

President of Stalin's Academy

The Mask and Responsibility of Sergei Vavilov

*By Alexei Kojevnikov**

IT HAS BECOME A CLICHÉ, when speaking about Sergei Vavilov (1891–1951), to start with a dramatic comparison of two fates: that of Sergei himself—a high-ranking official, president of the Soviet Academy of Sciences at the apogee of Stalin's rule, 1945–1951; and that of his brother Nikolai—a famous geneticist who became a victim of the purges and starved in prison in 1943. Although the general reader may find it paradoxical, such a pattern was not unusual for that epoch. Participants in political games accepted the cruelty and dangers of that life as inevitable, and even Politburo members—Viacheslav Molotov and Mikhail Kalinin—could have convicts among their closest relatives. Sergei Vavilov proved himself a true politician who both administered the scientific academy and delivered the required political speeches during a time characterized by the cold war, Communist totalitarianism, nationalism (including anti-Semitism), Stalin's personality cult, and ideological purges in culture and science. He managed to perform this job without committing any major political mistakes and died in 1951 in full official recognition; Nikita Khrushchev, speaking at his funeral, called Vavilov a “non-Party Bolshevik,” a laudatory term for one who was not formally a member of the Communist Party.¹ (See Figure 1.)

However, Vavilov did not fit any of the stereotypical images of Soviet officials—the rude and energetic revolutionary, the gloomy apparatchik, and so forth. He was a phlegmatic and solitary intellectual whose hobby was searching for rare books among the heaps in secondhand bookstores and who translated Isaac Newton's *Lectiones opticae* into Russian. He is also known to have acted in some cases quietly and unofficially against decisions that he himself promoted on the official level. Later changes in politics destroyed the reputations of many of Stalin's heroes. In the perestroika years it would not have been difficult for a zealous journalist to glean from Vavilov's writings as many quotations as

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¹ “Poslednii put’ (Pokhorony S. I. Vavilova i rechi na traurnom mitinge),” *Vestnik AN SSSR*, 1951, 2:25–32.

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Figure 1. Official photograph of the new president of the Soviet Academy of Sciences (1945). (From "Obschee sobranie Akademii Nauk SSSR 17 iulia 1945 g.," *Vestnik AN SSSR*, 1945, 7–8:22–26.)

necessary to declare him a Stalinist. But there was a conscious effort on the part of the scientific community, especially among physicists, to describe both Vavilov brothers as heroes, emphasizing Sergei's efforts to protect science in those difficult times.²

In this essay I will look at Vavilov's life as part of a study of the *tempora et mores* of Stalinism. The first section, "Career," deals with his rise to power. Those highly disciplined times, when the rules of public speech and behavior allowed few variations and even privately expressed heterodoxy was extremely dangerous, have left behind few direct sources for the social historian. Therefore, my analysis will also refer to some general features of Stalinist culture: its ritualistic pattern of career building, the influence of the cultural revolution on the academic community, the aesthetic image of the scientist. Though not giving a full explanation of Vavilov's career, this general analysis will provide

² N. A. Tolstoi, ed., *Brat'ia Nikolai i Sergei Vavilovy* (Moscow: FIAN, 1991). This volume publishes the minutes of a meeting in Leningrad on 6 January 1989 where a dozen speakers—colleagues and friends—talked about Nikolai and Sergei. Its publication in 1991, the centenary of Sergei's birth, was certainly intended as a defense against possible accusations.

a context that helps bring its meaning into focus. The illustrative relation is, of course, reflexive; an individual biography can, in return, serve as a mirror that facilitates a better understanding of Stalinist society in general.

The second section, "Texts," faces the hermeneutic problem of reading the highly ritualized Soviet political literature of the 1940s, which at first sight seems undifferentiated in language and meaning. The authors were able, however, to communicate different, even opposing, messages through inventive play with and around politically acceptable expressions. Vavilov's apparently apolitical biography of Isaac Newton will be shown to reflect the author's self-image and to reveal his political views and life strategy. In considering the relationship between ideology and science, it is important to understand how Soviet Marxist reasoning about science combined social constructivism with scientific realism in theory while distinguishing the spheres of competence of experts and politicians in practice.

The third section, "Games," is a study of the rituals of Stalinist political culture. It proposes a new interpretation of the phenomenon of ideological discussions in science, like the famous August Session of 1948 that resulted in the triumph of Lysenkoism, and analyzes in detail the 1949 dispute in physics. The participants' language and behavior can be properly understood only if one takes into account the genre rules of public meetings. Disputes in science most frequently imitated games of "intra-Party democracy," where the rules of confrontation were relatively well defined but the outcome depended upon the play. Originally, such games were meant to regulate the internal life of the Communist Party, defining a space for grassroots initiative and criticism and repairing local abuses of power. When transferred from political to academic culture and applied to settling controversies in various disciplines, they produced confusing results.

In conclusion, I touch upon the question of moral choices under a totalitarian regime, which is merely a sharper form of the universal and everlasting question, What does it mean to be moral in the immoral world? Quite often, in such settings, the choice is between principled open protest, with predictable harm to innocents, and what seems to be the lesser evil of compromise. Vavilov's case may be seen as an attempt to resolve—or at least to live with—this dilemma.

I. CAREER

First Steps

"For the first twelve years of revolution it looked as if Nikolai would become the chief administrator of science, while Sergei seemed destined to remain a modest teacher and researcher," remarks David Joravsky. Indeed, Sergei Vavilov (pronounced Vav-i'-lov), unlike his elder brother, did not appear to be a genius or a leader. Making contacts with others and influencing people were not his strengths; hard and tedious work was. His other characteristics included an unhurried manner, politeness, a quiet voice, broad interests, scientific ideas that were neither very bright nor very crazy, a gift for writing but not for speaking, modesty, and reluctance to engage in public activity. Altogether, he was a scholar whose ideal career would have been as a professor and specialist in a narrow field of research, a quiet worker who shuns publicity.³

³ David Joravsky, "The Vavilov Brothers," *Slavic Review*, 1965, 24:381–394, on p. 382. This psychological profile is consistent in reminiscences of Vavilov, even official ones. For the most complete collection see I. M. Frank, ed., *Sergei Ivanovich Vavilov: Ocherki i vospominaniia*, 3rd ed. (Moscow: Nauka, 1991). Hardly anyone failed to mention "hard working" as his most characteristic feature. While reading *Faust* in the trenches of World

Indeed, until he turned thirty-eight in 1929, Sergei worked as a rank-and-file member at the Institute of Physics and Biophysics in Moscow. He was interested in the microscopic structure of light: initially he shared Max Planck's criticism of the Einsteinian light quanta; later, around 1923, accepted them; and he continued to use quantum ideas in the experimental study of the phenomena of luminescence. He produced work of good professional quality, but nothing very exceptional grew out of it at first. Like many of his generation, Vavilov had an opportunity to travel abroad, and he worked for several months in 1926 with Peter Pringsheim in Berlin. He also held a position similar to *Privatdozent* at Moscow University.

Before the end of 1932, we find Vavilov a full member of the Soviet Academy of Sciences and directing two research institutes. Such rapid career advancement cannot be easily explained, and much of its inner mechanics remains hidden. Neither Vavilov's scientific accomplishments nor his political writings, which started to appear in the period between 1929 and 1932, can sufficiently account for this stellar rise. In my opinion, the interpretative key is the cultural revolution and what it meant for the physics community.

The cultural revolution was part of the more general social revolution that occurred in the Soviet Union between 1928 and 1932. It trumpeted the end of compromise with "bourgeois specialists"—those who had collaborated with the regime while distancing themselves from its values—and the demand for new "red" specialists, who would presumably support Communist policies. This was complemented by radical leftist experiments in education and an attempt to train a new technical elite very quickly and in huge numbers.⁴ The new science policy was based on the rejection of the notion of "pure science," and a dramatic increase in financial support, positions, and research institutes ensued. This was a short period of chaotic institutional changes, reforms, and social mobility.

The established leaders of the scientific community found themselves in an insecure position. They were vulnerable to attack from many sides (by the state police, by the authorities from above, and by junior members of their institutes from below) and could be accused of anything and everything, from mistakes in management to political crimes (the favorite political charge was "wrecking," or sabotage). Many senior scientists failed to survive these attacks and had to give way to a new generation. In a variety of conflicts provoked by the cultural revolution, the political authorities often sided with younger radicals, especially with those who had received their education under Soviet rule. Vavilov did not belong to this younger group: far from being a radical reformer or a militant critic, he does not seem to have been much involved in the struggle.⁵ Still, he profited from the defeats of some of his senior colleagues.

Between 1928 and 1932 the Communist government forced several successive elections to the Soviet Academy of Sciences in order to increase its membership, diminish the

War I, Vavilov mentioned in a notebook that Wagner, not Faust, represents the model scientist. He had just graduated from Moscow University and was thinking about science as a calling and about his own future. See Vladimir Keler, *Sergei Vavilov* (Moscow: Molodaia Gvardiia, 1961), pp. 54–56.

⁴ Sheila Fitzpatrick, ed., *Cultural Revolution in Russia, 1928–1931* (Bloomington: Indiana Univ. Press, 1978).

⁵ However, in 1928 Vavilov joined other Moscow University physicists in an attempt to overthrow Arkady Timiriazev, whose power in the physics department rested mainly on his Communist Party membership and a responsible post in the educational ministry. See Archive of the Russian Academy of Sciences, Moscow (hereafter cited as **Academy Archive**), 641-3-79. Vavilov also took an active part in the radical educational reform of the physics department. See "Luchshie udarniki fizicheskogo otdeleniia," *Za Proletarskie Kadry*, 30 Sept. 1931; and "Pervyi professor-udarnik," *ibid.*, 19 Oct. 1931. He continued to express support for the experiment even when the political mood was becoming more conservative: S. I. Vavilov, "Do kontsa ispol'zovat' brigadno-laboratornyi," *ibid.*, 3 Mar. 1932.

Ordinary Members	Corresponding Members	Institute, City
Lazarev (1917) Vavilov (1932) ←	Schodro (1929) Shuleikin (1929) ← Vavilov (1931)	Institute of Physics and Biophysics, Moscow
Joffe (1920)	Semenov (1929) Kapitza (1929) Frenkel (1929)	State Physico-Technical Institute, Leningrad
Mitkevich (1927, 1929)		Special Bureau on Military Technology, Leningrad
Rozhdestvensky (1927, 1929)	Ignatovsky (1932) Terenin (1932) Fock (1932)	State Optical Institute, Leningrad
Mandelstam (1928, 1929)	Arkadiev (1927) Papaleksi (1931) Landsberg (1932)	Research Institute of Physics at Moscow University
	Gamov (1932)	Physico-Mathematical Institute of the Academy of Sciences, Leningrad

Figure 2. Years of election to corresponding and ordinary membership are shown in lightface and boldface type, respectively. These data are mostly taken from *Fiziki o sebe* (Moscow: Nauka, 1990). There are a couple of exceptions to the general pattern outlined in the text. Vladimir Mitkevich was elected a corresponding member as a physicist, but as a full member he filled a slot in engineering. Vladimir Arkadiev worked at Moscow University but did not belong to Mandelstam's group. Georgy Gamov's elections were orchestrated by young theoretical physicists and supported by the director of the Physico-Mathematical Institute, the applied mathematician Aleksei Krylov.

influence of the old guard, and, finally, establish political control over the organization.⁶ These elections took place under strong political pressure, and it might be expected that political criteria influenced the choice of candidates. This indeed happened in the case of the social sciences, where an open struggle broke out over several Communist candidates. In the physical sciences, however, there was no open conflict between politicians and members of the academy; rather, a quiet tug-of-war ensued. The politics of academy elections remain secret; but if one compiles and classifies the results it is difficult to avoid the conclusion that they reflected power relations within the physics community rather than external political influences (see Figure 2).

In physics, four of the five full members—Piotr Lazarev, Abram Joffe, Dmitry Rozhdestvensky, and Leonid Mandelstam—each represented a major research institution, two in Leningrad and two in Moscow. Once elected, each managed to secure three corresponding member positions for his closest collaborators and pupils. Such a careful balance must have been achieved by quiet agreements among the senior academicians. This institution had a long tradition of choosing candidates thus; often in the formal balloting procedure only one person was proposed for each vacancy. Vavilov became the third of the disciples of Lazarev to be elected a corresponding member on 31 January 1931.

Lazarev, a physicist and biophysicist, was arrested in March 1931; promoting a member of his school in order to restore the balance of academic representation is the most plausible explanation of Vavilov's election to full membership on 29 March 1932. Another senior physicist, Rozhdestvensky, soon got into trouble with industrial ministry officials and with

⁶ Loren R. Graham, *The Soviet Academy of Sciences and the Communist Party, 1927–1932* (Princeton, N.J.: Princeton Univ. Press, 1967); and F. F. Perchenok, "Akademiia Nauk na velikom perelome," *Zven'ia*, 1991, pp. 163–238.

the young Communist members of his Leningrad Optical Institute over the proper proportion of applied and fundamental research conducted there. Rozhdestvensky had to resign as director in March 1932; he proposed Vavilov as his successor because he was an expert in optics and, as an outsider, was not involved in the institute conflict.⁷ However, in accordance with a common pattern of the time, the ministry appointed a Communist functionary as the official administrative director, while the specialist Vavilov became deputy director for scientific matters.

Before 1934 the academy did not have a research institute in physics, but only a rather nominal department in the Physico-Mathematical Institute (most of its dozen scholars also held positions elsewhere). In spring 1932 a group of young physicists pushed forward an initiative to turn the department into a separate institute for theoretical physics, with Georgy Gamov as director. Joffe, Rozhdestvensky, and Vladimir Mitkevich had a different view of the place of theoretical physics; they also were at odds with the impudent band of Gamov, Lev Landau, and Matvei Bronstein. While they agreed that the physics and mathematics institutes should be separate bodies, they wanted an experimental physicist to direct the former. During one of the discussions in April 1932 Rozhdestvensky proposed Vavilov as a candidate, and the participants decided to ask whether he was willing to take the job. In September 1932 Vavilov moved from Moscow to Leningrad and took charge of his two new posts.⁸

Vavilov was the first of the younger generation of physicists to be elected a full member of the academy, and he remained one of only two until the next major elections in 1939. In promoting him the academy paid tribute to current politics; still, as a conservative body, it preferred the moderate Vavilov to even younger and more radical fellows.

