Excerpt from *The Grothendieck I Knew: Telling, Not Hiding, Not Judging*

By Paulo Ribenboim

ABSTRACT. In this paper, I write about my lifelong friendship with Grothendieck.

Le tout est composé de ses parties, même des plus petites.

Introduction

I had the privilege of being a lifelong friend—in fact the only one—of Grothendieck, whom I refer to by his nickname Schurik. As a close friend, I had the opportunity of knowing him as friends do, exchanging confidences, and leaving mathematics largely aside. This paper is a recollection of what came spontaneously to my mind.

Every episode is in truth what I witnessed—unless I indicate the contrary. No judgment is made.

The variety of Schurik's attitudes in different situations will leave readers perplexed—as it did me. I do not hide what I observed. But what I write would be described in another way by another person. In the Japanese movie *Rashomon*, different witnesses of a crime describe the event in as many different ways.

The reader will probably find incongruences with respect to the chronology and a variety of other incorrect references. I will be grateful to anyone who wishes to point out my errors. Despite it all, I hope to have achieved a truthful text that illustrates the unclassifiable person Grothendieck was. A genius, yes, and more?

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Before Day 1

To understand my relationship with Grothendieck (called Schurik by his close friends) it is appropriate to tell a little bit about myself. I was born on March 13, 1928—Schurik was born fifteen days later. I lived in Rio de Janeiro, received my BSc in mathematics in 1948 at age twenty, and became immediately an assistant researcher at the new Brazilian Center for Research in Physics (CBPF).

Early in 1950, my former physics professor José Leite Lopes stopped me in a hallway of the CBPF and, without preamble, said, "Paulo, I have a fellowship from the French government for you to study in France." Such fellowships were created to reestablish the traditional French cultural and scientific exchanges with Brazil. Startled by the surprising offer, I answered, "I will ask my mother if she would allow me to travel so far away." Old times!

She readily accepted since my first cousin Leopoldo Nachbin, six years older, who was becoming a recognized mathematician, was already in the USA. Mom obviously had a certain rivalry with her sister.

Already in 1949, I was studying the notes of the lectures by Jean Dieudonné at the Universidade de São Paulo (USP), translated into Portuguese by the young mathematician Luiz Henrique Jacy Monteiro. They concerned the theory of commutative fields, including Galois theory and a large part on valuation theory. I was taken by the subject, appreciating the clarity, rigor, and ample breadth of the lectures. This study awakened in me a great appetite to study, since it made me aware of my great ignorance. I had chosen to work with Dieudonné, who readily agreed to be my mentor and had always shown a favourable posture towards Brazilian mathematicians.

In Nancy, where Dieudonné lived, I found a mansarde room (these are the cheap attic rooms, usually rented to

students) in a hotel that, unbeknown to me, was on the same street as Dieudonné's apartment and just in front of the one of Laurent Schwartz. With his natural kindness, Schwartz invited me with regularity to have afternoon tea, prepared by his wife Marie Hélène. They definitely both liked me—and this will come up soon.

My arrival in Nancy was in early April, which would be in Brazil the start of a new academic year. But in France, I had to wait until October. What I will tell now was also important in my friendship with Schurik. My mother came from the old Austria and thus gave much importance to education in classical music. For this reason, already as a child of five, I began studying piano with a Polish lady who, of course, taught me the easier pieces. After her I had a Brazilian teacher, Dona Lubelia de Souza Brandão, who introduced me to Bach and made me play Beethoven, Mozart, Debussy, etc. All this would come up in conversations with Schurik. And the Bach Festival in Strasbourg in June 1950 was one more topic for us.

As I gradually became more fluent in French, I was able to read the classics in literature, psychology, history, and philosophy. Please do not infer that I am trying to say good things about myself. I was just a young man, age twenty-two, with a variety of interests, who could communicate with a new friend. A friend of unexpected and surprising noble genius who showed a great receptivity to what I said. Soon we would become the greatest friends.

Enough from Paulo, and now we come to…

Day 1

As was becoming customary, Marie Hélène invited me for afternoon tea. That day, Schwartz came to me and said, "Ribenboim, I have observed that you are a well-rounded young man with a pleasant manner. Today you'll meet one of my students. He has such an intense interest in mathematics that in the long run it might overcome him. Maybe you will become friends and together you'll enjoy the other pleasures of life."

Soon after, the heavy metal door was opened and a young man entered the front garden and put his bicycle against a wall. He was dressed in Bermuda shorts and had dark abundant hair. After entering the residence, Schwartz said, "Here is my student Grothendieck, and here is Ribenboim, who comes from Rio de Janeiro."

