

Alexandre Kirillov

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Highlights

A. VIP students

E. D. First let me tell a story I have never recorded before. Maybe I will use the tape later, when I decide to write my memoir but am too old to recall the details. It has to do with my encounters as a professor of mathematics with the powers that be.

A. K. A very interesting subject indeed.

E. D. Once I had a student, Nina Glagoleva. She was in my freshman course, most likely algebra, and you were also in this class.

A. K. If we were there, it must have been algebra.

E. D. I knew you, and you also knew me ...

A. K. Well, students are supposed to know their lecturer.

E. D. ... but I didn't know her. Now, the algebra chair Kurosh¹ recommended to every professor teaching an algebra course himself should choose an examiner for every student during an oral exam. There was nothing like that in other courses. As a result, the aforementioned Nina couldn't in any way avoid taking her exam with me. And so before the exam I received a visit from one of the party functionaries in our department. I don't quite remember who it was. This person told me that he talked to her, prepped her, and is strongly convinced that she deserved a good grade. I said that I had absolutely no doubt in his words but that she had to take the exam nonetheless. I also said something to the effect that freshman algebra is a very important subject and that it is impossible to study in Mekhmat without knowing it really well. As a teacher, I used to have a very peculiar approach to grading: I was generous in giving A's and F's. I thought that if students had a good grasp of the subject, there was no need to quibble about small details; but if not, it was much more humane to fail them at an early stage because they wouldn't be able to make it in Mekhmat anyway. To be honest, I don't quite remember how this story with

¹ <http://www.gap-system.org/~history/Biographies/Kurosh.html>

Glagoleva ended.

A. K. Did you give her a C?

E. D. I was ready to cooperate and asked her the easiest questions possible, but her knowledge of the subject was so poor that I had no other choice but to fail her. Later, after the exam, I was trying to explain to her powerful intercessor that I would be glad to give her a better grade but that she had to know the material. I think somehow she ended up with a C.

Now I am giving the floor to you. What do you know about Nina Glagoleva?

L. Ch. She was a meek, quiet girl with a fair complexion and beautiful hair. She was a nice person but absolutely unfit for mathematics.

E. D. That's exactly what I don't understand. Why did she decide to study math? Or was it her father's decision?

L. Ch. Most likely her father's. For some reason he thought it was a good idea.

A. K. She probably didn't have any aspirations of her own. Since she had been doing well in math in high school, her dad must have thought that this was something she could be good at in the university too.

L. Ch. I remember quite well that, when she had to take her exam, she used to stalk us in the corridor of our building asking us to help her with algebra.

E. D. She does seem like a very nice person though.

L. Ch. Absolutely! She was nice, quiet, and always smiling. Once we even went skiing together. Then she disappeared for a while only to show up half a year later and to announce that she was getting married. Most of us attended her wedding.

E. D. Who did she marry?

L. Ch. She married a person who studied in some technical college, and whose father worked in the Central Committee.² She ended up having three kids and a very nice family.

E. D. In other words, mathematical education was not high among her priorities.

L. Ch. Absolutely, she had no use for it whatsoever.

E. D. Well, maybe at least it helped her to meet her future husband.

L. Ch. No, she met him somewhere else, most likely at some exclusive Party resort.

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

A. K. This marriage was made in heaven.

L. Ch. What do you remember about her, Sasha?

A. K. There is not much I can add, except that of all freshmen we knew she got the worst grades in the finals. She failed all her exams and had to retake them.

E. D. To conclude this story, I will say that much later her name was mentioned in one of the meetings of the Moscow Mathematical Society Council. Pavel Sergeevich Alexandrov,³ the president at the time, smiled and said that she was the only student who finished Mekhmat with no grade higher than C. Everyone knew that it was impossible to fail her, and yet nobody was able to give her anything higher than C.

I had another encounter of this kind. It had to do with the daughter of Polyanski.⁴ This time the situation was even more difficult. I even feel slightly uncomfortable because this story involves a person we all hold in high esteem. But truth is above all. I was summoned by the rector, Ivan Georgievich Petrovski, who said that it was very important — for the university and for him personally — to remain on good terms with the father of this student, and begged me not to make his life more difficult by failing her. I couldn't say no to him and so came up with the following solution: I handed her over to another examiner, Proskuryakov, thinking that as a party member he would know how to handle this matter best.

