

## Highlights

**September 5, 1989, Moscow**

### **A. State of Computer Technology at Mekhmath**

A. W. I decided to translate my book into English myself. There was a small technical problem though: Soviet-made computers and printers were inadequate for this task. A PC would do the job, but I didn't have an access to one. So I went cap in hand to Alexander Vasilievich Mikhalev, and he allowed me to use a computer in his lab. However, since I didn't have a floppy disk of my own, I had to share one with a bunch of other people. Obviously there was not enough space on it. I could hardly store a section of my book there. I approached Alexander Vasilievich yet again, and he allowed me to store my files on a small mainframe machine that was connected to the PC, and he gave me five times the amount of space that was normally allowed. So I was sending my files back and forth between the two computers, a very inconvenient arrangement. One day, however, I discovered that somebody accidentally erased all files stored on the shared floppy disk. Before anyone realized what happened I transferred all my files from the small mainframe computer to the floppy disk. But this proved to be only a temporary solution, as I soon filled the whole disk. Luckily for me Mr. Michiel Hazewinkel, a representative of the publishing house which had my book under contract, happened to visit in Moscow. We met in VAAP.<sup>1</sup> At the end of our conversation Mr. Hazewinkel decided to help a poor Soviet scientist by offering him a bottle of correction fluid. "That might be helpful," I said, "but actually I write my book on a computer. My only problem is that I don't have floppy disks." His eyes lit up, and he said, "I have a few in my hotel room. Stop by at noon, and I will give them to you."

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<sup>1</sup> All-Union Agency of Copyright.

**November 30, 1989, Ithaca**

### **B. Family History, Parents**

E. D. Why don't you start your story with a prequel? Who were your ancestors?

A. W. The earliest ancestor known to me, Ioachim Florian Wentzell, appears in the annals of history in 1735. He lived in Estland<sup>2</sup> and served as an ensign in the army of Anna Ioannovna.<sup>3</sup> Where he came from is unknown. I would assume he lived there and became a Russian subject when the Russians conquered Estland. The town where he lived was called Werro, present day Võru. My sister visited this town recently in order to find out if our family qualifies for Estonian citizenship on the basis of our ancestry. Unofficially she received a positive answer. All my ancestors are listed in our family's *Stammbuch*.<sup>4</sup> Of course I don't remember all of them by heart.

E. D. Did he belong to nobility?

A. W. Serving as an officer in the Russian army qualified one for nobility, but this rule did not come into force until the 19<sup>th</sup> century. In the meantime my ancestors practiced a less dangerous and less noble craft of pharmacy. Sometime in the 19<sup>th</sup> century they applied for nobility. At first their application was rejected, but they eventually got it. My daughter, Anna, used to boast to her cousin: "Masha, I am both a noble woman and a Jewish woman, and you are neither."

Our family keeps what the Germans call *Stammbuch*, where every head of the family records births, deaths, and other significant events. It is an interesting detail that most of the early records in our *Stammbuch* are entered in German, but sometime in the 19<sup>th</sup> century, recording the death of his daughter, one of my ancestors switches to Russian. From that point on all the records are in Russian only.

Subsequently my family moved from Werro to Riga. My grandfather, Alexander Adolfovich Wentzell, was a railroad engineer. He had three daughters and a son, my father. My father was the youngest child in the family. He was born in Moscow because my grandfather was involved in the construction of the Paveletsky Railroad. After that they

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<sup>2</sup> Present day Estonia.

<sup>3</sup> [http://en.wikipedia.org/wiki/Anna\\_of\\_Russia](http://en.wikipedia.org/wiki/Anna_of_Russia)

<sup>4</sup> A book containing the records of family events.

moved back to Riga, a predominantly German-speaking city at the time. My grandmother, Evgeniya Modestovna, née Ratkova-Rozhnova, was part Russian part Austrian. My father was born in 1898. As I said earlier, he had three elder sisters. One of them married a Frenchman and in 1913 moved to France, so that now I have some aged relatives there whom I have never met. However, my remote aunt, Tatyana Vladimirovna Wentzell, went to France to meet them. They have a different last name, but I don't remember what it is.

My father had chosen a military career ...