From the first moment it was clear that we were pleased to have made each other's acquaintance and we anticipated the development of a friendship. I was as curious to meet a French student as he was to meet one from Brazil.

As we left Schwartz's home, I invited him to visit my room, a normal custom in Brazil. As it happened, my hotel was just across from Schwartz's residence. My room was in the mansarde, on the top floor of the building. Formerly it was the maid's room; then it became a room for students to rent. It had minimal furniture, in particular no book-shelves. My books were stacked in a rather high pile on the floor. Schurik asked about all these books, and I explained, "After the war ended, Brazil started importing books. I would buy any book which I thought might be interesting for my further studies." Schurik heard this, looked at the high pile, and said, prophetically, "Paulo, you will never read these books." Much later, I learned that he rarely read math books. Over the years, it became clear that Schurik did not learn mathematics, but instead created his own.

The Days and Weeks after Day 1

We met very often, walking around the city and talking about a variety of subjects, but never about mathematics. It was the beginning of summer, and there were no classes.

Literature and cinema

Schurik told me of his love for the new school of Italian movies. He was very impressed by the movie *The Bicycle Thief* by Vittorio De Sica. I told him that I was taking private lessons in French from a doctoral student in French literature. I wanted to read classical authors and was directed to read Kafka. The plots of *The Trial*, *The Castle*, and *Amerika* predicted what would be the ordinary human condition confronted by the power of dictatorship, bureaucracy, and money. The short story "The Metamorphosis" leaves an indescribable feeling of the impotence of man, which must leave the reader forever deeply impressed. In one of his books there is the satirical piece "A Report to an Academy," which I could not forget when this happened to me (a Brazilian monkey).[1] Schurik and I discussed Kafka, but I don't know if he ever read any of those books.

Music

Another topic of our conversations was classical music. I had attended the Bach Festival in Strasbourg (1950). On my return, I told Schurik much about the concerts and artists who performed there. As a result he would go with me to the Salle Poirel to listen to recitals and orchestras. Schurik was enthusiastic, often the last person to stop applauding. All this was very new for him, and I was happy to see his reaction.

Having learned that I played the piano, he decided to learn it too. I said, "You need to have a piano and to find a teacher." To which he answered, "I will not need a teacher, but I need a piano which I will not buy, but just rent." He stopped and then said, "Nobody will rent a piano to me. Look how I am dressed. You will be able to rent the piano for me."

I did it. This was the origin of many changes of address. Schurik studied math the whole day and when he was tired, he started the piano, often at midnight. How many times did he have to move? It was not important, since I had never visited him in any of his rooms.

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[1]*Editor's note: In "A Report to an Academy," an ape named Red Peter presents to an academy the story of how he learned to behave like a human.*

The mother

I am sure to be the only friend of Schurik who had the privilege of visiting his mother. She was resting in bed but quite alert, since her tuberculosis was in remission. Obviously she knew that I was a close friend of her son. Amongst the facts I retained from our conversation was that she was writing, in German, a novel inspired by her own experiences. This is what I learned.

Schurik was born in Berlin in 1928, being just fifteen days younger than I. His father was Jewish, but his mother was not. I don't know her religion or if she was an atheist. In those years in Germany, the communists, nationalists, of the extreme left, or right, fought each other. And there were also the anarchists—it was a time of many ideologies.

With the advent of the Nazis and the difficulties that followed, Schurik's mother and the little boy went, eventually, to France and settled in the region of Montpellier. There, Schurick had all his education, receiving his university undergraduate degree at the Université de Montpellier.

Schurik had a tender love for his mother, as he fully understood the difficulties she must have had to escape to France. At the time I met Schurik he was an "apatride," which means that he had no nationality.

This is a good moment to tell why Schurik went to Nancy to work with Schwartz. While still an undergraduate, Schurik created a theory. For this reason he was advised to go to Paris and to show his work to Henri Cartan. It turned out to be a variant of the Lebesgue integration theory.