Rise with and within the Academy

Besides scientific aspirations and absorption in thought, a talent for administration was also characteristic of Newton. . . . In a time when bribery was a usual thing, Newton, according to the available information, fulfilled his duties honestly and severely. . . . A great deal of administrative and practical activity had torn him away from his scientific work.

—Sergei Vavilov (1945)⁹

When Vavilov was elected to full membership in the academy in 1932, the cultural revolution was already coming to an end. The reversal of revolutionary social and cultural policies was not as sudden and forceful as their adoption in 1928; several years of “cor-

⁷ Lazarev was accused of “wrecking activities”; his institute was closed, and he was exiled. See I. M. Frank, “Mysli o S. I. Vavilove,” *Priroda*, 1991, 3:5–19, on p. 11. In 1932, after the attitude toward the old specialists had changed, he returned to the academy, worked quietly in the Institute of Experimental Medical Research and the Institute of Theoretical Geophysics, and died a respected scholar in 1942. His file is preserved in the KGB Archives. Rozhdestvensky, on the other hand, remained an academy member and a university professor. For his recommendation that Vavilov head his former institute see S. E. Frish, *Skvoz' prizmu vremeni* (Moscow: Politizdat, 1992), pp. 190–195.

⁸ G. E. Gorelik and G. A. Savina, “G. A. Gamov . . . zamestitel' direktora FIANa,” *Priroda*, 1993, 8:82–90. According to Vavilov, the offer was made to him by Vice President Vladimir Komarov in the summer of 1932: S. I. Vavilov, *Sobranie Sochineniy*, 4 vols., Vol. 3 (Moscow: AN SSSR, 1956), pp. 520–521. Though the academy made the decision to form two separate institutes in 1932, formal government approval came only in 1934, when the academy moved to Moscow. Thus, the body that Vavilov directed between 1932 and 1934 was something between a department and an institute.

⁹S. I. Vavilov, *Isaac Newton* (in Russian), 2nd ed. (Moscow/Leningrad: AN SSSR, 1945), pp. 188, 170.

recting excesses” saw quiet but consistent changes in one field after another. The emerging period of “high Stalinism” was characterized by the purge of revolutionaries, traditionalism and even conservatism, the restoration of social hierarchy, the withering away of class rhetoric, and the shift from internationalism to nationalism.¹⁰

In the field of science policy this resulted in the decline of the superpower of the industrial ministry and in the rise of the Soviet Academy of Sciences. The most important steps in this process were the subordination of the academy under the auspices of the *Sovnarkom* (Council of Ministers) and its transfer from Leningrad to Moscow in 1934; a series of purges in the industrial ministry and its dissolution in 1937 into a number of small, specialized ministries; and the subsequent inclusion of many research institutes in the academy in 1938–1939. In consequence the academy, once an assembly of a few respected scholars, was now a substitute for a ministry of science, with administrative responsibility for the nation’s fundamental research.¹¹

Together with the 1934 decision to move the academy to Moscow, the government approved the 1932 proposal to split its Physico-Mathematical Institute in two. Vavilov’s job as director of a ghostlike physics department thus turned into a very important post when he got the commission and resources to develop it into the nation’s largest physics institute, the *Fizicheskii Institut Akademii Nauk* (FIAN).¹² Physicists from FIAN always described Vavilov as an ideal administrator who protected them from the thunderstorms of the larger society, took on the job of securing funds and equipment for them, and did not interfere in the research of the laboratories. Three main collaborators of Mandelstam—Grigory Landsberg, Nikolai Papaleksi, and Igor Tamm—came from Moscow University to head laboratories of optics, oscillation, and theoretical physics. Vavilov had a small laboratory for the study of luminescence. Gamov, the institute’s only expert in nuclear physics, remained in the West in late 1933, so Vavilov commissioned several graduate

¹⁰ See Nicholas Timasheff, *The Great Retreat* (New York: Dutton, 1946). The term *great retreat* is somewhat misleading. What was happening was the emergence of a new order out of revolutionary chaos rather than a return to the old order. A synthetic study of this process, comparable to Sheila Fitzpatrick’s edited volume *Cultural Revolution in Russia* (cit. n. 4), is still lacking.

¹¹ A. B. Kojevnikov, “Osnovnye etapy nauchnoi politiki v SSSR (1917–1941),” in *Tezisy vtoroi konferentsii po sotsial’noi istorii sovetskoi nauki* (Moscow: IJET, 1990), pp. 26–27.

Science and research policy in the Soviet Union was the responsibility of several government agencies. They competed for influence over political and ideological issues regarding science, for the control of research institutes, and for finances. Until 1928, most of the educational and many research institutes fell under the auspices of the educational ministry. In the years of the cultural revolution the industrial ministry took over many of the old institutions and created new ones as well, thus emerging as the major authority in science policy and the chief funding agency for research. This was also the time when, ideologically, science was most directly linked to industry. During these years the academy functioned chiefly as a learned society. It enjoyed the highest academic prestige but had a relatively minor role in distributing finances and administering research. Its members often headed outside research institutes, though there were also some research institutes within the academy, mostly small ones. It was difficult to determine which state agency should supervise this anomalous institution; thus, the academy’s supervisors changed several times. The move to Moscow in 1934 was a move to the center of political power, and it signaled a new relationship between the academy and the government. The academy received new funds, took over some old institutes and created some new ones, and began administering institutes and distributing state funds like a ministry of science. Under the new system, universities belonged to the educational ministry, applied research to various specialized economic ministries, and basic research to the academy.

¹² Vavilov undertook the job of organizing a new institute in Moscow as a personal tribute to his teachers Piotr Lebedev and Lazarev. Indeed, FIAN—also known as the Lebedev Physical Institute of the Academy of Sciences—occupied the building of the former Institute of Physics and Biophysics. See S. I. Vavilov, “Fizicheskii institut im. P. N. Lebedeva,” *Vestnik AN SSSR*, 1937, 10–11:37–46; and O. I. Novik, “Organizator fizicheskogo instituta AN SSSR” (unpublished manuscript). On the institute’s transfer to Moscow and the changes in personnel see FIAN’s annual report for 1934 and the list of staff: Academy Archive, 532-1-3, 532-1-4.

students to start research on their own and appointed himself the formal head of the nuclear laboratory to ensure its administrative protection.¹³

The years after 1934 saw an enormous increase in Vavilov's administrative obligations. He continued to direct the Optical Institute, commuting between Moscow and Leningrad. From 1935 to 1938 Vavilov served in the academy's ruling body, the Presidium, and had a dozen other smaller commissions. Archival documents reflect his futile attempts to reduce his duties, in particular to avoid being included in the Presidium and to give up the directorship of FIAN while retaining responsibility only for the Optical Institute in Leningrad. In a letter to the Presidium, Vavilov observed that even though he worked twelve hours a day, his administrative chores took so much time that he had almost nothing left over for his own experimental work and reading. Indeed, since the mid 1930s he had been able to make only sporadic and desperate attempts to perform experiments with his own hands.¹⁴

Vavilov's role at the Optical Institute is not described in such overwhelmingly positive terms. Sergei Frish, speaking for the pupils of Rozhdestvensky, criticized Vavilov for compromising too much with Communist officials. In particular, Vavilov failed to defend Rozhdestvensky, whom the ministry of arms production continued to criticize for doing too much fundamental rather than applied research. After some of his research proposals were declined, Rozhdestvensky moved with his laboratory to Leningrad University. He characterized Vavilov's behavior in this conflict as follows: "He carries in his pocket a letter of resignation, already signed but without a date on it. When the moment comes and he is forced to agree with something totally unacceptable, he is prepared to take this letter out of his pocket. But he can never decide whether this moment has already come."¹⁵

Party membership became quite common among science administrators after about 1940. Vavilov was the last president of the Soviet Academy who never joined the Communist Party. In response to questions by a junior colleague, Il'ia Frank, he alluded, without elaborating, to the case of his arrested brother Nikolai.¹⁶ The implicit meaning of this reply was: "The Party would not trust me and accept me as a member."¹⁷ True or not, this excuse effectively masked Vavilov's apparent unwillingness to join the Party. However, in all his

¹³ Even the emigré physicist Yakov Alpert, whose status as a refugee required him to talk about anti-Semitism in the Soviet Union, drew a totally idyllic picture of FIAN under Vavilov; see interview with Yakov Alpert, 9–10 Nov. 1988, Space Astronomy Oral History Project, National Air and Space Museum, Smithsonian Institution, Washington, D.C. On Vavilov's organization of FIAN see Frank, ed., *Sergei Ivanovich Vavilov* (cit. n. 3), pp. 337–345.

¹⁴ Vavilov's request to remain outside the Presidium is in S. I. Vavilov to G. M. Krzhizhanovsky [vice president of the academy], 17 Nov. 1935, Academy Archive, 411-3-124. His proposal to give up the directorship of FIAN and the description of the work that filled his twelve-hour days are in a letter to the Presidium from 1936 or 1937; this letter has been published in V. Ya. Frenkel, ed., *Fiziki o sebe* (Leningrad: Nauka, 1990), pp. 118–120. Similar quotations from other documents (e.g., Academy Archive, 596-2-1a, 596-2-2) can be found in Novik, "Organizator fizicheskogo instituta AN SSSR" (cit. n. 12). On Vavilov's futile attempts to continue performing his own experimental work see Frank, ed., *Sergei Ivanovich Vavilov*, pp. 235, 253.

¹⁵ Frish, *Skvoz' prizmu vremeni* (cit. n. 7), p. 240.

¹⁶ Nikolai Vavilov was the leading administrator in agricultural research in the years of the cultural revolution and collectivization. After the revolution was over he suffered critical attacks, some from the growing Lysenkoist movement, and had to resign the presidency of the Academy of Agricultural Sciences. In 1940 Nikolai was arrested, accused of "wrecking"; he died in prison in 1943. On Nikolai Vavilov see Mark Popovsky, *The Vavilov Affair* (Hamden, Conn.: Archon, 1984); and V. V. Boiko and E. R. Vilensky, *Nikolai Ivanovich Vavilov, 1887–1987: Stranitsy zhizni i deiatel'nosti* (Moscow: Agropromizdat, 1987).

¹⁷ It is ironic—and a telling example of how meaning changes along with cultural values—that in 1991 Frank interpreted the answer as "I don't want to, because they arrested my brother": Frank, "Mysli o S. I. Vavilove" (cit. n. 7), p. 16. In the 1940s the Party was synonymous with the very best, while Nikolai Vavilov was a criminal. By 1990 Nikolai was publicly perceived as a hero and an innocent victim, and the Party had become synonymous with evil. The dialogue between Sergei Vavilov and Frank probably took place before Sergei knew what happened to Nikolai after his arrest. He learned of his brother's death from Nikolai's son Oleg in late 1943. See Tolstoi, ed., *Brat'ia Nikolai i Sergei Vavilovy* (cit. n. 2), p. 33.

administrative positions Vavilov worked in close and apparently harmonious contact with Communists. This ability must have been due to an important character trait, which was grasped by a rather jealous colleague, Piotr Kapitza:

Vavilov . . . is young, only 45. I doubt if you know him by name, his work was in the fluorescence of liquids. You know the sort of work when you pass a beam of light through a vessel filled with liquid and observe the light perpendicularly. Once installed, you can play with the apparatus for all your life, changing the liquids, the number of which is immense, and you can also vary the spectra of the primary beam. And thus you have such a number of combinations that will keep a research student busy all his life and give him the feeling of satisfaction that he is doing scientific work. He never did anything else. I was always surprised why Vavilov got into the Academy when even with our poor stock of physicists we have such people as Skobel'tsyn, Fock and others, who are miles better than Vavilov. I think you will find the secret in that Vavilov is a very polished man, who knows what to say and when to say it so as to please everybody.¹⁸

Having spent thirteen years in Cambridge, Kapitza probably was not aware of the politics in and around physics that brought Vavilov into the Presidium. But Vavilov was not without scientific claims as well; Kapitza knew about, but apparently underestimated the importance of, the discovery of Cherenkov radiation.¹⁹ It came about almost exactly as Kapitza's rather disparaging description suggests: upon replacing the incoming beam of ordinary light in his experimental setup with the gamma beam from a radioactive source, Vavilov's graduate student Pavel Cherenkov noticed a strange radiation. Vavilov's experience enabled him to understand that this was not fluorescence but a new effect. The two published separate papers—an experimental report and an attempt at a theoretical explanation—in the same issue of *Doklady Akademii Nauk* in early 1934. The correct theoretical explanation of the effect was given by two other FIAN physicists—Tamm and Frank—in 1937. After Stalin's death, when the Soviet Union began promoting its citizens' achievements in fields recognized by Nobel Prizes, the Cherenkov effect, which was widely used in particle physics, was the first to be lobbied for. The 1958 Nobel Prize in physics went to Cherenkov, Tamm, and Frank. Vavilov would have been among the nominees had he not died in 1951.

However important this discovery proved, it could hardly have changed Vavilov's fortunes, for he was already recognized by political officials as a leading scientific administrator. On the surface, it looks as though Vavilov furthered his career not by actively striving for positions, but simply by waiting for offers from above. This should not be surprising, for the Soviet cultural pattern of career building required just such self-effacing patience. Public rituals and moral norms strongly prohibited the open demonstration of

¹⁸ This is from Kapitza's caricature of the Presidium drawn in a letter to Ernest Rutherford in March 1936. See J. W. Boag, P. E. Rubinin, and D. Schoenberg, eds., *Piotr Kapitza in Cambridge and Moscow: Life and Letters of a Russian Physicist* (Amsterdam: North-Holland, 1990), p. 281. In compliance with the usual standard, Vavilov always appointed one of FIAN's very few Communists as either the deputy director or the scientific secretary of the institute. Until his arrest in 1936, Boris Gessen (or Hessen) was the deputy director of FIAN. At an institute meeting in April 1937, Vavilov admitted that Gessen's Party membership was the reason for his appointment. See G. E. Gorelik, "Moskva, fizika, 1937 god," *Voprosy Istorii Estestvoznaniia i Tekhniki (VIET)*, 1992, 1:15–32, on p. 17.