L. Ch. And what grade did he give her?

E. D. I did not ask but a positive one, I assume. But I was more realistic this time. Also I couldn't take Petrovski's request lightly.

A. K. You probably also knew that Proskuryakov would give her the right grade.

E. D. I thought it was an internal Party affair. But on a serious note, I certainly realized that I was making a compromise with my conscience to some extent, but I thought this was justified.

L. Ch. The problem is even more poignant in the Department of Economics.

E. D. Are there a lot of children of influential parents?

L. Ch. Yes, a lot of them because our diploma provides excellent career opportunities.

³ <http://www.gap-system.org/~history/Biographies/Aleksandrov.html>

⁴ http://en.wikipedia.org/wiki/Dmitry_Polyansky

E. D. I always thought they tend to go to MGIMO.⁵

L. Ch. Some of them yes, others go to the Department of Economics.

A. K. Also it is much more difficult to get into MGIMO.

L. Ch. Graduating from the Department of Economics these people can get cushy jobs as economic advisers in almost any major government office.

E. D. Have you ever been approached in this way?

L. Ch. Oh, yes. But when I started working at the Department of Economics, our chair was Shatalin.⁶ He was very protective of us, and so nobody could approach us directly; we could always say no. I usually deal with such requests either by giving an F, which is not bad at all because it allows students to retake the exam, or just like you by sending them to a different examiner. Sometimes I also try to convince their parents that it is in their best interest to prep their kids or hire a tutor who could do it for them.

One time, however, I got into a big trouble while serving on the entrance exam committee at the Institute of Asian and African Studies. Their admission process is as corrupt as that of MGIMO. I knew that after serving on the committee I was supposed to be promoted to the rank of a docent. I was given a list of twenty examinees whose names were classified in accordance with their socio-economic status (so I was told). Some of these students were expected to pass, while others had to be examined “with particular rigor.” I decided to disregard these instructions and to examine them purely on the basis of their knowledge. The second person who served on the committee (there were two of us) was appalled by my decision. Everything went fine, but I had to fail one student because he couldn’t distinguish between Sine and Cosine. He happened to be one of those who were supposed to pass. The rector of the Institute was furious but couldn’t do anything about it because I was a member of another department. Yet I paid my price eventually because I haven’t received promotion up to this day.

E. D. What about you Sasha? Has anything similar happened to you?

A. K. I had a similar experience with Petya Keldysh.⁷ He was a known slacker.

E. D. He is probably a member of the Academy of Sciences now.

⁵ http://en.wikipedia.org/wiki/Moscow_State_Institute_of_International_Relations

⁶ Later an economic adviser to Gorbachev and one of the engineers of the “500 Days Program” (http://en.wikipedia.org/wiki/500_Days).

⁷ Son of Mstislav Vsevolodovich Keldysh: http://en.wikipedia.org/wiki/Mstislav_Keldysh

L. Ch. He tragically died falling off the eighth floor.

A. K. While in his third year he took my class on complex variables. He never managed to score higher than F. Trying to pressure me into giving Keldysh a good grade, Boris Shabat⁸ once caustically observed, “Rumor has it that Keldysh the father himself tried to solve some of the problems you assigned but couldn’t.”

B. Admission to Mekhmat

A. K. I probably should tell you about the last meeting of the Mekhmat Scientific Council where we discussed the entrance exams of the year before last. There were several proposals to change the structure of the entrance exams by introducing two written exams in math and one written exam in physics. This provoked a fierce reaction from Potapov, who argued that the change would favor “coached” people, whereas our priority should be to accept people on the basis of their “aptitude.” In this connection, I should mention an article in *The Moscow University* newspaper in 1969 or 70, when in the wake of the well-known events,⁹ the administration decided to “strengthen” Mekhmat. Ogibalov was appointed dean of Mekhmat, with Sadovnichy¹⁰ as his deputy. The article said that the new administration finally restored order in Mekhmat and that, whereas earlier there had been a tendency to admit “coached” people, henceforth it would be all about their “aptitude”. The article continued with the following explanation: when a person solves a number of difficult problems — especially if they are not part of the standard high school math curriculum — it shows that this person was “coached”; if however he submits excellent recommendation letters from the Komsomol, military or trade union organizations, he is a capable person who has determined his place in life and who deserves to get all the help he needs. In his speech at the Council, Potapov reiterated these arguments, and the Council accepted them.

