

Chapter 19

Memories from My Former Life: The Making of a Mathematician



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To Barry and Gretchen

I will give you now some snapshots from my former life, which ended very suddenly the 14th of August 1962 at 6 am.

As a very young adolescent, my first big interest was Philosophy, and my hero was Immanuel Kant, the Kant of the Critique of Pure Reason, but I also had a big interest in Ludwig Wittgenstein and in the Vienna Circle, Der Wiener Kreiss.

What for some might be the Bible, but that book I have never read, was for me in those very youthful years *Die Kritik der reinen Vernunft* and the *Tractatus*. And once we are talking about these kind of things, I maybe should tell you right now that I do not believe in God, more precisely, that I fail to understand what the whole question of His existence or nonexistence might mean. But then I do believe that mystical activity, that totally individualistic quest for transcendence, is something objective, on par with other objective things. But I should leave this topic for another time.

Pretty soon I got the idea that in order to start any serious philosophical meditations, I better understand how the world functions. And as far as that functioning of the world was concerned, for me it meant Physics. I can muse now in retrospect, why life sciences were not included here. I guess that, at least in those old days, I thought that life was an accident, while physics meant universality. And as far as human society and its organization were concerned, that might well be important for our everyday life, but so is good plumbing too, and it never counted among the topics of higher intellectual value which I cherished.

I may have slightly mollified some of these ideas, later on in my second life, then that universality of physics may have come into some questioning. For instance, our Universe may well be only one of many possible ones, all somehow existing out there, more or less independently of each other, in particular with different physical laws. For quite some time, in the past, I had believed that there was one and only one mathematically consistent system of equations for the world, waiting

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to be discovered. In my second life, I have even worked with some physicist friends, for some years, on a small piece of those so elusive equations, but that is another story. Anyway, I now no longer think that this sacrosanct uniqueness makes that good sense. And I also realize now that, after all, the brain can think mathematics and understand the world.

The fact still remains that, even today, a Black Hole fascinates me much more than the most exquisitely beautiful animal or plant. It would not be appropriate to explain you here the rather technical reasons that make Black Holes so exciting for me. Besides, at the time when the present story unfolds, nobody had thought seriously about them, they were still in limbo for years to come.

Coming back to those really old days, I soon came to realize that one cannot get anywhere far in Physics without a solid amount of Mathematics. I really hated the silly maths which the school tried to teach me, I was totally unmotivated as far as it was concerned, and I am unable to function without motivation. But then, at the age of about eleven, I started to learn more serious Mathematics, all by my own, with only occasional bits of help from people who knew more.

You understand that for expository reasons which should be obvious, I am telling you here, in a linear order, various things which happened to me, all more or less simultaneously, mixed with each other and intermingled, during a certain span of time, between the ages of 11 and 14 or maybe 15, in one big lump.

So I successively learned Algebra, Analytic Geometry and Trigonometry, and then, at the age of about 13–14, Calculus. I got so excited when I understood Calculus that, I immediately started teaching it to my friend and classmate Gussi. We were sharing a double bench in our Romanian high-school class of fifty or so pupils, and our bench was located in the most remote corner of the classroom, so that we should not be disturbed by our teacher's voices, we liked to do our own business in peace. This way, Gussi also learned Calculus, he later became a professional mathematician, and as you shall see we even wrote quite a number of mathematical papers together. He actually ended his career as director of the Mathematical Institute in Bucharest, but that came after Ceauçescu's fall.

Our activity was not restricted to Maths or Physics (and Physics in those old days meant for us Newton, Lagrange and Maxwell) or Philosophy (this was in my case); about four times a week we left surreptitiously our high school, after having socialized with the other chums, and went to the boxing school instead. Our classes started at about 2 pm, but at 4 pm we jumped over the fence around the school yard, and went straight to the boxing school. There we were together with professional boxers too, and the training was tough. But after a few years of that, we both became very athletic, we were the strongest guys in our school. Sometimes it so happened that we quarreled and that we started fighting. His game was usually to try to keep me at a distance with his fists, while my game was to try to get through that, and close in on him, because I knew that if I had managed that, then I had won. The other pupils gathered in a big circle around us, like for a circus show. And nobody in that school ever dared challenge us.

There was another boy in our class, Michael, a small frail but very brilliant guy, who would later become a well-known stage director at the Bucharest theater. He

had the idea that if we all, the whole class, joined together the Communist Youth organization we would be safe with the Communist system.

It was a serious thing, but a bit of a joke too. You have to understand that communism is a very verbose thing. Using the politically correct word in the correct place may have meant the difference between being highly praised for your good knowledge of marxism-leninism, as this was in my case; after all I had a philosophical background and all that was very easy for me, or when you did not manage to find those correct words or, even worse, you came out with something heretical, then you might even have had to face jail. So, quite naturally, in my high-school I was the propagit, which in communist jargon means the person in charge with propaganda and agitation. That is how it was, in those old days.

I have just told you how I learnt calculus at the age of about thirteen or fourteen. It so happens that there were some twelve boys, of the same age, in that country, who like me did the same. Their motivation might have been physics, like in my case, but not always. I will call them from now on “the bright boys” and they, or at least most of them, will appear big in this story of mine. And soon the bright boys got to know about each other’s existence too.

This is a good time to take a break and make a parenthesis. Karl Marx once said that people do not understand the history they live through, and this is damn true. I have lived through this sudden burst of youthful mathematical enthusiasm, in a scientifically underdeveloped Balkan country, and I still do not fully understand how that could happen. And after my own crop of bright boys, the next generation in Romania came with a new crop, and the process was many times renewed. How was that possible? I have, of course some conjectures about that, having to do, for instance, with a transfer of interest from humanities, which was rather strong before the war, and then made impossible by communism, to something equally lofty, which was possible to do now. But I cannot see very well how, for such a conjecture one could find any shred of factual evidence. History, which after maths, physics and philosophy, is my next big topic of interest, is clearly a very difficult subject. When I have such a hard time in getting some understanding for events in my own life, then imagine how painstaking it should be to disentangle the more distant past. I love History, but I never could have become a real historian trying to prune through the evidence, written or other, which the past has left us. I certainly do not like old archives, that is certainly not something for me.

And then also, at least when talking about one’s own past history, so often did I talk with some friend about some past event we shared, and more than often our memories did not quite match, sometimes ridiculously badly so. I strongly suspect that this same kind of mechanism concerns the more global history too.

Finally also, history can and should be done at various levels, at various scales of magnification, in time and/or in field of activity, a bit like the renormalization group, if you see what I mean. For instance, I am very fascinated by the history of recent or very recent Science, and the only sciences I know, are of course maths and physics. Just an example. A few hours before flying to the South Pacific I heard that Bill Thurston had died, I do not even know the details, here and now, in Fiji. Bill has left us a magnificent mathematical legacy but as for right now, large chunks of

it only survive in the minds of a few of us. We should better hurry to do something about this, because when we will be gone it will be gone too. I know that various people will re-work and re-write things, make them rigorous by other means, and so on and so forth. But then something of the fantastic potentiality which is there in Bill's work, as it stands, will be lost in the process, maybe forever.

But I should not loose track of my own story, and I go back to it now. So, time went by and I had to start thinking about the University. When my parents heard that what I was planning to do was to study maths and physics or physics and maths, they got very worried. Very gently, my father told me that this was certainly the surest road to starvation. He thought there were only three reasonable lines of University studies with which one could make, afterwards, a comfortable living. These were medicine, law, and engineering, which included architecture too. How little did he grasp what was going on in that country of ours. Lawyers were already pariahs in the communist society, and medical doctors were to follow them in less than 10 years time. My father's dream was that I should become a dentist, like himself, and eventually take over his medical practice. I believe that this would have been about as unsuitable for me as it could have been, and with some sadness my father understood that too. I shudder even now, with horror, thinking of what would have happened if, instead of being myself the way I am, I would have been a traditionalist, would have followed in the steps of my father, and then today, if still alive, I would be an old sedated dentist, clearly feeling like a total failure, living in some dark God-forgotten corner of that Balkan country where I happened to have been born. But tradition, of any kind, is not my thing. I am sure, of course, that in certain appropriate conditions and for the appropriate people, tradition may be a good thing, but in my specific case it would clearly have meant sheer disaster. One cannot stick to tradition when the world around you is in upheaval, nor when your own ideals are too far removed from those of your parents or ancestors.

Also, when my father wanted me to become a dentist, little did he fancy, at that stage, that private medical practice was going to be abolished, like so many other things. And when, later on, he understood that, he died with a broken heart.

With these kind of thoughts being around, only about half of the bright boys went in for science. All of them went in for maths, except one who became a physicist. As I soon found out myself, maths studies in Romania were quite underdeveloped, but physics studies were even more so.

But then also, about half of the bright boys went into engineering. I met at least some of them, a few years later. They were by then broken and disillusioned. The bright light in their eyes was gone, their youthful ideals were shattered, and they were busy counting sacs of cement or doing other similarly exciting tasks. A slightly older mathematician, Ganea, a very close friend of mine, had been obliged by his parents to study engineering before going fully into maths. And he told me quite gory stories about that. Some examples:

Exam question: How does one proceed for paving a road?

