responsibility for the investigations in this branch of physics. Particularly intense scientific discussions commenced after the discovery of uranium fission in 1939. When reading these materials, one is involuntarily surprised by two circumstances: the vast flow of specific results, and the fact that even then, in the pre-war years, very much was well understood. Namely, that uranium-235 possesses good fission characteristics, that to accomplish the chain reaction in natural uranium requires neutron moderation, and even the indication that the element with a mass number of 239 may possess better fission characteristics than uranium-235. S I Vavilov was among those who clearly realized the exceptional significance of these facts established by the physical science. In the year of 1939 alone, the Commission on the Atomic Nucleus held at least 14 meetings entered into the records, which were included in the collection of selected documents.

In 1940, S I Vavilov initiated the establishment of the USSR's first Nuclear Physics Chair in the Physics Department of Moscow State University, and D V Skobel'tsyn became the Head of this chair. This chair subsequently turned into a big Material Structure Division and gave rise to the Institute of Nuclear Physics of Moscow State University. Together with the Physics and Technology Department of Moscow State University, set up in 1946, these organizations gave our country a huge army of first-rank experts in different branches of physics. The Commission on the Atomic Nucleus fulfilled the principal coordination role until the State Defense Committee's Resolution of 28 September 1942 was issued. This resolution, in particular, charged the Academy of Sciences with setting up, on the basis of the Physicotechnical Institute (Leningrad) at that time stationed in evacuation in Kazan', an Atomic Nuclear Laboratory under I V Kurchatov's supervision. In 1948, in accordance with the governmental resolution presumably following S I Vavilov's proposal, a scientific group was set up in the Theoretical Department of FIAN under I E Tamm's supervision, which was entrusted with the development of the physical principles of a hydrogen bomb. The participation of S I Vavilov as FIAN Director is testified by his letter of 18 November 1948 addressed to general A S Aleksandrov of the First Main Directorate (PGU). This letter is currently stored in the institute's archive. Vavilov wrote that significant results were obtained in I E Tamm's group and asked for their urgent consideration at the meeting of the Scientific and Technical Councils of the PGU. I E Tamm delivered his report on 10 December 1948, in which he outlined the results obtained by himself, A D Sakharov, V L Ginzburg, and other participants of the work in the FIAN group. In 1953, this work was completed in Arzamas-16 to which I E Tamm, A D Sakharov, V I Ritus, and Yu A Romanov had moved from FIAN.

S I Vavilov passed away early, not having reached a full 60 years. He left the P N Lebedev Physics Institute, RAS to Soviet and Russian physical science, which he wanted to see at the forefront of science. Five Nobel Prize winners in physics, among whom he could have been himself, were largely a result of his labor, of his comprehension that science is made by talented people, and that the director's task is to be able to listen, apprehend, and set the stage for development. D V Skobel'tsyn, who succeeded S I Vavilov as Director of FIAN, once said that the director's task is "to favor that which blossoms". S I Vavilov's primary concern was the quest and the care for what can lead to a good result.

It only remains for us to try to retain this tradition in FIAN for as long in the future as possible.

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Sergeĭ Ivanovich Vavilov and his time

E L Feĭnberg

Sergeĭ Ivanovich Vavilov, like his elder brother Nikolaĭ Ivanovich (the brothers resembled each other in many respects), was more than a remarkable personality. His fate, his rise as an outstanding scientist and a public figure, his extraordinary erudition in the realms of natural-science and humanitarian knowledge, and his genuine intelligence (I would even make recourse to the word 'gentleman') deserve special attention. And every period of his life, the changes in his activity and behavior were strikingly closely related to the deep transformations experienced by his country and its people.

For even his grandfather was a serf, and his father came to Moscow on foot from the Volokolamsk region in the 1870s to become a merchant's errand-boy, to start with. Being, according to Sergeĭ Ivanovich, in full measure a self-educated person, in less than 20 years (by the time of S I's birth) he became a big self-dependent merchant, "used to read and write much, and was undoubtedly quite an intelligent person". He was elected twice to the Moscow City Council, where he played an active part. He was in charge of charitable institutions, and was one of the initiators and sponsors of the construction of Moscow tramlines. Moreover, he was closely related to the governing body of the biggest (for those times) Prokhorov Trekhgornaya Manufaktura in Presnya and was engaged in its trade relations with the East — the biggest consumer of its textile products.