Seeing the potential of the young man, Cartan allowed him to attend a seminar. The material was too sophisticated for Schurik, so Cartan arranged for his friend Schwartz to guide the young Schurik.
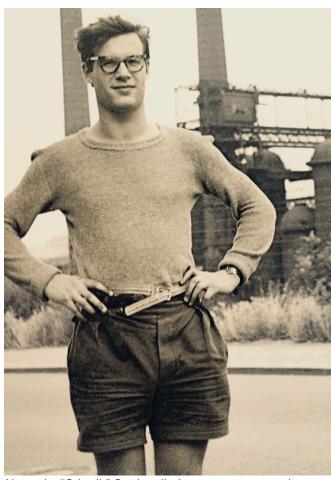
The bicycle ride

It was a warm summer day, one when nobody would like to be studying mathematics. So, it was not a surprise when Schurik said, "Paulo, let us have a bicycle ride to Pont-à-Mousson. It is only 25 km from Nancy." I replied, "I would like to go, but I don't have a bicycle." "No problem," said Schurik. And he continued, "Monsieur Rudlof, who is the 'appariteur' of the building where the courses and seminars take place, will let you use his bike." And so it was. *L'appariteur* had his lodging in the building and his job was a compensation for the heavy injuries he sustained in the war. For this reason, his bicycle was old, heavy, and in need of lubrication.

Having secured a bicycle, the excursion was set for the next Saturday. It was apparent that Schurik was far stronger than I, who never rode long distances. And his bicycle was incomparably better than mine. The road had many hills to climb. It was easy for Schurik, who always waited for me on the top of the hills with a glorious smile. Eventually, we reached our aim, and our prize was to drink an ice-cold beer.

With my Agfa camera, the old black-and-white way, I took the picture below.

Anyone who met Schurik as he grew old will be struck by his appearance at age twenty-two: a vigorous young man, with hair that would start falling out prematurely.

Alexander "Schurik" Grothendieck at age twenty-two, June 1950

A mathematical lesson

One day Schurik gave me a mathematical lesson, something that had never happened between us and would never happen again! I can only speculate about the reason for this lesson. To mitigate my obvious ignorance? To show me a beautiful theorem? To practice his pedagogical skills on me? I guess that the reason was a mixture of these.

Schurik, now disguised as Professor Grothendieck, stated and proved the Stone theorem on representations of Banach algebras. I state here unequivocally that Professor Grothendieck, when he wanted, could motivate the statement and the proof, rendering the lesson a model of clarity. Bravo!! But why was this not the case with most of his writings, carefully made opaque?

Many years later, exactly in 1958, I presented my theorem on the representations of lattice ordered abelian

groups, using P. Jaffard's theory of "filets." This theorem was related to what I learned from Schurik about representations of Banach algebras.

A New Semester Begins

As classes began (finally!) I made new friends, like Georges Glaeser, and attended various classes.

Schwartz had just received the Fields Medal and was lecturing on the theory of distributions, which he had invented, an alternative to a theory by Sobolev. Of course I attended his lectures. Schwartz was, as expected, unassuming. His lectures were as transparent as required by the explanation of the new concepts. Schurik was always present, and at the end of the presentation he would invariably discuss with Schwartz—on equal terms, as I observed. Not only could Schurik anticipate what was to come, but he had probably a more penetrating view of the subject.

There were also the lectures by Jean Delsarte on Lie groups and Lie algebras, following the recent book by Pontryagin. For me it was a time to learn, and the summer walks with Schurik were temporarily interrupted. As classes stopped in December, I went on vacation to Combloux in the Alps to fulfill the Brazilian dream: to see, to marvel, to drink the white powder. Just in front of Mont Blanc. At that time I did not fare well in my efforts to learn how to ski and ended up with a twisted ankle.

Having much later moved to Canada, I could not avoid hating how much snow there was.

The Year 1951

Huguette

Another person became the number three in my friendship with Schurik. Let me tell the story, just stressing the relevant facts.

My mother's birthday was in January. For the first time I would not be present, but I wanted to give her a gift, so I chose to offer a French quality perfume. While I was shopping, another customer arrived. I was not shy and immediately was struck by her beauty. Not only the naturally blond hair, the blue-green perfect eyes, the delicate facial features, the body proportions and posture, but no less important, the frank, honest regard—and, best of all—directed to me. You know, a shampoo can be bought more quickly than a perfume. She left before I did, and I wondered where I would ever meet her again. Surprise, there she was, waiting for me! This lucky encounter led to our wedding, and at the moment I'm writing it has already lasted for sixty-seven years, with greetings from Queen Elizabeth II on the occasion of our sixtieth anniversary.[2]

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[2] *Editor's note: Citizens of UK Commonwealth realms and Overseas Territories who are celebrating their 60th, 65th, or 70th wedding anniversaries are eligible to receive, if a friend or relative files an application in advance, a congratulatory, personalized card from the Queen.*

Now I explain the determinant role of Schurik.