Expected answer: With care.

Then, the students ask their professor questions about some more interesting topics. The professor says to them: You do not have to worry about these things, which are not for you. If ever such things become actual, then one will call an engineer from Germany to take over. Beautiful, isn't it? Ganea, the man with the blackest, often self-critical sense of humor which I ever knew, will occur big again in this story.

Few months before actually entering the University, in June 1951, I went there to attend a series of lectures on Abstract Algebra, "Rings and Ideals" it was called, geared for mathematically minded young people, and given by Moisil, a university professor who was soon going to play a big role in my life. Just before the first lecture started, another student, a tall intense looking young man with bushy eyebrows, came to me saying: I know who you are and I want us to become friends. So we did, and we stayed friends forever after. Sorin, the young man in question, is that unique one among the bright boys who became a physicist. Also, about a year after we first met, he introduced me to the mountains, which became then so important for me. In his later life, after many years spent at Trinity College in Dublin, Sorin finished his career as a professor at the University of Montpellier. He is a regular visitor of the CERN in Geneva, and brings me news from there. But this is no longer part of this story.

The first semester at the university was common for maths, physics and for training future high-school teachers. The three lines separated at the end of the semester. One of the first new fellow students which I met, was Samy Z., a very brilliant and quite aggressive guy. He brushed away my fears of not having gone into engineering and started to feed me with little problems to solve. He was more advanced than I was then, in point set topology and real variables. Every time he served me some little Fundamenta type problem, he told me that I was an idiot if I could not prove that. You might remember that Fundamenta is the Polish maths journal, famous between the two wars.

This changed my life. Instead of taking the overcrowded tram, I started to walk to the University and back home, a total trip of about an hour and a half. And while walking, I thought about Samy's problems, this taught me to work without paper and pencil, all in the head. I always managed to prove what Samy asked me to prove, and I remember only one of his little riddles, which took me more than the walk home to do. I thought about it during a good part of that afternoon, in the middle of a lively and noisy party, until I solved it. It went about like this. Try to cram in a plane as many two by two disjoint topological copies of the figure Y as you can; it is claimed that you cannot put more than countably many.

About a year later, Samy and I had our first mathematical paper published, a joint piece of work on Fundamenta type arguments; that was in the very beginning of 1953.

So now our whole little gang of bright boys, we found ourselves first year students, actually in the first semester, and all the courses were very lousy. Then we decided to attend some fourth year courses, the closest thing to a graduate school in Bucharest, in those days. I attended a course in set theory, à la Cantor, and another one in algebraic topology. To this one was also attached a little appendix, on group

theory. The professor for these two joined courses was the same Moisil already mentioned.

Moisil was brilliantly clever, he had a rather broad knowledge of many mathematical topics and his main field was mathematical logic. But, at the same time he was quite superficial, in fact his knowledge was all quite shallow. He had a Balkan mentality and Balkan ambitions (avoid carefully the difficult deep questions and, instead, enjoy toying with those harmless and easy ones). He was also sparkingly witty and praised a nicely coined witty sentence above all things. For the sake of making a nice pun, he was willing to create for himself a lifelong enemy, and he had many such. Here is one of his many favorite aphorisms: Do not trust a man who neither smokes, nor drinks, nor has plenty of affairs with women, because only God knows what kind of secret tastes he might hide. Moisil himself certainly indulged big in the three pleasures above. He also told me once that, as a young man he went to a lot of parties, and in order to sharpen his mind, so as to be able to put up that brilliant conversation of his, just before the party he would read some G.B. Shaw; he trained his brain like for a sporting event of sorts.

He also loved to go to restaurants, surrounded by a crowd of followers; I soon became one of the youngest of them. Everybody paid for his or her food, and Moisil paid the wine for everybody, and plenty of wine there always was. His table talk was pure pleasure to listen to. With his round bald Churchillian head, his clever eyes and his deep voice he was quite a character. And the town was full of funny little stories concerning him, I guess some true and some not.

Between the two wars, in a country dominated by the extreme right, Moisil had been a well-known left-wing university professor, and he had been targeted by the Iron Guard, the violently vicious Romanian fascist party. So now he was an important member of the Communist party, with a lot of power. But Moisil was nice and kind and he helped me a lot, in difficult times; and he helped many other people too. He used his power to be good. He would soon become my boss, and one could not survive in Romania, in those days, without one.

Moisil's algebraic topology course was flying very low, and it was highly non-inspiring. In his little group theory course he rather assigned some research papers to various graduate students to read and report about. So, 1 day I learned about an item which was supposed to be next week's topic. The issue was this. If a real function respects addition and if it is also continuous, then quite trivially it has to be linear homogenous. But what I heard now was that there existed also discontinuous solutions for the corresponding functional equation. That was next week's topic, and a graduate student, who was soon to become a friend of mine, was reading a paper about it, preparing to make a report. But this was good food for my mathematical thinking walks, and before the week was over, I knew how to construct all those discontinuous solutions. I had never been exposed to linear algebra so I recreated from scratch everything which was necessary now, looking at something which I later recognized as being the vector space of the reals over the rationals, but that language was then unknown to me. But that did not matter; on the other hand, what I did know quite well, were transfinite ordinals, which were certainly needed for the construction. I was never to be exposed to that linear algebra, but some 2 years

later I had become an expert on Hilbert and Banach spaces and I had also created my own private brand of theory of distributions. And so the standard linear algebra looked to me like a silly childish game, really Kindergarten stuff. I happily skipped the University courses on the topic, like I skipped most of them, as you shall see.

Anyway, when that next week came, I reported on my solution in the group theory class. There were two consequences of this, firstly I decided to go in for math the second term and not for physics, as Sorin was pressing me to do. So, it was a big forking point for me. Secondly, Moisil did then become my boss and me his protégé. And some 6 months later, when I risked to be expelled from the university for political reasons, his protective shield saved me.

In my high-school days, the communist youth organization was a bit of a joke, but at the university it was a deadly serious affair. Some of my fellow students were like hateful monsters, coming straight out of a book by Dostojevski, or so they seemed to me.

And just before the end of the first academic year, a political earthquake shook us all. I had always, since 1947 when the communists took over, felt Stalin's oppressive presence, physically, as if he were there. Now, in the last year of his life, Stalin got a big access of paranoia and wanted to purge thoroughly the whole communist world, at all levels. At the highest level, that meant a lot of political trials of communist leaders, in various communist countries, accused of this and of that, and more often than not, shot or hanged.

At my more modest level what this meant was that beginning with June 1952, every week there was sort of a political trial, inside the university, in the framework of the communist youth organization. No blood was actually shed, but the punishment was being excluded from that organization, with possible consequences being expelled from the university or even jail. Each of these shows, with its ritual of accusations, confessions and self-vilifications, started at 10 pm and lasted until the early morning. It so happens that at the very first trial already, I tried to defend a friend of mine, claiming that he should not be punished for what his father had done. And, for once actually, the father in question had done something, he had been part of an attempted military coup against the regime, and he was now in prison for life.

The only net result of my attempt to help my friend was that now I was myself targeted for the next trial. I had decided to stay home for the occasion, but they came and fetched me. When my turn came, it was four o'clock in the morning, I was exhausted, and I tried to shorten the procedure by simply returning my little red membership card, after which I left. This was taken very badly, I was declared, in my absence, an enemy of the people and this stuck to my secret police file for many years to come, with all sort of unpleasant consequences.

In those months, during the Summer and Fall of 1952, I lived through a sort of very fast re-enacting of the French Revolution, let us say the French revolution of the years 1791 to 1794, coming with its murderous blend of terror and fanaticism; those two items mix together better than one might think, even inside a single person's mind. No heads were actually rolling, but careers were destroyed and lives got broken. Those who had expelled me from the communist youth were themselves

expelled a few weeks later; those who had expelled them were in their turn expelled too, and so it went on and on, until Stalin died, in the early months of 1953. Then, all of a sudden, everything calmed down, the big oppressive pressure had disappeared, and at least for the next few years one could start breathing a bit more freely.

My daily routine had also changed. I was now a second year student and, in the morning, when I would get close to the university, then I rarely went in, normally I would go straight to the next café, where I knew I would find my chums, the bright boys. With two exceptions, Complex Analysis and Lebesgue theory, all the courses were really bad, and we had decided to skip them all, except for those two.

We learned mathematics from each other, in the long and lively café discussions. We talked loud, we seldom waited for the other person to finish his sentence, but in those immensely intense exchanges of ideas, we grew up to become mathematicians. Of course, each of us also read mathematics on his own and thought on his own, but the two kinds of activities, alone or together with the group, complemented each other quite well. They were both necessary.

