

## Prof. A.M. Yaglom

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Akiva Moiseevich Yaglom died in Boston, MA on 13 December 2007, after a short illness. Akiva and his brother Isaak were born on 6 March 1921 (correct date: there are other versions) in Kharkov, Ukraina (then part of the Soviet Union). They were said to be as “alike as two drops of water”. Isaak was also a distinguished mathematician, and the brothers wrote several books together. The family moved to Moscow in 1925. Isaak died in 1986, and Akiva said that only a twin could understand what it was like to lose a twin.

Perhaps the first of Akiva’s many honors was a prize in the Moscow Mathematical Olympiads, a competition for high school students, in 1938. Akiva shared this prize with his brother Isaak. The prize was presented to him by Andrei N. Kolmogorov, one of the organizers of the competition. (Kolmogorov remembered him when they met in 1941, and in spring 1943 invited Akiva to do graduate work with him in Moscow. Kolmogorov’s interest in encouraging young mathematicians led, in rather similar circumstances, to his acquisition of Aleksandr M. Obukhov as a graduate student: the third of these famous meteorologists, Andrei S. Monin entered Kolmogorov’s group by a more conventional route. The present writer does not know if these applied statisticians ever discussed the probability that their given names should all begin with the same letter. In 1994, Akiva contributed a detailed and affectionate review “A.N. Kolmogorov as a fluid mechanician and founder of a school in turbulence research” to vol. 26 of *Annual Reviews of Fluid Mechanics*. Some of the material in the present obituary comes from that review. Its frontispiece shows Yaglom and Kolmogorov, flanked by Kraichnan and Millionshchikov, at a 1961 conference in Marseille.)

Yaglom’s undergraduate studies at Moscow University were interrupted by the Great Patriotic War (World War II) and in the Autumn of 1941, when the invasion was nearing Moscow and many of its citizens were moved to safer locations, he transferred to Sverdlovsk, about 1300 km East of Moscow, where Moscow University was evacuated. He had previously volunteered for military service but was rejected because of poor eyesight: he said that most of his friends who joined up were killed and that his rejection was

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probably great good luck for him. Like his fortuitous discovery by Kolmogorov, it was certainly great good luck for Fluid Mechanics.

Yaglom remained interested in fundamental physics while working on turbulence. After he finished graduate study, I.E. Tamm and V.L. Ginsburg offered him a post at the Lebedev Physics Institute of the Russian Academy of Sciences. He was informed that part of his work would be connected to the atomic bomb project. That offer provided an exceptional opportunity to pursue his interest in fundamental physics, but he declined it since he disliked the idea of developing a bomb for Stalin. He therefore took a post at the Institute of Theoretical Geophysics of the Russian Academy of Sciences (now the A.M. Obukhov Institute of Atmospheric Physics). He intended to return to theoretical physics as soon as he could do so without being involved in the fission bomb project. However, working in theoretical physics while remaining uninvolved in military projects never became possible in Soviet Russia, and Yaglom remained at the Institute (a third piece of great good luck for Fluid Mechanics). He also rose to Full Professor at Moscow University. He and his wife June emigrated to the United States in 1992, when he was 70 years old but still working enthusiastically on scientific problems. He had kept up contacts in the West, both personal and postal, and the present writer knew him as a valuable “pen friend” for many years before meeting him.

At the suggestion of his friend the late Marten Landahl of the Department of Aeronautics and Astronautics at M.I.T., Akiva settled there with the title of Research Fellow, and continued scientific work. Until the last, he worked 10–12 h a day, going to his MIT office almost every day and spending long hours in his home office. His work was supported by the Stanford/NASA Center for Turbulence Research (CTR), to which he made several working visits, and later by the Poduska Family Foundation. He also did some consulting work in the Boston area. He traveled extensively to conferences and other events, including several visits to Russia.

Yaglom was the author or co-author of six books and 120 scientific papers, by no means all on turbulence. One of the books written in collaboration with his brother was translated into English as “Information Theory”, and was very recently described as “the principal Russian text [on this subject]”. Another, multi-volume, book by the twins was “Challenging Mathematical Problems with Elementary Solutions” (latest edition 2007) based partly on problems prepared for the Moscow Mathematical Olympiads—which continue to this day.

Right up to the time of his death, he was working on the revision of “Statistical Hydromechanics”, universally known as “Monin & Yaglom” and covering instability and transition as well as turbulence. His work on the Instability volume is being assembled for publication. Monin died on 22 Sept. 2007, less than three months before his junior author, but he had been inactive for some years. Akiva’s honors, as well as the above-mentioned high-school prize which really founded his career, included the degree of Doctor of Science (awarded in Russia for a corpus of work rather than a single thesis), the Otto Laporte Award of the American Physical Society (1988) and the Lewis Fry Richardson Medal of the European Geosciences Union (2008). The award was announced before Akiva died: his widow June was invited to accept the medal for him in Vienna in April.

Richardson’s classic book “Weather Prediction by Numerical Process” was published just one year after Yaglom was born. Now, at the time of his death, there are plans to build a computer dedicated to realizing Richardson’s dream—numerical solutions for the whole of Earth’s atmosphere, but with rather more computing power than Richardson’s humorous concept of a “myriad” (nominally 10,000) human operators of mechanical calculating machines.

Like Kolmogorov, Akiva Yaglom took a great interest in school-level education, and in his later years he supported Shaloh House in Brighton, MA, which is a school dedicated to combining orthodox Jewish education with high-grade courses in mathematics and science. Books were his life-long passion, and he collected a unique library of several thousand volumes.

Let Debra Spinks, Administrative Manager of CTR at the time of Akiva's visits to Stanford, have the last word: "I remember best that his was a fascinating, gentle soul".