E. D. Was it before the revolution?

A. W. Yes. He studied in the Junker school,<sup>5</sup> from where he graduated in 1916 at the age of eighteen. During WWI he fought in the Southwestern front in Galicia as an artillery officer. My mother, Elena Sergeevna Wentzell, née Dolgintseva, was born in 1907 in Revel, present day Tallinn. Her father, Sergey Fedorovich Dolgintsev, was a math teacher in a gymnasium.<sup>6</sup> He was also an inspector of public high schools or something like that and occupied a high rank in educational hierarchy. He was a holder of personal nobility which cannot be transferred by inheritance. At some point my family moved to St. Petersburg. My mother has a lot of stories about the revolution, an event that she remembers quite clearly. There was some shooting in the streets. She and her brother affixed some flags to their feet and waved these flags so it could be seen from outside through the window.

E. D. How old were they?

A. W. She was ten. One of her brothers was a little older, and the other one was a little younger. She claims that she heard Lenin. But she was not interested in listening to him at all. She was more interested in bread rolls that were distributed at the meetings where he spoke. It was a difficult time. She finished high school and later got admitted into the Department of Physics and Mathematics of the Petrograd<sup>7</sup> University. Fichtenholz and Delone were among her teachers.

The family lived in Leningrad, and this is where my sister, Tanya Wentzell, was born. In 1934 for some reason they moved to Moscow. In hindsight they were very lucky to

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<sup>5</sup> In the Russian Empire Junker schools had a 3-year program. In order to enroll into a junker school, a student had to attend a gymnasium or cadet corps for 6 years or pass a corresponding exam.

<sup>6</sup> A type of school providing secondary education in some parts of Europe, comparable to English grammar schools or sixth form colleges and U.S. college preparatory high schools.

<sup>7</sup> The name of the city from 1914 till 1924.

have done so because the assassination of Kirov in December of that year caused a wave of persecution in Leningrad: people were arrested, exiled etc.

E. D. Very much unlike my parents, who were in Leningrad at the time.

A. W. They left Leningrad shortly before Kirov's assassination and worked in the Zhukovsky Air Force Academy.

E. D. Your father was in the military, right?

A. W. He served in the artillery.

E. D. Was he a general?

A. W. He was a brigade engineer and later, with the introduction of the new rank structure, became a major general. He was also a Doctor of Technology Sciences and a Professor.

Let me briefly sidetrack here. He and my mother once wrote a book on Approximate Calculations. When they submitted their manuscript to the publisher, they were told that if the author was a doctor he would get paid more than a candidate would. Therefore, if they wanted to appear on the cover as co-authors, they would get less money than if my father appeared as the sole author. My father told the publisher to put only his name on the cover but stipulated that in his foreword he would write: "In conclusion, I would like to thank Elena Sergeevna Wentzell, who wrote this book." In the end the publisher gave up putting both their names on the cover and paying the higher rate.

Then came along my brother Misha and I. We were born in 1939 and 1937 respectively. Together my siblings and I form a certain progression. My sister was born prematurely and was rather small. I was born just on time and was of average size. My brother Misha was born postmature, and he was very big.

E. D. Tell me more about your mother. She is a very interesting person in many respects. She taught in the military academy. Then she left her job. As far as I understand, this had something to do with her literary activities.<sup>8</sup>

A. W. According to her, she wrote her first literary work at the age of five. One day her parents sent her to buy some bread. Instead of buying bread she bought herself a toy trumpet. Pretty soon, however, excitement gave way to pangs of guilty conscience. She

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<sup>8</sup> She published her works under the pseudonym Irina Grekova.

started crying and eventually fell asleep holding the trumpet in her hand. Later she described this predicament in her first story entitled “The Trumpet.” Afterwards, as an adult, she often wrote poems and stories for me and my siblings. She wrote something for adult readership as well. I have no idea how she managed to find time to write all that. For the first time she got published in 1962.

E. D. During the Krushchev Thaw.<sup>9</sup>

A. W. Yes.

E. D. What came out first, “The Coiffure Maestro” or something else?

A. W. Her first published story was “Behind the Checkpoint”. Frieda Vigdorova, a very close friend of ours since the 60s, brought the manuscript to *Novy Mir*.<sup>10</sup> It was accepted, and she continued publishing her work in that magazine for a long time. Her story “At the Trial Run” came out there as well. It takes place in 1952 and centers on the work of a military facility. It recreates the atmosphere of suspicion which reigned in the country at the time. Some military people took offence at the story, quite foolishly I must say because the military is described there in sympathetic terms. For some reason there are just as many fools among the military as there are among the Communist Party functionaries. The result was a thorough tongue-lashing which took place at the Writers’ Union. There were meetings with the writers and the military. The former tried to defend her, while the latter attacked. Afterwards my mother had to pass a routine qualification evaluation for her position.