How could this all come about?

Sergeĭ Ivanovich was born in 1891 — 30 years after the fall of serfdom, when the 20 years of the epoch of genuinely great reforms of the emperor Alexander II had already profoundly affected the life of the country. These reforms were made so well internally consistent that, despite certain 'counter-reforms' initiated rather soon afterwards, even the stubbornly conservative stands taken by his successors Alexander III and Nicholas II, unable to recognize the necessity to extend the reformative transformations, failed to halt the rapid development of the country driven by these reforms. The conservatism only gave rise to revolutionary outbursts

Ivan Il'ich Vavilov (the father of brothers Nikolaĭ and Sergeĭ) in 1894.

and eventually led the country and the monarchy itself to catastrophe.

In only half a century [counting from the onset of reforms (1861) to the First World War], a backward country with slavery, forced recruiting, corporal punishment, and lawlessness in every aspect of life incomprehensible in Europe underwent a radical change. Suffice it to recall the pre-reform court, not infrequently passing judgement in the absence of a plaintiff or the accused. The judicial reform (even after some new laws which partly depreciated its progressive elements) brought the judicial system closer to the international standards (the jury, the irremovability of judges and investigators as well as their administrative independence, etc.). A state emerged with a rapidly developing industry, a corps of brilliant engineers, a vast railroad network, a modern (though not very numerous) navy built after the battle of Tsushima, an elaborate judicial system, a fast expanding system of excellent gymnasiums and institutes of higher education, a build up of elite intelligentsia, and the Zemstvo (elective district council established in 1864 and showed its worth in pre-revolutionary Russia — *Translator's comment*) which was highly beneficial to the country.

Although we justly reproach the tsarist Russia of that time for the poverty of the ignorant masses, it should be remembered that education was being disseminated and the masses gradually awoke to a sense of human dignity. The proletarianization of the landless peasants gave rise to a sharp polarization of the welfare and the spiritual standards of the people and to a political opposition. Every workers' mayovka (pre-revolution illegal May-Day meeting — *Translator's comment*) was an episode of the struggle for personal rights and a sense of dignity for each of its participants.

This atmosphere of general progress of society and the growing struggle could not be cancelled or at least eased by the stupid obstinacy of the autocrats, who were frightened by the assassination of Alexander II, patronized the Black-Hundred-like attitude of mind, and carried out several 'counter-reforms'.

A new Russia was entering the world. Characteristically, when the Russian – Turkish war of 1877 – 1878 resulted in the liberation of Bulgaria, which became an independent state, Russian generals endowed it with a constitution which at that time was among the most progressive in Europe. The authorities did not dare to do this in Russia.

The personalities of the Vavilov brothers were formed during precisely the period when the radical renewal of the country had already revealed itself. But everything was changing so rapidly that the old was closely interwoven with the new, sometimes in a very strange fashion.

S I Vavilov's father was already a rich man, but until the summer of 1905 the family lived in a single-storey wooden house with an attic storey in one of the side-streets in Presnya, near the church in the neighborhood of the present-day Zamorenova street. The entire region was covered with such houses usually inhabited by people related to the 'Trekh-gorka', which dominated over the entire neighborhood. But there also survived nobility farmsteads of the 18th century on the decline, which were built when the region was outside the city. It was not until 1905 that his father bought the house of one of these farmsteads, a wooden one, with large and high rooms, and even with a ballroom. The house was completely reconstructed.

Sergeĭ Ivanovich writes about his mother in his autobiographic sketches: "My mother was descended from a workers' family (it should be noted, a family of highly skilled workers — engravers — *E F*), and never until her death in 1938 she behaved like a 'lady of the manor'; she laundered, washed the floor, did the cooking... She got up at about 5 a.m. ... It was hard to be more homely, kind, industrious, and democratic than my mother". Both her sons loved her very much. She taught S I to read with the aid of the Tolstoy *ABC-Book*. Later he attended a small private school, where they prepared him for entering a commercial school (it is likely that his father intended to make him ready for commercial activity). Here, unlike in a gymnasium, classical languages

The Vavilovs' house in a side street in Presnya, in which they lived till the summer of 1905.

