Physics – Uspekhi **44** (10) 1082 – 1087 (2001)

FROM THE HISTORY OF PHYSICS

PACS number: **01.60.+g**

Stories by Yuriĭ Borisovich Rumer

Yu B Rumer

DOI: 10.1070/PU2001v044n10ABEH001107

Abstract. Yuriĭ Borisovich Rumer (Yu B) was an excellent story-teller. Grateful listeners long remembered his stories about life in the first years after the 1917 Great Socialist Revolution in Russia, about the Göttingen School, about Albert Einstein, about Soviet physicists, about the years he spent in prison and in the secret research institution where all researchers and staff were prisoners. Unfortunately, nobody was perceptive enough to record these stories for posterity. Yu B himself would not agree to it as after the many years of his gruesome prison experience he was always cautious and carefully censored his stories himself according to the audience and the political climate of the period. The few reminiscences published in his lifetime also exhibit evidence of such self-censorship. M P Kemoklidze made detailed records but she says she destroyed them after publishing the book *Quantum age* (1989) for which they were intended. Here we are publishing a transcript of the tape recording made by Anna Livanova in 1962 when Yu B visited her in Moscow (she knew him from her days as a student of the Physics Department of Moscow State University). When Livanova was on a business trip to the Novosibirsk Academy Town she attended a talk given by Yu B to the students of Novosibirsk University at which they asked him to tell of the most important occasion in his life. He said it was his meeting with Einstein. In Moscow Livanova recorded an extended version of that talk. Livanova used the recording for writing the essays "Academy Town in Siberia" (*Znamya* magazine, No. 11, 12, 1962) and "Physicists about Physicists" (in the book *Roads to the Unknown — Writers Telling about Science* in which a section was entitled 'Meeting with Einstein'), and her book 'Physicists about Physicists' (Moscow: 'Molodaya Gvardiya' Publishers, 1968) which also included a section on Rumer's meeting with Einstein. The publications were significantly edited and only a part of the recording transcript was used. It was the unflagging support of L V Al'tshuler and the technical assistance rendered by his grandchildren that made it possible to resurrect the old magnetic tape and make a new transcript. Of course, the stories often repeated by Yu B who referred to them as my 'discs' include some inconsistencies caused by lapses of memory. They present a lively picture of the science community and its life, however, as well as a congenial portrait of the story-teller himself. When we prepared the transcript for publication we practically did not edit it. We believe that the emotional and expressive story presented in exactly the way it was told with inevitable slips and errors better conveys the stirring atmosphere of those distant events than a polished and verified historical treatise. We deciphered the passages on the tapes that were difficult to make out from our personal recollections of Rumer's stories and added our comments to the text.

I F Ginzburg, M Yu Mikhaĭlov (*Rumer*)

Uspekhi Fizicheskikh Nauk **171** (10) 1137 – 1142 (2001)
Translated by O A Glebov; edited by M S Aksent'eva

Göttingen School

Yes, I was lucky to spend some time in Göttingen in the 'Sturm und Drang period' in theoretical physics when modern quantum mechanics was being born; when all the people whose names are mentioned now in this connection were young and came to Göttingen in one way or another. Some lived there for many years, some came as interns and stayed for weeks or months or for half a year. In short, everyone who developed modern physics was in some way linked to the Göttingen circle. Why did it happen?

Göttingen was the place where Max Born lived; he was not the greatest genius of physics in his time but he was the man who either felt instinctively or had the historical perception to understand that physics was entering a new phase. In the previous phase physics had been developed by a small number of people in small laboratories. Just look how many people created theoretical physics in the last century — Maxwell, Lorentz, Kirchhof, and some other people, say five more. It was they who developed the theoretical physics of the nineteenth century. Now the progress was so rapid that neither one, two, three, nor ten persons could develop physics further. A hundred, two hundred, or five hundred people were needed and these people had to be prepared.

Now Max Born created what I must call a surprisingly powerful organization in Göttingen. He was alone and he had, perhaps, five assistants. Heisenberg had started as his assistant and then he became a professor (he moved on to a smaller university). I was his assistant for some time (later). Everybody was teaching each other all the time there. Each one was given an assignment, each one became more or less competent in a certain field and each one taught others. There was no anxiety at all there. Russian people came there (Gamow came besides me), Frenchmen, Danes, Indians, and Japanese were coming. A fantastic crowd was gathering there.