¹⁹ The history of this discovery has been told many times. See, e.g., I. M. Frank, "A Conceptual History of the Vavilov-Cherenkov Radiation," *Soviet Physics Uspekhi*, 1984, 27:385–395; and "Izlučenje Vavilova-Cherenkova: 50 let otkrytiia," *Privoda*, 1984, 10:74–93 (published to commemorate the fiftieth anniversary of the discovery, this includes an interview with Cherenkov, recollections by I. M. Frank, and an essay by B. M. Bolotovskiy). For an early account of the work on the strange radiation see FIAN's annual report for 1933: Academy Archive, 532-1-2, p. 3.

interest in higher positions and overt self-promotion aimed at achieving them; such behavior would destroy one's chances. Officially acceptable was a fatalistic stance based on the assumption that the genuine accomplishments of someone who did his best in his present position would not escape the attention of the authorities. In due time—in politics just as in the military—the offer of a more responsible post would be forthcoming. It was then necessary to voice ritualistic doubts about one's abilities to justify the confidence so expressed; but one could not demur too long, because the offer was essentially an order.

In actual practice, of course, a number of forms of self-promotion developed that enabled aspirants to maintain a public stance of ritual indifference while unofficially complementing it with intrigues and lobbying. Regarding Vavilov, however, nothing of this sort has yet been revealed by archival studies or oral histories. It seems probable, therefore, that he actually believed in these norms and followed them, being a man of duty and responsibility rather than one who made demands.²⁰ Apparently Vavilov did not want a greater responsibility than directing a research institute and did not strive for a higher position. In 1945, however, he had to take care of the whole academy.

The Call

The position of Warden and, later, Master of the Mint was gradually transforming a modest Cambridge professor into a courtier and grandee.

Worldly honors rained down on Newton as the court turned its attention on him. . . . In 1703 Newton became the President of the Royal Society, a position he held until his death. In 1705 he was knighted by Queen Anne; he was called "Sir Isaac," took part in various parliamentary and ministerial commissions, visited the court, and became a salon philosopher.

—Sergei Vavilov (1945)²¹

The May 1945 victory over Germany was followed in the Soviet Union by a series of grandiose celebrations. The academy shared the general mood as it convened in June to mark its 220th anniversary. The seventy-five-year-old president, Vladimir Komarov, presided over the jubilee meetings. Just a fortnight after the end of the celebration, on 14 July, he submitted to the Presidium a formal letter of resignation and proposed Vavilov as his successor. Though Komarov's health was bad indeed, this was a forced and unexpected resignation, and it is not clear what triggered it. Perhaps it was Komarov's 7 July letter to the Party Central Committee denouncing the academician-secretary N. G. Bruevich.²² A direct complaint against a subordinate was against the rules of Soviet bureaucratic intrigue and must have been interpreted by the authorities as a sign that Komarov was unable to control his organization.

The academy convened hurriedly, on 17 July, to elect a new president. There was only

²⁰ These rituals were, indeed, taken very seriously by many and were rooted deep in the culture, not just in the political regime. For example, I had to overcome a psychological barrier before submitting an application for a fellowship; this was also true for some of my friends.

²¹ Vavilov, *Isaac Newton* (cit. n. 9), pp. 188, 170.

²² For the resignation and recommendation see "Protokol obshego sobranii Akademii Nauk SSSR, 17 iulia 1945 g.," Vavilov's personal dossier, Academy Archive, 411-3-123. For speculation on reasons for Komarov's resignation see V. D. Esakov, "Mify i zhizn'," *Nauka i Zhizn'*, 1991, 11:110–118, on p. 113. For the letter see Vladimir Komarov to CK Secretary Georgy Malenkov, 7 July 1945, Rossiiskiy Tsentr Khraeniia i Izucheniia Dokumentatsii Noveishei Istorii (RTsKhIDNI), Moscow (hereafter cited as **Party Archive**), 17-125-359, p. 86.

one candidate; everyone knew—but no one mentioned—that he was approved by the highest political authority. Elections were a play with a rather strict scenario and rules: though the politicians directed the action from behind the scenes, all of the public performance was done by the academicians. Komarov was not present; a member of the Presidium informed the meeting of his resignation and nominated Vavilov for the post, while several other academicians supported the proposal in their speeches. Vavilov did not have to do or say anything before the vote, in accordance with the fatalistic model of career building. Only once elected would the new president express his gratitude in ritualistically modest words.²³

Despite silent but definite political approval and unanimously positive public discussion, Vavilov received only ninety-two of the ninety-four votes cast. According to folklore, Kapitza lobbied against Vavilov's candidacy; he must have been one of the two who voted negatively. So far only one document related to the search for a new president has surfaced. It contains short lists of personal characteristics provided to the Politburo from the State Police files and pays more attention to the morals of academicians and their reputations among colleagues than to their political orthodoxy, as this sample suggests:

Academician B[ardin, I. P.]—prominent specialist in the field of metallurgy. Meets colleagues rather seldom because of the excessive stinginess of his wife;

Academician Vavilov S. I.—physicist. At the peak of his abilities. Brother—Vavilov N. I.—geneticist, arrested in 1940 for wrecking in the field of agriculture, sentenced to 15 years, died in Saratov prison;

Academician V[inogradov I. M.]—is respected only among mathematicians. Bachelor. Drinks alcohol in considerable quantities;

Academician Lysenko T. D.—not a Party-member, director of the Institute of Genetics. President of the Agricultural Academy, was awarded Stalin Prize two times. Academician Lysenko does not enjoy the respect of others, including the president Komarov. Everybody believes that Vavilov N. I. was arrested because of him.²⁴

Nikolai's tragic fate certainly received attention when Sergei was considered for the academy presidency. Middle-level authorities would not have taken responsibility for promoting a close relative of a convict, but Stalin and the Politburo could do as they pleased; indeed, it could be argued that loyalty that had survived a relative's arrest had thus been proved.

Quite another set of sources also helps to explain Vavilov's perceived suitability for the role of academy president. The culture of high Stalinism ascribed to the great scientist a canonical aesthetic image, best represented in cinematography. In most features this figure resembled a survivor of the "old regime" whom the cultural revolution of the late 1920s had tried to eliminate: he was bearded, old-fashioned in clothes and manners, involved in somewhat sacred activities, and not very well connected with everyday practical life (in comedy, often absentminded). The great movie scientist of Stalin's era differed from the nineteenth-century "bourgeois professor" in just one important detail: he used convenient occasions to deliver laudatory remarks about Soviet rule and life, present and future. Since Stalin watched and approved Soviet movies before they started running publicly, this image can be taken as representative of his own perception of the prominent scientist. Vavilov

²³ "Obschee sobranie Akademii Nauk SSSR 17 iuliia 1945 g.," *Vestnik AN SSSR*, 1945, 7–8:22–28.

²⁴ Dmitry Volkogonov, *Triumf i tragediia: Politicheskii portret I. V. Stalina*, 2 vols., Vol. 2, Pt. 2 (Moscow: APN, 1989), p. 132. In September 1964 the KGB conducted a special investigation of its files and reported to the Party leadership that Lysenko was not responsible for Nikolai's arrest: Tsentr Khraneniia Sovremennoi Dokumentatsii, Moscow (hereafter cited as **Central Committee Archive**), 89-65-12.

fit the type quite well, especially in his polite, old-fashioned manners and glorifying speeches.²⁵

Vavilov's physicist colleagues developed a story about why he had accepted the presidency:

Recently Yakov Alpert . . . told me the following story (which he had learned from Leontovich, who supposedly heard it directly from Vavilov). Vavilov had been informed . . . that there were two acceptable candidates for the post of president of the Academy: Vavilov was the first choice; if he didn't accept, it would be Lysenko. Vavilov sat up the entire night pondering his reply, smoking through several packs of cigarettes, and decided to accept the post—thereby saving the Academy and Soviet science from the devastation Lysenko's election would inevitably have caused. . . . [According to Evgeny Feinberg, the other candidate was not Lysenko but Andrei Vyshinsky, the former Procurator General—which sounds somehow more likely, and even more frightening.]²⁶

To let somebody think overnight before accepting a job could well be part of the accepted ritual, but bargaining as a style of job offering certainly was not. The legend reflects too obviously physicists' fears of what could have happened had Vavilov not taken the job, their view of Vavilov and Lysenko as opposing figures, and their desire to find an excuse for Vavilov's compromises. We should not expect these thoughts to be shared by the Communist leaders who made the offer. Even physicists must have developed them only after 1948, when Lysenko became a powerful figure and Vavilov was making his most shameful speeches and appearances. The mood and political situation in 1945, when Vavilov took the presidency, were very different. (See Figure 3.)

Amid the loud celebrations at war's end, the public silently hoped that the country's easier situation would make the regime looser. Signs of that optimism are scattered through various documents, including those related to physics. In May 1946 theoretical physicists from FIAN submitted an official proposal to Vavilov, in his capacity as president of the academy, arguing the need for international exchange, conferences, and foreign travel.²⁷ Indeed, after 1943 Soviet papers started appearing again in British and American journals; the 1945 jubilee meeting of the academy was the first Soviet conference since 1937 to which foreign scientists were invited. Similar hopes show through Vavilov's writings in the first year of his presidency and even into 1947. The more so must they have shaped his interpretation of the offer in the summer of 1945. But the optimistic signs were short lived. It was soon Vavilov's role to follow the ever-stricter standards of cold war politics, while still trying to calm militant tendencies and to moderate discussions in science.

II. TEXTS

Political Profile

“Prominent physicist. Many of his works are known abroad. Right-minded (*pravo nas-troen*); but lately strives to work with us. Gave talks at a meeting of physicists-materialists

²⁵ “A black suit, a tie of the same color, and a white shirt with a straight collar was the clothing of Sergei Ivanovich. He was always dressed in this manner. Even on vacations in the Crimea he retained his usual formality and a starched collar. Only at his dacha could he allow an exception, and a light silk shirt came to replace the suit”: Keler, *Sergei Vavilov* (cit. n. 3), p. 115. The major differences between Vavilov and the movie hero were that he was only fifty-five, wore a mustache instead of a beard, and was an efficient administrator. These deviations could be excused: after all, the president of the academy was traditionally elected for more than one term, so Vavilov could age into the role; moreover, he was supposed to perform administrative as well as ceremonial tasks.

²⁶ Andrei Sakharov, *Memoirs* (New York: Knopf, 1990), p. 77 (bracketed material is Sakharov's as well, added in proofs).

²⁷ I. E. Tamm, D. I. Blokhintsev, and V. L. Ginzburg, “O meropriiatiakh po razvitiu teoreticheskoi fiziki v SSSR,” *Academy Archive*, 596-2-156.



Figure 3. General meeting of the academy, November 1946. On Vavilov's proposal, academicians elect V. M. Molotov to honorary membership. (From *Vestnik AN SSSR*, 1946, 11–12:17.)

and at the courses of the Communist Academy. Readily contributes to our press.” So the militant Communist Aleksandr Maksimov wrote about Sergei Vavilov in October 1929 in a confidential report to the Party Central Committee that detailed the political, scientific, and personal characteristics of the Moscow University physicists.²⁸ Maksimov certainly had good instincts for class distinctions; however, his word *right-minded* could be applied to a broad spectrum of political positions—anything to the right of the Communist view. Given the lack of any document that can directly attest to Vavilov's political views (unless one wishes to take literally what he says in his ritualistic writings), the interpretation of his writings must involve reading between the lines and literary criticism. After all, Vavilov was a good stylist, and his deliberate omissions are themselves eloquent.

In the late Soviet years colleagues spoke of Vavilov only as a scientist and administrator; they did not want to talk about his political writings. But V. Levshin's posthumous biography, published in 1954, gives a full appraisal of Vavilov's political activity, describing him as a patriot and a convinced and outspoken dialectical materialist. In addition to presenting quotations from his later works, it mentioned one fact about Vavilov's prerevolutionary life: that in the upper class of *Gymnasium* he read Lenin's major philosophical work *Materialism and Empiriocriticism*. The apparent source of this information is Vavilov's autobiographical notes, which he started to write in the last months of his life, after a serious illness. Frank avowals were dangerous in 1950, even in private diaries or confidential talks. For officials of higher rank, especially, almost no private sphere was left. Hence Vavilov's formulations are careful; still, he is not as cautious here as in the papers he wrote for publication: “We were reading—or pretending to read—brochures of Marx and Engels, Bebel, Dietzgen, empiriocritical essays of Carstanjen, Lunacharsky. In 1909 I bought *Materialism and Empiriocriticism* by V. Il'in; there are still some comments of mine in the margins of the book. I had no idea of who Il'in was, but of the ideological

²⁸ A. A. Maksimov, “O politicheskom polozhenii na fizmate MGU,” pis'mo v TsK VKP(b), Moscow University Archive, 225-1-23. The document was published in A. V. Andreev, “Ob ogranichenosti politizirovannogo podkhoda v sotsial'noi istorii fiziki,” *VIET*, 1993, 2:116–118.

brawl between materialists and empiriocritics, I had a complete notion, much better than people usually have now.”²⁹

What is striking is that there is apparently no judgment expressed here, no standard enthusiastic appraisal of Lenin’s book, but indifference with respect to what an orthodox Communist would consider right and wrong philosophy. Searching for further details, we find meaningful word choices: the Russian *potasovka* (brawl) has a connotation of disdain. In everyday language, it is used to refer to the romping of children or drunks. In Soviet political slang, it could be applied to a conflict between aliens or enemies, but not to a serious struggle between good and evil.³⁰

In the 1922 preface and notes to a popular book on Einstein’s relativity theory, Vavilov expressed some of his genuine views on the relationship between physics and philosophy. In physics he seems a radical empiricist, accepting the equations of relativity as straightforward generalizations of experimental facts and downplaying its philosophy of space and time as preliminary and speculative. Vavilov follows Ernst Mach in his skepticism toward theoretical conceptions in science and in paying attention to direct sensory experience and measurements, but not in disregarding philosophy per se. “Philosophical space and time are not subject to physicists’ ‘abuses,’ ” he writes, thus securing an independent domain for philosophy.³¹ The little he said is not enough to identify his philosophy precisely, but it is safe to conclude that he was probably neither an empirical positivist nor a Marxist.