Nikolaĭ and Sergeĭ Vavilov with their mother Aleksandra Mikhaĭlovna.

were not studied. Later, when Sergeĭ Ivanovich was preparing to enter the university, he learned Latin perfectly. He recited Ovid, Virgil, and his favorite Lucretius by heart in Latin (he knew several other languages, to which he showed a great capacity).

Sergeĭ Ivanovich's childhood largely passed among the children of Trekhgorka workers. They gained common impressions. The first recollections of Sergeĭ Ivanovich were related to the coronation of the emperor Nicholas II and the notorious Khodynka field [1], which was located not far from Presnya. He was six years old when he, together with all the Presnya children, observed from behind a fence an infinite train of carts with dead and mutilated bodies stretching from Khodynka to the Prokhorov Hospital (about one and a half thousand people then died and about the same number was mutilated). That terrible and symbolic commencement of the reign of Nicholas II, his own fault, and the fault of the city authorities were the subjects of infinite discussions for a long time to come. Of course, it was common knowledge that the short-sighted tsar did not even think to order a civil funeral for the dead and in the evening attended a previously scheduled ball given by the French ambassador. Together with the empress, they opened the ball with a quadrille dance. True, there exists ample evidence that they felt the developments keenly: together they visited the hospitals which hosted the victims, Nicholas II ordered the burial of the dead at his own expense in separate coffins rather than in a common grave, and dispensed a large sum of money among the families. But the Khodynka still remained a terrible symbol for the people.

Not surprisingly, Sergeĭ Ivanovich confidently considered himself a democrat and a liberal as early as in adolescence, but in his notes he writes about it ironically (''all this was superficial and immature''). However, under his mother's influence he considered himself to be a believer till the age of 15. His elder brother, Nikolaĭ, was much younger when he declared himself an atheist.

Of course, for a natural scientist, and generally for a person with such a mentality, atheism is much more intelligible and natural than religiousness. Even now we see very few believers among such scientists. People with an artistic or generally humanitarian intellect are another matter. Figurative and metaphoric mentality and religion, wherein the truth is given in the form of parables and artistic allegories, are closer to them. It comes as no surprise that Academician I P Pavlov, the son of a priest himself, was a convinced atheist. He warned his religious fiancee about it in a letter written upon graduation from the Military Medical Academy. His judgements on this subject are given in the recently published memoirs of Professor M K Petrova, his student and collaborator, a human very close to him. Eventually he only concurred that religion is perhaps needed by weak people.

However, atheism among the Russian intelligentsia was a common phenomenon. Swinging ideological conceptions were almost universal on the eve of the 20th century. Along with the passion for theosophy, the disputes between religious philosophers, the teachings of Tolstoy, and an endless list of other deviations from the orthodox church, the number of common intellectuals and atheists grew, believing that man creates the moral standards by himself. A man of so high a moral standard as Chekhov, the son of a shop-keeper, who sang in a church chorus in his childhood, one year before his death wrote in a letter to Dyagilev: ''I have long since lost my faith, and I am puzzled any time when viewing an educated believer''.

Naturally, the life of the family and of Sergeĭ Ivanovich himself passed, in outward appearance, quietly in his youth. It experienced shocks only from external events and from Sergeĭ Ivanovich's continuous internal spiritual life and ideological search. This will be discussed below. In the drafts to his autobiography, S I writes about it laconically: ''The beginning of the 20th century. Conversations at home... Though incomprehensible for a child, some unquestionable underground revolutionary shocks, students' gatherings, the assassination of Bogolepov (a minister — *E F*), revolutionary funeral rites in the Vagan'kovskoe cemetery (near Presnya — *E F*). In Presnya, however, chimes, priests, fisticuffs on the ice of the Moscow river, and festive gatherings on the Shrove-tide are seen as before''. This nearby life of the workers' milieu also passed as usual.