E. D. She was a professor, right?

A. W. Yes. She passed this evaluation with flying colors. After that she resigned and worked for many years in the Institute of Railway Engineering.

### **C. Childhood and First Steps in Mathematics**

E. D. Now let’s talk about you and the origin of your interest in mathematics. I’ve heard legends about you.

A. W. I’ve heard them too. Allegedly, I insisted on taking logarithmic charts to the kindergarten. These were German charts, beautifully produced and colorful. Obviously, I

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<sup>9</sup> [http://en.wikipedia.org/wiki/Khrushchev\\_Thaw](http://en.wikipedia.org/wiki/Khrushchev_Thaw)

<sup>10</sup> [http://en.wikipedia.org/wiki/Novy\\_Mir](http://en.wikipedia.org/wiki/Novy_Mir)

couldn't know much about logarithms at the age of six. I also remember one of the math problems my mother used to give me. It's both a math and a physics problem at the same time: "Assume Sasha and Misha are rocking on a seesaw. Sasha weighs 44 lbs. Misha weighs 57 lbs."

E. D. The setup is taken from real life.

A. W. "Where must one prop the board to put the seesaw in the state of equilibrium?"

E. D. How old were you?

A. W. Based on the weight, probably seven or eight. I also remember my first encounter with algebra. But this is my own legend, not my mother's. I was asked: "What's the outcome of  $A+A$ ?" I didn't understand anything and couldn't answer. My brother Misha, on the other hand, said: "Piece of cake! The answer is  $2A$ ." I immediately understood what algebra was about and never had any difficulties with it, which I cannot say about my brother.

Now here is my first recollection of solving a problem in geometry. Again I cannot say precisely how old I was. I was asked to prove that the sum of angles in a triangle was  $180^\circ$ . I just couldn't get my head around this question. What does it mean "prove"? So I took a protractor and measured the angles.

E. D. Only to discover that sum of angles was not  $180^\circ$ .

A. W. Why not?

E. D. When you measure them, the result usually fluctuates by one degree.

A. W. I don't remember, but the main point is that I didn't understand how I was supposed to "prove" the proposition.

I was quite a good student but our teachers weren't very good so that somewhere around fifth grade my parents asked my sister's math teacher to tutor me.

E. D. At home?

A. W. Yes, we used to meet at his place. We lived between the metro stations Dinamo and Aeroport. He lived near Sokol station on Krasnoarmeiskaya (Red Army) Street, a walking distance from my house. He tutored me and developed my intellect. We didn't talk only about mathematics. In particular, I learned from him that anyone could write poetry.

Before that I used to think that poetry is written only by those who are specifically trained in this art, namely poets.

E. D. So did you start writing right away?

A. W. No, not right away. He started tutoring me when I was in the fourth grade. But when I was in the fifth grade there were already many poets in my class, myself included.

E. D. Do you remember any poems?

A. W. Yes, but they are for the most part inappropriate.

E. D. What?! Already in the fifth grade? Usually people start writing improper ones later.

A. W. Well, I wrote both proper and improper ones. Unlike some of my classmates, I never wrote for publication. But we digress.

In the seventh grade I participated in the mathematical Olympiad. I liked it a lot.

E. D. Did you get any prizes?

A. W. I won the first prize for four years in a row.

E. D. When was that?

A. W. 1950 through 1953. After my first Olympiad I got interested in mathematics and started attending a circle that was run by Kolya Chentsov and Lyolya Morozova. Later, when I was in the tenth grade, the person in charge of the circle was Igor Girsanov. He was a first year student in the university. He told me that instead of attending the circle I should come to Dynkin's seminar. And so I started going to this seminar.