When he was over, Schurik joined me in my walks with Huguette. I was very pleased that they liked each other very much. One day, when it was just Schurik and I, Schurik asked point blank, "Paulo, what are you doing with Huguette?" And my answer was immediate: "I will marry Huguette." This was something I had never expressed. It was very irresponsible. Indeed, age twenty-two, on a fellowship that would not be renewed, no career position waiting for me, etc. But, you'll see that I am a person who makes quick decisions. The provoking question of Schurik had a crucial importance in my life. He was not a matchmaker. But like Cupid he awakened me, and I understood also that I had to fight to develop my career.

Terry Mirkil

The close relationship between the universities of Nancy and Chicago became known as Nancago and was attracting numerous very gifted young mathematicians, who came with post-doctoral fellowships. Terry and Presocia Mirkil came from Dartmouth College in New Hampshire. Terry's goal was to work with Schurik on functional analysis. Schurik, and I too, liked Terry and his wife very much. Quite often I met Terry without Schurik, who was busy with his own research. Terry confided to me, "When I see Schurik, I tell my ideas to him, which results I want to reach. After some thought he tells me much stronger facts than I would anticipate, even stating the theorems and sketching their proofs." After a pause, Terry would continue, "It becomes depressing to realize that all that I wanted to do erupts from his head so easily. I never met anyone like him. Schurik is incredible."

I have to say that knowing Schurik so well, I avoided doing the same as Terry did.

The fourteen questions

Classes resumed, as interesting as they were challenging. From Dieudonné I learned about algebraic numbers, *p*-adic numbers—so many topics that today have accompanied and fostered my research. Besides Schurik, among the doctoral students there were Jean-Louis Lions, Bernard Malgrange, and Paul Malliavin. All three became in due time members of the Académie des Sciences de Paris. We could also see, quite often, Jean Braconnier. I became a friend of Georges Glaeser, who was a doctoral student of Marie Helène, daughter of Paul Levy—what a lineage! Eventually, Glaeser became a leader in the pedagogy of mathematics.

In the midst of this effervescent mathematical atmosphere much attention was given to a new paper by Dieudonné and Schwartz on new kinds of topological vector spaces. At the request of my cousin Leopoldo, I reported on the paper. It finished with a list of fourteen open problems that the creators of the new theory were unable to solve. Twenty-two-year-old Schurik solved them all!

Schurik in Brazil

Schurik in São Paulo

I returned to Rio de Janeiro in June 1952 and assumed my assistant position in the Department of Mathematics at the CBPF. A smaller department could not exist. For this reason I could not secure the funds to invite my friend, who, on top of that, was not a physicist, just a mere mathematician.

But, with the help of Candido L. da Silva Dias, a professor of the Department of Mathematics at the Universidade de São Paulo (USP), Schurik was invited. He stayed two years at the USP, and there he produced work of central interest in analysis involving tensor products and much more. This research made him internationally famous. It is not out of place to commend the math department of the USP for the quality of their invitees viz. Fantappier, Zariski, Weil, Dieudonné, Schwartz, Delsarte, and now, Grothendieck.

For me the only regret was that I could not participate in the activity. At that time, a railway trip from Rio de Janeiro to São Paulo would have taken about seven hours.

The visit to Rio

Schurik was invited to give a talk in Rio, where he chose to stay at the Icaraí beach in Niteroi, just across the bay of Guanabara. He had come with his mother, whose health had improved substantially.

At that time we were living in my parents' apartment. My mother prepared a nice afternoon party for Schurik, and many of my friends were present. Schurik and his mother expressed their joy during the party in Brazilian style.

The next day I met Schurik in Icaraí. While walking along the beach I told him about my impending trip to Bonn to study ideal theory with Krull. I also told him that I was going to submit a long monograph about the theory of commutative rings, where I used the new ideas about injective properties that had been developed by Schurik.

When I explained the results in my work, Schurik said, "Paulo, do not compete with this paper. You can do far better work."

My inner feeling was that he was right despite the fact that I was using inductive limits, a very new concept at that time. Once more I proved that I am a man of quick decisions. In the first instance, Schurik was the catalyst in my marriage. In Icaraí he was preventing me from having a mediocre paper for a "livre-docência." I said, "Schurik, I will follow your advice."

Few people would do as I did. My monograph was later published in the Brazilian series *Notas de Matemática*.

I tell now a third instance of a quick decision even though it has no bearing to Schurik. It happened in 1962, when I moved to Canada. To buy a house in Kingston, I arranged with the realtor to see houses the same day of my arrival. Mel Blachfond showed me four houses, but none pleased me. Then he said that he would be able to show another home, but he did not have the key with him. To which I said he should show me the house anyway. Without entering the house, I applied an idea that is basic in the theory of representations of groups, namely, enough representation often suffices to know the structure of the group. In this case that there were two floors and a basement with windows. From the windows I could accurately surmise the number and location of the bathrooms and bedrooms and where the living room, dining room, and kitchen were. The quality of the large windows indicated the quality of the whole. I couldn't see inside, but Mel said, "The floors are hardwood." Knowing the likely price range, I said, "I'll buy this house."