Our professors were so much out of touch with what was going on, mathematically speaking, that our discussions would have completely passed over their heads. We learned very little from them and had to do it all by ourselves. My boss Moïsil being a logician, I still had heard about Gödel's incompleteness and about Turing machines, but I had to learn all that by myself. He certainly encouraged me to do that, and he was very happy when I lectured about these things in his seminar. For somebody with my background it was only natural that I should pick up these topics. But the other bright boys did not seem very interested in those things, so there was nobody with whom I could really talk about them, in that former life of mine.

Later on, in the second life, I was sometimes dreaming of what it must have meant to live in a mathematical climate, where let's say Hodge combined classical algebraic geometry with the electro-magnetism of Maxwell, about which he had first hand knowledge, where Atiyah became a student of Hodge and where in his own turn, Donaldson became a student of Atiyah. We of course, did not have access to such niceties, and we had to try to do the best we could with what we had. And each other's company was our most precious asset; we had no other.

About the end of 1952, beginning of 1953, Foias, Gussi and myself started a big piece of joint work, more than fifteen published papers, in all, on nonlinear partial differential equations. We certainly were not doing fore-front mathematics, we were after all still apprentices, but in the rather modest niche inside which we were operating, our team of three was quite respected by the colleagues in the US, in France, in Russia, or in Italy. Some of our correspondents and competitors were rather well-known mathematicians with high academic positions, while we were still second or third year undergraduate students. But at least as far as Foias and myself were concerned, we were after much bigger game than this.

I became very close friend with Foias during the Fall of 1952. He was coming from a small Transylvanian town and, in the beginning he felt very lost in the big capital, Bucharest. He was immensely proud of his family. His father had been the main medical doctor in the little town, and also its liberal mayor; the Liberals were one of the old political parties in Romania.

But in the stormy Fall of 1940 the Iron Guard took complete control of the country, for a while. The Iron Guard, the Romanian fascist party, was the most viciously murderous fascist party in Europe, according to most historians. Even the nazis thought of the Iron Guard as being too extreme and, somebody like let us say Mussolini and his gang of thugs, were nice little angels compared with them. They had their own brand of very chauvinistic ultra-nationalism, their very ugly form of antisemitism, dark orthodox religious creeds mixed with archaic rituals, and they were also violently anti-capitalistic; their word for capitalism was plutocracy, something which they thought was a Jewish avatar. They also thought that all town people were corrupt and that only the peasants were the pure, true children of God. When they did their bloody murders, they always had the name of God on their lips.

The liberals were anathema for the Iron Guard, and 1 day they stepped in through the main door of Foias's parents house, in order to shoot Foias's father. But Foias's father fled through the back door, jumped on his already prepared fast horse, and rode away to safety. By then also, Hitler had decided that the Iron Guard were really too crazy and he had the Romanian army, under Antonescu, the new boss of the country, put them down, temporarily. He always thought that they might come in handy for him later on.

Anyway, Foias's father now was safe, for a while. When the communists came to power in 1946–1947 he went to jail, where he stayed a long time, because he had been a Liberal mayor.

And then, in 1952 Foias's magnificent family castle collapsed, his beautiful mother ran away with a younger man. Foias was shattered, but he became a different, stronger person, in the process. His mother's eloping was a big scandal in the little town, and her parents did not want to see her, nor hear from her, any longer. And it was young Foias who managed to make peace between his grand-parents and their daughter, his mother. And he also stayed close to both of his, by now completely estranged parents.

Foias was a superb mathematician, and a few years later he started doing magnificent work in the theory of single operators in Hilbert space (he was never an operator algebra man) and on the Navier-Stokes equations of fluid dynamics. He was fascinated by the mathematics of turbulence.

My old friend Gussi, my very first pupil, and the third man in our mathematical trio, came from a very aristocratic and rich originally Greek family; actually a very large part of the high middle class in Romania was of Greek origin. Gussi's father, as a young ambassador to Spain, in the early forties, was the first ambassador since the times of Philip the second, to go down in the arena and fight the bull, like a torrero. He was still looking very youthful when Gussi and me we were in high-school and people usually thought he was the older brother. He was notoriously gay too. In 1947, when the communists were in power, he had a brilliant idea: he gave up all his positions, his fortune was already in the process of being confiscated, and he became a factory worker, which both saved him from jail, and also made that Gussi, now the son of a factory worker, was safe, for a while.

Among the three of us, Gussi was the best in gauging what was important in mathematics. He had an excellent mathematical taste and a very good nose for those important things. His advices have often been very useful to me, in my later career.

But Gussi also had a big problem. He never produced any mathematics, except for the joint work of our trio, nothing ever of his own, alone. One reason for this is simple and sad. He wanted a lot of things, like a motorcycle and other gadgets. For this he needed money and his salary was certainly not enough. So he gave private lessons, made translations and a lot of other such extra jobs. But then he never had the leisure, the time, nor the energy to do maths, other than reading and staying well informed about what was going on. But he did not do anything creative, and by the time he understood what was happening to him, it was too late. There is a second reason too: the very unpleasant conditions in which he and his parents were living, completely discouraged him.

The three of us also loved to do sports, we could not have lived without that. So, Gussi went big into rugby and he became one of the two best half-backs in the country. But let me tell you a little story which may amuse you. Gussi liked to use what he had learned in our boxing school in his normal life, when he thought it was necessary. And on his way to and from the rugby field, he had to go through some very ill-famed streets of Bucharest. He told me that there, if someone asked you the hour, you better hit him hard and fast, before he had the chance of doing that to you. After that, you might even tell him what time it was. That is how some sections of Bucharest used to be, and maybe still are. Actually, not so many years ago Jean-Pierre Serre was almost torn to pieces by a pack of wild, vagabond dogs without master, in the streets of that old town of mine.

Foias and myself went in for another sport. We ganged up with another bright boy, Igor, and as a new trio we did a lot of mountain climbing, actually rock-climbing together, and we did it big. You will hear much more about that, later on in this story. But I close now the long parenthesis, and go back to the mathematics of our trio.

Foias, Gussi and myself were deeply involved in functional analysis too. But, although I knew that in certain aspects of Hilbert space, for instance, I could navigate better than anybody else, I felt that all this was not really my road. My friend Foias, for instance, had started to play the following mathematical game, where I felt I could not be his equal. I will remind you first a Kindergarten fact. If T is an operator and $f(z)$ is a holomorphic function on the spectrum of T , then $f(T)$ makes good sense, and this is a nice useful little fact. Now, Foias had a very clever and slick way to make sense, under certain conditions, of $f(T)$ when $f(z)$ had singularities on the spectrum. And that, when it worked, had big consequences.

So, by 1955, while I was still a student in the last year at the university, I moved from analysis to algebraic topology, not like in the old Moisil lectures, but now for serious. And in those days I was completely lonely in Romania, in that area and I had nobody to talk to, about my new field of interest. Only a bit later did others join in, which made me quite happy. It did not take me long to discover that there was, in topology, a big open problem, which I decided was my kind of thing, the Poincaré Conjecture. And It turned out to be one of the most important mathematical

problems that there was. And I started some very naive, clumsy first steps towards it.

When the Summer 1955 came, I had my university degree and I had a job too. Since my political file was so lousy, the University could not hire me as an assistant, and I only got a lesser job, called *preparateur*, I think it had no equivalent elsewhere. It implied the same teaching load as an assistant, with a lot more administrative tasks on top, and with only half the salary. In the meanwhile, I had also met Sanda.

She was a student in the Theater School and her boy-friend, Lucian, was an old friend of mine, from the high-school days. He was her fellow-student, and everybody in that Theater school thought that Lucian was a genius. And I think he was a genius. This very intense young man, made later on a number of movies, mostly in English, which were pure masterpieces. Also his *Turandot*, on the scene of a Paris theater was a historical event. He became one of the big stage directors of his generation.

But in those by now so old days, when I met Sanda, there was big tension in her relation with Lucian and they were moving towards a breaking point. I must confess that I took advantage of that crack in their relation, and started to court Sanda. Of course Lucian came to me and asked me to give up, and of course I promised him to do so, but then I could not keep my promise. By then, Sanda and I were in love. My friendship with Lucian did not survive these tumultuous events.

Sanda and I were now lovers, and I remember a little incident from the very beginning of our love affair. It was a little thing, but it was so full of further meaning, a harbinger of future things to come. Sanda and me we were sitting on a bench in the gardens of the Academy, and soon we noticed that some ten meters away, on the next bench, were sitting Lucian himself, immersed in deep amorous conversation with young Julie, whom I only knew by sight in those old days. And Sanda, rather jokingly, maybe not a very good taste joke, said to me: why don't you go and seduce her. Little did she know, and little did I know then, what Fate had in store for Julie and myself. This little incident must have happened in the Spring of 1955.

At the beginning of the next year, although our love was shining somehow less bright, Sanda and I decided to get married and we announced the news to our families, which then met. That was not a big success. My future mother-in-law started by saying that I was too young, while my father, after taking a glance at that prospective mother-in-law of mine, decided that he did not like the whole set-up. The only thing on which the two families could agree, was that they both opposed the marriage.