E. D. Do you recollect anything interesting from the seminar?

A. W. Yes. I already told you about Seregin's lemma.

E. D. Seregin was older than you, wasn't he?

A. W. Yes, he was Igor's peer. I still remember Seregin's lemma, a very elegant lemma: If we have a matrix of rank  $r$ , and we take  $r$  linearly independent rows of this matrix and  $r$  linearly independent columns, then the determinant at the intersection of these  $r$  rows and  $r$  columns is not equal to zero. If the rank of the original matrix is greater than  $r$ , this is not true.

E. D. Do you remember the context?

A. W. No, I don't. All I remember is that it was called Seregin's lemma. At that time we didn't work on probability theory.

E. D. Do you remember your achievements before you started working on probability theory? Did you have your own lemma as well?

A. W. No, I don't think so. When you introduced probability theory in your seminar, at first I didn't understand anything because it was said that, as is well known, random variables are functions. I did read some books about probability theory, for example, my mother's book, but there random variables were not functions. The functions that I could associate with random variables were their distribution functions. So in the beginning I misunderstood the whole thing.

E. D. If I am not mistaken, your first scientific achievement was that you spotted an error in Feller.

A. W. Yes, it seems to have been a common occurrence among younger students: I spotted an error in Feller, while Orevkov spotted an error in Hewitt.

**December 1, 1989, Ithaca**

#### **D. Defense and the Helsinki Congress Affair**

E. D. Sasha, you promised to tell me about your defense.

A. W. Yes, I will say a few words about it. Before my defense there was a meeting of the party cell of Mekhmath. Gnedenko and Kolmogorov took part in this meeting. Rumor has it that they were trying to explain that I am not Jewish. They were successful in doing that.

E. D. Who told you about that? Members of the party bureau, Gnedenko or Kolmogorov?

A. W. I am not quite sure. I believe it was Gnedenko. During the defense itself there were a number of speakers. Among them was Kolya Krylov, who flattered me by saying that I am a mathematician of fantastic power. From that point on, every time we had a meeting of our chair, Natasha Rychkova referred to me by the acronym MFP.

E. D. Was Kolya your opponent?

A. W. No, he was not. There was also a speech by Kolmogorov, who said that I should have defended fifteen years ago, which is quite flattering if somewhat exaggerated. Boris Vladimirovich Gnedenko also observed that I am a very modest person, at which point



Stechkin, according to those who sat close to him, grumbled: “He doesn’t come across this way.” These were some of the funny moments of my defense.

E. D. Another interesting moment of your career was an invitation to the International Congress of Mathematicians in Helsinki.

A. W. Yes, but let me first give you some context. In 1973 Lothar Partzsch, who was a doctoral student of Mark Iosifovich,<sup>11</sup> invited me and my wife to visit him in East Germany. We applied for exit visas in OVIR,<sup>12</sup> but our application was declined. I was in a mood to pick a fight, and so I went to OVIR to find out what exactly happened. The deputy director of the branch told me that he did not know. He asked: “Do you have access to classified material?” I said, “No.” “What about your wife?” he asked. I said: “Neither does she.” “In that case, I have no idea,” he said. I noticed that the application forms that I filled out contained a field that required me to mention any previous occasions when I was refused an exit visa and asked me to provide reasons for that. So I told this guy, “I am asking you just because I want to know what I should put in this field next time I want to apply.”

E. D. For reasons unknown.

A. W. No, he said, “Just say that you were refused because your application was declined.” “But this is nonsense!” I said. “Okay”, he said, “then just say that you were refused by OVIR.” Unsatisfied with this answer, I wrote a letter to the Minister of the Interior himself. I didn’t receive any formal response in writing, but I did receive a phone call. The person on the phone confirmed that my application was declined but said that this would not affect me if I decided to travel for work related purposes or tourism.

So when I was invited to attend the Congress in 1978 I was quite skeptical that I would be given permission to leave the country. However, since Kolmogorov had put so much effort in getting me invited to the Congress, I had no choice but to file an application for an exit visa. A number of invitees were in the same situation: Kolya Krylov, Ilyashenko, Arnold and a few other people. None of them received their visas. People who went to the Congress were dean Kostrikin, vice chairman of the Scientific Council Egorov and others.

So how did I find out that I was not going to the Congress? At some point I simply despaired of trying to figure out what was going on with my application. Kolya Krylov, on

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<sup>11</sup> Freidlin.