The autobiographical notes hint at some of Vavilov’s political values too. These emerge throughout his description of events in prerevolutionary Russia, which continued to have a direct political significance for the people of 1950. Vavilov’s father was born to a peasant family and grew to be a rich merchant. The family lived in their own house in a district of Moscow called Presnia, which became the center of violent fighting during the Moscow uprising in December 1905. Almost every pupil in the upper high school classes read forbidden socialist literature. Vavilov’s recurrent trope is represented by phrases like his “pretending to read,” above: “My own attitude was not clear yet. Left, took part in the construction of a barricade, had torn to pieces a portrait of tsar, hid leaflets, but all this was a children’s game”; “[in discussions with my father] I was a defender of socialists (but understood very little, like he)”; “I was writing a charter for a sort of a *kruzhok* (circle) and concocting, without understanding anything, a paper on socialism.”³²

What an official commentator would have emphasized as early manifestations of his true political beliefs, Vavilov disavowed by the refrain “I did not understand anything.” His clearest passage states: “As far back as I remember myself . . . , I always felt ‘left,’

²⁹ S. I. Vavilov, “Nachalo avtobiografii,” in *Sergei Ivanovich Vavilov: Ocherki i vospominaniia*, ed. I. M. Frank, 2nd ed. (Moscow: Nauka, 1981), pp. 80–103, on p. 93. “V. Il’in” was one of Lenin’s pseudonyms. For the 1954 biography see V. Levshin, “Sergei Ivanovich Vavilov (Ocherk zhizni i deiatel’nosti),” in *Vavilov, Sobranie Sochineny* (cit. n. 8), Vol. 1 (Moscow: AN SSSR, 1954), pp. 7–48, on p. 9.

³⁰ During his lifetime, Vavilov did not release information on his early reading of Lenin. The manuscript of his autobiographical notes became available only to posthumous biographers. The sensitivity to nuances and the attentiveness of censors decreased with the years: the 1954 official biography proclaims Vavilov’s early interest in Marxist philosophy without offering any direct quotation (Levshin, “Sergei Ivanovich Vavilov,” p. 9); the 1961 biography quotes this sentence but omits the dubious part (Keler, *Sergei Vavilov* [cit. n. 3], p. 33); the 1981 volume publishes the entire quotation as if there were nothing suspicious in it.

³¹ F. Auerbach, *Prostranstvo i vremia: Materiia i energii: Elementarnoe vvedenie v teoriiu otositel’nosti: Perevod s dopolneniiami S. I. Vavilova* (Moscow: GIZ, 1922), p. 148.

³² Vavilov, “Nachalo avtobiografii” (cit. n. 29), pp. 100, 102. Ivan Vavilov left the country in 1918, settled in Berlin, and died during a visit to Leningrad in 1927. As his social origin (a very important point in Soviet questionnaires), Vavilov usually indicated *sluzhaschii* (white-collar employee), a middle stage in his father’s career. Apparently this created for him neither privileges nor serious problems.

'democrat,' 'for the people.' . . . But my leftism and democratism never went into politics, its harshness and even cruelty (I understood their objective necessity but could not proceed from thoughts to deeds). At present this is usually called '*miagkotelost*.' My organic *bespartinost*' originates here. The revolution of 1905 had frightened me. I threw myself into science, philosophy, the arts. In this state I arrived in 1917."³³ The two untranslated words are labels from Soviet political slang. The first can be approximately translated as "flabbiness"; it denoted the inability to make difficult and responsible decisions. The second, in this context, meant not only "not being a Party member," but also the psychological or ideological inability to meet the high standards of the Party and to display its spirit. Neither sin was serious in an ordinary person, but they could stand as accusations against administrators and officials. Though these were relatively minor failings (in comparison, say, with "political mistakes" or "wrecking"), they could be used as the basis for a forced resignation. Vavilov often expressed a milder self-critique of this sort in public.

"The revolution of 1905 had frightened me" is a typical Soviet reference to a widespread current among the Russian intelligentsia, the symbol of which was the 1909 volume *Vekhi* (Landmarks). After the failed revolution, many of those who had sympathized with revolutionary parties began to view radicalism as destructive and the prospect of revolution as tragic. Vavilov's nostalgic description of Presnia life suggests that even in 1950 he continued to see revolution this way. "[A church in the neighborhood] is ravaged now and turned, probably, into a club," he writes; the word *razorena* (ravaged) implies an attitude of pity and moral reproach, in contrast to the neutral *razrushena* (destroyed).³⁴ Such a sentence would be typical of post-Communist, not loyal Soviet, rhetoric.

In 1921, after three years of civil war, a new generation of political writers argued from abroad in *Smena Vekh* (Changing landmarks) that since the tragedy had actually happened and the Bolsheviks had proved to be the only possible stable government, the regime should be accepted as a matter of fact and destructive opposition abandoned in favor of constructive collaboration. There were many among the Soviet intelligentsia who openly supported this position, but the attitude of compromise for the sake of the country lasted only until 1928. After that point, collaboration depended on one's declaration of full and sincere support for the regime. These were well-known dilemmas, in which Vavilov certainly participated; but he never got to describe his postrevolutionary development. The last of his autobiographical notes is dated 11 January 1951—two weeks before his death—and it still deals with his school years. But even the available text reflects Vavilov's uneasiness with the matter of revolution, and we can infer that he had difficulties in accepting one of the most basic Soviet political values. Though he was president of the Soviet Academy of Sciences, his political position seems to have been one of conscious mimicry and imitation rather than unconscious adaptation and acceptance of the values of society. If it was mimicry, it was perfectly done, for throughout his life nobody dared openly to question his orthodoxy.

Additional support for this conclusion about Vavilov's political views comes from his biography of Newton. What interests me here is not the authenticity of Vavilov's picture of Sir Isaac, but how the author wanted to portray his hero: what questions he was interested in and what features he sympathized with. The opening statement reads: "Newton was born in the year of the great Civil War . . . , witnessed . . . the execution of Charles I, the rule of Cromwell, the restoration of the Stuarts, the second . . . revolution, and died under

³³ *Ibid.*, p. 102.

³⁴ *Ibid.*, p. 82.

stable constitutional rule. . . . But political storms apparently could not influence his life greatly. He remained, at least on the surface, an apolitical ‘philosopher.’ ” A few pages later, describing Newton’s life strategy, Vavilov first quotes his letter to Francis Aston: “When you come into a fresh company, 1, observe their humours; 2, suit your own carriage thereto . . . 3, let your discours bee more in Quaerys & doubtings yn peremptory assertions or disputings. . . . You will find little or noe advantage in seeming wiser or much more ignorant yn your company. 4, seldom discommend any thing though never so bad. . . . Tis safer to commend any thing more than it deserves yn to discommend a thing so much as it deserves.” He goes on: “Some biographers describe this letter as a naive piece or even a joke of the young Newton. . . . This conclusion is unjust. Tactical rules . . . may seem naive because of their old-fashioned expression, but they are in fact very far-sighted and have not lost their importance and usefulness even now.” Vavilov then quotes, for the second time, one of Newton’s maxims. Since his translation contains an almost Freudian mistake, I shall provide the back translation from Russian, with the mistake emphasized, instead of the original text: “You will find little or no advantage in seeming wiser or *less* ignorant than the society where you find yourself.”³⁵

Philosophical and Historical Writings

Newton’s theological and historical studies can be viewed as an inevitable tribute to his time. . . . Newton’s theological production . . . did not differ much from what was done by others . . . and bore no sign of individuality.
—Sergei Vavilov (1945)³⁶

Although Vavilov might have thought the same about his own philosophical and historical studies, I would not join him in this view. Of course, once one had taken on the job of writing on politically charged matters, one had to pay tribute to the existing canons. Soviet political texts from the era of Stalin consisted in very large part of ritualistic statements. The most important thing for interpreting such statements is to understand where the ritualistic part ended and the improvisation began. Contemporaries were, in one sense, better prepared for the task of interpretative reading than we are, for they used to take the daily *Pravda* as a cryptogram, trying to decode the variations in political correctness. Although we lack their feel for nuances, we do have a broader historical perspective. In Vavilov’s political writings, one can find him following the rules, playing around with them, delivering a personal message, and—since Vavilov himself was a political authority—setting new models.

Political publications were not so much a prerequisite for advancing one’s career (they were this too, but not so decisively as it is often thought) as the necessary consequence of holding an administrative position above a certain level. One could try to avoid both advancement and political writing, but Vavilov chose another course, and the amount of his political publication far exceeds the sufficient minimum appropriate to his status. Apparently he did not hesitate to write what was required at a given moment, whether or not he believed it to be true. Still, his writings deviate considerably from the “average,” with respect to both the topics he preferred to handle and the way in which he dealt with them.

³⁵ Vavilov, *Isaac Newton* (cit. n. 9), pp. 9–10, 27–28. For the letter to Aston see Isaac Newton, *The Correspondence of Isaac Newton*, Vol. 1: 1661–1675, ed. H. W. Turnbull (Cambridge: Cambridge Univ. Press, 1959), pp. 9–10.

³⁶ Vavilov, *Isaac Newton*, p. 10.

As an administrator, Vavilov did much to further military and industrial applications of science, but he did not make propaganda out of it. Instead, as the academy's spokesman, he attempted to secure a niche for the "theoretical" or "abstract" sciences (the term *pure science* was still reserved for pejorative use), stressing their relationship to important philosophical questions and the contribution of their practitioners to the international prestige of the country.³⁷ Most of Vavilov's political writings are devoted to the philosophy and the history of science.

The most important characteristic of his personal style can be described by one of Newton's maxims: "Seldom discommend any thing though never so bad. . . . [It] is safer to commend any thing more than it deserves [than] to discommend a thing so much as it deserves." Here was Vavilov's true reservation when compromising with political realities: he was ready to make any positive assertion (whether it originated from political authorities or expressed his own opinion), but he tried to avoid any critical judgment. We may call this "politeness" or, following Kapitza, "polish." The neoclassicist aesthetics of late Stalinism gave rise to a political rhetoric of elaborate laudations and denunciations. Vavilov concentrated on the former: he chose laudatory genres while moderating unavoidable critical comments, or he was inventive in his praises and unoriginal in his critical remarks.³⁸ Let us proceed now from the style to the pragmatics of Vavilov's political writings.

An important polemical issue for physicists in the Soviet Union, as elsewhere, was the attitude toward the new theoretical physics. Power, at least since the late 1920s, had rested with those who accepted the relativity theory and quantum mechanics, which, like genetics—another example of a modernist scientific theory—owed their quick recognition in part to the mood and politics of the cultural revolution. With the shift in politics from revolutionary to conservative in the mid 1930s, opponents got occasional opportunities for counterattack.³⁹ In biology, this led to the decline and eventual suppression of genetics, but in physics the status quo was essentially preserved. Since the dispute relied heavily on philosophical and political arguments, it was often retrospectively described as a struggle between ignorant philosophers and true physicists. In reality, however, there were physicists and philosophers on both sides, and physicists played a more active role. In terms of real philosophical commitments, there were convinced Marxists in both camps, as well as nineteenth-century materialists among conservatives and positivists among modernists. Both sides proclaimed themselves "dialectical materialists," of course.

The critics of the new theories lacked good physical arguments, but they had logical consistency on their side when they objected to the idealism of modern physics and the limits on the knowability of nature it seemed to entail. Both relativity theory and quantum mechanics were philosophy laden, but in no way was this philosophy dialectical materialism or even nineteenth-century materialism. Hence, some serious interpretative work had to be done in order to put a dialectical-materialist face on modern physics. Since dialectics

³⁷ See, e.g., S. I. Vavilov, *Sovetskaia nauka na novom etape* (Moscow: AN SSSR, 1946), p. 38; Vavilov, "Osnovnye nauchnye problemy Akademii Nauk v blizhaishnee piatiletie," *Pravda*, 4 July 1946; and meeting at FIAN, 17 Apr. 1937, Academy Archive 2-1a-70, p. 3 (quoted in Novik, "Organizator fizicheskogo instituta AN SSSR" [cit. n. 12]).

³⁸ Thanks to his reputation for innovative praise, Vavilov is sometimes credited with inventing one of Stalin's official titles: "coryphaeus of science." In this particular case, however, the attribution must be wrong. The 1939 official protocol of Stalin's election to honorary membership in the academy proclaimed him "the greatest thinker of our time and the coryphaeus of vanguard science"; see "Obshee sobranie Akademii Nauk SSSR tovarishchu Stalinu," *Vestnik AN SSSR*, 1939, 11–12:2–3. This was before Vavilov became the chief rhetorician of the academy.

