

Rafail Khasminskii

Ithaca, NY, 2004

Highlights

A. Family (00:00-4:00, 4:50-7:43)

E. D. Please tell me about your family. You do not descend from Rurik¹ I would assume.

R. K. I was born into a middle class family of Jewish intelligentsia. My dad worked in the planning department of a textile factory located in Kuntsevo district. At that time Kuntsevo was not an administrative district of the city of Moscow, so I was not born in Moscow proper. My dad was well liked at the factory and was an active member of the local trade union committee.

I remember how at the age of eight or nine I asked him: “Dad, are you a Bolshevik?” He lingered for moment and answered: “No, son, I am a Bolshevik who is not a member of the Communist Party.” [*Both laugh*].

E. D. This was a common designation at that time. What do you know about his family?

R. K. I don't know much. He didn't tell me anything. As far as I understand, they were not poor. I learned about them years after he died during the war. In the beginning of the 80s I went on a tour of Kostroma, my dad's hometown. While there I visited a museum of local history where I saw an old poster which said: “Mrs. Khasminskii opens classes of fashion design and sewing using the *Singer* sewing machine.” It turns out she owned a store selling *Singer* sewing machines which were quite popular at that time and even later.

Because Khasminskii is not a very common last name, I thought that the person mentioned in the poster must be related to my dad. When I got back home, I approached my aunt, Sima Naumovna, my dad's sister who was still alive at that

¹ A Viking chieftain who founded the Rurik Dynasty, which ruled Kievan Russ (and later Grand Duchy of Moscow and Tsardom of Russia) until the 17th century. [?]

time. I told her about the poster and showed her the picture. She said: "Yes, this is our mom." This is how I learned about my grandmother. So it seems to me that my dad grew up in a prosperous family who ran their own business. This is all I know about my dad's family. Family history was not a very popular subject at that time.

I know a little bit more about my mother's family. Times changed. The subject was no longer a taboo, and my mom became more open about it. Initially her family lived in the city of Kaunas but later moved to Yaroslavl. My mom basically grew up in Yaroslavl. She moved to Moscow much later, after the revolution. It would be impossible for her family to move there before the revolution, because Moscow was beyond the Pale of Settlement.²

In Yaroslavl my mom's uncle owned a pharmacy. Her dad worked in the pharmacy as a manager. While in school she worked there part-time as well. After the revolution they moved to Moscow where my mom met my dad.

Here is one interesting fact. When I started working at the Institute of Information Transmission Problems, Iosif Abramovich Ovseevich³, whom you certainly know, was the Deputy Director and the soul of the Institute. We all loved him. He is still alive and well, and I talk to him on the phone quite regularly.⁴ When I told my mom that the Deputy Director of our Institute was Ovseevich, the name sounded familiar to her. She said that in her uncle's pharmacy, there was an employee by the name Ovseevich. This was around 1915-16. That man, she said, was constantly talking about the possibility of a political upheaval. My mom was 16 years old and she thought that the guy was crazy. In the course of a few years his predictions came true. When I told this story to Iosif Abramovich, he said: "That man was my dad." [*Both laugh*]. It turns out he worked in the same pharmacy in Yaroslavl.

² http://en.wikipedia.org/wiki/Pale_of_Settlement

³ I. A. Ovseevich (1916-2010) - One of the founders of the Institute for Information Transmission Problems - one of the best institutes of the Russian Academy of Sciences.

⁴ He passed away on December 13, 2010.

B. War and Evacuation (7:51-12:58)

At the outset of WWII my dad decided to send us away from Moscow to Siberia. Obviously, the money he made working at the factory wasn't enough to support himself and his family in evacuation.

E. D. He didn't leave with you, did he?

R. K. No, he stayed in Moscow. My mom had to sell her heirloom in order to feed three kids. The youngest was two years old.