Now, we were both twenty-three, we ourselves had started to believe that the marriage idea was maybe not such a great one, but a parental opposition was a challenge which we felt had to be met, our honor was at stake. And so we did get married.

But let me come back, for an instant, to that business of being too young. Not so many years later, in my next life, another mother-in-law declared me to be too old. So, in a very short span of time, I must have gone from extreme youth to old age, without ever becoming an adult.

Be that as it might be, the marriage with Sanda was a big failure, and it is not hard to give at least a couple of good reasons why that was so. We did not like the same things, we did not like the same people, and above all, there was hardly anything which we enjoyed doing together. I think we were both nice and clever people, but we did not really fit. The love was not yet dead, but that was not enough.

I was living now in the world of the theater, which I got to know from the inside, and that had its own fascination. My wife was a stage director and an actress too, not at all easy to do both those things at the same time, but she was both gifted and had a lot of energy. My father-in-law was a famous actor. He was also a bit of a poet, he wrote biting little epigrams, which created many enemies for him, and which did not always do him a lot of good.

I maybe should have said all through here, theater and movie world, but the actor takes his or her pleasure in the theater, through the almost physical contact with the public, rather than in the movies, although that brings more fame and more money. An actor's job, which he or she does using the glandular system, or the brain, or a mixture of both, is to pass a certain kind of magical, invisible fluid to the public in front and make it vibrate.

For this magic to work, a certain kind of tension inside the actor's mind is necessary. It is a tension between some sort of shyness or inhibition, and the quite opposite urge to shout out loud one's strong emotions. A perfect balance of these two ingredients is necessary here.

And then, like in so many other things, there is also a question of both inborn talent and acquired technique. The first girl I was ever in love with, while I was still a teenager, another Sanda, also went to the Theater school. And at her first test, everybody thought she had a fantastic talent. So she might have had, but she never learned anything more, never developed, and she became a third class actress, with pitiful little roles.

Understanding all these things about how an actor functions, in relation to the public, was rather useful in my next life, when lecturing or teaching.

Through my not so happy years of marriage, relatively short years actually, from May 1956 to September 1958, I continued to work hard on the Poincaré conjecture. And, quite naively I might add, I thought I had managed to prove it, by the Summer of 1957.

I wrote a longish paper, had it typed and then sent it to Georges de Rham in Switzerland. In those days, when I was writing to Georges I addressed him as "Très honoré Maître". It so happens, that not so many years later, but that was happening now in my second life, we became very close friends, although Georges was about 30 years older than I was. And, notwithstanding the fact that what will come right next is really part of my second, future life, I still feel like recording it here.

At the time when our friendship started, Georges was a big professor at the universities of Geneva and Lausanne, President of the International Mathematical Union, while I was just a young refugee. But he had a high opinion about what I had done by then in mathematics (since 1959), and he was very fond of me. He helped me a lot in my second life.

Georges was not only a great mathematician, he was also one of the big mountain climbers of his generation. He climbed during all his life, he feasted his 60th birthday by leading a very difficult climb in the Mont Blanc, and he kept doing hard rock-climbing into his very late sixties, or even early seventies. Since I was myself a very passionate climber, you will hear more about that later, Georges and I did a lot of rock-climbing together, in the Swiss and the French Alps.

And we talked a lot together, about mathematics and everything, in his palatial home in Lausanne with the sumptuous living-room decorated by his ancestor's armor plates, and by medieval cannon, but we also talked in various cafés of Lausanne or Geneva. Georges loved good wines and, as one says in French, he was a *fin gourmet*. I can still remember the sunny day, years ago, but still well inside my second life, when Henri Cartan, who knew that Georges and I were friends and who liked us both quite a lot, invited us for a beautiful lunch, in one of the best restaurants in Strasbourg, where the three of us had quite a good time together.

I learned a lot from Georges, both in mathematics, and about many other things. It was him, for instance, who introduced me to the Whitehead manifold, which later in my life was always in the back of my mind, as a mathematical scarecrow.

Georges had a young Polish girl-friend, she must have been about my age, but later on she died in a mountain accident.

One day, in one of the chats with Georges, I discovered something which amused me a lot and which I feel like recording here. I must start by telling you that, years before, as a child, I had been often with my rich godparents. My godmother was my mother's older sister, while her husband, my godfather, was a first cousin of her mother, my maternal grandmother. This was about as close as one was allowed to be, blood-wise, and still get married.

They did not have children of their own, and they treated me and my cousin Liliana, the daughter of my mother's younger sister, as their own children. Liliana was the same age as me and for years she was like my sister. I am sad that the stormy sea of life made that, later on, we became complete strangers. But that is too long a story for right now.

As a child, I spent the first half of each Summer, in the mansion of my godparents, on their estate in the country side, and then the second half in their very large villa, in a beautiful mountain resort.

And close to my godparents estate, in the next village, there was another, even more magnificent mansion. Talking 1 day with Georges, about this and that, I discovered that the magnificent mansion in question had belonged to his, by then dead, brother, who had had a Romanian wife. The world is small, indeed. It really sounds odd that a Swiss Marquess, member of the highly aristocratic HSP (*Haute Société Protestante*) should own an estate in Romania, neighboring the estate of my own godparents. And that his brother later became a good friend of mine, isn't all that very strange?

But please do not get things wrong, at this point. Georges himself was deeply democratic, in the noblest sense of the word, his two usual climbing mates and close friends, with whom I climbed myself often too, were Carlo, a gardener, employee of the Lausanne township and Apo, a railway worker. Georges was really a wonderful

person. Except for its very beginning this long prentice about him really concerns my second life; but I felt like telling these things here. I move now back to my main story, where I had left it.

1958 was the black year of my life. One February night, in my dreams, I saw a sort of a mathematical monster, which I immediately understood to mean the complete collapse of my childish Poincaré proof. And the monster was certainly there, for good. Of course, I immediately informed de Rham, he was not yet Georges to me, about the disaster.

In April, my father died, and this was the single biggest blow which ever befell on me. I might not always have agreed with my father, but our love bond was of the strongest possible kind there may be. It took me years to get over my sorrow.

By then also, the relative liberalization which had followed Stalin's death came to an end, and as an aftermath of the crushing of Budapest by Soviet tanks in 1956, the communist system had become very tough again. And nasty rumors concerning what was going to happen next at the university, were in the air. And indeed, one black Friday, in the beginning of September 1958, a list of about thirty names was posted on the door of the university. And the people on that list were supposed to report the next Monday at human resources; in Romania that meant a branch of the secret police, the Securitate, located inside the university. It did not feel good at all to find myself on that list. About half of it were Jews, my friend Samy was included, the other half were people with various other political sins, like myself.

That next Monday, we were each informed in turn, that we were dismissed from our jobs at the university, each with his or her precise reason. Samy was supposedly a Zionist, and I was an enemy of the people.

Poor Samy! Every year we were given some forms to fill in, from the administration of the university. Among other things, there were two items to be filled in: citizenship and nationality, which in communist countries did not mean the same thing. I wrote "Romanian" in both places, but when Samy did the same, the forms were invariably returned to him with "Jewish nationality" added in red and "Romanian nationality" crossed out.

Samy managed to leave Romania and landed first in Italy, where he got some university degree and an Italian wife too. "Una magnifica ragazza", he wrote to me. But when he married, he had to promise that his children would be raised in the Roman-Catholic religion. So, Samy might well have been born in the ghetto, his first religion might well have been marxism, he ended up as father of six Catholic children. He also became a specialist in decoding the Papal texts, trying to find loop-holes for contraception. He is now professor at the Université de Montréal, in Canada and, these days, when we meet, we tend to speak Italian together, rather than Romanian. And he is not the only person from the old country with whom I use now that language.

When I became jobless, in September 1958, my already shaky marriage collapsed completely. Sanda and I decided to divorce; that took about 10 days and costed something like the equivalent of four or five euros. That is how it was in Romania in those days. It was a completely friendly affair, and we did stay friends and chatted from time to time about our respective problems; you will hear more about that.

Just before anybody else would have grabbed it, I moved fast into my father's former study, in my mother's flat.

Notwithstanding the situation, life felt now better than before. While I was married, I had often felt very lonely, my by now ex-wife was often until late in the theater, and we had no common friends. Now I felt like a free man, many of my various inhibitions had vanished, I became a very good dancer, something which I had never been before, and it looked as if a lot of girls wanted to see me. For the first time in my life, I started moving around feeling free with respect to obligations, social conventions, and all that. I was stepping now firmly on the ground, doing what I wanted to do and not what other people wanted me to do. All this was new for me and it was clearly a liberation.

But it was only a foretaste of that really big liberation, which came with my second life, when I felt like a wild stallion who had escaped from the stable, and was now running madly free through the big open fields. By then I was also loose from all those so many mental ropes which earlier had held my elbows back, preventing me from acting freely. The influence of my good friend Barry Mazur was certainly very important here too, but all this is certainly no longer part of the present story of my earlier life.