Along with this, went on the life in the commercial school, which Sergeĭ Ivanovich finished in 1909. In his notes he gives detailed individual characteristics of everyone — both schoolmates and numerous teachers replacing one another (this is, in particular, a manifestation of his amazing memory). Of special interest is the recollection of ''how a theological scientist I A Artobolevskiĭ appeared in senior classes. He was a clever and tactful man, but he had to teach in the most inappropriate time — after the revolution of 1905. There arose inevitable discussions both about the creation of the

[1] Tragic events in the Khodynka field on 18 May 1896. During dispensation of tsar's presents on the occasion of the coronation of Nicholas II the emperor there occured a mass crush jam and people's death. — *Translator's note*.

world, and about Darwinism, and about the proofs of the existence of God. I used to be the major theologian's opponent in class and used to decisively demolish the theological constructions of Ivan Alekseevich... All the 'fathers' taken together neither strengthened nor slackened the religious beliefs of the pupils. The internal evolution in this field went on along a route of its own, independently of the 'fathers' and the school course of God's law''.

These are highly important words. As I said earlier when mentioning Chekhov, the atheistic intelligentsia worked out the moral code on its own, though, of course, certain of the religiously approved moral norms (in Russia, primarily Christian) partly affected it.

At the border between the 19th and 20th centuries, the changes of ideological conceptions in Russia were sweeping. S I Vavilov did not escape them, either. When he had finished school and was about to enter university, he wrote, estimating his development, that until the age of 15, i.e. before the revolution of 1905, he ''was a dreamer, a mystic, and a deep believer. But later I attempted to become a poet, a philosopher, and a world contemplator... Experienced pessimism and optimism, joy and despair, and 'scientific religion''. He bought and studied a lot of books on philosophy, including the book of a certain Il'in (Lenin's pseudonym — *E F*) *Materialism and Empirical Criticism*, unaware, of course, of the true author's name. Following the example of his elder brother, he organized a circle of his own for his friends and school-fellows. They used to gather at homes, discussed ''a wide variety of issues'' — philosophy, literature, art, and politics. But only several participants were ''at a proper level''. ''The main burden lay on me (thus wrote Sergeĭ Ivanovich in his autobiographic notes — *E F*). I wrote essays on Tolstoy, Gogol', Tyutchev, Mach, on decadents, and on suicides as a social phenomenon.'' The circle gradually decayed.

Sergeĭ Ivanovich's irrepressible nature was not satisfied with what the commercial school gave him. As noted above, he learned Latin and other languages on his own. He read Mechnikov, Mendeleev's *Basics of Chemistry*, Timiryazev, and used to attend the meetings of the Society of Amateurs of Natural Science in the Polytechnical Museum. And in parallel with this — his passion for art, its deep apprehension and knowledge.

But ''all around was boiling''. By that time, in addition to the impressions of Khodynka field and the assassination of Minister Bogolepov, there were rumors about other terrorist acts, and ''some mental ferment was going on''. In 1904, the indefatigable Tsar Nicholas II embarked on an odd, unnecessary, disgraceful, and bloody enterprise — he commenced the Russian–Japanese War. As Sergeĭ Ivanovich put it, in the society it caused ''an inexpressible sorrow. A sad war without a gleam of hope. A black shroud over Russia. It was sorry and sad enough to make anybody weep''.

This was followed by the 'Bloody Sunday' of 1905 (and once again, the tsar, who had sanctioned it[2], did not even order a civil funeral for the many hundred killed). The gap between the people and the authorities was on the verge of war.

Such a talentless and pitiless (with respect to the people) guidance of the country with its far advanced economy, public movement, and spiritual life could not but lead to grave consequences. A revolution broke out, and it broke out precisely in the Presnya, where a 'government' of its own was created — the Soviet of Workers' Deputies and the Revolutionary Tribunal, which gave vent to the backlog of hatred for the police and Mounted Cossacks. Sergeĭ Ivanovich wrote that the poor and even the rich sympathized with the rebels. It was reasonable that the Vavilov brothers also felt sympathy for the workers of the milieu, which was the milieu of their childhood. They assisted (S I writes: ''actively'') in raising barricades and helped the wounded, whom they took to their house.

The popular uprising was cruelly suppressed, both in Presnya and in other places that had responded to the uprising (for instance, along the Siberian Route). The Stolypin terror set in. However, the monarchy came to realize the necessity of making concessions in at least some matters. A constitution (though ''scanty'') and the State Duma (though consultative) made their appearance. The elections to the first Duma turned into a broad political campaign. Political meetings took place, sometimes in the Vavilov house. The father believed himself to be a ''left-wing Octyabrist''. Though it is commonly said that the Revolution of 1905 was lost, all these transformations significantly changed the social and political atmosphere in the country.