<sup>12</sup> The Foreign Visa and Passport Office of the USSR Ministry of Internal Affairs.

the other hand, persisted in going to our foreign department, and one time when he was there he chanced upon Egorov, who was there to get the papers required for a medical exam.<sup>13</sup> Kolya said: "Why can't I get these papers too?" The foreign department worker looked at him with sympathy and said: "I have no problem giving them to you, but what's the point?" At this moment he realized that he was not going anywhere and called me. This was more or less my experience with the Helsinki Congress.

Also, since it was pretty obvious that I was not going to the Congress, I thought it would be a waste of time trying to write my paper in English. So I wrote it in Russian. In addition, in order to publish my paper abroad I had to acquire permission from the rectorate. This permission was being delayed so that eventually I abandoned all hope of getting it. By the way, Kostrikin did a very brave and noble thing. Ilyashenko gave him a copy of his paper, and he presented it at the Congress. As for me, I didn't want any trouble. I thought it was all over. However, a month after the Congress I received a letter urging me to submit my paper. By that time the rectorate had issued permission, and I mailed my paper.

E. D. Did it get published?

A. W. Yes, it was published in Russian but I was none the worse for it because later I received a complementary volume with eight papers, including mine, translated into English. This is all I can say about the Congress.

### **E. Problems with Academic Censorship**

A. W. Soon after Mark Freidlin announced his decision to immigrate to the US, our Chair was selecting nominees for the Ministry of Education award. I was told that I should submit my application. I sent a full list of my publications, some of which I co-authored with Mark. There were four candidates, but unfortunately I didn't make the first cut. So I wasn't in the least surprised when somebody asked me why there was a reference to Dynkin's work in my thesis and suggested to remove it. I don't remember who it was.

E. D. I would assume Gnedenko.

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<sup>13</sup> One of the requirements for an exit visa.

A. W. Or Natasha Rychkova. I am not sure. Anyhow, the reference had to do with the nature of Markov processes.

E. D. A mere trifle!

A. W. Indeed. So I replaced it with a reference to Gichman and Skorokhod, even though I didn't like it as much. After my defense Khasminskii suggested that I should publish my dissertation. I told him: "I am not sure if there is any point in trying to do that because, first of all, it covers some of the same stuff which was dealt with by Mark, and, second, the publisher will refuse it anyway." Khasminskii replied: "Well, in that case let them refuse. Why would you refuse yourself?" So I dropped one chapter, added a few things from dissertations of my doctoral students, and published it as a book. In that book I restored the reference to your work on Markov processes, and nobody noticed that.

E. D. I assume this happened already during the "*perestroika*" era?

A. W. I submitted the manuscript before "*perestroika*", but the book was published when it was at its dawn.

### **F. Academic Remuneration, Gnedenko, Kolmogorov**

A. W. Let's turn to the question of whether having a doctoral degree in the Soviet Union can improve one's financial situation. Valery Tutubalin, who had defended his thesis a few years before me, arrived to a conclusion that he would be worse off financially after his defense, and here is why. At the time the Ministry of Education issued a decree prohibiting the universities from hiring PhDs as docents. He figured that as a PhD he would be promoted from a docent with a salary of 320 rubles to a senior research associate with a salary of 400 rubles.<sup>14</sup>

E. D. Which is more?

A. W. Correct, but which also prevented him from holding a second position which normally gave him another 150 rubles. When I defended this rule no longer applied, and I was at ease. To my utter surprise, my salary went down. I also held to positions. However, this had nothing to do with my defense.

E. D. Why?

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<sup>14</sup> For historical exchange rates, see [http://en.wikipedia.org/wiki/Soviet\\_ruble#Historical\\_exchange\\_rates](http://en.wikipedia.org/wiki/Soviet_ruble#Historical_exchange_rates)

A. W. I had a falling-out with my boss, Valeriy Vasilievich Kudryavtsev, and he prohibited me from holding two positions.

E. D. It's never a good idea to quarrel with your boss.

A. W. It definitely didn't help me. Boris Vladimirovich Gnedenko once told me as he signed the appointment papers promoting me to the rank of a professor: "Alexander Dmitrievich, I certainly understand that if you lived somewhere abroad, you would have become a professor a long time ago." "Thank you, Boris Vladimirovich" was all I said.