And Mel said that in his entire career this had never happened. The lesson of this episode and my previous quick decisions is to follow good advice and educated intuition. To this day I live in the same house!

I have drifted away from Schurik, but only apparently. For him, as for me, the mathematical creator needs: 1) appetite, which means the compulsion to discover; 2) ignorance, because knowing the path of one's predecessors who did not succeed should be avoided; and 3) imagination, this being essential for the solution of complicated problems. Coincidentally or not, Schurik's work had these characteristics. I am convinced that he never studied a book from page one to the end. If you remember his comment on Day 1 about my pile of books, it was not satirical or scornful, it was his attitude on the matter. To some extent I do it, too, but any comparison between Schurik and me is pure fantasy.

From 1953 to 1968

The flying career of Schurik

The achievements of Schurik were of the greatest importance, not only in the theory of topological vector spaces and homological algebra, but also in algebraic geometry, which he was revisiting on much more sophisticated bases. Some people were convinced that he was preparing the ground for a proof of Fermat's Last Theorem. But one cannot find one single reference to theorems in his voluminous writings. Was he, or was he not?

In this respect, I tell a conversation I had with him. "Schurik," I said, "I have been looking at some of your writings, in particular the theorems you obtained. Often they are corollaries. I searched the proof in the developments and comments that precede the theorems. I see no calculations that could be the essence of the proof."

Schurik interrupted me and said, "My theories are like enormous trees from which the theorems fall like ripe fruits."

Well said. In this respect, I like to tell a story, which you have to believe because it is true. In Petropolis, in the property of my brother, I was sitting under an avocado tree. These trees are very tall and their fruits are like big,

hard soccer balls. Like one of Grothendieck's theorems, a ripe fruit fell: since I am telling the story, it did not hit me.

During the years from 1953 to 1968, Schurik worked nonstop in the development of his long-range, monumental construction of the new—I better say *his*—algebraic geometry, waiting for applications of those general concepts. I heard from a disgruntled reader of EGA-0 the unjust comment, "It is the globalization of the platitude." But Schurik was also achieving other very sensational results, as I will tell now.

Recognition of the leading and innovative quality of Schurik's results was coming. I mention some of these by memory. There must have been more. Some are mentioned below, but I didn't try to find when they were offered.

Schurik became a member of the Bourbaki brotherhood. He entered into conflict concerning the program. Not succeeding in imposing his point of view, he resigned.

Schurik was nominated to the Institut des Hautes Études Scientifiques (IHES) in Bures-sur-Yvette, subsequently he was for a short period in Collège de France, and finally he took up a professor position in Université de Montpellier.

In 1966, Schurik, at age thirty-eight, was awarded the Fields Medal. But as a protest to the treatment of the Russian dissidents Yuli Daniel and Andrei Sinyavski, he refused the medal and did not attend the IMU meeting in Moscow. He made his view widely known. Soon I will mention his Carnival muzhik fantasy. It was for the young man a genuine elegance, but it did not make him a communist sympathiser.

My view about what was for Schurik an acceptable posture for his research had these characteristics: 1) It should not have any obvious military applications, nor even any remote possibility thereof. 2) It should essentially be without any practical use, definitely not polluting.

But then, was there any justification and glorification for this endeavor?

Jacobi gave the answer: Mathematics is for "L'Honneur de l'Esprit Humain," which is the title of a remarkable book by Dieudonné.

My whereabouts from 1953 up to 1968

From 1953 to 1956 I was in Bonn working with Krull. There I produced the first counterexample to a conjecture of Krull. And it was there that I prepared an entirely new thesis, this time on valuation theory. It was the confirmation that Schurik understood that I could do a better work than the one I described to him in Icaraí. My thesis was approved in the USP in 1957. Without entering into more details, I was an associate professor at the University of Illinois in Urbana–Champaign from 1959 to 1962 as a Fulbright Fellow. Being unable to extend my USA visa, I went to Kingston. I have already related how I bought my house. In all these years I maintained a rarefied correspondence by handwritten letters with Schurik. I regret that these letters have been lost, but they only had topics of personal interest.

In 1964, I went to France to participate in a meeting in Clermont-Ferrand. While in Paris, I visited Schurik, who was living in the suburb of Bois-Colombes. It was my first meeting with Mireille, the companion of Schurik. He was thirty-six years old and had adopted a "genre" dressing in black, like a Russian "muzhik," with shaven hair.

