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Dialogues about knowledge and power in totalitarian political culture

Dictatorships are not known to provide a friendly environment for open discussions about the distribution, limitations, and boundaries of power. Even when such discussions do occur, the chances are slim that they will surface in public and survive in historical documents. The post-World War II Soviet Union left us records of few episodes in which politicians and scientists argued about their respective spheres of competence and authority. The majority of these cases involved physicists, which is not surprising given the period. Some of the dialogues that will be analyzed below are well known; others have been hidden in forgotten and obscure sources. The conversations were very restricted, because they took place in the context of supposedly total dictatorship, with its strong limitations on even internal and unofficial political talk. Very often participants had to resort to metaphorical language, and each quotation separately allows different interpretations. But taken together and juxtaposed in a sequence, they reveal a particular pattern of relationship between knowledge and power.

This relationship was not stable, but rather subject to negotiations and compromise, with terms that shifted over time. Politicians and scientists were two privileged and mutually dependent elite groups in Soviet society. The partners in this relationship, though of course not equal, exerted influence upon each other. Politicians had a share in deciding on matters related to science. At the same time, scientists had *de facto* access to political decision making, although its nature was not easy to formulate in acceptable Soviet political language. Even more problematic was the process of drawing a boundary between those topics which, in Soviet society, were to be labeled as scientific and those which were to be considered political.

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Societies differ in their exact methods of solving this problem of labeling, or demarcation, between the scientific and the political, and in their culturally specific ways of establishing relationships between knowledge and power. Quite often such a demarcation is difficult to make, with no obvious or generally agreed upon solution. This happens characteristically in important cases involving serious interests: what belongs to the sphere of scientists' professional expertise and what to the competence of politicians? What are their relative shares of authority? This paper attempts to specify Soviet patterns of dealing with these issues, and to do so in a form which is convenient for comparisons. Loren R. Graham recently pointed out that one can hardly imagine a case better suited for testing contemporary ideas and theories regarding science, technology, and society.[1] Indeed, Soviet science combined an exceptionally high level of development with a very specific social and cultural milieu artificially isolated from most international contacts. This rare combination offers a perfect opportunity for genuinely comparative studies of science and society.

Previously, such comparison relied on a readily available ideological opposition between East and West. The usual answer stated that the Soviet regime refused to separate science from politics and ideology, and thus distorted the practice of science and violated the norms of objective research. Indeed, as a corollary to the Marxist thesis about theory and practice, Soviet communists understood science to be rooted in human beings' material and social life. They correspondingly declined to view scientific knowledge as independent of either industry and technology or politics and values.[2] For this, they could be and usually have been condemned on the basis of an explicit or implicit assumption that science as a free intellectual activity should be protected from such external influences. This latter assumption—the ideology of pure and apolitical science—is no longer as popular as it was in the heyday of the Cold War. It does not adequately represent the social realities and practice of democracy and has disappeared from most contemporary discussions about science and society, but, strangely enough, it has survived in the

1. Loren R. Graham, *What have we learned about science and technology from the Russian experience?* (Stanford, 1998); and Loren R. Graham, "Is science a social construction? Some new thoughts based on the Russian experience," lecture at the Mark M. Horblit colloquium in the History of Science, Harvard University, Apr 1999.

2. Examples of this general attitude abound. See, for instance, N.I. Bukharin, "Theory and practice from the standpoint of dialectical materialism," *Science at the cross roads: Papers presented to the International Congress of History of Science and Technology, London, 29 June—3 July 1931 by the delegates of the U.S.S.R.*, 2nd edn. (London, 1971), 11-33; B. Hessen, "The social and economic roots of Newton's Principia," ibid., 151-212, in particular the following quotation from Hessen: "The economic position is the foundation. But the development of theories and the individual work of a scientist are affected by various superstructures, such as political forms of class war and the results, the reflections of these wars on the minds of the participants—political, juridical, philosophic theories, religious beliefs and their subsequent development into dogmatic systems." Ibid., 177.

discourse about science under totalitarian regimes. Soviet experiences with science are still often evaluated against an outdated and utopian conception of scientific knowledge. Although partly justified at the time by the needs of continuing Cold War propaganda, such a discourse has now become an anachronism. Even if the ideological solutions offered before no longer seem satisfactory, the question still remains of whether, and how, different political systems—dictatorships and democracies, among others—differ in their attitudes to the problem of knowledge and power.