We especially liked the Japanese physicist Yoshio Nishina. This Japanese spoke fluent German and Russian and was absolutely close to us in theoretical physics. He was better educated (than me, for instance), was a better physicist and was very competent in his field. Once Nishina came to us and said sadly, "You know, friends, I have to leave you and return to Japan". "What happened, Nishina, why are you leaving?", asked Born assuming that Nishina had no money to stay. "No, it is not money, you know, my father is one of the richest men in Japan. He has chosen a bride for me and I must go, meet her, and marry her." "Do you know her, do you like her?"

"No, my father has chosen her for me."

"Listen, you are one of the most important physicists in the world and you must go and marry a woman you have never seen?"

"What else can I do? My father has chosen her for me." And Nishina left. Nishina was mentioned in the book by R Jungk [1].

Dirac often visited Göttingen. He was a very strange youngster, he was born in 1902 and by that time he was 27. He seemed to be a man absolutely belonging to the future. He uttered only statements. His mind was set in such a way that if he could not make a statement he said nothing, that is, he alternately kept silence and made statements on this and that. If one told him, "I didn't understand something", he looked surprised. "How can I explain?" he said and repeated the same statements as before, though at a somewhat slower rate. He was at the pinnacle of his fame in 1930 and Max Born kept saying to him, "Listen, Dirac, you are just twenty eight, you will do many significant things yet." He confidently declared, "Nothing more. I shall never do anything else!" It was during a walk in the hills and I remember that we all laughed at that. Dirac looked surprised, "Why are you laughing?" We did not continue the discussion. Indeed, he did absolutely nothing after that time! Surely, he was quite aware of the fact that he had done all he was capable of doing.

That was the kind of people that were produced in Göttingen. How was it achieved?

First of all, there was the unbridled academic freedom. Nobody was obliged to do anything at all if he did not feel like doing it. It was a matter of the mood, primarily. If one could work intermittently, one could do a push and pull job, if one preferred to be diligent and consistent, one worked diligently, if one wanted to roam with girls, one kept going out with girls.

There was a catch, though, and many were hurt. A young man is getting terribly excited about a girl and makes a date with her to go out. One sees them returning five hours later, both looking embarrassed while she is in tears. "What was the problem?" we ask. We find out that when they went out he was stricken with an idea and after that he could only keep on mumbling something confusing to the girl. Next day he told us, "I went out yesterday and you know what I thought out? Here it is." Now you can read about this idea of his in the standard textbooks.

David Hilbert, one of he greatest mathematicians of all times, was living there at the time. David Hilbert was famous for being exceedingly dim-witted. He was so slow in understanding anything that he was barred from any conference because he kept on asking the stupidest questions which entirely disrupted a proper discussion. He was told, "You stay at home. We shall discuss and understand without you and then come to you and explain everything." Scientists took turns for visiting him and making explanations to him. When he finally understood something he understood it excellently.

There were some quite different cases, too. There was Janchek (Johnny) von Neumann, who died recently as professor in Princeton. He was the son of a Budapest banker. The banker once noticed that his 12-year-old son had a gift for mathematics. The banker invited the best professors of Budapest University, famous mathematicians, as private tutors for his son. By the age of seventeen his mind was packed with all kinds of knowledge. This man possessed what we referred to as superconductivity. He rate of thinking was unbelievably fast. He immediately understood any issue in any science he came across — be it mathematical physics or theoretical physics, or astrophysics, or something else. He knew chemistry brilliantly. He felt at home in any field. Ultimately, he created nothing that would measure up to the caliber of his talent. He was a prominent mathematician. At the end of his life, for the last five years before his death he designed cybernetic machines and created a special science on the similarity between the brain and machines which was a very important achievement. That was a man with superconductivity.

In Göttingen dimwits and superconductors co-existed successfully and everybody related to everybody else.

Then Edward Teller, a Hungarian Jew, came to Göttingen from Leipzig. He impressed us immensely with his intuition, his deep knowledge, and, most importantly, his perfect readiness to write a dissertation for a PhD degree for any person who asked him for it, and write it directly. He believed that there was nothing bad in writing a paper for a friend and he never refused such appeals. He did write a PhD dissertation for the wife of his friend. She learned it by heart, received the degree, and now she has a job in America. He had an amazing gift for growing disciples around him.

Such was the fantastic environment there.