³⁹ See the story of the 1937 dispute about philosophy and modern physics in G. E. Gorelik, "Naturfilosofskie ustanovki v sovetskoi fizike (1933–1938 gg.)," *Filosofskie Issledovaniia*, 1993, 4:313–334. The events of 1949 will be discussed later in this essay.

can account for almost anything, those who were doing this work pronounced the expression *dialectical materialism* with the emphasis on the first word; their opponents emphasized the second. Vavilov took an active part in the discussions on the side of modern physics: during the 1920s his arguments were exclusively empirical; by the 1930s, as the dispute became mainly philosophical, he shifted to dialectics and argued that modern physics had absolutely confirmed the theses of *Materialism and Empiriocriticism*.⁴⁰

History of science was considered an ideological discipline within the Soviet system at least until the 1960s. Vavilov's personal interest in this field coincided with the desires of politicians. In the 1920s he translated Newton's optical works and wrote several papers on the history of optics. To write popular, historical, and philosophical essays on science was the scientist's public duty, amounting to a formal obligation: FIAN covered this activity in a separate section of the institute's annual report to the authorities. The section consisted to a large extent of lists of Vavilov's works—as usual, he was taking on the role of a protective mediator between physicists and the demands of the outer society. At the most critical moment in the Soviet war with Germany—the battle of Stalingrad in the fall of 1942—Vavilov wrote . . . a biography of Newton. This was a political commission, too—the celebration of Newton's 300th birthday was a friendly gesture toward the British allies—and the necessary books were flown to Vavilov from Moscow and even from besieged Leningrad.⁴¹

During the last years of Stalin's rule, nationalism became a political priority. Vavilov reflected this trend in his typical constructive way, writing about the St. Petersburg Academy of Sciences and Mikhail Lomonosov and appraising the prerevolutionary achievements of Russian science (something that had been all but forbidden in the 1920s). The history of Russian science became a major ideological preoccupation of the academy and the topic of its special session in January 1949. Vavilov's appraisals of Lomonosov accelerated with the rise of nationalist hysteria, culminating in 1949 when he accepted the title "The Lomonosov Law" for a note he published in *Pravda*. In the article itself, however, his baroque phraseology masked the absence of a definite statement of Lomonosov's priority in discovering the laws of matter and energy conservation (a popular claim, based on a very free interpretation of a letter from Lomonosov to Leonhard Euler).⁴²

Cold War and the Ideological Image of Soviet Science

In July 1945 Vavilov assumed the presidency of the academy and, with it, the responsibility of representing the whole of Soviet science to the authorities. One of his public duties was

⁴⁰ For Vavilov's early writings on modern physics see S. I. Vavilov, "Novye opytnye podtverzheniia sledstviia obschei teorii otositel'nosti," *Uspekhi Fizicheskikh Nauk (UFN)*, 1925, 5:457–460; Vavilov, "Novye poiski efirmogo vetra," *ibid.*, 1926, 6:242–254; and Vavilov, *Ekspperimental'nye osnovaniia teorii otositel'nosti* (Moscow/Leningrad: GIZ, 1928). For later works see Vavilov, "Dialektika svetovykh iavlenii," *Front Nauki i Tekhniki*, 1934, 9:38–45; Vavilov, "V. I. Lenin i fizika," *Priroda*, 1934, 1:35–38; Vavilov, "Novaia fizika i dialekticheskii materializm," *Pod Znamenem Marksizma*, 1939, 12:27–33; Vavilov, "Lenin i sovremennaia fizika," *UFN*, 1944, 26:113–132; and Vavilov, "Lenin i filosofskie problemy sovremennoi fiziki," in *Velikaia sila idei leninizma* (Moscow: Gospolitizdat, 1950), pp. 171–186. For discussion of many serious attempts to make modern physics conform to dialectical materialism see Loren R. Graham, *Science, Philosophy, and Human Behavior in the Soviet Union* (New York: Columbia Univ. Press, 1987).

⁴¹ During the war FIAN and the Optical Institute were evacuated to two cities on the Volga, Kazan and Yoshkar-Ola. Vavilov continued to commute between the two institutes in their temporary settings.

⁴² "As if Lomonosov confined in parentheses, for all centuries to come, all types of the conservation of matter properties" ("Lomonosov na vse veka kak by vzial v obschie skobki vse vidy sokhraneniia svoistv materii"): S. I. Vavilov, "Zakon Lomonosova," *Pravda*, 5 Jan. 1949. For an appraisal of this Aesopic language by a contemporary see Frish, *Skvoz' prizmu vremeni* (cit. n. 7), pp. 338–339. For the January 1949 special session see *Voprosy istorii otechestvennoi nauki: Sessii Akademii Nauk SSSR, 5–11 ianvaria 1949 g.* (Moscow/Leningrad: AN SSSR, 1949).

developing a laudatory, protective image of Soviet science in a rapidly changing ideological climate. Vavilov's public addresses of 1946 reflect those profound changes especially clearly.

Until summer 1946, despite diplomatic tensions and Stalin's angry reply to Churchill's speech at Fulton, Missouri, in which the phrase "Iron Curtain" was coined, Soviet propaganda continued working for the preservation of the Grand Alliance. It refrained from criticizing the Western Allies explicitly, and representations for both internal and external consumption pictured the Soviet Union as a democratic country. Democracy was the main slogan of the elections to the Supreme Soviet in February, and Vavilov's pre-election speech, given in January, sounded all the right notes. He proclaimed that the joint democratic forces had achieved victory over fascist tyranny and added that Soviet democracy is the most consistent democracy. A new epoch of "strengthening the role of science and democracy in the life of peoples" was beginning. "Science serves progress only when combined with democracy."⁴³

In July Vavilov mentioned dialectical materialism as the basis of Soviet science, and in November he invented a substitute for the already risky term *international science*, writing instead that "knowledge is indivisible" and that this is one of the criteria for distinguishing between truth and falsehood. However, "Soviet science is not just a part of world science, but a science with a particular order and character." Its four main specificities, he observed, are democratism (open to the people and serving society and the state); "deep ties between abstract thought, theory, and practice"; collectivism; and "full clarity regarding its philosophical world view."⁴⁴

The Party decision to change the tone of propaganda and to increase the role of ideology was made in June–July 1946. The transformation of the Allies into enemies and the transition from celebration to confrontation had to be explained to the public through a number of model publications orchestrated by Agitprop—the Department for Agitation and Propaganda of the Party Central Committee (CK). The new emphasis on ideology became widely known under the name *Zhdanovschina* (after Andrei Zhdanov, the CK secretary and Stalin's newest favorite). The highly publicized start of the campaign came with the August–September 1946 Party decisions on literary journals, theater, and movies. But even before that, in July and August, newspapers had criticized the academy's institutes in economics and law for the tendency to view favorably the economics and politics of Britain and the United States.⁴⁵ Apparently because of this critique, issue 8–9 of the academy's official journal *Vestnik Akademii Nauk* was delayed in publication and, when it finally came out, reflected tightening ideological requirements. This marked the shift from the celebratory mood of 1945 to a critical one that was becoming increasingly militant in tone. (See Figure 4.)

The international confrontation grew faster than the audience learned the lessons. In

⁴³ S. I. Vavilov, "Soviet Science in the Service of the Motherland" (in Russian) (Jan. 1946), in the collection of Vavilov's political speeches of 1946, *Sovetskaiia nauka na novom etape* (Moscow: AN SSSR, 1946).

⁴⁴ S. I. Vavilov, "Scientific Problems in the Next Five Years" (in Russian) (July 1946); and Vavilov, "Specificities and Prospects of Soviet Science" (in Russian) (Nov. 1946), *ibid.*

⁴⁵ For these criticisms see *Kul'tura i Zhizn'*, 20 July, 10 Aug. 1946; and *Pravda*, 12 Aug. 1946. Because of this campaign, Zhdanov is usually referred to as a hawk in Soviet postwar politics. Werner Hahn tried to present him as a moderate, arguing that things became much worse after Zhdanov's death in August 1948; see Werner G. Hahn, *Postwar Soviet Politics: The Fall of Zhdanov and the Defeat of Moderation, 1946–53* (Ithaca, N.Y.: Cornell Univ. Press, 1982). I don't think the typical Kremlinological dichotomy "conservatives"/"moderates" is applicable in this case. It would be more appropriate to call Zhdanov an "ideological modernizer." Despite the disputable main thesis, Hahn's book remains an excellent source on Soviet postwar politics, providing a great deal of painstakingly collected information.



Figure 4. Vavilov inspecting the ruins of Pulkovo Observatory near Leningrad, 1946. (Courtesy of the Central State Archive of Cinema and Photographic Documents, Krasnogorsk.)

early 1947 a political showcase was made out of an attempt to arrange the American publication of a book by two Soviet medical researchers. The so-called case of Nina Kliueva and Grigory Roskin was described as trading state secrets. The CK ordered the Ministry of Public Health to elect a special “court of honor” (*sud chesti*) aimed at the moral and administrative punishment of unpatriotic behavior. In October 1947 a similar court was established in the Academy of Sciences. On this occasion Vavilov delivered one of his most shameful talks, “On the Dignity of the Soviet Scholar,” in which he insisted that it was unpatriotic to provide a possible enemy with any valuable scientific information and that the political campaign was due to “a possible attack on Soviet territory.”⁴⁶

With the strengthening of ideological demands, Vavilov’s description of Soviet science changed also. He presented a modified list of its main characteristics in the address “On Stalin’s Scientific Genius,” given at a public celebration of Stalin’s seventieth birthday in December 1949. Democratism was replaced by *narodnost’* (folkness)—that is, science of the people and for the people—and collectivism by *partiinost’* (Party-mindedness)—that is, science that serves the correct political and social interests, which are formulated by the Party. It is important that there was no mention of either “bourgeois” or “proletarian” science among these theses. The class issue had played the central role in Soviet ideology during the cultural revolution but had become only a marginal topic by the late 1940s. Vavilov, though a much less sincere Marxist, was a more sophisticated ideologist than Trofim Lysenko. Lysenko’s 1948 manuscript “The Situation in Biological Science” con-

⁴⁶ On the Kliueva-Roskin case see V. D. Esakov and E. S. Levina, “Delo KR (Iz istorii gonimii na sovetsskuiu intelligentsiiu),” *Kentavr*, 1994, 2:54–69, 3:96–118; and N. L. Kremontsov, “The KR Affair” (unpublished manuscript). The version of Vavilov’s talk given before the academy was published only recently: L. N. Prostovolova, “Neizvestnaia rukopis’ S. I. Vavilova ‘O dostoinstve sovetsskogo uchenogo’ (1947),” *VIET*, 1991, 2:102–104. The publisher was not aware that a shorter, sanitized version had been published long ago: S. I. Vavilov, “O dostoinstve i chesti sovetsskogo uchenogo,” in *O sovetsskom patriotizme* (Moscow: Gospolitizdat, 1950), pp. 438–462.

tained a strong portion of class rhetoric, and its political line had to be corrected by Stalin's personal editing.⁴⁷

To develop a consistent ideological image of Soviet science was not a trivial intellectual task. To discuss just one problem: Soviet reasoning about science, as inherited from Marx, combined social constructivism (science as related to economic, political, and class interests) and scientific realism (science as the truth about nature). Although these two views are often considered to be mutually exclusive, the mental capacities of Soviet Marxists contrived to marry them. The solution is brilliant in its triviality: interests can be either right or wrong; having the right (or progressive) interests makes it possible to achieve the truth (or at least limited truth). In his presentation on the occasion of Stalin's birthday, Vavilov refined this general epistemological thesis for the particular case of science: "*Partiinost'* of science is the expression of its correctness."⁴⁸

This formula can be read in two directions: either the correctness of science suffices to guarantee its *partiinost'*, or the other way around. Although the statement was considered to be true on the general theoretical level, it was not straightforwardly applied to specific practical cases. Soviet Marxists typically tried to follow Lenin's example in *Materialism and Empiriocriticism*, distinguishing between the special problems of physics, reserved for experts, and matters of interpretation, where philosophers and politicians had their say.⁴⁹ Vavilov often quoted Lenin's statement and strongly insisted on this sort of demarcation. In his papers he used physical arguments to demonstrate that modern physics represents truth and philosophical arguments to show that it proves dialectical materialism, but he did not infer one thesis from the other.

In the course of his defense of modern theories, Vavilov showed that philosophical criticism could be directed at classical physics as well. Although Newtonian theory was based on methodologically incorrect notions of space and time, he observed, it still remained useful. More physical, Einsteinian notions of space and time were better; but neither were they without methodological difficulties. Both classical and modern physics reflect objective knowledge about nature (limited truth), but one should not infer incorrect philosophical conclusions from them. When Stalin came to publish his own paper on linguistics, he opened it with a similar demarcation: as a philosopher he could speak only on the question of Marxism in linguistics, not on special problems.⁵⁰

But even this division of labor did not make the task of the philosophical evaluation of a particular science a simple matter. Its failure to develop a satisfactory philosophy could lead to the criticism and possible rejection of a scientific theory—as, for instance, in the

⁴⁷ S. I. Vavilov, "Nauchnyi genii Stalina," in *Iosifu Vissarionovichu Stalinu Akademiia Nauk SSSR* (Moscow: AN SSSR, 1949), pp. 5–18. *Partiinost'* was already mentioned in the November 1946 speech but was not included among the four main specificities. Instead, it determined "the size, the direction of growth of Soviet science and, first of all, its deep, organic *democratism*": Vavilov, "Specificities and Prospects of Soviet Science" (cit. n. 44), p. 37. On Stalin's corrections of Lysenko's speech see Kirill O. Rossianov, "Editing Nature: Joseph Stalin and the 'New' Soviet Biology," *Isis*, 1993, 84:728–745; and Rossianov, "Stalin kak redaktor Lysenko," *Voprosy Filosofii*, 1993, 2:56–69.

⁴⁸ Vavilov, "Nauchnyi genii Stalina," p. 12. See David Joravsky, *Soviet Marxism and Natural Science, 1917–1932* (London: Routledge & Kegan Paul, 1961), p. 25, for the explanation of the word *partiinost'* as referring to the Marxist sociology of knowledge.

⁴⁹ V. I. Lenin, *Sochineniia*, 4th ed., 45 vols., Vol. 14: *Materializm i Empiriokrititsizm* (Moscow: Gospolitizdat), p. 239.