A good starting point for changing the discourse can be found in Carlo Ginzburg's account of the metaphysics of higher knowledge in early modern Europe. Ginzburg starts from the distinction, in the Christian tradition, between the profane knowledge that was intended for everybody and the higher knowledge that constituted the key to power and was considered inappropriate for lay persons to know. Aspirations to the latter were typically condemned as sinful pride, and only partial exemptions were allowed for specially designated mediators and interpreters. According to Ginzburg, early modern Europe recognized three higher secrets of this sort: the secret of God, the secret of Power, and the secret of Nature. The corresponding spheres of religion, politics, and science were neither totally separated nor fully conflated: they constituted different reflections within the mundane world of what in the metaphysical hierarchy was the trinity of higher knowledge.[3]

The metaphysical programs of modern societies have tended to reject the assumption of privileged knowledge, assuming the accessibility and separability of different kinds of knowledge and of the religious, political, and scientific authorities associated with them. This belief led in practice to shifting frontiers, and to the establishment of far-reaching divisions. Many formerly restricted domains of knowledge came to be regarded as open to inquiry. Furthermore, a certain degree of consensus developed regarding their assignment to one of the three spheres. In a number of important cases, however, such general conventions are fuzzier or lacking. The program of modernist division has been very successful as a guiding ideal, but not as something that can be ultimately completed. The precise paths chosen by modern societies and, correspondingly, their results varied: Some invested more effort in isolating science from religion, while others concentrated more on separating science from politics.

Soviet society, as a particular version of the program of modernity, developed its own approaches to the problem of the metaphysical trinity of higher knowledge and its mundane divisions. Below I will concentrate primarily on the interplay between science and politics, leaving for another occasion a more detailed discus-

3. Carlo Ginzburg, "The high and the low: The theme of forbidden knowledge in the sixteenth and seventeenth centuries," in Ginzburg, *Clues, myths, and the historical method* (Baltimore, 1989), 60-76.

sion of ideology, the remaining member of the Soviet triad.[4] The logical sequence of the episodes is as follows. First, as background, I will describe the Soviet metaphysics of Power and Knowledge, or the general theoretical formulation of the relationship between them. The practical solutions that were tried were noticeably different from, though influenced by the existing theoretical views. In the first approximation, one can speak of a Bolshevik pact of the 1920s between communists and specialists, which was broken off by the Cultural Revolution in 1928. The latter was an intermission, a radical and violent attempt to do away with the compromise in favor of the envisioned ideal. After an indirect acknowledgment that such utopian goals could not be fully achieved, a new order started to emerge in 1932, establishing a new, Stalinist pact between politicians and the intelligentsia. Despite attempts to renegotiate its basic terms after World War II, it remained valid at least until Stalin's death and the success of the Soviet nuclear weapons project. By 1960, however, the earlier compromise was finally replaced by a modified post-Stalinist or late Soviet pact that reflected the increased importance and power of scientists.

1. ELEMENTS OF SOVIET METAPHYSICS OF KNOWLEDGE AND POWER

The Russian Academy of Sciences celebrated its 200th anniversary in 1925. At the jubilee meeting, the party was represented by Politburo member, Chairman of the Communist International, and Leningrad party boss Grigorii Zinoviev, who delivered the following message: "We [communists] know that quite a lot of divisions exist between us and scientists." The party, however, "likes to hope that its program is totally grounded on the conclusions of science....It is indeed very strange that there exist some scientists who are against the revolution." And even if many scientists looked at Marxism with skepticism, "the era will come...when our two camps converge."[5]

That the relationship between scientists and communists was far from rosy was so obvious that mentioning the differences could not be avoided even on a festive occasion. Zinoviev even had to greet separately two distinctively different parts of his audience by addressing them with the phrase "Citizens and Comrades!" Although a significant portion of the scientists liked the idea of socialism, with very few exceptions they sympathized with political parties which opposed the Bolshevik regime. And despite their professed respect towards science, with very few exceptions Bolsheviks did not possess even basic scientific literacy and could be highly suspicious of scientists in real life. What is important, however, is that

4. A fuller version of this paper, which takes into account ideology and values, will appear in German translation as "Dialoge über Macht und Wissen," in Dietrich Beyrau, ed., *Im Dschungel der Macht. Intellektuelle Professionen unter Stalin und Hitler* (Göttingen, 2000), 45-64.

5. G. Zinoviev, *Nauka i Revoliutsiia: Rech' 9 sentiabria 1925 g. po sluchaiu 200-letiia Akademii nauk* (Lenigrad, 1925).