The Russian physicist Gamow was also a queer person. He spoke a peculiar broken German which was known as 'Gamow Deutsch'. He made wonderful Mickey Mouse sketches, he was terribly witty, and he was utterly ignorant in mathematics. But he understood everything through a sort of a gut feeling. He was not very well received in Göttingen and it was decided that there was nothing special about him. He was discovered by Bohr when he found his way to Bohr. It was not in the thirties, but in the fifties Bohr nominated four physicists for the Nobel prize — Heisenberg and Pauli for development of the quantum mechanics, Landau for his virtuoso technical skill, and Gamow for his gut feeling. Bohr was delighted with Gamow's gut feeling. Meanwhile, Born failed to appreciate Gamow's gifts.

The case of Fermi was very similar to that. In fact, it was funny. I was an assistant of Born and a first-class physicist came to visit us. At least, he was of a higher class than Landau — it was Fermi. He was of the same age as me. He was a party member, even in Göttingen he was wearing the black shirt which was the uniform of the fascist party. The Italians in Germany were frightened of him informing on them for their politically indiscreet conversations [2].

One Italian, by the name of Wick, made a point of visiting all his friends and imploring them, "Fermi has come. For goodness sake, please do not tell him about the stupid things I was saying to you here." Now, Fermi, a recognized genius, failed to establish any contact with Born. Born did not accept him at all and believed that he amounted to 'nothing'. Fermi wasted about two months there and did not do any work. He went to Ehrenfest in Holland, did something out of this world there, and immediately became one of sciences dignitaries.

Here are a few other examples illustrating the marvelous Göttingen environment.

A new lodger came to our boarding house — Chandrasekhar, Raman's nephew, an Indian who looked exceedingly Negroid. He was of a Dravidian origin and, indeed, looked

[1] This is the book by R Jungk *Brighter Than a Thousand Suns* (I Y Nishina was the first scientist who came to Hiroshima after the nuclear bomb explosion in 1945.)

[2] Of course, this later proved to be not true.

almost like a black African. We soon made good friends with him as we liked him very much and saw that his knowledge and talent were of an exceptional caliber. Approximately a week later an American professor of mathematics came to stay at our boarding house. He was from the university in Salt Lake City, State of Utah, and he had a letter bearing the seal and the signature of the State Governor who asked all whom it might concern to render all possible assistance to him.

We had a particular question to ask this American professor of mathematics. We wanted to know if an English word existed for the concept which we described using the German term 'Eigenfunktion' (eigenfunction). When we asked the American professor about the term it came out that he did not know what an eigenfunction was, let alone an English term for it. In fact, he did not know anything. He proved to be an entirely illiterate person.

It was a meal time and we all took our places at the table. Chandrasekhar came, said hello, and sat down. Suddenly this American professor jumps up, comes up to the landlady and declares that he will not tolerate a colored person at his table. Then the diminutive Heitler takes off his watch and respectfully tells the landlady, ''It is twelve minutes to twelve. At twelve this American professor must out of this boarding house. Madam, please make haste, otherwise we shall boycott your boarding house and you will be ruined''. The landlady burst into tears and started imploring us to take pity on her. It was so difficult for her to set up the boarding house, during the war her husband was taken as a hostage by the Belgians who put him on trains to prevent them from being blown up. ''I am a decent woman, please, do not ruin me'', she wailed. ''Madam'', he says, ''I sympathize with you. The time is running out, keep your mind straight. You have only eight minutes left to throw him out.'' Indeed, it was two minutes to twelve when the American professor and his suitcase went out of the door of the boarding house. We never saw him again.

Once two working men came to see me at the boarding house. They said, ''We know that you are from Russia and we believe you can tell us about the life in that country. We shall gather a few of our comrades at home, and listen to you over coffee''. For some reason I thought it was a good idea and I went to meet them. About fifteen people were there. I talked with them and left for home.