Mathematically he had just completed his famous work on the Riemann–Roch theorem, enlarging the validity of the theorem proved earlier by Hirzebruch. He was deservedly proud of this result.

I would not meet Schurik again until 1969.

The Academic Year 1969–1970

My stay in Bourg-la-Reine

After the tumultuous year 1968, the Sorbonne was broken into thirteen universities. I was invited to give a graduate course at the Université Pierre et Marie Curie, also called Paris VI. During the year I rented the apartment of Pierre Samuel, who was spending the year at Harvard.

While there, Samuel was writing the book entitled *Amazones, Gaillardes et Guerrières*, a glorification of strong women from legend and history. A peculiar subject, treated with respect and scholarly methods. Of course, my point was not to stress the high category of Samuel as a mathematician. Later in this article, Samuel will reappear.

Schurik in 1969–1970

Schurik was living in Massy-Verrières, a suburb close to Bourg-la-Reine. I could visit him quite often. I describe my observations about various aspects of Schurik at age forty-one.

Political views

Despite all his years in France, Schurik had not acquired the French nationality. He was an "apatride," which means a person without any nationality. His title of "séjour" (like the USA green card) could be revoked. But this possibility was not sufficient to deter Schurik. In his backyard there were quite often tents with various types of dissidents. I remember some Buddhist monks and Spanish dissidents.

Denunciation from neighbours brought him a threat of expulsion. But his international reputation was his safeguard. We have already seen how he quit the Collège de France. And even though this did not happen in 1969, but some years later, Schurik went to Antwerp to disrupt the important meeting on algebraic groups. The first day was a mess. You can guess the reason: NATO support.

Schurik's mathematics

You already know that I am incompetent to judge Schurik's mathematical achievements, but I am giving in a disorderly way the signs of their importance. Out of curiosity, I went once to the IHES to listen to one of his seminar lectures. The auditorium was totally full, many people standing. I could recognize some of the best-known French mathematicians and, as I was told, up-and-coming mathematicians

from all over the world. Grothendieck had become an icon. What could be more revealing than Dieudonné's decision to abandon his own research to become the secretary of Schurik? One could see that at the end of each seminar lecture, Dieudonné received from Schurik the handwritten notes that were to be put in shape and typed. This was a difficult task not the least because Schurik's handwriting was even worse than mine! (Hard to imagine, so I take this opportunity to thank the patient person who is typing my text.)

Dieudonné's work prevented the important lectures of Schurik from becoming just words that would disappear forever. Mathematics must be grateful to Dieudonné, whose work was for "l'honneur de l'esprit humain."

The family

In the intervening years, Schurik's mother had died. As was rather common, her mortuary mask was prepared and, as I was told, was in his bedroom as a symbol watching her son's sleep and occasionally more.

Schurik was living with Mireille. Some twelve years earlier, if I am correct, Schurik had been invited to give a series of lectures at Harvard. Mireille could only have a USA visa if they were married. So, they were. Three children were born: Johanna, the oldest, and two boys.

Very often I would go with Huguette and my eight-year-old son Eric to visit Schurik. I could hardly speak with him, due to the uninterrupted flow of mathematicians arriving to see him. For example, I remember when, one day, Brieskorn, one of the most high-profile German geometers, spent hours discussing math in the pleasant backyard of Schurik's home.

With Huguette we sat around a table, talking with Mireille, who, we could say in short, was a good soul.

The Visit to Kingston

I invited Schurik to visit Queen's University. He arrived by the end of 1971 and stayed for two months. I offered to share my office with Schurik. He chose to give lectures on algebraic groups.

I was very disappointed with his presentation. No doubt his categorical view of the subject was the more embracing approach, but the total absence of illustrations, with special cases, made the lectures ineffective. Schurik could not step down from his podium.

Schurik's presence in Kingston was for me a great pleasure. On January 7 he was invited to have dinner in our home. For the evening there was an alert for a strong snowstorm. I recommended that he wear his heavier shoes, not just the usual sandals.

He didn't follow my advice. As soon as I picked him up in his room with my car, the big storm began. In no time the streets were covered by snow. In this situation the best practice is to follow the car in front. At a turn of the road the car in front was stuck in the snow, and so was mine. It

is well known what to do, just to rock the car with small movements forward and backward and little pushes outside. I asked Schurik to sit at the driver's seat, rocking the car, while I was outside giving the little pushes. He said, "I cannot do it. I don't know how to drive." I had no alternative but to tell him, "Then I will stay in the car. You go out and give the pushes."