Zinoviev could not allow these unpleasant empirical realities to destroy the ideal picture of the relationship, for that was part of the Bolshevik metaphysical world. The ideal picture described how things should be, even though, in reality, they were not.

His way of saving the ideal image of the world from confrontation with the hard realities of everyday experience was very common, indeed used by practically everybody. When confronted directly, one can acknowledge the uncomfortable reality but also add that things are different "at some higher level," "in essence," "in most cases," or "in the future." When not pressed, one can simply proceed to arguing without modalities, replacing "should" with "is." Correspondingly, Zinoviev acknowledged discrepancies in public when addressing an audience of non-believers in 1925. But before an audience of fellow communists, or in the later period with its stricter limitations on public talk, a politician of his rank, instead of "lik[ing] to hope," would plainly state that "Party politics and ideology are scientific"—and also advance the symmetrical statement, "Science is *partiina*," which Zinoviev refrained from mentioning to the Academy in 1925 in order not to upset it.

These two complementary statements represent the core of the Bolshevik solution to the problem of knowledge and power. In the center of their ideal world was an imagined agency, called Party. This imagined Party should not be confused with the real one: the latter, for example, was ridden by conflicts and intrigues while the former had a single will and indivisible power. The Bolsheviks, however, were rarely allowed to acknowledge this difference in public talk, where the word "party" usually had to be used in its ideal meaning. The ideal Party was supposed to command single-handedly the knowledge of true politics, and therefore justifiably monopolized political power. In many Bolshevik phrases, Party substituted for power as a philosophical category. (Unofficial Soviet usage reversed the substitution, thus confirming the synonymy.)

The same Party was also the bearer of another kind of higher knowledge, the knowledge of true values and higher meanings of the world, society, and history. This knowledge required believers, guardians, and proselytizers, but it was not called Religion because Soviet society officially had no religion. Instead, this kind of higher knowledge went by the name Ideology and was thought to be contained in the specified body of classic texts by Marx, Engels, and Lenin. Although in practice the dominant meanings extracted from those texts fluctuated drastically and often unpredictably over the years, this inconsistency, like the difference between the ideal Party and the real party, could not be explicitly acknowledged in public discourse.[6]

Even in the world of communist dreams, however, the ideal Party was not expected to command the third kind of higher knowledge, the knowledge of the

6. The ideal world of communists had its inverse mirror image in the notion of totalitarian society professed by anti-communists. Despite being motivated by diametrically opposed

natural world. For this, Bolsheviks imagined a separate ideal agency which they called Science. In the Russian language, the word *nauka* (science) has a higher meaning than the word *znanie* (knowledge), and it has been used—since long before the Bolsheviks—as an elevated, philosophical category in phrases where Anglophone philosophers would normally speak of knowledge. Science as an ideal agency enjoyed a very high status in the Bolshevik world, compared to that of Party and People (or Proletariat). Bolsheviks knew that Party could not rule without relying on Science, in other words, that Power depended on Knowledge. On the other hand, they insisted that Science could not be separated from politics and ideology, in other words, that Knowledge could not be independent of Power. These two symmetrical epistemological theses were represented in the Bolsheviks' language as the two formulaic phrases about Science and Party quoted above.[7] In the Bolsheviks' metaphysical world, these were two different but interrelated agencies. The relationship between them could be nothing short of preexisting harmony, as pictured in the socialist realist painting below (Figure 1).

The genre of socialist realism prescribed the use of naturalistic images to represent the world as it should be rather than as it is. True to its canons, the painting depicts real historical characters and a meeting that actually took place in January 1921, when Lenin received representatives of the United Council of Learned Institutions (sitting left to right): the vice-president of the Russian Academy of Sciences, the mathematician V.A. Steklov, the president of the Military Medical Academy, Professor V.N. Tonkov, and the permanent secretary of the Russian Academy of Sciences, the orientalist S.F. Oldenburg. The real-world purpose of the visit was a protest by academics against their miserable economic conditions and the communist-enforced radical reform of higher education, which led to a series of strikes by Moscow and Petrograd professors. The painter satisfied the rules of the genre, however, by placing the meeting in the ideal world and making it symbolize the perfect understanding between Science and Party.

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judgments, both were based on structurally identical metaphysical pictures, in which all power effectively belonged to the single agency, Party, and was executed according to the preexisting master plan, Ideology. Both views had some meaningful relationship with an immensely more complicated reality, but both equally failed to keep in mind the difference between imagined and real worlds.