All this having been said, I still had to earn a living, in that Fall of 1958. So I started to give private lessons of maths. This was quite illegal and rather risky, but I earned now substantially more than my earlier meager university salary. Of course, some time and energy had to be spent on those lessons too. Of course also, according to the law I had to stand in line, periodically, at the unemployment office, and declare myself as a job-seeking person. For some reason, one had to start queuing there at 4 am. And indeed, I got some offers for various jobs: to sell apples in a state-owned supermarket, or to go and teach small children in a God-forgotten village in Northern Romania. I always politely refused these job offers and chose instead to stay with my black market activity of giving private lessons. This was the only way by which I could survive as a mathematician, and I have never thought that my own life was worth living without mathematics. The price was the risk involved, of course.

Through all these upheavals, totally oblivious of the, by a large, hostile outside world, I moved inside my mathematical universe, and I continued to work hard, in all my available time and with all my available energy. My favorite activity consisted in long walks through the parks, during dusk and afterwards, thinking deeply about mathematics, under the starry sky. And since my February Poincaré disaster, I had learned by now a lot of mathematics, mostly by banging my head against the walls, so to say. Sometimes I had to recreate, from scratch, various mathematical theories which the Bucharest libraries did not give me access to.

And I also felt now that at least inside the field which I had chosen, I had become an adult, seasoned mathematician and that I was no longer a beginner.

During my long mathematical walks I discovered that the monster which had killed my childish Poincaré attempt, was a mathematical object of some interest, behind which lay hidden a little treasury. So, I started digging and, by May–June

1959, I made a discovery: I found a smooth four-manifold which was a non-trivial factor of the five-dimensional cube.

I was jobless, but I had access to the outgoing mail-box of the Mathematical Institute. This was a big courtesy of its director Stoilov, my former teacher in complex analysis. So, I wrote a paper on that nontrivial factor, and I sent it to Jean Leray. He decided that this was indeed, an important thing, and with the expert advice of R.H. Bing from Texas, he thoroughly checked my paper, helped me re-write it completely, and had it published in France. When that paper appeared, it created quite a commotion in the mathematical world and I may say that, ever since, my road in life was open and smooth, and that I never had problems any more.

That paper had saved my life. I had a big admiration for Leray, reason for which I had sent him my paper, to begin with. And then, more technically speaking, as I saw things then, what I had done had some connection with things which he himself had done earlier. He helped me a lot and I am sad to say that, later on, our relations became ice-cold. But this was in my other life, and it is not part of this story, any longer.

I was not alone in my discovery. Barry Mazur, who was already a big mathematician did, independently and at the same time as myself, the same discovery. So we started to write to each other, and soon we got to meet and became best friends.

But in September 1959, I was still jobless. My paper had not yet seen the light of day, it had not yet made its impact, and my boss Moisil thought that if I did not fast get a job, some job, any job, then I would get into trouble with the authorities. After all, I was now a black marketeer who made his living by performing an illegal activity, giving private lessons in maths. So, at the end of September 1959, I became a janitor at the Romanian Mathematical Society, an organization located inside the university, but catering for high-school teachers. Moisil was the big super-duper boss of that Society, that is how I got the job.

Never mind now the exact chronology, but several interesting things happened during my 13 months of joblessness or soon after, when I was a janitor. I feel I have to record them here.

Once I was a free man, free I really was, and I started to go every weekend, and in addition during long periods in Summer or Winter, to the mountains. And, as I have already told you earlier, we were three friends doing this together, Foias, Igor and myself. We went together rock-climbing and we did it the big way. I think rock-climbing, if one loves it, is one of the basic pleasures which a human being can have. If you hang on a vertical wall, on one finger and one toe, with many hundreds of meters of void behind you, if you still manage to climb higher, and if you do not care a damn about the danger, then this is like the most divinely delicious strong drink, the taste of which you can never forget, afterwards.

Quite a long time ago, the great Italian climber Emilio Comici, the man who had managed to climb for the first time the Cima Grande di Lavaredo, in the Dolomites, had said: "What for many is Death, for some of us is just a game".

In my own case, all this came with a side benefit. I used to be quite clumsy. Now, when you hang on that finger and on that toe, then with the other hand you have to do something tricky, like planting a python or mounting a carabine. You better do

that fast, you certainly cannot afford to be clumsy, this is now a matter of life and death. And so I learned not to be clumsy, at least when necessary.

The other climbers called us the ones in rags, because we always were in rags. Until 1 day, a state sponsored mountain club came to us and said: Listen guys, why don't you join us, we will give you boots, clothes, new ropes and equipment, food too. We will also pay your train tickets to the mountains. You will continue to do your climbing as you like, but from time to time you will have to give us a hand with the beginners. We did join the club. Until then we had climbed together, and there was always an issue about who should lead. Also, climbing in a team of three is not the most efficient thing. Now we were each of us three, leaders on our own. Each of us had a second, all by himself.

When the difficulty was up to fourth degree included, I always left my second, Sandu B. lead. When the difficulty was five or more, then it was me who was leading. This way he learned things and we were both happy.

Igor lived to become the best climber in the country. His technique was fantastic, he was wiry but very strong, very agile and supple, and then he also had nerves out of steel. He was not only a superb athlete, but also very gifted in many fields. He was certainly a full-fledged member of the group of bright boys already mentioned. It is through him that I got my first exposure both to Lie groups and to quantum field theory. But then also, because of his background of deep poverty and persecution in those very stormy and troubled times of the Romania of our youth, he was somehow a desperate man, who did not care a damn whether next instant he would be still alive or not. And all this allowed him to do things which nobody else could. For instance he did various hard climbs alone, freely and without any balaying, sometimes two the same day, one after the other. And in December 1962, but then I was already away, and this time with a second, he climbed in two successive days and nights, in full winter, the "Fissure Bleue", the hardest climb there was in Romania. It was close to impossible to do, even in Summer, and nobody before had ever dreamt of doing it in winter.

He eventually got back his job at the university, he had lost it at the same time as I did, but then he died in a stupid mountain accident, in February 1963.

The third man in our mountaineering trio, my old friend Foias together with whom I had also done all that maths earlier on, is an American today. He is a professor at a University somewhere in Texas. He is also staunchly Republican, of the most arch-conservative biblical type. Fortunately for our friendship, we see each other not more often than every 5 years or so. Would we live in the same town, I am not so sure how that friendship would fare.

At some time during my jobless period, the phone rang and a young woman informed me that comrade minister So-and-So wanted to talk to me. That was the Minister of Education and I got quite excited, thinking that I was getting my job back. The comrade minister invited me to come and see him, which I immediately did, of course. He received me very friendly and told me: You have been highly recommended to me, and I have a son who needs private maths lessons. The son in question was on the verge of entering the university and I started going once a week to give him a lesson. The comrade minister used to keep me a bit afterwards

for snacks, and I think I must have drunk quite a number of bottles of good wine together with the minister. He always asked me very kindly about my affairs, and always wished me good luck. So much for the help. But I was very well paid, and that was that.

Let us stop here for an instant and think a bit. You may have noticed that in this little story which I have just told you, a cabinet minister asks happily and casually somebody to do for him a black market, totally illegal job. I think Romania is about the only place where such things can happen and the same comment may also apply to other instances in this story of mine too.

Some help actually did come, from an unexpected direction. There was a woman, let me call her comrade M., who was a very big shot. She had a young son who had a German nanny, a good friend of my own former German nanny. So, when years before, comrade M. had needed a dentist, she heard about my father, through her nanny, and she came to see him. My father had been a very charming and charismatic person, and I understand that comrade M. liked him quite a lot. When comrade M. heard that the son of that nice man, now dead, meaning myself, was in deep trouble, she sent a word for me to come and see her at her office at the Central Committee of the Party. So I did, and she promised to ask for an investigation by the central committee on my case. I never heard anything more about that, but I understand that what she actually did, was to get hold of my very damaging file and destroy it. That did help me a lot, later on.

When, as a result of the Leray paper I got, later on, a job at the mathematical institute of the Academy, then that kind of special Human Resources office which I have already mentioned before, had to create a brand new file for me. And that new file might still not have been such a fantastically good one either, but at least it was no longer deadly damaging.

The Romanian Mathematical Society, where I was now employed as a janitor, was located, as I said, inside the university. Igor, who as I have told you had also been expelled from his university job, was there as a junior secretary, and so was also our old friend from student days, Gunther Bach. My monthly salary would not have been enough for buying two pairs of normal shoes. I still had to continue with the private lessons, but now I was a normal working person and hence no longer in danger.

There was not a very hard working atmosphere in that Society of Maths. As soon as the boss, who was quite unpleasant, was away, which meant almost always, Igor, Bach and myself, went straight to the café, while the ladies, the secretaries, went to do their shopping. Incidentally, the boss of the society hated Moisil, and hence he hated me too. My duties as a janitor were varied and many, and I did them all very badly. The many letters which I was supposed to answer, I put straight in the wastebasket, any caller who came to ask for something from the Society was invariably told by me to come the next week, and when he did come again that next week, then the same thing started all over again. The letters which I was supposed to put stamps on and take to the post office, I never sent, the lamps which I was supposed to repair I left unrepaired, and so it went.