In two days I received official summons to report to the criminal police. I went to Max Born and told him what happened. Born is a theoretical physicist; of course, he does not understand much about practical things. He appealed to his wife. After listening to my story she said, ''Deny everything, do not admit anything. Otherwise, they can deport you. If you do as I say, nothing will happen.'' I go to the criminal police. Herr Kriminalrat who is seeing me says, ''Please, take a seat. You are a guest in our country. You are working with Born. You received the Lorentz scholarship. You are a scholar. Why are you engaged in Communist propaganda?'' I answer, ''Never in my life, Herr Kriminalrat! You have confused me with somebody!'' He says, ''Do you deny going there?'' I answer, ''It's a dirty slander! In Göttingen of all places! I am outraged. Do you believe that I can waste time in such a way?'' I keep on denying everything in this vein while he goes on weakly asserting, ''Listen, we have positive information...'' In short, the conversation went on rather peacefully because he did not have the means to make me admit anything. Try beating me up? It was not done at the time. After twenty minutes of such conversation in which I refused to admit anything and insisted that I was slandered or taken for somebody else he said, ''Well, I think we must apologize and write into the record that it was an error.'' He shook my hand and I shook his hand. I went to Born and told him that everything had ended well and his wife said, ''I told you so!''

Meetings with Einstein and work on 5-optics

In Göttingen I wrote my first paper on the five-dimensional generalization of the relativity theory [1].

As it was already the year 1929 it was an exceptionally fashionable subject because many people worked in the field.

I made a report on the work to the Mathematical Society. It was published in the Transactions of the Göttingen Academy of Science and it was presented by Max Born. Max Born told me, ''I believe you are a qualified person. Of course, I envisage problems with your embassy and your government. But I believe that if I ask my friend Albert Einstein to visit the embassy and to talk to the ambassador we can get permission for you to work with me.''

He sent this paper to Einstein. He also wrote a letter. He did not show me his letter at the time. A few years later when I was his assistant I had an opportunity to look through the 'secret' folders with letters which were ordinarily out of bounds for us. The letter said, ''I am sending you a paper by a young Russian who reminds me strongly of you in your youth. His features are roughly similar to yours and, most importantly, his hair is strikingly like your hair. This is why we gave him the nickname of Einstein-Locke. I believe that something must be done for him. At least, I am calling on you in the name of our old friendship to employ all the influence of your name to help him to stay with me. To achieve this you will have to visit the Soviet Embassy. You will, of course, write to me about that.''

Born told me that he had sent the letter and I naturally started waiting for an answer. Max Born received a letter and I received another letter. He wrote to Born, ''Dear Max, you are asking me to do an almost impossible thing. I think it to be hardly possible for me to go to the Soviet Embassy and petition them on behalf of a man I have never seen. Moreover, to be honest, I am not interested in his work and I do not think it is worthwhile. Best regards from your friend, Albert Einstein.''

The letter to me was different, it went as follows ''Dear colleague, I have received a copy of your paper. I must admit that I did not like your work at all and I believe it failed to attain its purpose.'' The letter went on about some aspects of my work that he did not approve of (some mathematical aspects). He continued criticising something else that he did not like.

In fact, the first point he did not like was in my paper but the second point was not there at all. I was quite confused by the letter. How could Einstein write about something that was not in my paper? The letter ended with the words, ''At any rate, I can say only the following. If you apply for a position of an associate or assistant professor of physics at some university make sure that you let me know and I shall immediately send a letter recommending you for the posi-

[1] The paper had been written independently earlier and in Göttingen it was only revised and completed.

tion. Regards... Yours...'' Only his signature was in longhand, the letter was typewritten.

I went to Born and told him, ''I received a letter''. He told me, ''I also received a letter. Show me what you received and I can show you my letter.'' Thus we failed in our undertaking. Nothing more was done and I had no more contacts with Einstein for a long time afterwards.

Once Paul Ehrenfest came to Berlin. In the years of speedy progress in theoretical physics Ehrenfest played the role reserved for Belinskiĭ in mid-19th-century Russian literature. He was the ultimate critical authority in theoretical physics. If Ehrenfest grew interested in something and placed his stamp of approval on it, other people started reading it. If Ehrenfest failed to get interested in something other people said, ''Well, Ehrenfest says it is not worth reading!'' And that was the final judgement. Ehrenfest was equally appreciative of the concepts of the new-born quantum physics and those of the dying classical physics; he was entirely comfortable while freely talking with Bohr and Born, with Schrödinger, and with Dirac, and with Einstein — with each one in his own peculiar language. He had that extraordinary gift but he did little on his own. He lacked the creative power but he possessed a deeply perceptive critical insight.