7. On "*partiinost'* of science" as a thesis about sociology of knowledge see David Joravsky, *Soviet Marxism and natural science, 1917-1932* (London, 1961), esp. 25. The clearest exposition of social constructivism in Marxist terms is the frequently criticized but rarely read classic by Aleksandr Bogdanov, "Nauka i rabochii klass" (1918), recently reprinted in A.A. Bogdanov, *Voprosy sotsializma* (Moscow, 1990), 360-376. On Bogdanov, see Zenovia A. Sochor, *Revolution and culture: The Bogdanov-Lenin controversy* (Ithaca, 1988); on his constructivist views on science, A.B. Kozhevnikov, "O nauke proletarskoi, partiinoi, marksistskoi...," in A.A. Pechenkin, ed., *Metafizika i ideologiia v istorii estestvoznaniia* (Moscow, 1994), 219-238.

FIG. 1 Socialist realist (i.e., naturalistic representation of the ideal) relationship between Party and Science. The painting by V.A. Serov, "A.M. Gorky and scientists meeting with V.I. Lenin," is reproduced from G.A. Mendelevich, ed., *Gor'kii i nauka. Stat'i, rechi, pis'ma, vospominaniia* (Moscow, 1964), 116. Standing on the right is Maxim Gorky, the proletarian writer who during the early phase of the Bolshevik regime played the role of mediator and patron of the Russian intelligentsia. Gorky pleaded with the authorities on behalf of starving and freezing artists and scholars unfit for the struggle for existence in the big cities devastated by the Russian Civil War. He convinced Lenin to establish the system of special academic rations, thus literally saving many lives. In the ideal world of socialist realist painting, his figure is representing classical Russian literature, of which he was the last living exemplar. The larger-than-life stature of Russian literature, so typical of the nineteenth century, dwindled in the course of the twentieth. After Gorky's death in 1936, no writer would even remotely approach his status as the Soviet Union's main cultural icon and authority. Science would replace literature as the center of Soviet culture and its dominant symbol.

2. THE BOLSHEVIK PACT WITH THE SPECIALISTS, AND ITS FAILURE

The practical relationship between Soviet politicians and scientists (in contrast to the ideal one, between Party and Science) was a far cry from preexisting harmony. It was rather a kind of negotiated compromise, the terms of which changed over time. The first Soviet pact of the 1920s was characterized by an unusually high participation of scientists and engineers in government agencies. Old Czarist ministries were dissolved: all that survived of the former Mining Department was its Geological Committee; of the Agricultural Ministry, the Agricultural Scientific Committee. The only continuity between former bureaucracies and new Soviet commissariats was the continuity of scientific expertise. During the first post-revolutionary years, as inexperienced communist officials were trying to learn the skills of everyday management, scientists and other professionals enjoyed much stronger political influence than they had had before the revolution. They were not just providing expertise, but directly participating in decision-making on politically important issues, such as metric, calendar, and spelling reforms, the grand project of electrification, and matters of everyday politics. The central state commission for planning the economy, Gosplan, had a communist engineer at the top but consisted otherwise of mostly non-communist professors and engineers. Non-party professionals also figured prominently in Soviet military, industrial, medical, agricultural, and educational bureaucracies.[8]

These professionals within Soviet government offices were called "bourgeois (sic!) specialists." The first word, "bourgeois," referred to the undeniable: not only were they non-communists, they did not speak, behave, or dress like communists, and they were not even expected to be sympathizers. "Specialists are unavoidably bourgeois *en masse*, due to the very circumstances of the social life that made them specialists," Lenin plainly admitted in early 1918 while formulating the basics of party politics toward experts.[9] Yet the second word, "specialists," changed the meaning of the entire label from negative to positive and implied a need for toleration and compromise, which in fact, could reach very far. Vladimir Ipatiev, monarchist, general of the Czarist army, and chemistry professor, was ap-

8. On the Geological Committee, see I.R. Kleonov, *Geologicheskii komitet, 1882-1929 gg. Istoriia geologii v Rossii* (Moscow, 1964); on the Agricultural Scientific Committee and its experimental stations, M.S. Bastrakova, *Stanovlenie sovetskoi sistemy organizatsii nauki (1917-1922)* (Moscow, 1973), 187-194; on electrification, Jonathan Coopersmith, *The electrification of Russia, 1880-1926* (Ithaca, 1992); on metric reform, B.I. Kozlov, "Metrologicheskaia reforma v SSSR (1917-1927 gg.)," *Voprosy istorii estestvoznaniia i tekhniki, 1* (1981), 24-34; on Gosplan, V.N. Ipatieff, *The life of a chemist: Memoirs of Vladimir N. Ipatieff* (Stanford, 1946), 306-308.