The only thing which I did happily, was to turn a big printing press with my arms, I thought that would be a good physical exercise. I may have been the world's worst janitor, ever.

I have described you a bit of Igor's short life. Our friend Gunther Bach, had always dreamt of going to Göttingen and doing big mathematics there, but he died of alcoholism in Romania, with his dream unfulfilled. He did not gauge either, that since Hitler, Göttingen was no longer the Göttingen of his dreams.

As I have already told you, the Mathematical Society was located inside the university, and I took a certain pride and pleasure in carrying, as part of my janitorial duties, big sacs with various junk on my back, under the noses of my former professors.

One day, in October 1959, in the corridors of the university, I happened to see L., a handsome black haired girl, a student in physics, whom I had briefly met some time before, at a party. I decided it was a good idea to invite her to go out with me. I also sensed, very fast, that she was going to refuse me flatly; but I was not leaving her any chance to do so. I engaged into a fast, interesting and funny conversation, where I did most of the talking myself, and after a short time the ice was melting and she very gladly accepted my offers.

From there on, an affair with L. started, then it grew and unfolded. She became, so to say, my official girl-friend. And for the time being that seemed like a happy situation for both of us.

In the early weeks of December 1959, I came rather close to that Death which I used to tease, without ever being afraid of it. One weekend of that early December, Igor and I went to the mountains, with ropes and all the gear, to do a certain climb in snow and ice. But the snow was very difficult, we advanced slower than anticipated, and by the time we were on top of the mountain, it was already pitch dark and we did not manage to find our way down. So we had to spend the night there on top, it was very cold, we had neither food nor water, except for the possibility to eat a bit of snow, and we only had a minimum of clothes with us. We also knew quite well that falling asleep meant certain death. So, we made a hole in the snow, just big enough to sit down, back against back, to keep each other a bit warm. We kept talking, during that long cold winter night, each of us watching carefully that the other one should not fall asleep. When the morning finally came, then our boots, which we had stupidly taken off so as to keep our feet inside our rucksacks, had to be softened with our hammers, but we were safe, and we got home that Monday evening. It took me about a week in order to get warmed up again, and on my toes I still have the scars of that night.

The next Tuesday morning, when we reappeared at the Society of Maths, everybody knew already that we had gotten lost in the mountains and they thought that we might have been already dead. But our boss was worried only about (I forget now which) little nonsensical objects, which were in our charge, and which he thought could get lost, in case we did not come back alive.

And soon after this, finally quite exciting little adventure, one afternoon in the same month of December, I was invited to a bridge party, where I finally met Julie.

Of course, we both knew very well about each other and we also both remembered that little quiproquo in the Academy gardens, even if she had not heard what Sanda had said. Among the guests was also Gelu, her future husband; he met Julie now for the first time too. He never liked me, but that might not be so surprising. There were other people there too, including my own uncle Dan, who knew very well Julie. He was a close scientific collaborator of her father and a very frequent visitor of their house.

Dan was a younger cousin of my mother, and this made him my uncle, by Romanian standards. He was actually the preferred and most beloved cousin of my mother, who had many cousins. Dan's own mother was Jewish and he had always thought of himself as being a Jew. He was accepted by the Jewish community as such. So was also his very elegant older sister, my aunt. Of course neither my uncle nor my aunt were religious; but then so few Romanian Jews were, in those days.

Dan was one of the kindest and sweetest persons I knew, well-beloved by everybody. There was nobody in the extended family to cater so well for the old aunts, like Dan did. He was also quite gay, a fact which my very shy mother never mentioned. But he made no secret about it, the whole town knew, and I knew too.

Through Dan, I got to know a lot of things about Julie's father, his boss, who was a well-known university professor, in virology. Both him and Dan had originally been trained as medical doctors. But Julie's father was also one of the big heads of a venerable, very many centuries old, half-secret international organization, with infinitely many ramifications, secret ceremonials, and big connections. He was, somehow, the certainly unofficial representative of the organization, within the Romanian communist party. He had happily survived, always in the highest positions, through the stormy years of the recent Romanian history. During the nazi times, although his wife, Julie's mother, was Jewish, actually like Dan, Julie thought of herself as being a Jew, he managed to be good friends with Antonescu, Hitler's stooge, the dictator of Romania during the war days.

And now he was a very big shot, member of the central committee of the communist party, president of the Romanian academy, an important member of the National assembly, the communist parliament, director of various institutes, and so on.

He and his family lived like princes of old. They had a big beautiful mansion, which included a large private collection of Far Eastern art, they had their own butler, chauffeur, cook, chambermaids, and so on and so forth. As I also learned from Julie later on, her father lived with the permanent fear of getting arrested and always had a little suitcase ready for the occasion. Do not believe, like many westerners do, that people in the kind of privileged situation which I have described, were necessarily communists. As far as Julie was concerned, for instance, she would invariably refer to the communists as "the pigs".

I also knew that entering that family implied joining the venerable organization and hence becoming a piece of a highly structured system, loosing one's freedom. This is, of course, exactly what Gelu, who married Julie a bit later, did. Later in time, he actually became himself president of the Romanian Academy, ambassador

to Paris and Brussels, and so on and so forth. But I am a free man and I did not, and still do not want to have neither master nor God, for that matter.

My uncle Dan of course, would have been delighted if I, his nephew, would have gotten together with Julie. Incidentally, many years later Dan left Romania and moved to Italy, where during my second life I met him again. He died in Rome, in the early eighties.

At that famous bridge afternoon party, very soon some magical invisible current passed between me and Julie, and I well knew that it only depended on myself to let events happen and unfold, between her and me. But, as I have just said, I wanted to stay a free man and so, notwithstanding the big mutual attraction, which there obviously was between us two, I decided not to do anything.

I hardly saw Julie during the next few months and then, via Dan and other common friends, I knew that she was getting married to Gelu. And the day before that marriage, I got a phone call from Julie who asked me to come and join her in a neighboring public garden. So, we met that afternoon, and again I knew perfectly well that it only depended on myself to totally change the course of events. Again I decided to stay a free man and did not do anything. We had a long walk together, with a big exchange of lofty ideas. Later Julie referred to that afternoon as our trip to Africa. In fact she did ask me rather insistently to read a book, "Le Lion", by Joseph Kessel. I did that only much later, in my next life, and then I understood the metaphor she had in mind that afternoon, about me (King the lion), herself (the young girl) and Gelu (the massai warrior).

In the meanwhile, my paper was out, I became then a well-known mathematician, so Moisil, Stoilov and the other big bosses thought it was indecent that I should continue to be a janitor. As a little parenthesis, Moisil and Stoilov were not quite good bed-fellows, they disliked each other, life cannot always be linearly simple. But all that was immaterial for the matter at hand. Of course, the university could not take me back, they thought I could have politically contaminated the students. But in May 1960 I got a much nicer job, a purely research job at the Mathematical Institute of the Academy. The contribution of comrade M. who had destroyed my bad file was essential at this point. And when I left my janitor job for the new one, the very unpleasant boss of the math society looked like a tiger from whom his meat had been taken away.

The Mathematical Institute where I was working now, was a singularity in communist Romania. It was the creation of Stoilov, the only one among my old professors, of some reasonably higher mathematical quality. He had been my complex analysis teacher, you may remember.

Like Moisil, Stoilov had always been a left-wing intellectual, then at an early stage he joined the communists. He was high in their hierarchy and had a lot of power too. But, just like Moisil, he used his power trying to do good, and what those two really thought about communism in the depth of their mind, was always a mystery to me.

At Stoilov's Institute, everybody was free to work on what he or she liked, and as they liked. You could come when it suited you, if it suited you, not like in any of those regular usual jobs, which were certainly not my kind of thing. Of course, only

people with very high motivation for mathematical research, were ever hired at this institute. And we were fewer than 20, maybe about 15 or 16.

Every month there was a little fight with the accountant, who did not want to pay us our salaries. According to her, being present at the institute for 8 h a day, something which we clearly never did, was the only thing that mattered, and as far as producing all that mathematics, about that she could not have cared less, and said so. Every month the director, Stoilov, had to force her to pay our salaries. There was nothing else like this, in communist Romania.

So, beginning with May 1960 I had the best job I could have wished for right then, perfectly well suited for me. My mathematics proceeded quite well, and I had a good number of mathematical friends, throughout the world, with most of them I could only communicate by letters, since I could not travel to the West. Among them was an English mathematician, Christopher Zeeman, later Sir Christopher, whose young Danish cousin, just 2 years after my second life had started, became my much beloved second wife, finally the good one.

The years 1959–1960 saw the glorious revolution of high-dimensional topology, lead by Jack Milnor, Michel Kervaire, Barry, Steve Smale, John Stallings, Chris Zeeman, and few others. I had not yet met any of these big mathematicians, it is only a few years later that I was getting to know all of them quite well, but I had access to their work, long before it was in print. I joined with great passion and excitation this movement, placing myself somewhere at the border between high dimensions and low dimensions.