⁵⁰ S. I. Vavilov, "Lenin i filosofskie problemy sovremennoi fiziki" (1950), in *Sobranie Sochineny*, Vol. 3 (cit. n. 8), pp. 85–96, on pp. 89–90. Compare this philosophical criticism with Boris Gessen's social constructivist criticism of Newton, which shared the goal of defending modern physics: Loren R. Graham, "The Sociopolitical Roots of Boris Hessen: Soviet Marxism and the History of Science," *Social Studies of Science*, 1985, 15:705–722. For Stalin on linguistics see Iosif Stalin, *Sochineniia* (1946–1953), Vol. 16: *Marksizm i voprosy iazykoznaniiia* (1950) (Stanford, Calif.: Hoover Institution, 1967), pp. 114–148, on p. 114.

case of relativistic cosmology that declared the possibility of a finite universe. More often, several ideological interpretations competed, each reflecting the particular interests of the actors involved. This sort of theoretical interaction and competition can be viewed as playing with the borderline between the domains of “special problems” and “philosophical interpretation”; different authors could draw it differently, emphasizing as philosophically relevant those aspects that supported their judgments of the whole. The following sections discuss examples of this sort.

III. GAMES

Science and Intra-Party Democracy

It is generally recognized that science cannot develop and prosper without the conflict of opinions and the freedom of criticism.

—Iosif Stalin (1950)⁵¹

Following the end of the war, science moved to the top of the list of state priorities in the Soviet Union. This new importance was not limited to physics and other fields related to military projects, but embraced all *nauki* (the Russian word for *sciences* that covers natural sciences, social sciences, humanities, and ideological scholarship). *Uchenye* (scientists in this wider sense) came to form an elite social group next to Party apparatchiks, industrial administrators, and the military.⁵² In Stalin’s time, important social privileges were always connected with increased dangers and attentive care with tighter control. As an elite group, scientists entered into a closer dialogue with politicians and accepted some of their values, language, and games. (See Figure 5.)

One result of the increased concern with science was a series of “discussions” in various fields of *nauki* that took place during the last years of Stalin’s life. Because ideological argumentation was frequently used in those actions, it has often been assumed that their purpose was to discipline science with the help of ideology, to impose political criteria and create a specifically Soviet science. Such a simple interpretation can hardly be sustained. Establishing Party control over academia had been the task of the cultural revolution of the 1920s, and the target then—“bourgeois specialists”—had been quite well defined. The postwar campaign, on the other hand, shows much less uniformity: its results seem to be rather chaotic, its losers and winners defined arbitrarily, with no clear logical, sociological, or ideological principle evident throughout.

It is widely known that at the infamous August 1948 Session of the Academy of Agricultural Sciences Lysenko proclaimed the victory of his idiosyncratically Soviet “Michurinist biology” over the rival international version of genetics. Relatively few, however, are aware of an equally important but contrasting case in linguistics. In June 1950, following a series of polemical letters in *Pravda* and Stalin’s personal contribution to the debate, the candidate for Lysenkoism in linguistics—the “new doctrine on language” of the anti-Western revolutionary Nikolai Marr—was abandoned in favor of very traditional and international comparative theory.⁵³

⁵¹ Stalin, *Marksizm i voprosy iazykoznaniiia*, p. 144.

⁵² This change of status was made clear in March 1946 by a decree of the Council of Ministers, which expanded the total expenditures for research as well as the salaries and privileges of scientists.

⁵³ V. M. Alpatov, *Istoriia odnogo mifa: Marr i marrizm* (Moscow: Nauka, 1991).



Figure 5. Vavilov opening the founding meeting of the All-Union Society for Dissemination of Political and Scientific Knowledge, July 1947. (Courtesy of the Central State Archive of Cinema and Photographic Documents, Krasnogorsk.)

Besides five large discussions—in biology, linguistics, philosophy, physiology, and political economy—that attracted the attention of Stalin, there were hundreds of smaller ones that prompted little or no participation by the political authorities. The effect of these discussions on scholarship can best be described as confusing: sometimes extremely damaging, sometimes more positive, in many cases simply irrelevant. Elsewhere I discuss these cases in more detail and develop a new interpretation of the entire phenomenon of ideological discussions.⁵⁴ The argument there is that regularity can be found in the formal rules of the “games” rather than in their contents and results. The games were borrowed mainly from the Party repertoire, in particular from the special domain called “intra-Party democracy,” which made space for and regulated grassroots initiatives within Party struc-

⁵⁴ Alexei Kojevnikov, “Games of Soviet Democracy: Ideological Discussions in Sciences around 1948” (unpublished manuscript).

tures. Most important for our story here were *diskussii* (disputes), which provided an institutional framework for public disagreement over theoretical questions not yet resolved by some authority, and *kritika i samokritika* (critique and self-critique), which provided a forum for grassroots criticism. In a typical performance, a local Party boss was criticized by his subordinates, while a higher official observed the process as the referee. The ritual strictly forbade any tone of self-defense, requiring instead a perverted form of self-critique similar to the Christian ritual of penance.

Two important features of these games were, first, that the outcome was not predetermined but depended upon the activity of the players, and, second, that the fields of play were not alien institutions but the constituent elements of Soviet political structure: Party and government organizations. The proclaimed task, therefore, was not destruction or submission, but cleansing, revealing, and repairing defects. Given the absence of opposition in a one-party system, so the argument ran, the Party must take on the burden of criticizing its own mistakes. In theory, this democratic self-critical practice was steadily at work; in fact, it was used only on special occasions and usually required permission or provocation from above.⁵⁵

The postwar discussion campaign in *nauki* can be understood as the application of the rituals of intra-Party democracy to the life of the scholarly community. An editorial in the March 1948 issue of *Vestnik Akademii Nauk* appealed to scholars to initiate *tvorcheskie diskussii* (creative disputes) in various disciplines and stated that “the great and serious tasks facing Soviet science can be solved successfully only by a wider development of *kritika i samokritika*—‘one of the most serious forces that push our development ahead.’”⁵⁶ The invitation came from political circles, in particular from Agitprop; the typical reaction of scholars was to pursue existing conflicts more openly and in politically sanctioned forms. Applying to politicians as referees, *uchenye* translated the variety of their personal, institutional, and conceptual disagreements into the language of current politics and ideology.

Vavilov was responding to the slogan encouraging creative disputes when he urged Moisei Markov, a physicist from FIAN who had an interest in both quantum and Marxist philosophies, to develop his views on the philosophy of physics. Markov’s paper “On the Nature of Physical Knowledge,” published in the new philosophical journal *Voprosy Filozofii*, attempted a “consistent materialistic interpretation . . . of the theory of complementarity.” This was a risky move, because Bohr’s complementarity was often criticized as an idealistic interpretation of quantum mechanics, and as a rule Soviet authors did not consider it part of the correct theory. Markov remembers that he had grave doubts concerning the publication, but Vavilov discussed the question with Agitprop officials and received approving signs. Vavilov, who was eager to see Bohr’s work and its implications considered seriously, wrote a short introduction in which he expressed his wish that the paper “become the starting point for a large serious dispute (*diskussii*), . . . [one] not to be reduced to branding with infamous labels—a detailed and practical analysis of the

⁵⁵ For a general theory of critique and self-critique see, e.g., “Bol’shevistskaia kritika i samokritika,” in *Bol’shaia Sovetskaia Entsiklopediia*, ed. S. I. Vavilov (1950), Vol. 5, pp. 515–518. A theory with application to the sciences was developed in B. M. Kedrov, “Znachenie kritiki i samokritiki v razvitiu nauki (K voprosu o roli otritsaniia v dialektike i metafizike),” *Vestnik AN SSSR*, 1948, 2:68–100.

⁵⁶ “Pervye itogi tvorcheskikh diskussii,” *Vestnik AN SSSR*, 1948, 3:5–15, on p. 13. The end of the sentence is a quotation from Stalin. Unsigned editorials were the usual clear symptom of a campaign. They served as a channel for delivering instructive messages on officially approved policies.

essence of the question is needed. Hopefully, . . . similar studies in other fields of natural science, especially in astronomy and biology, will appear in *Voprosy Filosofii*.”⁵⁷

Markov's paper soon became the subject of a fierce polemic, which involved philosophers as well as physicists. Aleksandr Maksimov accused it of idealism and launched an attack on the editor of *Voprosy Filosofii*, Bonifaty Kedrov, who was one of the leading ideologists of *kritika i samokritika* in science. In response, in June 1948 Kedrov published a collection of polemical letters whose authors mainly sided with Markov and denounced Maksimov's critique as dogmatic.⁵⁸ The course of further discussion was influenced by unfolding events in the biological community.

Geneticists tried to use the new campaign of creative disputes and *kritika i samokritika* to undermine Lysenko's monopolistic position in biology. They wrote letters to the Party CK and held, with unofficial encouragement from Agitprop, several scholarly meetings critiquing some of Lysenko's views. Vavilov supported them in his careful bureaucratic way: the Presidium of the academy approved the proposal for a new institute in genetics (the existing institute was controlled by Lysenko).⁵⁹ In April 1948 Yuri Zhdanov, director of the Science Section of Agitprop and the son of Andrei Zhdanov, joined Lysenko's critics, speaking at a meeting of Party propagandists.

Having almost lost the first round of criticism, Lysenko cleverly started another, on a higher level. The rules of the game did not allow complaints against critique from below; instead, he wrote Stalin a letter complaining about the actions of Zhdanov, Jr., who was the Party supervisor of sciences. The letter impressed Stalin and turned the situation in Lysenko's favor. Zhdanov performed a solo of self-critique, and Lysenko started preparing a meeting suited to his own purposes. This took the form of the August Session of the Agricultural Academy.⁶⁰

The August Session was modeled after another Communist institution—the *s'ezd* (congress)—which was the method for closing major Party controversies. *Diskussii* was allowed before the congress; but after the formal ballot was taken, the opposition (the losing side) had to be dissolved and further debate was forbidden. Lysenko's difficulty was that the Agricultural Academy was not the only authority that could decide biological questions: interference from the Academy of Sciences could have spoiled the smooth scenario. He was able, however, to keep the preparations secret; most of his critics did not attend the session, and only a few individuals raised dissident voices. Vavilov, invited as an

⁵⁷ M. A. Markov, “O prirode fizicheskogo znaniia,” *Vopr. Filos.*, 1947, 2:140–176, on p. 142; and S. I. Vavilov, “Neskol'ko slov k stat'e M. A. Markova,” *ibid.*, pp. 138–139. The issue appeared in February 1948. For Markov's memories of his doubts see Markov, “Glazami ochevidtsa,” *Priroda*, 1990, 5:99–100.

⁵⁸ “Diskussii o prirode fizicheskogo znaniia: Obsuzhdenie stat'i M. A. Markova,” *Vopr. Filos.*, 1948, 1:203–232.

⁵⁹ Lysenko had enjoyed a strong, nearly monopolistic position in the agricultural sciences since the late 1930s. He was the president of the Academy of Agricultural Sciences and director of the Institute of Genetics of the Academy of Sciences. On the geneticists' efforts to undermine him see V. Esakov, S. Ivanova, and E. Levina, “Iz istorii bor'by s lysenkovschinoi,” *Izvestiia TsK KPSS*, 1991, 4:125–141, 6:157–173, 7:109–121; and Valery N. Soyfer, *Lysenko and the Tragedy of Soviet Science* (New Brunswick, N.J.: Rutgers Univ. Press, 1994), pp. 162–168. See also Party Archive, 17-132-71, pp. 4–41. After Lysenko's victory, Vavilov publicly repented his support for a second genetics institute: “Rasshirenoe zasedanie Prezidiuma Akademii Nauk SSSR: 24–26 avgusta 1948 g.,” *Vestnik AN SSSR*, 1948, 9:26. Earlier, in December 1945, Vavilov refused to recommend Lysenko for election to the Presidium of the academy: Party Archive, 17-125-359, pp. 103–104, 116–117. In 1946 he expressed his sympathy with “Mendel's statistical relations” and modern genetics: S. I. Vavilov, “Fizika Lu-kreitsiia,” *Vestnik AN SSSR*, 1946, 2:43–56, on pp. 44, 48.

⁶⁰ Soyfer, *Lysenko and the Tragedy of Soviet Science*, pp. 168–182.

honorary guest, kept silent. The resolution proclaiming the victory of Michurinist biology that concluded the August Session meant a political defeat for him, too.⁶¹

According to the rules of the *s'ezd*, the *diskussii* was closed forever. On 24–26 August the Presidium of the Academy of Sciences convened to perform *kritika i samokritika*. The local authority subjected to criticism was the secretary of the biology division, Leon Orbeli. Vavilov presided over the meeting as the referee, opening the proceedings with a portion of self-criticism that reproached the Presidium for “neutrality” and attempts to preserve parity between two directions in biology. In the discussion that followed, Orbeli failed to convince the audience of the sincerity of his repentance. Vavilov therefore suggested the election of a new secretary for biology, but instead of the obvious candidate—Lysenko—he proposed a more neutral figure, Aleksandr Oparin. In later speeches, Vavilov had to talk about the successes of Michurinist biology. At such moments his talent for praise failed, and he avoided mentioning Lysenko by name.⁶²

As a political event, the August Session set a new model and a new stimulus for imitation and provided fresh inspiration. “Creative disputes” were giving way to more militant styles of polemics. The criticism of idealism—always a welcome rhetorical resource—became especially fashionable in the following season. This had implications for physics, too.

Anatomy of a Discussion

The physics community was split along different lines than the biological one: the main conflict was institutional rather than conceptual. At its core was the opposition between Moscow University and the academy. The Physics Division of the academy was controlled by members of Joffe’s, Kapitza’s, and Vavilov’s institutes. Moscow University had been represented in the academy by Leonid Mandelstam’s research group, but because of tensions among the faculty they were leaving the university for Vavilov’s FIAN. None of the remaining faculty in physics achieved full membership in the academy. Since the academy was well above the universities in the scientific hierarchy, professors often complained of academicians’ monopoly on journals, privileges, and resources and were accused in return of providing institutional protection to low-level science or even “antiscience.”⁶³

One of the most open struggles broke out in 1944, when the department did not elect Igor Tamm to the *kafedra* of theoretical physics, which he had organized and headed before the war, choosing Anatoly Vlasov instead. A group of concerned academicians protested the decision and pressed the minister of higher education to replace the department dean. Vavilov was commissioned to review the conflict and tried not to take sides, although he sympathized with the academy physicists. The academicians achieved a partial

⁶¹ Frank, “Mysli o S. I. Vavilove” (cit. n. 7), p. 17.