Einstein was a very good friend of his and once asked him what was new in theoretical physics. Ehrenfest was telling him of this and that and finally mentioned my results and started describing them. Einstein said, ''This is interesting, indeed. Who is this man?'' Ehrenfest answered, ''It is a Russian who is with Born now.'' Einstein asked, ''Why did not anybody tell me anything about him?'' Ehrenfest retorted, ''I know that Max Born sent you a special letter, and a copy of the paper, and pleaded with you to do something''. Einstein explained, ''My dear friend, do you think that I make a habit of reading papers written by others? Now that I more or less know what it is about I want to see the man.

Ehrenfest immediately sent a telegram for me to Max Born's address: ''Einstein expects you on Wednesday in Berlin, 5 Aberlandstrasse. Ehrenfest''. In a few hours I received a postal money order for 200 guilders from Ehrenfest. He wrote, ''I think that a Russian in Göttingen may have difficulties in paying the fare to Berlin. Just in case, here are 200 guildern.''

Thus I went to Berlin. At the appointed time I came to an ordinary apartment block. The apartment door had a small copper plate ''Professor A Einstein''. I press the bell, a maid opens the door and I tell her that I have an appointment. I am invited into the drawing room. I enter the room and its interior amazes me. I see a huge portrait of Theodor Herzl, the founder of Zionism. The furnishings in the room, quite tasteless and typical of a petty bourgeois household, surprised me immensely. Two gigantic collection boxes are prominently displayed and all Einstein's visitors are expected leave some donation according to their resources.

Soon Frau Einstein appears and says that the professor is coming shortly. A man comes in soon while she is still in the room. He is dressed in a sailor's jersey because he has just returned from a yachting outing. I was surprised by his surprisingly rugged meaty features. High forehead, rough lips and nose, lots of meat in the face. He gave me his hand and said ''Einstein!'' I answered in a somewhat quivering voice, ''Guten Tag, Herr Professor!'' Then I stopped quivering because I regarded Einstein as a run-of-the-mill professor with whom I had dealt already.

He said that Ehrenfest was expecting us upstairs and we went up to the attic. Einstein could not work in his apartment because the ceilings in it seemed to be uncomfortably high for him. A special small chamber was outfitted for him in the attic. Ehrenfest was waiting for us there and he said, ''Let us start examining your paper.'' Then they started the process they referred to as *Advocatus Diabolus* — the Devil's advocate. They raised objections and waited for my answers. If I failed to provide an answer (the questions, of course, were most difficult ones) they searched for an answer themselves. Then they started arguing with each other and that was how they tried to move ahead. It took us a rather long time (about two hours) and was a rather agonizing process.

It went in this way. Ehrenfest lay supine on a couch shading his eyes with his arm and kept on asking questions as if addressing an oracle, ''What do you think about that?'' Meanwhile Einstein was pacing the room rather restlessly, occasionally stopping and absent-mindedly touching the ceiling with his fingertips or putting his forehead against the doorjamb and standing for some time immobile in this posture. He had been cautioned not to smoke only recently: he suffered because of it and kept sucking on an empty pipe.

There was a phone call and Einstein said, ''We have to make a break now.'' A man with a long gray beard came in. Einstein started talking to him and it became clear that he was a violin-maker who was repairing Einstein's violin. An absolutely fantastic conversation about the violin went on between them. One was saying that the neck had to be done in this way, the other insisted on a different way. They talked a lot and I had fifteen minutes of rest as a result. Then Einstein said, ''You can't imagine how this man wastes my time. But he is tops in his trade.'' Then we continued a lighter conversation. Then he had a phone call and said, ''Let us go downstairs.''

Ehrenfest, as an old family friend, knew his way around there and I was led into the drawing room. Frau Einstein came in and said, ''I would like to invite you to stay for dinner.'' I answered, ''Thank you. I would be very pleased to stay.'' Then we were sitting together and she was asking me about common acquaintances in Göttingen. Then she asked me if I knew anything about poetry. I said, ''I can't say. Perhaps, I do.'' She said, ''I would like to show you some poems.'' And she gave me some German poems written in the style of Stefan Georg which failed to impress me. ''These are poems written by my daughter.''

I was holding the poems in my hands when Ehrenfest came in and said, ''Did she give you the poems already? Drop them immediately! The poems are obviously bad and do not waste your time on them. In fact, why are you still sticking here?'' I said that I was sticking there because Frau Professor invited me to stay for dinner. ''Decline the invitation. We have to talk about you over dinner and we have to make some decisions. You will be in the way.''