L. Ch. Did Shen speak at the same meeting?

⁸ http://iopscience.iop.org/0036-0279/42/4/M19/pdf/0036-0279_42_4_M19.pdf

⁹ Esenin-Volpin's (mathematician, poet and dissident) was confined in 1968 to a special psychiatric hospital for political deviants. A letter to authorities in his defense was signed by 99 prominent Moscow mathematicians. (See Zdravkovska, Smilka; Duren, Peter (1993). *Golden years of Moscow mathematics*. pp. 221. ISBN 0821890034.)

¹⁰ <http://www.msu.ru/en/info/struct/sadovn.html>

A. K. Yes, Sasha Shen talked about the numerous cases of outrageous discrimination at the entrance exams.

L. Ch. I heard that he was suddenly interrupted by the head of English. "Who is responsible for all that?!" she exclaimed. "Here they are," replied Sasha and produced a full list of examiners who were implicated in misconduct.

E. D. What's your forecast in this regard? Will there be any changes?

A. K. Something will probably change. But as a matter of fact Mekhmat is no longer a popular destination. The pool of applicants is shrinking, and I think the party bosses at MSU have not caught up on this. There are simply not enough applicants to discriminate..

E. D. Regardless of the circumstances there is always a small number of people who are genuinely interested in mathematics and some of them will become creative mathematicians despite any discrimination. But a big number of people used to go to Mekhmat only because of social status and material rewards of science at that time. In the U.S. young people don't consider exact sciences an attractive career. And so children of lawyers want to become lawyers, children of doctors want to become doctors, but children of mathematicians, as a rule, don't want to have anything to do with math. Nevertheless a certain number of people (like Milner) for whom creative mathematics is their life's mission. Such people also come to Mekhmat, but the real danger is that they won't be admitted.

A. K. The system that is in place now is designed not to let them get in.

E. D. There are very few of them, and it is very easy to get rid of them, but the consequences are absolutely disastrous.

L. Ch. They are considered as evil, regardless of their ethnicity.

A. K. Yes, I also wanted to say that ethnicity doesn't play as much role in Mekhmat today as a simple dislike for gifted people.

L. Ch. They track down their high schools. Those who graduate from mathematical high schools incur a certain stigma. Our son, for example, was not fairly treated at the entrance exams.

E. D. Misha Malyutov, whom I like a lot and who is a very nice and talented person, once told me that he used to be a slacker. Since he was doing really well in high school and was also son of a general involved in the nuclear program, he decided not to prep for his

entrance exams at Mekhmat and flunked them. Yet Rybnikov, who was the chair of the admissions committee, showed much empathy toward Malyutov in admitting him despite his failure. Later I told Malyutov that this empathy could have had something to do with his father's social status and not with his talent. Well, sometimes even KGB generals have talented kids although it's quite rare.

C. Gvishiani

E. D. Now with regard to Gvishiani, what do you know about him?

A. K. I met him when he was already a PhD student. What kind of student he had been I learned much later from those who studied with him.

L. Ch. He went to the Second mathematical school, didn't he?

E. D. Maybe, but we never crossed paths.

L. Ch. And he went there against the will of his father who wanted him to focus on social sciences. His grandfather (i.e. Alexei Kosygin),¹¹ on the other hand, was supportive of his interest in mathematics.

E. D. It seems to me that so far Kosygin has not incurred as much public vituperation as other Party leaders. I didn't have the honor to know him personally, but I think the fact that he resigned of his own accord was somewhat unusual. It's not that he was fired like Shelest for example.

A. K. It's hard to tell now what exactly happened there.

L. Ch. In Moscow he is perceived in a positive light. Every now and then his family and his grandchildren would use taxi and not government vehicles.

When Alesha (i.e. Gvishiani) was in his third year at the university and had to go to harvest potatoes ...¹²

E. D. ... he was excused from this duty.

L. Ch. No, much more interesting than that. He brought home his quilted jacket and tarpaulin boots ...

A. K. This was the equipment that students received.

¹¹http://en.wikipedia.org/wiki/Alexei_Kosygin

¹² University and college students in the USSR were required to spend about a month in early fall working in agriculture, normally harvesting potatoes.