9. The official Soviet translation: "[T]he specialists, because of the whole social environment which made them specialists, are, in the main, inevitably bourgeois." V.I. Lenin, "The immediate tasks of the Soviet government" (1918), in *Collected works*, Vol. 27 (Moscow, 1965), 235-277, on 248. For more on the notion of "bourgeois specialists," see Loren R. Graham, *Science in Russia and the Soviet Union: A short history* (Cambridge, 1993), chapt. 4.

pointed *de facto* head of the Soviet chemical industry and sent to Germany in 1923 to conduct top-secret negotiations about producing chemical weapons.[10]

The condition for such an unusual collaboration was that specialists keep their private political views separate from their public professional service. The Bolsheviks' belief in preexisting harmony between true science and true politics worked to the extent that it helped to justify something rather improbable: the assumption that if specialists would leave their political values at home and enter public offices as professionals only, they would act as the communists' "natural allies." The most important boundaries between science and politics to be maintained and guarded during the period were that within government offices between their two constituents—political commissars and professional experts—and that within the minds of individual scientists between their political views and professional service. Communists were aware that these boundaries were not impermeable, that some specialists could fail to maintain the internal separation between politics and science and could also mislead technically illiterate commissars. They monitored government bodies and individual specialists for specific failures, but did not abandon the general terms of the compromise.

The more radical among the communists, however, worried that the boundary was even more permeable and that the "wrong" politics could be sold to them under the disguise of scientific expertise. In plain words, they suspected that bourgeois experts were guiding communist officials, not the other way around.[11] These views, which were not entirely unjustified, received official support in spring 1928, when the existing compromise with "bourgeois specialists" was declared a failure because of an alleged conspiracy of engineers in the small mining town of Shachty. This event signaled the outbreak of the so-called Cultural Revolution, which attempted to force the real world into correspondence with its ideal picture. Speaking in 1925, Zinoviev had cautiously expected the "convergence of our two camps," Party and Science, to occur in some unspecified future. The Cultural Revolution of 1929 strove to achieve this in just a few years. On the one hand, communist activists and radical students imposed political differentiations upon the existing body of specialists, separating so-called "wreckers," to be unmasked, fired, and often purged, from loyal ones, to be quickly "forged" into sincere communist sympathizers. A further, even more ambitious goal, was to create an army of new "red" specialists. While older professionals were forced to learn and internalize "cor-

10. On Ipatiev's political views and his collaboration with the Bolsheviks see Ipatieff (ref. 8), 246-393.

11. For an open expression of the concern that "specialists" could make Narkompros their agency and use government offices rather than the reverse, see *Piat'let sovetskoi vlasti* (Moscow, 1922), 508, quoted in P.V. Alekseev, *Revoliutsiia i nauchnaia intelligentsiia* (Moscow, 1987). On internal opposition to the party's official policy of cooperation with specialists, see Sheila Fitzpatrick, "The 'soft' line on culture and its enemies: Soviet cultural policy, 1922-1927," *Slavic review, 33* (1974), 267-287.

rect" politics, hundreds of thousands younger communists and proletarians were sent to colleges to learn and internalize scientific and technical knowledge.[12]

The latter were encouraged to graduate as quickly as possible, in two or three years, ignoring the traditional curricular requirements and discipline. The revolutionary chaos, during which the boundary between the scientific and the political was plainly rejected, lasted about three years as well. Once the first cohorts of hastily trained engineers entered the workplace, their lack of qualification was tacitly acknowledged. In June 1931 Stalin signaled the closing of the radical campaign by criticizing "excesses" of specialist-baiting. Although utopian goals were not realized, Stalin proclaimed the main objective to have been achieved. In his view, the old intelligentsia had learned its lesson and was "turning toward Soviet power."[13] From that point onward it became obligatory to state in public that Soviet scientists were devoted to the party's goals. This change in public speech was accompanied by changes in the practical relationship between politicians and scientists.