⁶² For Vavilov’s proposal of Oparin—who was elected—see “Rashirennoe zasedanie Prezidiuma Akademii Nauk SSSR” (cit. n. 59). For Vavilov’s discussion of Michurinist biology see Vavilov, “Nauchnyi genii Stalina” (cit. n. 47).

⁶³ There were similar conflicts in other fields and in other universities, obviously reflecting a general problem. Trying to solve it, in the late 1940s the Stalinist bureaucracy discussed proposals for serious reform aimed at raising the social and academic status of the universities. Only limited measures were undertaken, however. See Party Archive, 17-125-342, pp. 42–84, 17-125-361, pp. 66–140. Vavilov typically supported plans to improve the state of university teaching and research, but not the critique of the academy. See, e.g., S. I. Vavilov, “Vstupitel’noe slovo,” *Vestnik AN SSSR*, 1947, 1:23–25, on p. 25; and Party Archive, 17-125-543, pp. 57–75, 154–158.

success in 1946, but their appointees as dean and chair held their posts for less than a year.⁶⁴ After the August Session the university physicists saw a chance to attack.

The earliest document pertaining to the discussion in physics is a November 1948 draft of a letter from the Minister of Higher Education, Sergei Kaftanov, and the President of the Academy of Sciences, Sergei Vavilov, to CK Secretary Georgy Malenkov. It expressed concern about defects in physics teaching and research due to the lack of a criticism of idealism and asked for permission to organize a conference on this topic. Since the draft talked about the “All-Union Council of the directors of physics *kafedras* at the institutions of the Ministry of Higher Education,” it is obvious that it originated in the ministry. Vavilov edited the document and added “with the participation of the Physico-Mathematical Division of the Academy of Sciences.” Vavilov’s contribution represented an effort to retain a voice for the academy in these proceedings; Lysenko’s success had owed a great deal to his ability to convene the Agricultural Academy and fix the result before the Academy of Sciences could react.⁶⁵

With preliminary approval from the CK Secretariat, the ministry and the academy put together the joint Organizing Committee of the “All-Union Council of Physicists” with Aleksandr Topchiev, deputy minister, as chairman. The council (*soveschanie*) was a genre of meeting that usually had a practical rather than a political function: administrators listened to the instructions of a higher official and talked about how they might do their jobs better. Some work had been done on the earlier proposal in order to turn the discussion in a practical direction. The topic was changed to a politically neutral one: “the present state of physical science in the USSR and improvements in the teaching of specialists in physics”; the philosopher Maksimov, with his talk “The Struggle against Idealism,” was dropped from the program. The only major speech—on questions of general political importance—scheduled for the first day was Vavilov’s talk “On the State of Modern Physics and the Tasks of Soviet Physicists.” This was to be followed by general discussion; later sessions would take up more specialized and practical problems. The CK Secretariat officially approved the proposal on 31 January 1949 and set the date for 21–26 March. Vavilov was not a member of the Organizing Committee; he was busy putting together three academy meetings on unrelated topics.⁶⁶

⁶⁴ A *kafedra* is, literally, a chair. In the Soviet academic system, however, it was more than just a professorial position; there was also an administrative function that involved directing a subunit of the department and supervising other professors and teachers. Some information on the conflict can be found in G. E. Gorelik, “Fizika universitetskaia i akademicheskaia,” *VIET*, 1991, 1:31–46; and A. V. Andreev, A. B. Kojevnikov, and B. E. Yavelov, comments on “Operatsiia dopros Nil’sa Bora” by Ya. P. Terletsky, *VIET*, 1994, 2:41–44. See also Party Archive, 17-125-361, pp. 19–63. Andrei Andreev’s dissertation will be the first full account of Moscow University physics and related conflicts.

⁶⁵ Academy Archive, 596-2-173, pp. 7–11. Malenkov returned to Stalin’s favor after Zhdanov’s suspicious death in August 1948. Kaftanov was a bureaucrat. As such, he was not associated with any academic party. On the other hand, he was more willing to listen to the university physicists because they were under his supervision, whereas the academy physicists were not. The usual interpretation of the discussion in physics presents it as an attempted ideological purge directed against relativity and quantum mechanics, ordered by the Party and carried through by certain “ideologizers.” In this version of the story, Vavilov belongs among the “true physicists” who opposed the use of ideology in science; therefore, his signature on the initial proposal is not mentioned in these accounts of the events: A. S. Sonin, “Soveschanie, kotoroe ne sostoialos’,” *Priroda*, 1990, 3:97–102, 4:91–98, 5:93–101; M. D. Akhundov, “Spasla li atomnaia bomba sovetskuiu fiziku?” *ibid.*, 1991, 1:90–97; and K. A. Tomilin, “Nesostoiavshiiia pogrom v teoreticheskoi fizike (1949),” *Filosofskie Issledovaniia*, 1993, 4:335–371. In a recent book Vavilov’s coauthorship of the proposal is mentioned without comment: Sonin, “Fizicheskie idealizm”: *Istoriia odnoi ideologicheskoi kampanii* (Moscow: Fiz-Mat, 1994).

⁶⁶ On the formation of the Organizing Committee see “Postanovlenie Kollegii Ministerstva Vysshego Obrazovaniia i Prezidiuma Akademii Nauk SSSR, 17 dekabria 1948 g.,” Academy Archive, 596-2-173, pp. 1–6, 12–14; and Tsentral’nyi Gosudarstvennyi Arkhiv Rossiiskoi Federatsii (hereafter **State Archive**), 9396-1-229. Vavilov was organizing one meeting on the history of Russian science, another to commemorate the 25th anniversary

Meanwhile, the committee worked hard. The university representatives, with some support from philosophers, ministry officials, and provincial physicists, wanted the conference to be conducted “on the level of the discussion at the August Session and . . . on the high *ideinyi* (high-principled) level.” Talks on neutral topics were approved without long dispute; but many speakers wanted to deal with questions related to politics and ideology and to turn the discussion toward *kritika i samokritika*. Even before the first draft of Vavilov’s talk became available, they had started presenting the texts of discussion comments on his topic. The transformation of the genre and of the prevailing mood could not be achieved overnight. The Organizing Committee worked for three months, holding forty-one long sessions that were attended by concerned activists as well as committee members. The university party proved to be more active and better prepared for the political discussion.⁶⁷ They presented episodes of the previous struggles between academicians and professors as politically charged and zealously searched for philosophical idealism in books and talks on physics.

A second ideological theme that prevailed during these discussions emerged after 28 January, when *Pravda* published the editorial “On One Anti-Patriotic Group of Theater Critics.” This brought to a climax the campaign of exposing and criticizing so-called cosmopolitans, the majority of whom were Jewish. On 2 February Nikolai Akulov was already speaking to the committee on this topic. At an unrelated meeting in the Institute of Philosophy, Kedrov, Vavilov’s main ally among philosophers, was obliged to repent his cosmopolitan mistakes, subsequently losing control over *Voprosy Filosofii*.⁶⁸

Although the division in two academic parties was quite noticeable, nobody mentioned it explicitly, and nobody accused either the academy or any particular institute—or even quantum mechanics itself—of idealism. Vavilov’s authority was not openly challenged, and criticism did not touch those who worked in the atomic bomb project. All accusations were raised by and directed at individuals. The main targets were several influential academicians, most of them Jewish. The defense was personal, too: Aleksandr Andronov managed to defend his deceased teacher Mandelstam against Akulov’s accusations that he had worked for Germany. But nobody could help Yakov Frenkel in the face of quotations drawn directly from his open polemics with dialectical materialism—even if these did date from 1931. Consensus on this point was reached quickly.⁶⁹ Markov’s paper on complementarity also received much criticism.

Vavilov knew what was going on in the committee when he passed the first draft of his talk to Topchiev on 10 February. He had already changed the title to “Philosophical Problems of Modern Physics and the Tasks of Soviet Physicists.” The manuscript criticized idealistic statements, chosen mainly from popular writings of Western authors, Soviet

of Lenin’s death, and the regular annual meeting of the academy. His talks at these meetings are published in *Vestnik AN SSSR*, 1949, 1:3–4, 2:6–10, 38–53, 124–125, 3:5–6.

⁶⁷ The final statistical report of the Organizing Committee shows that they attended at least twice as often and spoke at least three times more frequently than their opponents. See “Otchet o rabote orgkomiteta,” Academy Archive, 596-2-173, pp. 31–64. In all, 106 people participated in thirty-five open sessions. Typical argumentation is quoted at length in Sonin, “*Fizicheskii idealizm*” (cit. n. 65), pp. 117–160.

⁶⁸ For Akulov’s remarks see State Archive, 9396-1-256, pp. 167–175, 9396-1-261, pp. 188–208. Simultaneously, Akulov brought his charges against Mandelstam, Joffe, Kapitza, and others to the attention of CK Secretary Malenkov; see Party Archive, 17-132-211, pp. 105–115. Vavilov was mentioned there as one who was under the influence of antipatriots. On the events in philosophy see “Za bol’shevistskuiu partiiost’ v filosofii,” *Vopr. Filos.*, 1948, 3:3–12; and Party Archive, 17-132-160, pp. 46–52.

⁶⁹ Organizing Committee sessions, 27 and 28 Jan. 1949, presentation by P. E. Zrebný, State Archive, 9396-1-264, pp. 1–77; and Academy Archive, 596-2-174. See also Sonin, “*Fizicheskii idealizm*” (cit. n. 65), pp. 132–143.

physicists' (in particular Landau's and Frenkel's) uncritical attitude and reluctance to write on philosophical questions, and the use of the philosophically incorrect terms *spontaneous* and *annihilation*. Vavilov gave a balanced critique of Markov's "dogmatism" in presenting quantum mechanics as a completed theory but defended him against accusations of idealism.⁷⁰

The Organizing Committee discussed Vavilov's manuscript for two days. Though Topchiev succeeded in passing a formally polite resolution (granting approval "in general," but with the request that Vavilov improve the paper and take into account comments by other speakers), it did not mask serious disappointment with the talk's "narrative rather than militant character." Suggestions included changing the first part of the title to "Ideological Problems of Modern Physics," strengthening the critique of Soviet physicists, removing the defense of Markov, and making explicit mention of the August Session and cosmopolitanism. In further drafts of his talk Vavilov reluctantly followed these recommendations.⁷¹

By the end of February the Organizing Committee was approaching consensus. Frenkel and Markov were instructed to rewrite their speeches and to criticize their own mistakes (*samokritika*). Accusations against Fock and Tamm failed to garner enough support, but they were advised to sharpen their criticism of others (*kritika*). A large conference room was reserved, quotas for representation of groups among the 600 participants agreed upon, invitations printed. By mid-March the committee had approved texts of almost all the major talks and short discussion comments (only Vavilov was still working on his paper), compiled the manuscripts into a volume intended for publication, drafted the resolution, and sent it all on to the CK for final approval. In its critical part, the resolution blamed Landau and Joffe for *rabolepie* (obsequiousness) before the West, Kapitza and Kedrov for cosmopolitanism, and Frenkel and Markov for uncritical use of and propaganda for idealistic aspects of physical theories. It also suggested establishing the All-Union Physical Society, revising the editorial boards of journals, and increasing the number of graduate students and funds for research at the universities.⁷² Had the carefully rehearsed performance been played publicly, it would have resulted not in the ban of a certain theory, but in serious changes in the existing hierarchy of the physics community.

However, 21 March passed and nothing happened. Physicists' folklore unanimously states that Igor Kurchatov, the scientific director of the Soviet nuclear project, persuaded his Politburo supervisor Lavrenty Beria, and possibly Stalin, that the scheduled discussion would spoil the work on the bomb.⁷³ There is no documentary support for this nice story,

⁷⁰ S. I. Vavilov, "Filosofskie problemy sovremennoi fiziki i zadachi sovetskikh fizikov," Academy Archive, 596-1-80, pp. 27–72.

⁷¹ Organizing Committee sessions, 16 and 18 Feb. 1949, State Archive, 9396-1-249, pp. 245–275, 9396-1-250, pp. 1–33; and Academy Archive, 596-2-174. For Vavilov's changes see Vavilov, "Filosofskie problemy," pp. 27–72 (handwritten insertions); and S. I. Vavilov, "Ideologicheskie problemy sovremennoi fiziki i zadachi sovetskikh fizikov," Academy Archive, 596-1-80, pp. 73–129 (typed text and handwritten insertions). An abridged version of Vavilov's paper was published after his death in A. A. Maksimov, I. V. Kuznetsov, Ya. P. Terletsky, and N. F. Ovchinnikov, eds., *Filosofskie voprosy sovremennoi fiziki* (Moscow: AN SSSR, 1952). It is unlikely that Vavilov had given permission for the publication.

⁷² Organizing Committee sessions, 21, 22, 25, 28 Feb., 4 Mar., and, for the resolution, "Proekt Postanovleniia Vsesoiuznogo Soveschaniia Fizikov," State Archive, 9356-1-229; and Academy Archive, 596-2-173, pp. 65–73.

⁷³ Sonin, "Fizicheskii idealizm" (cit. n. 65), and David Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939–1956* (New Haven, Conn.: Yale Univ. Press, 1994), p. 211, accept this version at face value. Other hypotheses put forth include the suggestion that the meeting was canceled owing to security reasons (Akhundov, "Spasla li atomnaia bomba sovetskuiu fiziku?" [cit. n. 65]); that at the late sessions of the Organizing Committee the "true physicists" turned the discussion in their favor, thus making it impossible for the meeting to achieve the presumed task of importing ideology into physics (Tomilin, "Nesostoiavshiiia pogrom v teore-

but there are a number of reasons not to believe it. The argument that true philosophy can cause any harm to true physics was not permissible even in unofficial political discourse. Kurchatov had not yet proved his ability to build the bomb and had not achieved a secure and influential status. The final decision was made by the CK Secretariat, and there is no evidence that either Beria or Stalin was involved. What happened is that the seemingly unstoppable movement of a huge bureaucratic machine was deflected by means of a subtle intrigue.