L. Ch. ... and put them by the door. "What is that?" his grandfather asked. He replied, "I'm going to harvest potatoes, and this is the equipment they gave me." Right away Kosygin called Grishin or Gromyko and dressed them down. As a consequence, that fall not only Alesha but all third year students at MSU were released from harvesting potatoes.

E. D. Which demonstrates that there are certain advantages in admitting children of influential parents.

A. K. Yes, but it didn't help Soviet agriculture.

L. Ch. I believe he works in Geology or Seismology now.

E. D. Isn't he the head of a chair at Mekhmat?

A. K. No, and never has been. He teaches part time *Analysis Part 3* for students in mechanics and he is excellent in what he does. He seems to have found the optimal way to help students of mechanics absorb the material without diminishing its level. It doesn't work as well when mathematicians teach this course. I remember when Minlos taught the class, twenty three students out of twenty three failed the final exam.

I met Gvishiani when he was already a PhD student ...

E. D. ... and you have coauthored a book.

A. K. Yes, we did because for a long time he used to teach an exercise for *Analysis Part 3*, whereas I taught the main lecture. I toyed with idea of writing a book on the subject for a long time. The textbook of Kolmogorov and Fomin is excellent and passed through many editions. However, it is neither comprehensive nor up-to-date. It was cutting-edge science in the 30s and was still on a decent level in the 50s and 60s. But then it was about time to rewrite the textbook, and I would not have been able to accomplish that if it had not been for Gvishiani. He's got excellent organizational skills. He made sure that we met every Friday to write a chapter. He took upon himself the organizational side of the project.

E. D. ... which, as we all know, is extremely important.

A. K. It would have been much easier in the U.S., where I could have replaced him with a computer, but not in Moscow, where even finding a typist is huge problem.

E. D. Well, I haven't written a single book in the US but have written many books in Russia.

A. K. Anyhow the organizational side of things is very important. Moreover, he tested on himself and his students all the problems I had come up with.

E. D. What were his relations with Izrail Moiseevich?

A. K. Formally Gelfand was his adviser, but it was Graev who worked very closely with him. Of course Gvishiani is very thankful to Graev but Graev is not a member of Mekhmat faculty and therefore could not be his official adviser.

The official advisor was Gelfand who, I think, has used this connection for the benefit of science.

E. D. Maybe he didn't even need to ask for anything.

A. K. Definitely, there was no haggling whatsoever, it just happened so that Izrail Moiseevich was allowed to do certain things that others weren't, for instance, to travel to the West.

E. D. I think every loving grandpa or grandma who is in the position of power would be willing to confer additional privileges upon the favorite teacher of their beloved grandchild.

A. K. I wouldn't call it privileges. They simply allowed him to enjoy the same rights as did other mathematicians of his rank.

E. D. Nevertheless, at the time it was something exceptional. After all he was involved in many classified security projects. Many people asked me, "How come nobody is allowed to travel abroad, while Gelfand, who is Jewish, is allowed?" I attributed it to the fact that he had a student with an influential grandpa who could make some exceptions for him.

A. K. When Alesha Gvishiani finished his dissertation he joined Mekhmat as a part time instructor. His main job was at the Institute of Physics of the Earth, where he had quite a bit of success in the field of mathematical geophysics.

D. Mekhmat in 1990

A. K. In Mekhmat of today evil is no longer embodied by anyone in particular but is rather evenly spread. New, unknown people run the department. Not only do they have nothing to do with mathematics, they have nothing to do with science in general. This is a part of transformation of the Academy of Sciences into a "Ministry of Science" and the University as a whole into a tool for mass production of diplomas. Their goal is to reduce

Mekhmat to the level of an ordinary VTUZ,¹³ where the only concern is admission and graduation numbers. They believe that any teacher is replaceable, and this trend is observed not only in Moscow. In Kiev, which has always been ahead in implementing this kind of novelties, a friend of mine was required to come up with a standard curriculum for all courses in mathematics. The purpose of that was to allow the education inspectors to know exactly what had to be taught in class on any particular day and to file reports against instructors who strayed from the curriculum.