I said, ''Frau Professor, I was honored to be invited but I shall have dinner somewhere else.'' She retorted, ''No, no, please stay! They will go to the billiards room after dessert and there they will talk about you.''

Thus we sat down at the dinner table — Frau Einstein, Einstein, Ehrenfest, and me. Frau Einstein said that she had cooked a Russian cabbage soup in my honor. What she cooked had nothing in common with the Russian soup, it was just a plain German cabbage soup.

The conversation at the table was centered on general topics but sometimes they started talking hotly on some problems of the electromagnetic field. Ehrenfest started, "Well, Albert, you see that the electromagnetic field..." Here Einstein interrupted him, "But Paul, what do you know about the electromagnetic field?" After that they told me that I would learn about the results in two days at a colloquium at Berlin University.

When I was getting ready to leave Ehrenfest told me, "When Yakov Frenkel came from Russia to Germany he was accompanied with his wife and his wife interfered with his work. She was more interested in traveling in a foreign country and not in his work. You are also accompanied by your wife and so for several reasons I would like to meet your wife. I want you to arrange for it." I answered, "Herr Professor, it can easily be done." He answered, "I am not a professor for you and please address me in the Russian fashion as Pavel Sigizmundovich. So you must bring your wife." I said, "Pavel Sigizmundovich, I shall call her now on the phone and she will come here." He retorted, "Have you gone mad? She will come here to Einstein and then will keep chattering to her girl friends about her visits to Einstein. No, let her wait for us at a metro station. We shall go down to the station to meet her."

So we went to the metro station with him and met my wife Mila there. "Let's get acquainted. I am Ehrenfest. You probably have heard about me," he said to her, "Yes, I have heard about you," she answered. "What was that you have heard? asked he. "They say you are a very eccentric man, and I have heard many funny stories about you," she answered. "I can very well believe you. Let us go to a cafe and have a coffee with ice cream." We went to a cafe, and sat at a table. He stared at me in a peculiar way and said, "I have photographs of my children with me. Apart from Tanya whom you know in Göttingen I have also Galya and Pavlik. Look at the photographs, what can you say about my children?" Then Ehrenfest said, "All right, children, you may go and you will come to a colloquium at Berlin University."

In two days I came to the colloquium and simply could not understand him. He looked distractedly at me and asked, "Why did you come?" I said, "You told me to come and I did". He concluded, "Be that as it may. You will go to Göttingen now and tell Tanya that I will come to Göttingen when I return from Leningrad. Goodbye. I am very busy today."

I returned to Göttingen in absolute confusion. I told Born the events of my trip and added, "Ehrenfest wanted to meet my wife." Born answered, "We shall wait and see." In a few days a letter came from Leiden, it was signed by Einstein and Ehrenfest, the supervisors of the Lorentz Foundation, and informed me that I was given a position as assistant to Professor Born for two and a half years.

Later I was on my way to Riga once and I wrote to Einstein from the road that I hoped to show him my other work. I came to him, he met me in the drawing room but did not take me upstairs. I presented to him my paper on the quantum theory of valence. He told me, "This is quite an ordinary paper. Your previous paper had an original idea, here there is no idea. I do not understand what you want from me. I am not interested in what you are showing!"

In short, my second meeting with Einstein was unsuccessful and I never saw him again.

* * *

Einstein reached the pinnacle of his fame by approximately the year 1925. He was extremely lucky in his research work. He made spectacular discoveries in any field he went into and he was, perhaps, one of the most productive physicists in the world judging by his results. He completed all his major work in the period between 1905 to 1925. From 1925 he began encountering immense difficulties.

The matter is that one of Einstein's greatest achievements was the development of the modern theory of gravity. He was the first to give an answer to the question of what gravity was. Einstein's theory of gravity is the greatest accomplishment. Einstein was always saying, "I refuse to understand why I am acclaimed as the creator of the special theory of relativity. Without me, Poincaré would have done that within a year, and Minkowski would have done it within two years. After all, Lorentz accomplished more than half of the job. My contribution to that was not great. As for the theory of gravity, I am almost confident that it would not have been discovered without me."