Now with regard to Gnedenko. During the celebration of his anniversary, there were many visitors from Central Asia who kept on flattering him with panegyrics of praise. One of them was as follows: "Boris Vladimirovich Gnedenko is such a brilliant scholar! He is a second Likhachev!"<sup>15</sup>

E. D. Any detail about such a remarkable person as Kolmogorov, no matter how trivial, might be of interest to posterity. What can you tell us about him?

A. W. After my defense, my opponents and I went to my sister's apartment to celebrate. Later, Alek Shiryaev brought there Kolmogorov. We were all incredibly surprised and flattered. Andrey Nikolaevich was in a good mood, reminiscing, telling stories. My brother, Misha, who is not a mathematician, had one or two drinks too many. He was lavishing Kolmogorov with praise and was trying to clasp him in his arms.

E. D. When was it?

A. W. 1982.

E. D. That is, when he was already very frail.

A. W. Yes. When he gave a speech at his anniversary, in 1983, he was a bit incoherent. But later, after he had a few drinks, he got much better. In 1983 he was still in decent shape.

E. D. Yes, there were already signs of Parkinson's, but wine seems to have had a positive effect on him. But tell me more about this anniversary. I heard from Shiryaev that there was a rather odd situation when the university tried to prevent the celebration of Kolmogorov's anniversary.

A. W. I have no knowledge of this whatsoever.

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<sup>15</sup> [http://en.wikipedia.org/wiki/Dmitry\\_Likhachov](http://en.wikipedia.org/wiki/Dmitry_Likhachov)

E. D. This is because you are not privy to inside information.

### **G. Yuli Schreider**

A. W. My brother-in-law, Yuli Anatolievich Schreider,<sup>16</sup> a member of the Communist Party since 1956, worked in VINITI and sometime during the 60s he suddenly discovered religion.

E. D. What religion? Christianity? Judaism?

A. W. Christianity and more specifically Catholicism. The thing is that we had a common friend, Volodya Muraviev, who was a catholic. I think my brother-in-law got this bug from him.

At first he plugged Catholicism on every occasion, trying to convince us that our atheism is in fact our religion, an old idea of French thinkers. He was trying to promote religion in every possible way, not shying away from what might be considered a blasphemy from a religious point of view. Thus, he used to say that Christ was a womanizer, apparently in an attempt to prepossess his audience toward him.

In the beginning nobody knew about this.

E. D. He didn't leave the Communist party, did he?

A. W. No, he didn't, and maybe this is something that bolstered my negative attitude toward religion. One day, however, he was summoned to the district party committee. Somebody informed the authorities that he officiated a Catholic mass in a private home. As a result he was expelled from the Communist party.

E. D. When did it happen?

A. W. These were early 80s. Prior to this incident he had been head of the department. Now he was demoted to an editorial position in the Abstract Journal of VINITI. Nevertheless he wasn't too upset about it. He still was considered one of the best employees and had to work only an hour or so a day. What really bugged him though was the realization that he would no longer be published, that nobody would refer to his works, and that he would not be invited to scientific conferences. At first, this is exactly what

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<sup>16</sup> <http://home.comcast.net/~sharov/biosemschreidr/schreidr.html>

happened, but in a year or so things went back to normal: he could publish his stuff and was invited to conferences. But now he had a different concern. What if they offered to restore him as a member of the Communist party? It would be very uncomfortable for him to say no. With the advent of Glasnost, freedom of religion, and the decline of the authority of the Communist party this problem was solved.

Recently he has been invited to go on a pilgrimage to Lourdes, and he is planning to go there with his daughter.

E. D. Does the pope consider appointing him as a nuncio?

A. W. I have no idea. Not long ago he also went to Poland to teach philosophy in some kind of qualification improvement program for priests. By the way he is also a Doctor of Philosophical Sciences. First he was a Candidate of Physical and Mathematical Sciences. Then he became a Doctor of Philosophical Sciences. He has published works on the history of science. He left VINITI and now works in VAAP (Copyright Agency).

My daughter, who has a lot of trouble understanding the Marxist-Leninist philosophy, used him as a tutor to prepare for her exam on this subject. She calls him Mr. Professor. When she asks him questions about various concepts of Marxist philosophy, he sometimes explains them and sometimes dismisses as complete nonsense. Nevertheless he managed to help her. A great thinker!

E. D. Did he convert your sister?

A. W. No, he didn't. My sister is an iron lady. She didn't succumb.