Sergeĭ Ivanovich writes about himself in his notes: ''Ever since I remember myself (since the age of five, since the 'Khodynka'), I believed myself to be a 'left-winger', a 'democrat', the one 'to side with the people'... But my leftism and democratism were never transferred to politics, to its hardness and even cruelty. This is now referred to as 'spinelessness'. Whence comes my inherent party non-membership. The Revolution of 1905 frightened me. I plunged into science, philosophy, and art''.

* * *

The Great October Revolution of 1917 radically changed the life of the family. His father realized what threatened him and his capital, and moved abroad in 1918. By that time Sergeĭ Ivanovich had graduated from the Physicomathematical Department of Moscow University, refused to stay with the university ''for preparation to the status of a professor'' and was therefore mobilized. He spent four years in the army in the field, was taken prisoner by the Germans, but escaped from captivity. The prospect of scientific work opened up in front of him (Nikolaĭ Ivanovich was already a professor and in 1916 made his first journey of a naturalist — to the East)[3]. The whole family, except for his father, stayed in Moscow. The loss of the capital supposedly did not worry them. They lived like anybody else — in hunger and cold. His nephew A N Ipat'ev recollects the lines for a ration and its division in the family: ''Sergeĭ Ivanovich, who seems to play the most important part here, takes bread in the form of black flat-cakes out of a sack''. The advancement of science which commenced shortly afterwards filled the brothers with enthusiasm. They could not but be consumed with bright hopes when a start was made on the establishment, even in the

[2] The day before, the Minister of Internal Affairs, Svyatopolk-Mirskiĭ, visited the tsar in the Tsar's Village, where Nicholas II was spending winter, and reported on military preparations: they had assembled 40,000 soldiers brought partly from Pskov and other nearby towns, prepared cannons, and intended to act hard. The tsar approved of this.

[3] We leave aside an important part of S I's life — his very serious passion for art mentioned above, his ''aestheticism'', as he called it. This impelled him to go to Italy twice before the war and publish two essays on the architecture of towns in the north of Italy.

first years that were years of scarcity, of western-type research institutes which had never before existed in Russia. They were opened primarily in Petrograd: Radium or X-Ray-Radiological, Optical, Physicotechnical, etc. The pre-war country development had already prepared many young people for scientific work. The new authorities had the clear intention of developing science in all possible ways. This became clear after the strengthening of the New Economic Policy (NEP). In many scientists this gave rise to a loyal attitude to the authorities, which was characterized amidst writers by the term 'fellow-travellers' (the following was kept in mind: 'not allies, but at least fellow-travellers'). Nikolaĭ Ivanovich, for instance, in the 1920s believed that the collective-farm system would be especially favorable for selection work — his greatest concern.

Of course, 'Sharikov' (a personage from the widely known story by M Bulgakov, typifying an ignorant and rude low-level Communist Party functionary — *E F*) as well as many Soviet leaders, especially those of low and medium ranks, could hardy recognize the difference between scientists and intelligentsia on the whole, who were materially secure in tsarist times, on the one hand, and the middle-class 'bourgeois' on the other. With a feeling of satisfaction, they assigned the part of lowest-sort people to the intelligentsia and saw the restoration of social justice in its humiliation. But for young scientists, who had seized upon the opportunity to go in for science, this opportunity alone pushed into the background all the burdens and even the horrors brought about by the Soviet regime.

What did such people as, say, the Vavilov brothers expect from the future? One fact would suffice. In the heyday of the NEP they persuaded their father to return to the native land, and he came back to Moscow in 1928. But he fell ill on the way home and died a short time later (maybe fortunately: Stalin's terror, which began to expand, would have hardly passed over him).

In all likelihood, the brothers took easily the loss of their former material standard of living. All they wanted from the Soviet power, like Archimedes from the Roman soldier, was "Noli turbare circulos meos!" — "Do not touch my drawings!"

