steinberg cocycles, Steinberg symbols, the Steinberg character, Steinberg triples, Steinberg groups, and so on, to mention just a few.

When Maria passed away last year, it was a cruel blow to Bob. In the last few months after she passed away, I drew closer to him and visited him once every two weeks or so, discussing many things. I like to believe that these visits were pleasant and enjoyable to him.

It was a great good fortune for me to have been a friend of his for almost 50 years and to admire up close his greatness that was intertwined with simplicity and modesty. I will miss him very much, as will all his friends.

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