Schurik had to step outside, just wearing his sandals, which left his feet exposed to the snow, for the fifteen minutes we needed to get the car back in the road. We still needed about fifteen more minutes to reach my home. Schurik entered our warm home and his feet became very painful, but he endured the acute pain, which was diminishing little by little.

Huguette received as a gift a reproduction of a very tender drawing by the German artist Käthe Kollwitz. It depicted a mother holding her baby in an attitude that expressed the universality of a mother's love. A choice that reflected the exceptional attachment of Schurik to his mother.

Huguette had prepared food that we knew would be appreciated by Schurik. Despite its rough beginning, the evening was pleasant. When it was the time to leave, I said, "With so much snow on the ground, I will call a taxi to take you to your home."

But Schurik did not want it. Nothing would change his mind, as was always the case. About midnight, in his tight and wet sandals, Schurik began walking the three miles to reach his room.

And for the following days, he continued walking around wearing only his sandals. Just like in the picture that appeared on the first page of the local newspaper. From the top to the bottom of the page, sandals visible and the caption, "Cold feet, warm heart."

The activity of Schurik was by no means limited to his lectures. This was the period when Schurik was putting on paper his thoughts about the survival of mankind.

He expressed in his voluminous writings his warnings about nuclear plants to produce energy, the danger of leaks and explosions, stressing also the extreme importance of the treatment of nuclear waste. The unrestricted use of fossil fuels, the CO_2 pollution of the atmosphere, and the predictable consequences of climate change: the melting of the polar ice, the rise of ocean level, the impoverished people who lived in low-level artificial islands in Florida, the probable disappearance of islands, etc. The cooling of the Gulf Stream would bring an important climate change, violent storms would become more common.

The melting of the ice would open a seaway between the islands north of Canada and the continent. The region is supposedly very rich in all sorts of minerals, requiring high military protection against other countries. More military… And unexpectedly, it would be a death sentence for one of the most perfect creatures in existence, the majestic white polar bears.

The analysis of these questions by Schurik was pioneering, well documented. Often Schurik would tell me what he was typing with the help of his typewriter.

Still to come was the group founded by Schurik in France, called something like "Survivre." It did not last long before he was expelled from it, due to his intransigence in compromising. But the seed he sowed was at the origin of the green movement, like "Les Amis de la Terre," headed by Pierre Samuel.

When it became known that Schurik was in Kingston, the phone calls were numerous, with invitations from universities. If he found one worthwhile, he would answer, "Yes, I accept, but besides my mathematical lecture I will give another lecture on the survival of mankind."

When the arrangements were agreed upon, he would perform as expected.

I will tell the episode when Coxeter, the world-famous geometer from the University of Toronto, invited Schurik. My friend enlarged important results of Coxeter, stressing the value of Coxeter's work. Naturally there was a mutual attraction and admiration. In Toronto, Coxeter was treating Schurik with his inherent class, and among other things, he invited Schurik for a dinner "à trois." Mrs. Coxeter was a classy lady, the daughter of the famous Dutch mathematician Brouwer, who had proved a celebrated fixed point theorem and was also the creator of the doctrine of intuitionism in mathematical logic. The usual logic states that the negation of the negation is the affirmation and it is related with Boolean lattices. The intuitionistic logic is related to the so-called Brouwerians. This is what happens when I want to mention the excellent dinner prepared by Mrs. Coxeter: it makes me write about Coxeter connections which included the famous painter Escher, often inspired by mathematics. And, hoping that you are not tired of my verbiage, I'll add that my very first research paper, in 1949, contained the proof that Brouwerian lattices are equationally definable, this being a desirable property.

On his return from Toronto I asked Schurik about his visit. He was fully pleased, and answering my question, he said, "Mrs. Coxeter prepared a beautiful dinner, but I said, 'Today is Tuesday, the weekly day when I fast in protest to the war waged by the Americans in Vietnam.'"

Once he would not wear heavy shoes and now he would not eat good food. It was time for him to return to France.

The Third Phase

When analysing the lives of creators, it is customary to divide into three phases the evolution of their careers. The first period is the connection with the past; in the second phase we witness the coming of maturity. Typically, this is done for Beethoven.

In many instances, the creator repeats basically what they were doing. Digging deeper and deeper with their techniques, there comes a point when the creator is in a hole, and he sees no more. This was not what happened with Schurik. As I have already described, he had a constant interest for many subjects outside mathematics, like cinema; literature; music; anti-war attitudes; "incorrect" political views; a well-hidden, sort of mystical posture, which, for lack of a name, I would call an "ultra-religion." I am not judging Schurik, but for those who wish to do it, the great mathematics he invented is only a part of him.