For Sergeĭ Ivanovich, the ensuing evolution of this power into the totalitarian Stalin system could not pass unnoticed or remain incomprehensible. He was too intelligent, had done too great a deal of thinking as early as in the years of his youthful ideological twists, was too alien to "hardness and even cruelty", his inherent party-non-membership was too characteristic of him to remain, as he wrote himself, an unthinking observer. In the 1930s and 1940s he did his best to help the victims of the 'red wheel'. He wrote letters addressed to supreme rulers in defense of arrested scientists, not even being personally familiar with them, and helped those who "broke out accidentally". His feelings were not easy, to say nothing of the tragedy of the arrest of his beloved brother. Those who were at all familiar with him realized that his viewpoint could be interpreted as follows: both our and other countries had at different times experienced good times with reasonable rulers and terrible periods with cruel tyrants. His duty as a scientist was to outlive the hard time and to do his best to save and develop science and culture in general, and to help other people survive it.

Sergeĭ Ivanovich displayed a great self-command over himself and fulfilled this duty of his with unbelievable energy. He would devote himself to science and establish new research

Sergeĭ Ivanovich Vavilov a few days before his decease (photo by L V Sukhov, taken unknown to S I Vavilov in his FIAN laboratory).

institutes, scientific committees and councils, and was turning into a leading figure of the rapidly advancing national science.

But during these years he wrote several articles on philosophy, in which one can encounter clichés, ritual phrases for orthodox Soviet philosophers. They are not quite pleasant to read now. However, if we are discussing the contents of these articles — *The Dialectics of Light Phenomena* (1934), *V I Lenin and Physics* (1934), etc. — it is valid to say that he wrote them not for the purpose of 'pleasing the authorities', but quite sincerely. For we have noted already that even in his youth he had a passion for philosophy, read many books, purchased a lot of books on philosophy, including Lenin's *Materialism and Empirical Criticism*. As for the unpleasant ritual phrases – well, they were obligatory. One can speak with deep regret of only what was written in this field during his presidency in the Academy of Sciences. During that period he had, like some others, to credit Stalin as "the coryphaeus of science". This was a humiliation, and he was ready to experience it to have the opportunity to do the great deed for our science, which he did accomplish. He sacrificed himself to science and was doing it consciously, like Galileo, publicly having renounced on the demand of the inquisition the heliocentric teaching of Copernicus, kneeling in a church (but he made up for it by escaping commitment to the flames and being able to write the second of his two great books on mechanics, which mark the origination of the physics of the new time).

When Stalin unexpectedly proposed in 1945 that Sergeĭ Ivanovich should become the President of the Academy of Sciences (his beloved brother had died of starvation in prison two and a half years before that), he perceived this proposal with horror. He realized that at the new post he would have to speak terrible ritual words and participate in criminal arrangements at Stalin's directions (it later turned out that there came a suppression of entire sciences). But rejecting Stalin's proposal (no one could run the risk at that time) might involve terrible consequences. Sergeĭ Ivanovich's consent was by no means a manifestation of spinelessness. Moreover, he knew that should he escape the presidency, Stalin would appoint one of his favorites who would ruin our science completely. We now know that Stalin initially wanted to appoint Vyshinskiĭ, not even Lysenko, to be the President of the Academy. But the Academy Vice-President I P Bardin, who replaced in fact the sick, virtually in marasmus, President Komarov and expressed the opinion of several leading academicians, managed to make Stalin change his mind, giving his consent to their choice of S I's candidature. Once again — this time tragically — his fate became interwoven with the time he lived in...

Sergeĭ Ivanovich made up for this humiliation by his gigantic-in-scale, exceptionally fruitful activity to support and advance the sciences in our country. That which he managed to accomplish during the five years of his presidency astonishes by its scale, careful consideration, successfulness, and prodigiousness of accomplishments. But it involved such a physical effort and moral feelings on his part that it resulted in his untimely decease. Look at this photograph. It was made by L V Sukhov, a FIAN staff member, only a few days before S I's decease. At this moment S I was in his laboratory and unaware of being photographed. It would suffice to compare this photo with the previous ones (see, for instance, the photo on p. 1017) to make sure that S I was on the verge of death.

Like many others, I believe that Sergeĭ Ivanovich consciously sacrificed himself to our science, and we must gratefully bend our heads before his deed.