E. D. Where were you in Siberia?

R. K. We changed a number of places. At first we lived in Kazan. Then we moved to Novosibirsk and afterwards to Biysk, a town in the Altay region. We moved to Biysk together with my dad. When he realized that living separately was not a financially viable arrangement, he asked the authorities to transfer him to work closer to his family. As an important engineer he was exempt from military service. His request was granted, and he was transferred to work in Biysk. After about six months the authorities started pressuring him to join the so-called Stalin's Siberian Volunteer Corps. They said that if he refused to join, he would be drafted to the army anyway. He argued that he couldn't leave his wife and three kids. They said that if he joined the corp., his family would be taken care of. He didn't have much choice and joined the corp. As soon as he was deployed to the Eastern Front, we were kicked out of our apartment. He died after six months. We don't know under what circumstances though. We received a notification and that's it. He was absolutely unfit for military service. He had heart problems.

My mom was left to her own devices with three kids and no job. Fortunately, her relatives helped us out. Her sister and her sister's husband invited us to stay with them. They had no kids of their own. Both of them were psychiatrists and lived near Tomsk. My mom, my younger brother and I moved in with them. My older brother just finished high school and was drafted into the army. He was sent into a military academy. We lived there until the very end of the war. In Tomsk my mom received a notice of my father's death.

After the war was over, we returned to Kuntsevo where we had a nice apartment because my dad was a prominent engineer. My mom was unable to reclaim the apartment and had to settle for a room in the same building. My mom and my younger brother lived there, whereas I moved to Moscow with my aunt and uncle who ~~also~~ returned from evacuation.

E. D. Did they adopt you?

R. K. No, they didn't formally adopt me. In practice, however, they were my second parents. They took good care of me and were very kind to me.

C. High School Education and Admission to the MSU (17:12-21:10)

R. K. Living in Moscow I went to the 59th school.

E. D. The famous one.

R.# K#. Yes, it was quite good.

E. D. What famous people studied there?

R. F. For example, # Vladimir Igorevich# Arnold studied there. His math teacher was Ivan Vasilievich Morozkin whom Arnold still remembers and often talks about. My teacher was Tatiana Nikolaevna Fidelli. She was a very good teacher, and we were fond of her. I think she comes from a noble family of Italian descent, to judge by her last name. She lived to the age of almost one hundred and passed away two years ago. Every time I came to Moscow, I used to visit her with my classmates. She was the person who sparked my passion for mathematics.

Then I went to the university. There was some difficulty with my admission. Fortunately, it was 1949, and the discrimination against the Jews had not been as rampant as it was later. I passed my math exams with flying colors but ran into a problem with chemistry. The deputy dean Ivan Zinovievich Pirogov picked a chemistry examiner for me. I was pretty confident because I knew the material well. In high school I even won awards in chemistry Olympiads, so I knew the subject fairly well. After I answered the main question, the examiner started asking follow-

up question. I was convinced that I answered all of them correctly, but he kept saying that I was wrong. Using a meticulous step-by-step analysis I tried to explain to him why my answers were correct. He was adamant and just kept saying: “This is wrong!” He gave me a C.

I was upset and wasn’t ready to accept it. I went to the admissions office to air my grievance. When I got there, I was yelled at. They said that my examiner was the dean of the Faculty of Chemistry himself and that his professional integrity was beyond any doubt. They told me that they would arrange a repeat exam but if my allegations were untrue they would sue me for defamation. It turned out that my examiner was not the dean but. [*Both laugh*].

E. D. You see, these kinds of things happened even in 1949.

R. K. Yes, but they had not yet perfected the system of failing Jewish applicants. The bottom line is that I was admitted, even with a C in chemistry.

D. Dynkin’s Seminars, Graduate Studies (21:10-21:53, 23:31-24:20, 24:47-29:05)

R. K. As a freshman I joined your seminar for beginners. Its goal was to prepare us for participating in your advanced seminar with older students including Dobrushin, Karpelevich, Uspenskiy⁵.

E. D. Who of freshmen took part in my seminar?

R. K. We had Volodya Zolotarev,⁶ Igor Volkov ...

E. D. Volkov made later a career in KGB.

R. K. Yes, he probably became a high-ranking officer. There was also Borovkov⁷ ...

E. D. I don’t remember what exactly we focused on in our circle.

R. K. We focused on problems involving Markov’s chains. I got very interested in the subject. and others.

⁵ Interview with them are a part of this collection.