Now by the year 1925 Einstein had to face directly the issue of unifying the electromagnetic field and the gravity field into a single field. From the year 1925 he started working on the problem of the unified field theory. He dropped the problem in the year of his death, 1955. He wasted the last thirty years of his life on that. It was the greatest tragedy of his life and work. He failed at absolutely everything he attempted. He wrote papers. These were papers by Einstein and in the first five years people kept reading them. Between the years 1930 and 1940 the papers were given to assistants who were supposed to read them and tell what was in them. In the last ten years nobody read his papers. It was a case of degeneration of a scientific mind. It seemed that he was so generously endowed by nature specially to accomplish everything by the year 1925 and then to be blocked by that problem.

My paper that attracted his interest was dedicated to the unified field theory. It was the period of the rapid growth of quantum mechanics. Heisenberg, Dirac, and Schrödinger were in Göttingen in that time. The quantum mechanics as we know it now was created then. The problem of the unified field theory is not welcome now and it was not welcome then, either. But Einstein was deeply concerned with it throughout his life. This is why Einstein was awfully excited about my paper when he heard of it. This is a kind of a problem that remains unsolved for a very long time. It has been suggested that it cannot be solved without introducing essentially new concepts. However, Einstein believed that no novel concepts were required. Why did he believe that? Because Einstein was not original in his science in the historical perspective though he made some revolutionary breakthroughs. Einstein achieved a brilliant completion of classical physics, which had been started by Newton, continued by Maxwell, and concluded by Einstein. The attitude of Einstein to quanta was always extremely wary and even hostile, even though he introduced the concept of quanta in the theory of optics and developed the quantum theory of light, while his last papers were concerned with Bose – Einstein statistics, that is, the quantum statistics. He always was of an opinion that these concepts were superficial and accidental and that a completely different way must be taken for finding the true solution of the quantum problem. Nobody at all shared his beliefs in that respect.

After then I did not tackle this problem for a long time and it was only when I was in prison that I started once again to work on it. Suddenly novel ideas started occurring to me [2].

In the three-four years before my release from prison I prepared several papers for publication. When I was released and taken under guard to the town of Eniseĭsk where I was to live in exile, my wife Olya, who was free, took the papers to Landau. It is difficult to imagine how annoyed Landau was with them. He said, "Poor little Rumer has lost his mind and it is not surprising under his circumstances, of course..." However, they (not only Landau, but also Skobeltsyn and Vavilov) decided to publish my work in honor of my tenacity. I must say that I published a book on the subject later and had some appreciative responses from some prominent people but still it was not accepted as it was not accepted by Einstein.

There is an additional difficulty here in that I am claiming that I have found a new way where Einstein had been ineffectively seeking it. This claim spoils the outlook; it looks too arrogant on my part. Even though some people do believe that I did discover something, approximately five years ago I made a pledge to myself not to publish anything more on the subject. Then I violated my pledge. The results presented in my monograph suggest that the electron spin must be three times as high as the value found from the experimental data and this is an obvious anomaly. My friends, for instance, Vitaliĭ Ginzburg, gave me advice and even recommendations how to remove this anomaly because it would seem out of order in the published monograph. But still I was firm and did not agree to make the change saying that I must write what I believe in.

In 1956 they introduced to me Dyson, a prominent American theoretical physicist who was visiting Moscow. He was apparently interested in my papers and wrote summaries of them for a journal of theoretical physics. I published nine reports; he wrote a summary of five lines for the first report, ten lines for the second report, twenty lines for the fifth report, and then the volume of summaries started to decrease. He was a very young man. He eagerly shook my hand exclaiming, "So that is what you look like! I was very intrigued with your work but nothing works and wieder nichts". I told him, "Right now I am trying to resolve the spin difficulties." But because I was speaking English to him (and my English is very poor) and he was speaking Russian to me (and Dyson's Russian was pretty bad) the conversation amounted to an agreement that it somethings turned out, he would find out, and take an interest once more.

Finally in the year 1958 I found an extremely gifted disciple, Valeriĭ Pokrovksiĭ. Now I had a listener whose understanding of everything was as good as my own and then I managed to straighten everything. I violated my pledge and published an additional tenth report in 1958 which explained everything and wieder nichts.

Since then I have never broken my pledge.

[2] Rumer proposed describing the space-time in terms of five dimensions with the additional fifth (cyclic) coordinate varying between set limits. Similar ideas had been put forward earlier by T Kaluza, O Klein, and V A Fock and are being intensely developed at present. Some contemporary authors in the field refer to the papers by Yu B Rumer.