On 2 April Kaftanov submitted a letter to the CK proposing 10 May as the new date for the meeting. The absence of Vavilov's signature, which had graced all earlier proposals, signifies that this time he did not support the project. The matter was reported to the Secretariat on 9 April by the director of Agitprop, Dmitry Shepilov. He added a brief note that also suggested postponing the meeting, which he said had not been prepared properly. What is important here is that Shepilov did not specify any particular date. Vavilov was not officially involved in these machinations, but he apparently managed to be present when the Secretariat discussed the issue because he was scheduled to report on another matter. The Secretariat had to validate many decisions each day, and it approved Shepilov's formulation apparently without long consideration.⁷⁴

The decision had the effect of postponing the dispute forever. Kaftanov's detailed proposal of 5 April, "On Serious Shortcomings in the Preparations of New Cadres of Physicists and on Measures to Overcome Them," remained unanswered by Agitprop until October, when it was passed to the archive with a note that the meeting had been "canceled" by the Secretariat. Although the new editors of *Voprosy Filosofii* published another collection of replies to Markov's article, this time declaring it wrong, a journal publication did not have the force of authority that a resolution of the representative meeting would have had. A major meeting on physics and philosophy would take place ten years later, in what was by then a very different political situation. Nobody questioned the established hierarchy in Soviet physics any longer. Physicists and philosophers united in proclaiming the perfect agreement between modern physics and dialectical materialism.⁷⁵

In 1950 Vavilov suffered especially severely from heart disease and spent several months in a sanatorium. He probably understood that he did not have much time left and started writing an autobiography. In June he presided over another major performance of *kritika i samokritika* in science—this time in physiology. Here the disciples of Ivan Pavlov struggled over which of them followed the orthodoxy of their deceased teacher most closely. In October Vavilov had a meeting with Joffe, after which Joffe resigned the

ticheskoi fizike" [cit. n. 65]); and that Vavilov appointed the top "ideologizer" Topchiev as the academy's scientific secretary in return for cancellation of the meeting (Esakov, "Mify i zhizn'" [cit. n. 22]).

⁷⁴ "Protokol no. 426 zasedaniia sekretariata CK VKP(b), 9 aprelia 1949," Party Archive, 17-115-806, 426/334, p. 202; Sergei Kaftanov to Malenkov, 2 Apr. 1949, and Dmitry Shepilov to Malenkov, undated, in "Materialy k protokolu . . ." Party Archive, 17-118-360, pp. 168–170. Besides Malenkov, the Secretariat consisted of P. K. Ponomarenko, G. M. Popov, and M. A. Suslov. Vavilov presented to them the proposal to elect Topchiev a full member of the academy, which could have been part of the intrigue. See Party Archive, 17-115-806, 426/333, p. 200, 17-118-360, pp. 159–167.

⁷⁵ For Kaftanov's proposal see Kaftanov to Malenkov, 5 Apr. 1949, "O krupnykh nedostatkakh v podgotovke kadrov fizikov i merakh po ikh ustraneniui," Party Archive, 17-132-211, pp. 77–94; for the "cancellation" see P. Zherebtsov to CK Technical Secretariat, 6 Oct. 1949, *ibid.*, p. 95. The new discussion of Markov's article was "Diskussiia o prirode fizicheskogo znaniia: Obsuzhdenie stat'i M. A. Markova," *Vopr. Filos.*, 1948, 3:222–235 (the issue appeared in April 1949). For the results of the meeting ten years later see *Filosofskie problemy sovremennogo estestvoznaniia: Trudy Vsesoiuznogo soveschaniia po filosofskim voprosam estestvoznaniia* (Moscow: AN SSSR, 1959).

directorship of the Leningrad Physico-Technical Institute.⁷⁶ This was surely connected with the anti-Semitic turn in government policy. The public campaign against “cosmopolitans” was connected to the revision of another consequence of the cultural revolution: the high level of Jewish representation in responsible administrative positions. The academy, too, quietly reduced the number of Jewish directors of research institutes.

Vavilov's last known official action concerned another colleague. Piotr Kapitza, who had risen to a very mighty position, fell in disgrace in 1946 because of his conflict with Beria over the leadership and organization of the atomic bomb project. In his official role, Vavilov had passed through the Presidium a decision confirming the decree of the government firing Kapitza from the directorship of his institute. In 1950, as a private person, and in the quiet style he preferred, he asked the director of the academy's Institute of Crystallography, Aleksei Shubnikov, to hire Kapitza as a senior research fellow. There was not much sympathy between the two; thus Kapitza was surprised, in January 1951, to receive an invitation to Vavilov's home and, even more, to find his host astonishingly open and bitter in their private conversation. At the time Vavilov was trying to resist changing the work in Kapitza's former institute from low temperature physics to nuclear research. On 24 January he planned to meet with the directors of the atomic project, Igor Kurchatov and Avraamy Zavenyagin.⁷⁷ The next morning, 25 January 1951, he died.

CONCLUSION

Das Leben in der Maske—unausweichlich für den, der überleben wollte—brachte moralische Schuld. . . . Nur der Vergessliche kann sich darüber täuschen, weil er sich täuschen will.

—Karl Jaspers (1946)⁷⁸

I understand morality as something different from following rules and prescriptions. . . . In tragic moments of our life such norms fail, show their immoral edge. Morality does not consist of moral norms, but of the desperate peripeteia of free personal action. . . . Whether I choose involvement in the turmoil of life or loneliness in thoughts—in both cases I break one of the maxims of modern ethics.

—Vladimir Bibler (1990)⁷⁹

This is a story about a non-Communist and nonsympathizer who happened to become an exemplary Stalinist politician. To make sense of such a case has required a nonstandard combination of explanatory resources. The preceding sections show how the cultural revolution, though designed to promote Communists into scholarly ranks, also advanced Vavilov into the academy; how the incorporation of the conservative tendency into the modernizing regime transformed the academy into something like a ministry of science and Vavilov into a high-level administrator; and how moral and aesthetic criteria, rather than

⁷⁶ *Nauchnaia sessiia posviaschennaia problemam fiziologicheskogo ucheniia akademika I. P. Pavlova, 28 iunia–4 iulia 1950 g.* (Moscow: AN SSSR, 1950); and M. S. Sominsky, *Abram Fedorovich Joffe* (Moscow/Leningrad, 1965), pp. 566–567.

⁷⁷ A. B. Kozhevnikov, “Piotr Kapitza and Stalin's Government: A Study in Moral Choice,” *Historical Studies in the Physical and Biological Sciences*, 1991, 22:131–164, esp. p. 161; S. P. Kapitza, “[Predislovie k stat'e A. S. Sonina],” *Priroda*, 1990, 3:90; and N. A. Dobrotin, in *Sergei Ivanovich Vavilov*, ed. Frank (cit. n. 3), p. 256.

⁷⁸ Karl Jaspers, *Die Schuldfrage* (Heidelberg: Lambert Schneider, 1946), p. 58.

⁷⁹ V. S. Bibler, *Nravstvennost', Kul'tura, Sovremennost' (Filosofskie razmyshleniia o zhiznennykh problemakh)* (Moscow: Znanie, 1990), pp. 7, 19.

political considerations, were important for his appointment as president in 1945. Vavilov's case, though unique, is also revealing, as it helps us to understand Stalinism not simply as a totalitarian dictatorship, but also as a society and a culture with specific rituals, mores, and styles.

Vavilov learned how to become a perfect Stalinist politician by mastering the language and games of this culture. On the surface, his political writings appear to sanction political influence on science; but when approached as literary texts conforming to specific genre rules, they reveal other messages as well: we find him advancing polemics in favor of the new relativity and quantum physics, creating a protective ideological image of science, and drawing a boundary between the authority of scientific experts and that of politicians. A master of grand political rhetoric, Vavilov was also a specialist in quiet bureaucratic intrigue. The nature of political rituals was such that events inspired by a democratic idea could result in Lysenko's victory over genetics. The 1949 dispute in physics ended differently, but not because political rhetoric was harder to apply there or because the atomic bomb was more important than ideology. It would be more accurate to say that the outcome was due to physicists' skill—or luck—in playing the political games of Stalinism.

The careers of the two Vavilov brothers are often used to symbolize the different fates of biology and physics. In fact, they better represent two different historical periods. Nikolai, even in his childhood, was a street fighter and an atheist rebel.⁸⁰ He sympathized with Bolshevik goals, and he rose to power in the revolutionary 1920s, putting forward grand and radical tasks and pursuing them with energy and vigor. He made compromises, like his brother—but he also took risks. Nikolai's moment passed with the cultural revolution and some change in leadership had to occur. His counterpart in physics, Joffe, also lost his dominating role. But instead of a figure like Lysenko, Sergei Vavilov and Kapitza—each in his own way—took over the job of representing physics to politicians.

Sergei, at least in his early years, was religious⁸¹ and politically far from revolutionary, and his career developed in the conservative late 1930s and 1940s. He did not strive for great ends and high positions; but he accepted responsibilities dutifully and fulfilled them—as he wrote that Newton did—“honestly and severely.” Both political conformism and taking care of science were among his duties. Sometimes these duties came into contradiction, and in these cases Vavilov faced difficult decisions and moral compromises. To this extent, then, he also chose to become a Stalinist politician.

According to Karl Jaspers, the German nonconformist philosopher, all survivors of totalitarian regimes are guilty, at the least, of wearing a mask.⁸² Himself a survivor, Jaspers had the moral right to make such a general accusation. We who are lucky enough to live in better times should beware the insensitivity that leads us to condemn others for making compromises that we no longer face—and the blindness and hypocrisy that lead us to overlook or excuse the less conspicuous compromises of our own day.

⁸⁰ Frank, ed., *Sergei Ivanovich Vavilov* (1981) (cit. n. 29), p. 86.

⁸¹ Frank, “Mysli o S. I. Vavilove” (cit. n. 7), p. 19.

⁸² Vavilov's compromises with political ritual are similar to but go far beyond those of Max Planck in his position as president of the Kaiser-Wilhelm-Gesellschaft during the Third Reich. See J. L. Heilbron, *The Dilemmas of an Upright Man: Max Planck as Spokesman for German Science* (Berkeley: Univ. California Press, 1986). Of course, if one lacks the notion of “compromise,” one can call even a much more superficial conformity “participation in propaganda”; see Mark Walker, “Physics and Propaganda: Werner Heisenberg's Foreign Lectures under National Socialism,” *Hist. Stud. Phys. Biol. Sci.*, 1991, 22:339–390. This is a possible, but very narrow, perspective. For a more sophisticated analysis of Heisenberg's political role (in this case, in post-World War II Germany) as “merg[ing] principle with opportunism” see Cathryn L. Carson, “Particle Physics and Cultural Politics: Werner Heisenberg and the Shaping of a Role for the Physicist in Postwar West Germany” (Ph.D. diss., Harvard Univ., 1995) (quotation from p. 140).

Is it possible, then, to speak of a “normal moral life” under totalitarianism? The Soviet nonconformist philosopher Vladimir Bibler does not discuss this question directly, but his experiences and the practical necessity of finding a satisfactory way to live in difficult times must have influenced his historical philosophy of morality. According to Bibler, in “true moral situations” every possible choice contradicts a general ethical norm. What remains, then, as a basis for morality is not compliance with rules, but only the permanent and desperate questioning of one’s own conscience.⁸³

We must ask, then, whether wearing a mask was a comfortable or a tragic duty for Vavilov. Under most circumstances it probably suited his personal disposition toward polite behavior well enough. Rather than serving either the political regime or science in conformity to some abstract principle—classical or absurd—Vavilov tried to behave correctly in both political and academic circles. He avoided open disagreements or conflicts, but also openness and warmth. This effectively prevented Sergei from having either personal enemies or close friends.⁸⁴

There were some occasions, however, when the illusion of everyday normalcy could not mask the moral burden of life under Stalinism. Having spent ten years in the Gulag, Lev Polak, a physicist and historian of science, was set free, came without permission to Moscow (risking another arrest), and turned to old friends for help. Most pretended not to recognize him: his appearance was a scandal, for it demonstrated so openly the existence of the world of the dead, which everybody knew about but which public etiquette prohibited them from speaking or even thinking of. One day Polak came to the office of Vavilov, whom he knew slightly from their Leningrad days. Polak’s memory recorded the short and deliberately unelaborated questions:

- Experienced hardship?
- Oh, well.
- And have you understood everything?
- Not everything, but a lot. . . . They taught me.
- You think, therefore, we are on opposite sides?
- Seems so. . . .

In Vavilov’s questions, freighted with unexpressed meanings, I feel a desperate desire for understanding and the pain of his reticence and restraint. But he stopped short of any greater openness; once again, he satisfied himself with a relatively easy—and quiet—good deed, helping an illegal to find a temporary appointment.⁸⁵

It seems that wearing a mask was a difficult job for Vavilov. Hardly anyone could have performed his role better than he did. But personally, he would probably have preferred sitting in his dark optical laboratory during the day and reading poetry before bed.

⁸³ This difficulty is close to the difficulty of final moral judgment examined in the second act of Goethe’s *Faust* and in Bulgakov’s *Master and Margarita*.

⁸⁴ David Joravsky has suggested that, depending on future historians’ judgments of the necessity or the irrationality of Stalinist tyranny in the process of Russia’s modernization, the two Vavilov brothers would be seen as heroes of either classical or absurdist tragedy; see Joravsky, “Vavilov Brothers” (cit. n. 3), pp. 393–394. In his view, they both tried essentially the same tactics of “self-corrupting protection” of science, but with differing success. I disagree with Joravsky when, in writing that “Sergei didn’t have to abase himself for physics; someone else could have done the job,” he assumes that the job was easy to do. I prefer to contrast the roles of the two brothers, not because they represented different sciences, but because they were different personalities and acted in different time periods. But I do agree that, though in different ways, they both “took responsibility in Stalin’s Russia.” On Sergei’s lack of enemies and friends see Frank, “Mysli o S. I. Vavilove” (cit. n. 7).

⁸⁵ L. S. Polak, “Bylo tak,” *VIET*, 1992, 3:135–153, on pp. 141–142.