Anyway, in the Spring of 1961, I could happily pursue both with my mathematics and with my climbing, the Sun was still bright, and life looked quite good, for the time being.

But I had a strong feeling that this situation depended of a very unstable balance, and that it was anything but lasting. My fears were quite right. Very few years after my departure from Romania, Ceauçescu the then dictator of the country, declared publicly that he wanted to have a bomb explode under the Mathematical Institute, which he claimed created disorder in his country. And he had the Institute closed down. Those who were still working there, at that time, became either unemployed or were given various not very pleasant jobs, maybe as a punishment for the too good time they had before. So my fears were certainly not pure paranoia. If I would not have gone out of Romania in time, horrible thought if any, then I would have been caught in that big disastrous crash. I do not know, under those hypothetical conditions, how I would fare to-day, if still alive. Anyway, occasionally, this is food for my nightmares.

But let me go back to my main story now. L. was a very nice, sweet, beautiful girl, but there was a little problem too. Although nothing of the kind was ever said between us, I knew she wanted very much to get married to me. Her parents wanted the same, and my own mother wanted that too. And I was not up to that, maybe crudely put, I was not enough in love with L. But all this was too much for me, and I started to feel like climbing up the walls.

So, one afternoon during the very early days of May 1961, I went to pay a visit to Julie, at her lab. She was by then a medical doctor, a lab-doctor. I had hardly seen her again since our trip to Africa, the day before her marriage, about a year earlier.

And now, when I met her again, the dam finally burst and things unfolded then very fast, all the big way through, between her and me. At the very beginning already, I had broken with L., quite abruptly and brutally, I am sorry to say. It so happened, by one of those accidents of chance, that L. met, face to face, with Julie and me, in one of those gardens. And what was going on between us two, was so crystal clear and so much beyond any shadow of doubt, that L. burst into tears, started crying and ran away. I still feel sorry now, for the way she felt hurt and humiliated that day. But the big irresistibly powerful torrent swept everything else away.

A very big, passionate love affair, between Julie and myself was now on. We were also anything but discrete, we displayed proudly and happily our love to the Sun and to the Moon, and so we were, by then, the big talk of the whole town, but we could not have cared less. We were madly in love with each other, and we moved inside our private magical garden.

At this point, another very big event, so important for my life ever after, occurred too. In those days, I was not entitled to travel to the West, although I had been by now invited several times as a speaker at various important conferences. But I was allowed to travel inside the communist bloc. So, in August 1961 I went to Prague, to a mathematical meeting. And Barry, who knew I was coming, joined that meeting too and so we finally met, for the first time. It was big friendship at first sight. We did not need to search out and discover who the other one was. We knew already plenty about each other, about our work, our interests and our thoughts. We became almost instantly good friends, so it stayed for ever after, our friendship only grew and developed. Barry IS my best friend. Of course this is by now largely part of the story of my second life.

As I have several times noticed, the world is very small, indeed. It so happens that L.'s mother was the accountant at one of the Institutes where Julie's father was the director. And about what I am going to tell you right now, I only heard later on, after my break with L. One day, before the break in question, L.'s mother had asked young Anna, a friend of mine who was also working at that same institute, to come and see her. And when she did, she scolded young Anna, asking her to stay away from me since, that is what L.'s mother said, I was promised to her daughter. She did not dream then, what was going to happen soon.

And since L.'s mother worked at that institute, at various official occasions, L. and Julie had actually met too. I knew these things from L., before the big irresistible torrent had swept our poor little relation away. And Julie who always had felt like a princess, could be very haughty, and she snubbed big little L. I do not think Julie knew then that L. was my girlfriend. But that does not matter, one way or another, now.

At the end of 1961, something like November 15th to December 15th, I was sent by my Institute for a scientific visit to Moscow. In those days I could speak some Russian, I was even able to lecture, in Russian, about my own work. My Russian

was clumsy and stuffed with mistakes, but I was able to communicate in Russian. I wish I could still do that to-day; but I can only read it, and with difficulty.

I was coming from another communist country and that gave me a privileged position which a westerner, which I was not yet then, could never have had. Very fast, I could feel where the person who was in front of me stood with respect to the regime, and that person in front felt the same about me. So, I could speak freely with the Russians, in a way no Westerner could have done. And I never saw anywhere else as strong anti-communism as I saw in those Russian days of mine.

And I talked a lot with the Russian people, in the streets or in the restaurants, where some always gathered at my table. It was the Khrushchev period when they could not order much vodka. Since I was a foreigner I could, so I ordered for them, and we had a very good time together. These were really bygone days, when a full dinner on black caviar, which I very often had, costed the same price as a steak.

And this same mechanism of mutual fast recognition, followed by completely free talk, also worked with my mathematical colleagues, and some of them became my friends too.

I met a good number of the great luminaries, like Kolmogorov, Alexandrov, Pontryaguine, Shafarevitch, Postnikov; I had met already earlier Sobolev, and I knew him a bit. With more time available, there would be some interesting stories to be told concerning him too. I must confess that when I was introduced to Kolmogorov, I was very pleased when he immediately said he knew who I was, and in order to show that he actually did, he started quoting some of my mathematics. But I spent most of my time with the mathematicians of my age, Novikov, Arnold, Anosov, Cernavski and others. Novikov and I became quite good friends, and stayed so, afterwards.

We were all very young in those old days. I still remember how Novikov and Arnold talked very outspokenly against the regime, so outspokenly that it did not do them much good. I spent many hours in various Moscow cafés, together with Serguei Novikov and some other friends, talking about mathematics and everything else. Serguei was already working big on the invariance of the Pontryaguine classes and I remember how 1 day he flew to Leningrad (Saint Petersburg to-day) to speak to Rohlin, to whom he was very close. There was a rumor that Rohlin had proved the invariance of those classes. Serguei flew back to Moscow the next day with the news that Rohlin's supposed proof had a big hole, and he continued to work big, on his own. He was a very charismatic person and, in those 1961 days, possibly the most handsome young man I had ever met. And I also remember, how many years later, he impressed Milen with his fantastic knowledge of Scandinavian literature, which he seemed to know better than herself.

During my Moscow trip, but also later, during my second life, I heard from Serguei a lot of very interesting stories concerning the KGB, and also about the fates of the people whom the KGB interrogated. He thought that only very few of them managed to survive in one piece, without being permanently damaged. He mentioned Sakharov and Solzhenytsin among the rare happy exceptions. But most were destroyed in the process, and with quite many, something very strange happened. They were turned, they went on the side of their tormentors and joined

them. They had gotten somehow to like them. Human mind is a complicated and strange thing.

Serguei thought that Shafarevitch was a case all by himself, in addition to these KGB incidences. As a very young mathematician, he got a big prize for his solution of the inverse Galois problem. But then, in later years, he or one of his students, found a big hole in that supposed proof. And Shafarevitch suppressed this fact, both publicly and in his own mind. And from there on, he started doing really weird things.

I was often invited to Serguei's home, where I was always very nicely received by his mother, Ludmila Keldysh, the Tartar princess, a very distinguished mathematician herself. I did not meet the father, Piotr Sergueevitch, of Word problem fame, an item in which I was myself involved then and quite for some time afterwards, in my second life. You may remember that the big discovery of Novikov father was the following item, which I will tell here in a popular form. He found a finitely presented group, the explicit rules of the game of which can be written down on one single page (or less), which you can easily feed into your lap-top, but which is such that no Turing machine can ever unravel all its mysteries, hence no imaginable computer, classical or quantum, can either, ever. This is something very close to my heart and which my mathematics several times touched.

Unfortunately, I could not meet Piotr Sergueevitch because at the time of my Moscow trip he was in a hospital, for a cure of alcoholic desintoxication.

My Moscow trip was one of those things which I could not easily forget. Then, in the Summer of 1962, Ludmila Keldysh, through her brother Mstislav Keldysh, Serguei's uncle, the then president of the Soviet academy, and a very big shot in the Soviet Union, started to make official arrangements for a very extended visit of mine to Moscow, beginning with the Fall of 1962. But Fate had decided otherwise.

Some time in January 1962, my friend Ganea told me that he had gotten the exit visa from Romania, and asked me what my own plans were. At that time, Jews like Ganea could be bought out of Romania, sometimes other people too. Ganea thought that it would be a very bad idea for me to continue to rot in that country where I was living then, and very helpfully, he went to the Jewish organization, of which his father had been the president earlier, and asked whether I could be added on their lists, as some sort of a honorary Jew, so that I could leave Romania that way. Since that turned out to be impossible, he came back with a half-joke: Why don't you just marry my mother, he said, and then come out with us? This was pure Ganea!

A more practical idea was that, if I wanted, he could organize for me to be bought out, just like he was being bought out then. Since I had not yet made up my mind and since he was leaving that next week, we devised the following plan. If and when, at some later time, I would decide to go, then I should write a mathematical letter to a common mathematical friend, Peter Hilton from Birmingham, a letter containing a subtle mathematical error which only somebody very familiar with my own work could detect as such, and which the censorship hence could not decode.