3. THE STALINIST PACT WITH THE INTELLIGENTSIA

Some things returned to where they had been before the Cultural Revolution, or even before the revolution of 1917. Old specialists were restored to high positions in professional—though not political—offices. Class preferences for students were abolished and replaced by insistence on high educational standards and discipline. Professional boundaries between scientists and politicians were restored: no longer would a person without academic qualifications be sent to direct an academic institute, no longer a non-communist specialist appointed to direct a

12. The application of the term "cultural revolution" to the social upheaval in the Soviet Union between 1928 and 1931 is due to Sheila Fitzpatrick, ed., *Cultural revolution in Russia, 1928-1931* (Bloomington, IN, 1978), 1-40. In an enlightening recent discussion, Michael David-Fox pointed out that the term's origins in Bolshevik usage preceded 1928 and that its actual historical meanings differed from the more famous Cultural Revolution in China in the 1960s, as well as from Fitzpatrick's usage; see Michael David-Fox, "What is cultural revolution?", and Sheila Fitzpatrick, "Cultural revolution revisited," both in *Russian review, 58* (1999), 181-201 and 202-209. It is also true that industrialization and collectivization figured more prominently than cultural revolution among the slogans of Stalinist revolution around 1930. The importance of Fitzpatrick's notion, however, is that it helped to conceptualize the events as a specific historical phase different from both the preceding society of New Economic Policy (NEP) and the later Stalinist society. The alternative and also somewhat conventional notion, the Great Break, which in the usage of historical actors referred to one specific year, 1929, is usually associated in the professional historical literature with models of a direct transition from NEP to Stalinism that did not acknowledge a socially distinctive intermediate stage.

13. On the campaign of purges in 1928-1931 against bourgeois specialists and its termination, see Kendall E. Bailes, *Technology and society under Lenin and Stalin: Origins of the Soviet technical intelligentsia* (Princeton, 1978), 69-156.

responsible government office. Yet, together with the stricter division of labor, one can observe a rapprochement between professional politicians and professional scientists: the two groups were starting to resemble each other in some important aspects. Consider first the politicians.

One could no longer find in government offices two collaborating but distinctly different species, bourgeois specialists and political commissars. Both were wiped out "as a class"—the former by the Cultural Revolution, the latter finally by the purges of 1937/8—and both were replaced by a new generation of political managers. A typical Stalinist apparatchik was raised as a communist and educated as a specialist; the Stalinist bureaucracy typically recruited its members from the graduating classes of engineering schools, not those of law or politics. Many who received their technical education during the Cultural Revolution went into politics and management.[14] Even if their scientific training was less than adequate for professional work as a scientist or engineer, it was certainly far superior to that of a conventional politician. That is why their political and managerial skills were considered superior to those of "old Bolsheviks," the brilliantly eloquent but technically illiterate political agitators and revolutionary conspirators. Here again, the practical solution reflected the ideal picture: the combination of communist upbringing and technical training was supposed to guarantee the "scientific" quality of political management. The purges of the old communists opened breathtaking career opportunities for the younger generation of Stalinist politicians. Some of them, by the late thirties—when they were themselves in their thirties—rose to become heads of government commissariats. By the time of Stalin's death in 1953 they constituted the bulk of the second echelon of politicians from which new Politburo members were recruited.

From their academic mentors the new generation of politicians learned not only basic science, but apparently some values as well. They wanted to appear "cultured," valued the aesthetics of a well-off middle class lifestyle (previously branded "bourgeois"), abandoned egalitarian values and proletarian appearances, discovered the simple pleasures of hierarchy and privileges, and generally referred to themselves as belonging to the "Soviet intelligentsia." Sheila Fitzpatrick has characterized the "Soviet intelligentsia" as the self-description of the new Soviet elite that came to power in the 1930s.[15] Professionals—engineers and scientists among them—were also considered part of the Soviet intelligentsia, and even though their level in the hierarchy of elite groups was certainly lower, they, too, enjoyed certain material privileges and prestige. But they also had to learn and internalize new values.

14. Sheila Fitzpatrick, "Stalin and the making of a new elite, 1928-1939," *Slavic review, 38* (1979), 377-402.

15. Sheila Fitzpatrick, "Becoming cultured: Socialist realism and the representation of privilege and taste," in Sheila Fitzpatrick, *The cultural front: Power and culture in revolutionary Russia* (Ithaca, 1992), 216-237.

A new generation was rising within academic ranks, too, many of whom were sincere communists. Since purges hit the academic elite less harshly than the political one, the generational change proceeded more slowly. The unwritten rule that required party membership for promotion to a high managerial position in the scientific establishment, beginning at the level of an institute director or a chief editor of a journal, did not become effective until the post-Stalin era. Throughout the entire Stalin period, non-party scientists continued to figure prominently at the top of the academic institutional hierarchy. But even older scientists, who had lived through the period of harassment and purges, had to declare themselves the party's conscientious supporters and sympathizers and to live up to this image.