E. D. The idea of having standard textbooks is somewhat similar.

A. K. Yes, but Mekhmat has always been known for its creative approach and abundance of specialized courses.

E. D. It seems that Soviet authorities concluded from the events in Hungary and Poland that the top universities presented a big threat and had to be firmly controlled. This might explain the admission policy to MSU. I remember that, serving on the examination committee with Mikhail Alexandrovich Kreines, I had the impression that bright kids were failed on purpose because weaker students were easier to deal with. I shared this with Kreines, who said that I was exaggerating the intellectual ability of the committee members; Ogibalov, indeed, could have consistently pursued such a “farsighted” policy but the examiners’ horizon is much more limited.

A. K. Something like that may have been at work on a subconscious level. A lot of faculty members are one-trick ponies. They find it hard to master the material of the courses they teach, let alone other courses. Small wonder that when they meet gifted young people they feel bitter and jealous.

E. D. Rybnikov once told me, after he had been appointed professor, that he had a lot of trouble studying the textbook of Fichtengoltz.

A. K. I have no doubt he did.

E. Kazhdan

A. K. There is a funny story about Dima Kazhdan¹⁴ and the textbook of Fichtengoltz. I heard it from Vilenkin. Once, stopping by a bookshop on Arbat, Vilenkin spotted a little

¹³ Common abbreviation for technical colleges in the USSR.

¹⁴http://en.wikipedia.org/wiki/David_Kazhdan

boy barely visible behind the counter who was reading and was about to purchase the second volume of Fichtengoltz. Rather surprised, Vilenkin said, “listen, kid, if you are going to read this kind of stuff, you better start with the first volume”; to which Kazhdan replied, “I have already finished it.”

E. D. Kazhdan was a child prodigy. He was a freshman when I taught Analysis to his entering class. Of course he already knew all this material, and he took an oral exam in advance. How long do you know him?

A. K. Formally I was his adviser. As a high school student and an undergrad he attended my math circles and classes. But from his third year he basically worked on his own. Although my name appeared on the title page of his dissertation, my input was minimal. Unlike what usually happens in such cases, not only have I read his dissertation, I presented it at the Bourbaki seminar in Paris. In fact, because of the student revolution of 1968, the seminar was canceled but my article was published in the seminar’s Proceedings. Only recently, 22 years later I had a chance to attend Bourbaki seminar in person.

F. Luiza Churaeva

E. D. Luiza, do you want to tell us something about your early years, your origins?

L. Ch. I come from a Muslim family. My grandfather and grandmother were fervent Muslims. They were Volga Tatars who settled in Siberia. My grandfather was a jack-of-all-trades, a very gifted person. Unfortunately, the revolution and the civil war did not allow him to realize his potential. During NEP¹⁵ he and his brothers organized their own business, selling fruit and vegetables along Irtysh and Ob rivers. Their business gradually declined, and so he worked in various crafts. In 1937 NKVD was after him, and he had to remain in hideout for two years.

E. D. Where did you grow up?

L. Ch. I was born in Omsk, but since my father attended a military academy we had to move around a lot. We lived in Leningrad and in Moscow. I returned to Omsk during the war, with evacuation. I lived with my grandparents and vividly remember how we celebrated various Muslim holidays. But I also remember that the rules of Islam were not

¹⁵ http://en.wikipedia.org/wiki/New_Economic_Policy

strictly followed. My mother and other women didn't wear face-veils and observed only the most basic rituals. In our house there was always an atmosphere of tolerance.

I graduated from high school with a gold medal, and came to Moscow for my admission interview in MSU which was conducted by Finikov. At first I lived in a dorm, in a room for two. My roommate, Roxana Sofronitskaya was on close terms with students who had been attending math circles in Moscow, and through her I was introduced to a big group of friends, among whom were Sasha Kirillov, Dima Arnold, Alexei Chernavski, Archangelski and many others.

E. D. I remember that I worked a lot with these students.

L. Ch. Yes, you were the chair of the organization committee of the mathematical Olympiad, where all of them participated.

E. D. Who were your undergrad advisers?

L. Ch. First, I worked with Vladimir Andreevich Uspenski, but it didn't go very well. As the subject for my term project I chose "The Concept of Limit According to Shatunovski", partly thanks to Arnold, who told me it was an excellent topic. Then, when I transferred to the Chair of Probability, my adviser was Prokhorov. Everyone liked him but he had forty students and not enough time for everyone.