Mischa Cotlar: A Biography

Mischa Cotlar was born in Sarney, Ukraine, in 1913, the youngest of the two sons of Ovsey Cotlar and Sara Medved, both of Jewish descent. His father, who administered a flour mill, was an avid chess player, was passionately interested in mathematics and in music, and had a considerable library. In 1928 the Cotlars emigrated to Uruguay, a country then known as "the Switzerland of the Americas." At the time, Mischa was 15 and had had only a year of formal education. However, his father had taught him mathematics and music, and Mischa was already a good pianist.

Upon their arrival to Montevideo, the Cotlars were very poor. The four lived crammed in a single room, and each of them had to work. The father sold newspapers at a downtown street corner, the oldest son became a tramway motorman, and Mischa played the piano from 4 p.m. to 4 a.m. in a harbor bar. The first thing Mr. Cotlar bought (in installments) was a piano for Mischa, which had to be squeezed in the already tight living space.

Once they were settled and their immediate survival assured, Mr. Cotlar turned his attention to chess and won the annual contest of the Sociedad Uruguaya de Ajedrez. For this he received much publicity, and the journalists were surprised and amused at realizing that Ovsey Cotlar was not the pseudonym of a known Uruguayan chess player but rather the real name of a Ukraine-born newspaper street vendor, who claimed to have a son gifted in mathematics.

The founder of the Uruguayan school of mathematics, Rafael Laguardia, was an avid chess player himself, and he read the interviews with the prize-winning newspaper vendor with interest. Professor Laguardia immediately went to visit Mr. Cotlar, who introduced Mischa to him.

Laguardia, a young professor of mathematics at the Engineering School of the Universidad de la Republica, had studied with Picard at La Sorbonne. Although he had specialized in the new integration theory, his main interest was promoting mathematics among young people. His house in Montevideo was the meeting place

for young men interested in mathematics, and students gathered there almost daily. He had the best mathematical library in town. Mischa was invited to his seminar, introduced to Laguardia's students and friends, and given access to the library. At the time, Mischa was very much interested in number theory, and he had solved several open problems suggested in Grave's textbook, which he had read in Sarney. He showed his results to Laguardia, who was astonished: a boy that had completed only one year of elementary school had actually proved several theorems, and had done so with absolute rigor, although with strange notations and rudimentary techniques. In fact, some of the results had been already proved by professional mathematicians, something that Mischa did not know. Two years later Laguardia invited Mischa to teach a course on number theory at his seminar in the Engineering School of the Universidad de la República.

Mischa continued playing the piano at the harbor bar until 1931, when Laguardia got him a job as a pianist in a chamber music trio playing at the fancy British Hotel in Punta del Este, the exclusive seaside resort. There, Mischa played with Jaime Tomasow, one of the great Argentine virtuosi, who later reached international renown, and who would become one of his closest friends.

In 1934 Professor Julio Rey Pastor, the Spanish mathematician, then living in Buenos Aires, was invited to lecture in Montevideo on the new developments in mathematics. Those lectures became a landmark in the history of Uruguayan mathematics and induced Mischa to move to Argentina. In 1935, he left Montevideo for Buenos Aires, which was to become his hometown.

Buenos Aires changed Mischa's life in many ways. He carried a letter for Professor J. C. Vignaux, who immediately recommended him as a private tutor of mathematics, and who later introduced him to the theory of analytic functions. Tutoring substituted for piano playing as a source of income.

Mischa shared a small room with his friends, the violinist Tomasow and the young philosopher Jaime Resta. Soon after arrival, he met two students of mathematics, Cora Ratto and Manuel Sadosky, with whom Mischa was to develop multiple bonds. In 1937, he also met Yanny Frenkel, a Russian student of Rey Pastor, later to be one of the first doctoral graduates in mathematics from the Universidad de Buenos Aires. In 1938, Mischa and Yanny were married.

Those were years of great intellectual excitement and deep emotional involvement. Mischa corresponded with Professor Maurice Fréchet, who helped him publish his results. In 1935 he became deeply interested in Hinduism, Hindu philosophy, and Buddhism. In Buenos Aires Mischa met J. Krishnamurty, who was to be his lifelong teacher and friend. The arrival of Beppo Levi to Rosario, Argentina, was also very significant in his development, since they shared scientific and philosophical interests. Their interaction was very fruitful, and Levi published Mischa's results in the two journals he founded in Rosario, *Mathematicae Notae* and the *Revista del Instituto de Matemáticas de Rosario*. A few years later Mischa met Rodolfo Ricabarra, the young mathematician with whom he established one of the deepest and most important intellectual, philosophical, and mathematical relationships of his life.

But Mischa still had no academic job. In 1947 he was appointed research instructor at the Universidad Nacional de La Plata, but was fired six months later, when the authorities found out that he had no official diploma. After World War II, several prominent mathematicians, including Marshall Stone, George Birkhoff, A. Adrian Albert, and Antoni Zygmund, visited Argentina. These visits were of historic rel-

evance. It was then that Zygmund met Alberto Calderón, a young engineer, and Birkhoff discovered Mischa. Calderón went to Chicago and Birkhoff recommended Mischa for a Guggenheim Fellowship, which he won in 1950.