It became easier for them to do this, because some of the new political values reminded them of their own older ones. They, too, liked the hierarchy and the restoration of academic titles and degrees, with corresponding prestige, which the egalitarian early Soviet regime had abolished as medieval relics. They welcomed the improvements in educational standards, discipline, and academic criteria. Even in official Soviet ideology they could recognize some themes borrowed from the ideology of older academics: the turn from internationalist to nationalist priorities was accompanied by propagandistic claims for Russian (pre-revolutionary) priority in the sciences. Such claims initially took root among Russian scientists in the years preceding World War I, when all European nations were preoccupied with this kind of cultural nationalism. Suppressed but not entirely forgotten during the revolutionary and internationalist period of Soviet history, they resurfaced in official discourse by mid-30s and inflated to caricature dimensions during the 1940s.[16]

Although the historian should not take at face value senior scientists' public declarations of love for the party, still some positive changes did occur. One of these cases has been widely discussed: Ivan Pavlov included in his address to the International Physiological Congress in Moscow in 1935 a statement of public praise for the Soviet regime's generous support of science, proposing a toast to the great social experimenters:

> As you know, I am an experimenter from head to foot. My whole life has been given to experiment. Our government is also an experimenter, only in an incomparably higher category. I passionately desire to live, in order to see the completion of this historic social experiment.

Pavlov had enjoyed such high status that even the terror of Cultural Revolution had not prevented him from publicly ridiculing communist policies. In 1935 he

16. The prototypical example was the claim by the Russian Physico-Chemical Society on behalf of A.S. Popov regarding priority in the invention of the radio. Although many such claims had at least some factual basis, gross overstatements and entanglement with nationalistic and political propaganda undermined their credibility. See, for example, A.I. Berg, ed., *Izobretenie radio A.S. Popovym. Sbornik dokumentov i materialov* (Moscow-Leningrad, 1945); N.A. Kaptsov, "A.S. Popov," in A.S. Predvoditelev, B.I. Spasskii, eds., *Razvitie fiziki v Rossii (Ocherki)*, Vol. 1 (Moscow, 1970), 264-269.

agreed, for the first time, to change his tune.[17] Even more striking is the entry in the private diary of the geochemist Vladimir Vernadsky. In 1937, during the frightening year of the great purges, Vernadsky dared to write down life-threatening phrases about police communism, about the horrors of the terror and dictatorship, and—not without some gloating—about the demise of old Bolsheviks whom he genuinely disliked. To these he added,[18]

> we see here that positive, creative work is done by "non-party" intelligentsia and by such men as Stalin, Molotov—but not by that vast mass of communists who are morally and intellectually below average. A conviction clearly understood and spreading among the intelligentsia is that the politics of Stalin-Molotov is Russian and is necessary for the state. Their party enemies are also enemies of the Russian people.

The restoration of order, hierarchy, and boundaries between science and politics meant a return to a compromise between scientists and politicians—a compromise that can be called the Stalinist pact. The new relationship has often been characterized in implicitly gendered terms. Soviet publications and statements pictured it as a romantic (but traditional) partnership between Party and Science. The former partner provided support and leadership, while the latter responded with sincere devotion and assistance, with both inseparably tied together by true and mutual love. Understandably, jealous ideological rivals denounced the relationship as one of tight control, abuse, and domination, occasionally even implying the metaphor of rape. Far from being either romantic love or forcible submission, the partnership—if we carry the gendered metaphor further—resembled more closely a traditional marriage of convenience. Based on some shared values and interests and a process of give-and-take, it was not free of occasional domestic violence.

4. POST-WAR NEGOTIATIONS ABOUT POWER

During the war, the U.S.S.R. could not afford the luxury of grand-scale advanced scientific projects with uncertain promise for the future. Such projects that imitated German and American undertakings were only launched at the very end of the war. By that time, the specter of the U.S. atomic bomb dominated the renewed Soviet discourse about science and politics and demanded changes in the terms of the compromise. According to David Holloway, Stalin feared the bomb as

17. Trans. in B.P. Babkin, *Pavlov: A biography* (Chicago, 1949), 162. Historians have good reason to doubt the ultimate sincerity of Pavlov's statement: Daniel Todes, "Pavlov and the Bolsheviks," *History and philosophy of the life sciences, 17* (1995) 379-418; Vera Tolz, *Russian academicians and the revolution: Combining professionalism and politics* (New York, 1997), 123-140. My point, however, is not sincerity but Soviet scientists' public image and Pavlov's decision to satisfy its criteria.