At this point, it is appropriate to devote some space to these special features and to the new directions. A chronology for these transformations is meaningless.

Leaving (Part 1)

Leaving the survival movement

I have already told about the frenetic writing about the problems for planet Earth, which were a main activity while Schurik was in Kingston for his USA and Canadian lectures. Schurik preached so his prophecies would be heard. Back in France he founded the survival movement.

It did not last long: he had to leave his own movement because of disagreements with his companions. Without knowing, the seeds that he and others had planted gave rise to important political movements.

Leaving Paris

It came as a surprise when Schurik left Paris and went to his alma mater in Montpellier. On that occasion Schurik stopped giving seminar lectures and, as far as I know, did not publish any new papers. But in Montpellier he still advised PhD students (how many I don't know).

His extensive correspondence with Quillen, about one thousand pages long, has been edited and is now available.

I still maintained a sparse correspondence by letters with Schurik. Once I proposed him to make me the guardian of his unpublished manuscripts including his letters. I was afraid that they could be lost or destroyed by Schurik. No reply from him, but I hope that they were not destroyed.

There has been much speculation about Schurik abruptly ceasing to produce more papers. It has been said that when Deligne had proved Weil's Conjecture, which was one of the main aims of Schurik's research, he felt it unnecessary to continue his research. This is more a calumny than a fact. My idea is that he had already spent all his years in that same endeavor and was irresistibly attracted by his own nihilism. There cannot be an explanation expressible in simple sentences.

Récoltes et Sémailles

This is the work by Schurik produced in mimeographed form. It consists of five densely typed softcover books.

Normally the seeds come first and later is the time to harvest the grain. But in this work all is backwards. While writing this text, I began grasping the reason for this inversion. It is a metaphor to state that what he became was

already in the womb of his mother. This statement is deep in meaning and supported by genetics.

I read only parts of this long text and was mystified by the analysis of mathematical creation. An anthology text as only Kafka could have written.

The quite unusual style of writing—with sentences, subsentences, and the excessive use of cross references—intrigued me. One of my friends, a professional psychoanalyst, declared that the author was paranoiac.

This was in agreement with the fact that the book contains allegations against most of Schurik's pupils, followers, admirers, and friends. Basically, Schurik accused them of using his ideas to write their papers.

Leaving (Part 2) and our Last Encounter

I am totally confused about the chronological order of what I will tell now. Probably between age sixty and sixty-five Schurik left Montpellier and went to an undisclosed little village in the Ariège. Until much later, I could not find out his address. He lived by himself in a monastic way.

Planting his vegetables, probably not eating meat, maybe drinking milk. According to his credo of recycling, his own excrements would serve, maybe mixed with horses', to enrich the soil where his vegetables were growing.

One day, as a total surprise, he called me on the phone and asked whether he could be in my apartment in Paris for a short visit. I had to agree that nobody would be told of this visit. Both Huguette and I were excited about the intended visit. Schurik came and explained that he came to Paris to propose to an editor the publication of his "Récoltes et Sémailles."

It was so good to talk with Schurik, who appeared to be in excellent health and, could I say, possess the serenity of a Buddhist monk. In our conversation he confirmed his way of growing his vegetables. When I asked if he was writing anything, like a book, I was astonished by his positive answer. He said with enthusiasm that he was writing a book of his dreams. Every time he had a dream he would wake up and take note of the dream. His book was becoming voluminous. At some point, he said that he had a dream that the world would end in the year 2000, still a few years away. When asked, he narrated the dream. Instead of the apocalypse, there was someone playing a guitar and other strange happenings. This was a sign of mental derangement.

The next day, we three went to see the editor. We waited in a small garden, those that we see in Paris. Schurik went alone and about one hour later he said, "The editor would accept if I make substantial cuts." Of course, Schurik could not accept it. He took leave from us to return to his village. I never saw or talked to him again.

Leila Schneps, a mathematics professor at the Université Pierre et Marie Curie, visited Schurik a few times and provided his address to me. My letter to him was returned unopened with a notification that the addressee refused to receive it. The same happened to a second letter.

Postfacio

My text is sincere in telling, not hiding, not judging. If I would have to find a short and striking epithet for Schurik, I would say: genius or more.

Clearly, he was a genius in mathematics. "More" refers to the unclassifiable characteristics of his complex personality.

EDITOR'S NOTE. Ribenboim's original piece contains some additional facts that are not included in this excerpt. Readers interested in the full text should contact the author.

Paulo Ribenboim

Credits

Author photo and photo of Grothendieck are courtesy of Paulo Ribenboim.