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Sergeĭ Ivanovich Vavilov in my life

A M Bonch-Bruevich

Much has been written and said about Sergeĭ Ivanovich, who has been portrayed so clearly and thoroughly that hardly anything remains to be added to his image. Nevertheless, I dare say a few words because I am much obliged to Sergeĭ Ivanovich. It is not unusual that the personal recollections of a collaborator or a student of his teacher and supervisor are to a large extent a story of himself. While contemplating what I can say about Sergeĭ Ivanovich, I recognized the inevitable recourse to the circumstances of my life, which led me, I would say, to the happy meetings with Sergeĭ Ivanovich and the work in his laboratory, when I was working for a doctor's degree under his scientific leadership. I shall try not to abuse my position and, figuratively speaking, punctuate these circumstances with a dotted line.

I first met Sergeĭ Ivanovich in winter, a few months before the war broke out, at the end of 1940 or in early 1941. In 1939, I graduated from the Leningrad Polytechnic Institute and began my post-graduate study at Fiztekh (the Physicotechnical Institute) in Leningrad. That year, a universal military obligation law was issued in the USSR. I was therewith called up for military service in the Red Army. Initially I found myself in a military unit near Moscow to be later transferred as a private soldier to a technical training company attached to the Leningrad Military Electrotechnical Academy of Communications. At that time, the attitude to higher education was much more respectful than nowadays, and a Red Army soldier with such an education attracted considerable attention from his senior officers. That is why I was allowed, during my off-duty hours, to participate in the work of the Physics Chair of the Academy, which was chaired by D N Nasledov. I was engaged in the preparation of demonstrations for lectures. It occurred to me that it would be a good idea to demonstrate the effect of luminescence to the audience and draw a picture in fluorescent paints to make the demonstration more spectacular. One of my friends, a young painter, enthusiastically undertook to paint the picture. As for the phosphors, I decided to get them from the State Optical Institute (GOI), one of whose staff members was P P Feofilov, who later became a Corresponding Member of the USSR Academy of Sciences. We had been studying in the same group in the Polytechnic Institute. Unlike me, he had not been called up for army service and was then working in Sergeĭ Ivanovich's laboratory. When Petr Petrovich and I were selecting phosphor powders under UV lamp illumination, Sergeĭ Ivanovich entered the room and Petr Petrovich introduced me to him.

Sergeĭ Ivanovich asked me if I was the son of Mikhail Aleksandrovich Bonch-Bruevich who had died about a year ago. They — Sergeĭ Ivanovich and my father Mikhail Aleksandrovich — had known each other well. My father was a professional radio engineer and a radiophysicist, whereas Sergeĭ Ivanovich, as is well known, served in radio troops during the First World War and in 1919 published his paper "Oscillation frequency of a loaded antenna" [1] written in field conditions. Both of them were elected Corresponding Members of the Academy of Sciences in the same year of 1931, and more than once my father had made mention of Sergeĭ Ivanovich.

Sergeĭ Ivanovich regarded with interest my intention to do a painting with the use of phosphors. In a very benevolent manner and without any haste he inquired of me what kind of picture it would be. The painting was conceived as one and the same view of a blue sea, a yellow sandy seashore, a schooner with sails drawn down, and a fire with several people sitting about it: either on a sunny day with patches of sunlight on the water (under natural illumination), or on a moonlit night with a moonlight path on the sea (under UV irradiation). It seemed to me that Sergeĭ Ivanovich appreciated this conception.

I memorized this first meeting with Sergeĭ Ivanovich very clearly. The kind image of Sergeĭ Ivanovich has remained in my memory so as he appears, though at an older age, in the well-known photograph reproduced, in particular, on the dust-cover of the book about Sergeĭ Ivanovich edited by I M Frank [2]. This photograph in portrait format hangs now in my study in GOI.

The next time I met Sergeĭ Ivanovich after the war. This meeting largely determined my subsequent fortune. Not without trouble, in 1946 I got demobilized, now as an officer. Immediately after that, the First Main Directorate sent me on a relatively long mission, on nonarmy business trip, to the Soviet occupation zone in Germany. On my return, I pursued a winding path to eventually find myself in