Mischa and Yanny traveled to the United States in 1951. They spent six months at Yale University, where Mischa studied ergodic theory with S. Kakutani. In the meantime, Professor Stone had arranged for him to be accepted as a graduate student at the University of Chicago, in spite of his lack of formal education. Mischa went to Chicago and worked under Antoni Zygmund, writing a thesis, "On the Theory of the Hilbert Transform." He received his Ph.D. from the University of Chicago in 1953. Finally he had a diploma!

Yet Mischa and Yanny yearned for Argentina, and they returned. There were no jobs at the Universidad de Buenos Aires, except for card-carrying members of the ruling party. However, a new group was forming at the Universidad Nacional de Cuyo, inspired by the exiled Portuguese mathematician A. Monteiro. Mischa was invited as Director of the Mathematics Institute of the Departmento de Investigaciones Científicas, where most of the young and active Argentine mathematicians—without political exclusions—clustered. There Mischa wrote his four celebrated papers expanding the work done in his doctoral thesis. These were published in the Revista Matematica Cuyana.

In 1957 Cotlar was appointed Professor of Mathematics at the School of Sciences of the Universidad de Buenos Aires. There he shaped several generations of Argentine mathematicians and directed the doctoral dissertations of Rafael Panzone, Cora Ratto de Sadosky, Eduardo Ortiz, and Concepción Ballester. Although during that period Mischa published relatively few papers, he wrote two textbooks and three monographs. The monographs appeared in the series "Cursos y Seminarios de Matemática" from the School of Science of the Universidad de Buenos Aires, edited by Cora Ratto de Sadosky, and they contained most of his original results of the time. The textbooks, one on the first algebra course, written in collaboration with Cora Ratto de Sadosky, and the other on functional analysis, in collaboration with R. Cignoli, were published by EUDEBA, the University of Buenos Aires Press.

In July 1966, a military junta that deposed President Arturo Illia ordered the assault and vicious beating of the faculty and students of the School of Sciences of the Universidad de Buenos Aires. Cotlar resigned—along with more than four hundred other faculty members–and returned briefly to Montevideo. A year later he was appointed professor at Rutgers University (1967–1971), and he taught also at the Université de Nice (1969–70) and at the Universidad Central de Venezuela (1971). In 1972 Mischa and Yanny returned to Argentina, where Mischa joined the faculty of the Universidad Nacional de La Plata. During that stay in Argentina, he initiated a steady collaboration with Cora Sadosky, the daughter of his friends Manuel and Cora, with whom he had occasionally worked. In 1974, under a deteriorating political situation in Argentina, the Cotlars went back to Caracas, where Mischa created a research group in analysis, and directed the doctoral dissertation of Rodrigo Arocena.

Cotlar has lectured and traveled extensively. He has taught at Washington University (1958), the University of Chicago (1962), Darmouth College (1963), Universidad de la República at Montevideo (1966), Universidad de Ingeniería at Lima (1967), McGill University (1972), and Howard University (1982). In 1989, he gave one of the Toeplitz Lectures at the University of Tel Aviv. He received the Waissman

Prize of the Consejo Nacional de Investigaciones Científicas y Técnicas of Argentina (1964), the Premio Nacional de Ciencias of Venezuela (1984), and the Prize of the Academia de Ciencias of Spain (1950). He is Honorary Professor of the Universidad de Buenos Aires and the Universidad Nacional de La Plata. Since 1987, he has been a member of the Academia Nacional de Ciencias Exactas, Físicas y Naturales of Argentina.

During the period 1956–1966 Cotlar was intensely involved in the international movement for the social responsibility of scientists. In 1961, he founded with Cora Ratto de Sadosky and Mario Bunge, the Sociedad Argentina por la Resposabilidad Social de la Ciencia. In 1962, he carried to the International Congress of Mathematicians, held in Stockholm, Bertrand Russell's letter urging the noncooperation of mathematicians with the military establishment. In 1964, again with Cora Ratto de Sadosky and with Francisco Bullrich, he coedited *Columna 10*, a newsletter devoted to the analysis of the impact of science and technology on international politics. He also was on the board of directors of the Fundación Alberto Einstein, which supported talented students from the School of Sciences of the Universidad de Buenos Aires. Many young people who later became distinguished Argentine scientists received Fundación Einstein fellowships.

Cotlar now works in Caracas, and, since the return of democracy in Argentina in 1984, he has taught periodically in Buenos Aires.

Mischa and Yanny, although both born in Russia, consider themselves Argentinians. With his stubborn devotion for his adopted country, Mischa's life fits well into the title of Arturo Mallea's classic novel *The Story of an Argentine Passion*. For the deep influence he has had in the development of Argentine and Venezuelan mathematicians, it is a pride for Latin Americans to claim him as their own.

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