Although what will immediately follow now concerns the very beginning of my second life, I have to tell it here, because it is about how Ganea saved me from a very dangerous situation, in the beginning of September 1962. I had just left Romania,

and how that came about I will tell you soon. I had landed in Stockholm and at the time of the little incident to be told about now, I had been there already for a few weeks. What happened during those weeks was quite eventful but I will not tell about that now.

I was now completely alone in Stockholm, living in the flat of a Swedish-American friend, himself away on vacation. I had plenty of money too, and there was no problem as far as that was concerned. But, in a nutshell, here was my situation, on a very precise day, that month of September: the bridges back to Romania were certainly burned, my provisional permit for staying in Sweden had expired, and although quite friendly, the Swedish police had made it very clear that they did not want me to ask for political asylum in their country and, finally, my visa for France had just been refused. The French police thought that I was a spy. So, at that very instant, it looked as if there was no corner of the planet, where I could safely be.

I sent a desperate telegram to Ganea, in Paris, asking for help. And Ganea went to Charles Ehresmann, who he knew wanted very much that I should settle in France. Ehresmann went to the minister of police and talked to him and then in less than 24 h I had my visa for Paris. This really was the end of my escape from Romania. My friendship with Ganea continued big, and I was very saddened when some years later he died of a very nasty cancer. But this is no longer part of the present story, to which we move back now.

At the very beginning of the Spring of 1962, Julie's parents were faced with the following situation. Their daughter who had already left her husband and was staying again with them, wanted to get a divorce and move in with her lover, meaning with me, while at the same time their son-in-law Gelu threatened with suicide. So Julie's father decided that he wanted to know more about me, before anything else. And it is Julie who told me what follows next.

In his position, Julie's father could use the Romanian secret police (the famous Securitate) as in a Western country one might use some private detectives. Few weeks later, the Securitate came with their answer: Comrade, they said, you cannot let your daughter go with that man, he is crazy! Julie's family strongly vetoed then the whole thing.

Julie was a very romantic person, and she often had said that if for some reason we two got separated, then she would go to a nunnery and become a nun, while I should join the Foreign Legion, an idea which I had sometimes toyed with.

Then, in May 1962 I sent that famous letter to Peter Hilton, and about that same time I got an invitation as a speaker at the International Congress of Mathematicians, in Stockholm, August 1962; that is a kind of event happening every fourth year. I had never been allowed to go to the West before and I did not think there would be any reason for them to let me go now. What I did not know then, was that the buying out system was finished, at least for non-Jews and also that via Ganea and Hilton, many western colleagues knew by then that I wanted to leave Romania.

Actually, at the time when I wrote that letter to Peter Hilton, certain things had matured and crystalized in my mind too, and I was burning now with a big desire to go. I also knew that this step was crucial for my mathematics, and that was what mattered most for me, it was more important than anything else. Mathematics was and is, my big passion in life.

Julie's father had never liked me, but her mother Raia rather did. And Raia was a woman who yielded a lot of power, and she had very long arms. Several of her relatives were in high positions in various communist parties, in various countries, on both sides of the Iron Curtain. A cousin of her's for instance, was one of the big bosses of the French communist party. And here comes something which I understood only much later: Raia devised a plan for getting us all out of the dead end, namely to have me shipped away. Like Julie, Raia knew that if I got to the West, then I would never come back to Romania, and she also knew that I had an invitation for Stockholm. So, she put pressure on the man who was the head of the communist party organization of the Academy, that institution of which my own Institute depended, a man who had never met me, and asked him, or maybe forced him, to vouch for me, and guarantee that I would return, if allowed to go to Stockholm. So he did, and as a consequence he lost his job.

Then, to everybody's surprise, mine included, I did get that permission and visa too, to go to the conference in Stockholm. And about twenty people knew, because I had told them, that I would not return from Stockholm, but leave Romania forever. These twenty or so included, of course Julie, my very close friends and my mother. But they also included some others, of various ages and genders. I obviously had made a good choice in trusting those twenty people, they were all loyal to me, and nobody gave me in. I am also sorry to have to tell you that some relatives of mine were mortally offended forever, because I had not told them. But I had made a choice anyway.

And, maybe I was crazy, as that police report claimed. I was certainly recklessly incautious when I took with me on that plane to Stockholm, two big suitcases, supposedly for 10 days. They contained, among other things, my complete archives, dangerous stuff would I have been searched. And in those archives, basically by chance, mixed up with other papers, was my divorce certificate. Few weeks before, my ex-wife Sanda, who had just received it, had handed it casually to me, saying that I might need it. Sanda was not included in that list of twenty people who knew, and she did not have the foggiest idea that I would never return; like most people in town she thought that I was much too unpractical to be able to manage alone, all by myself, in a foreign land. When she said that I might find that certificate useful, what she had in mind was, undoubtedly, me and Julie. And what Sanda did not know and what myself I could not have dreamt then, was how badly that divorce certificate turned out to be actually needed, but now in that second life of mine.

The 14th of August 1962, at 6 am, I flew away from Romania. And then I got reborn for my next, second life.

I felt an urge to write all these things down, after a Fijian night when, with a mere fortnight before my eightieth birthday, the long-forgotten memories started bubbling in my mind, and the words to tell them started to get organized in my head too, just by themselves, with me as a mere spectator.

And after having told you all of this, I feel now like I am coming back from the land of the dead, from the dead times and from the dead by-gone world. I must confess that I feel a bit shaky.

A Little Side-Story

– In Lieu of a Short Story Inside the Bigger Tale –

In my youth, when I was eagerly reading those big writers of old, I loved their shorter stories inside the main stories. But, unlike Cervantes or Dostojevski, what I will offer you now, will be not something inside my main story, but a little aside, which you may take with you if you like to do so, or leave.

I have often been thinking about Winston Churchill. You see, I am not a historian, I have already told you that, and so I can indulge in playing with history, in a way no professional historian could do, for so obvious reasons.

You might remember that our Winston Churchill, was the grand-grand-grand-son of John Churchill, first Duke of Marlborough, who together with prince Eugenio di Savoia, the Austrian general, stopped the villain of Europe of those days, Louis the fourteenth of France, at Blenheim, about 300 years ago. You may also remember that Blenheim is located in the Black Forest, der Schwarzwald, that place where both the Rhine and the Danube have their sources so close to each-other.

The reason why I mention the old Duke now, is because our Churchill often identified himself with his illustrious ancestor and in more than one way, the first Duke had always loomed big in his mind.

Churchill has done a lot of mistakes and said a lot of stupid things during his life, that is the kind of things which most of us do. But there was one big historical instant when he rose above all of us, or at least above most of us. That was in the Summer of 1940, when our kind of world was crumbling and when, almost single-handedly and against all odds, Churchill stood between Hitler and that victory of Hitler's which seemed then so close at hand. Churchill decided that his island would not raise hands up, but rather fight to death, to the bitter end.

At that time, many of the other British politicians of the day, would have rather wanted to talk to Hitler, see what he wanted, maybe some arrangement or other could be found, that is what they hoped. Churchill strongly disagreed, he did not want to go on that slippery slope, that is what he said. And it was so fortunate that it was Churchill who was the British PM and not, let us say somebody like Lord Halifax, bringing with him his underling and accomplice Rap Butler. And in May 1940, when history bifurcated, it was almost by chance that it was Churchill who became the PM, and not the Halifax in question.

Churchill could not beat Hitler then, of course, but he could prevent him from winning, and as we all know, Hitler eventually lost his war. It is fair to say that Churchill has saved us all at that time.

I have also dreamt a lot about the same Churchill, at an earlier age, and during an earlier war. He was then the First Lord of the Admiralty, with at his side Jacky Fisher, the foremost fighting sailor since the days of Horatio Nelson, of Trafalgar fame. Fisher was Churchill's First Sea Lord; you see, I am very much at home with the complicated arcanses of the British hierarchy.

The two of them, Churchill and Fisher, devised a master plan to end the war fast, the Gallipoli campaign, sometimes referred to as the Dardanelles, and also called by those Brits of that day, imbued with classical culture, the Hellespontus.

Sadly for all of us, the Gallipoli campaign in question was a total failure. One of the many reasons for that failure, was that, by then Fisher was too old, in point of fact he was younger than I am now, but then almost everybody is so, and he got cold feet.

But if the Gallipoli campaign, which I so often have dreamt about, would have succeeded, then nobody to-day would have ever heard neither about Hitler, naziism and fascism, nor about Stalin and communism. You have understood by now, from my main story, that those beasts of the Apocalypse haunted so big the dark times of my childhood and youth.

And I sometimes also dream that I can break away from the prison of time, get together with Churchill and have a nice long chat with him, about history and other things, in front of a bottle of good champagne, his preferred kind of wine, which I do not dislike either. We might have a very good time together, or at least so I think.

Orsay, France
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Valentin Poénaru

2017: I thank Cécile Gourgues for typing this text.