⁶ Interview with him is a part of this collection.

⁷ <http://www.math.nsc.ru/LBRT/v1/borovkov/borovkov.html>

E. D. When you joined the seminar, was Skorokhod⁸ there too?

R. K. No. I joined in my second year, in the fall of 1950. Skorokhod joined the seminar when I was in my fifth year. He was a graduate student. We instantly became friends. We were assigned to study some of Feller's works and present them at the seminar. This was a wonderful learning experience for both of us.

Later there was a failed attempt to enrol me in the graduate program at Mekhmat. You and Andrei Nikolaevich Kolmogorov did your best to get me in but to no avail.

E. D. When was that?

R. K. It was in 1954, a difficult time for Jewish academics.

E. D. At least Stalin was already dead.

R. K. He was, but situation was still pretty bad. I worked for some time as a school teacher when in 1956 things started to change for the better. Petrovsky⁹ managed to get Minlos¹⁰ hired by the university at Gelfand's¹¹ behest. He also recommended me to the chair of the department of mathematics at the Moscow Forest Technical Institute Nikolai Vladimirovich Yefimov. I worked there as a #assistant professor# for six years, all the while attending your seminar and writing a dissertation under your supervision.

E. D. Kolmogorov must have had some influence on you as well.

R. K. Not so much at that time. After I finished my dissertation, I had some fruitful communication with him, but while I was writing it you were the main source of influence.

E. D. What was your dissertation about?

R. K. I defended my dissertation in 1959. It focused on the diffusion processes and boundary problems for elliptic and parabolic differential equations.

D. Subsequent Research (29:43-36:05)

⁸ Interview with him is a part of this collection.

⁹I. G. Petrsky –Rector of Moscow University in 1951-1973. [See www-history.mcs.st-and.ac.uk/Biographies/Petrovsky.html]

¹⁰ See [Party at the home of Nikita Vvedenskaya September 16, 1989](#) in this collection.

¹¹ <http://www-history.mcs.st-andrews.ac.uk/Biographies/Gelfand.html>

E. D. Which of your works are most frequently cited?

R. K. I think that my most cited works are those I published after my dissertation. After my dissertation I got interested in properties of stochastic differential equations and partial differential equations with small parameter. I was particularly interested in averaging. Later, beginning from the end of the 60s, I started working on statistics. I met Ildar Ibragimov at one of the conferences and told him about my ideas on asymptotic estimations. We started working on this subject together and collaborated successfully for quite a long time. Recently, I started revisiting some of my old ideas. This happens to all mathematicians at some point in their careers. I also worked on stochastic stability, a topic that has become very popular lately.

E. D. In fact, you wrote a whole book about it.

R. K. I started working on stochastic stability under the influence of Nikolai Nikolaevich Krasovsky.¹²

E. D. How did you meet him?

R. K. We were friends. He served as an opponent at my doctoral dissertation defence. He celebrated an anniversary recently. I think he turned eighty or even eighty-five. I am not sure.

E. D. I think that your most frequently cited work is “Ergodic properties of recurrent diffusion processes and stabilization of the solution of the Cauchy problem for parabolic equations.”

R. K. Yes. This work was inspired by the paper of Tanaka and Maruyama who considered this problem for one-dimensional stochastic differential equations. I generalized their approach to the multi-dimensional diffusion processes. At about the same time when I submitted my paper to the *Probability Theory*, Tanaka and Maruyama published another paper where they also examined the multidimensional case but from a slightly different standpoint and, I believe, not quite as well as I did [*Laughs*]. This paper formed part of my doctoral dissertation.

¹² http://en.wikipedia.org/wiki/Nikolay_Krasovsky

E. D. I remember that, when you came to America, I mentioned in my recommendation letters that Ito and McKean refer to this paper in their monograph¹³.

R. K. A result of this letter among others was that Wayne State University appointed me as a distinguished professor.

E.D. Two other of my former students have a similar distinction: Mark Freidlin at University of Maryland and Kolya Krylov at University of Minnesota.

¹³ Kiyosi Ito and Henry P. McKean, Diffusion processes and their sample paths, Springer 1965.