18. Vernadsky's private diary entry on 7 Jul 1937, in Vladimir Vernadskii, *Zhizneopisanie. Izbrannye trudy. Vospominaniia sovremennikov. Suzhdeniia potomkov* (Moscow, 1993), 234.

a diplomatic weapon rather than as a military one. The bomb became the very symbol of superpower status, which Stalin was determined to claim for his country.[19] It also was the symbol of the most advanced science. Thus the metaphysical idea that Power and Knowledge are at some level inseparable lost its abstraction: with the bomb it had acquired a very powerful representation in a concrete and much desired object.

On August 20, 1945, the Politburo ordered the creation of a Special Committee for replicating the Manhattan Project. This institution brought together scientists and top politicians, providing a forum for regular contacts and creating opportunities for renegotiating their respective spheres of authority. The first scientist who tried to shift the terms of the existing pact, as early as 1945, was a member of the Special Committee, Piotr Kapitza. Among Soviet politicians Kapitza was unofficially known for being "non-Soviet," yet they thought it was possible to work with him. During the war Kapitza had even been appointed to public office as the head of the Oxygen Trust, organizing a branch of industry for the production of liquid oxygen. Normally, the Stalinist pact would not have allowed this, but the war was an exceptional time, and an exception was made for Kapitza.[20]

The famous letters that Kapitza wrote to Stalin and other top politicians usually dealt with concrete problems of his work, but in such a way as to allow him to address more general topics. In fall 1945 he sent Stalin two long letters about the Special Committee and his conflict with its head, the terrifying former chief of the state police Lavrentii Beria. Kapitza also addressed general principles of the organization of the Soviet atomic project and the roles of scientists and politicians in the U.S.S.R. He used his own career as an illustration for the present unsatisfactory relationship:[21]

> My turbine oxygen producing installation...only got going when I, quite abnormally for a scientist, became the head of the Oxygen Trust....This was quite an abnormal and indeed absurd situation, and the power it brought weighed heavily on me, but I put up with it because there was a war on. Experience shows that I was able to make people listen to me only as Kapitza, Director of the Trust under the Sovnarkom, but not as Kapitza, the scientist....This is exactly the situation today in solving the problems of the atomic bomb.

Kapitza dared to propose to Stalin a redistribution of power between scientists and politicians, but since the words "party" and "power" were practically synonymous,

19. David Holloway, *Stalin and the bomb: The Soviet Union and atomic energy, 1939-1956* (New Haven, 1994), 150-171.
20. Aleksei Kozhevnikov, "Piotr Kapitza and Stalin's government: A study in moral choice," *HSPS, 22:1* (1991), 131-164.
21. Kapitza to Stalin, 25 Nov 1945, trans. in J.W. Boag, P.E. Rubinin, and David Shoenberg, eds., *Kapitza in Cambridge and Moscow: Life and letters of a Russian physicist* (Amsterdam, 1990), 372-378.

it was difficult to formulate the idea of the division of power in politically acceptable language. He thus resorted to a metaphor:[22]

> There was a time when alongside the emperor stood the patriarch; the church was then the bearer of culture. The church is becoming obsolete, and the patriarchs have had their day, but the country cannot manage without leaders in the sphere of ideas. Only science and scientists can move our technology, economy, and state forward. You, like Lenin, move the country forward as a scholar and a thinker. The country has been exceptionally fortunate to have such leaders; but there may not always be such interdisciplinary men. Sooner or later, we will have to raise scientists to the level of patriarchs. This is necessary because without it, scientists will not always serve the country with enthusiasm. We cannot buy such people. Capitalist America can, but not us. Without that patriarchal position for the scientist, the country cannot grow on its own...therefore, it is time for men like Comrade Beria to learn more respect for scientists.

Both Kapitza and Stalin must have been aware that the metaphor was wrong as a historical reference. Peter the Great, who was the first to proclaim himself the Emperor of Russia, also instituted a church reform that abolished the post of the patriarch. The institution of patriarchy in the Russian orthodox church was restored only after the revolution. But Kapitza needed the image of the patriarch alongside the emperor to symbolize the level of his claim. His proposal that the Party share power with scientists was not acceptable to Stalin. Although no answer in words exists—perhaps Stalin, too, lacked the appropriate language—he accepted Kapitza's request to resign from the Special Committee.

In contrast to Kapitza, the scientist who was chosen to lead the Soviet atomic effort, Igor Kurchatov, was "very Soviet" in the opinion of politicians, and that was why he was preferred to another candidate, A.I. Alikhanov.[23] Kurchatov's attitude about his role with respect to the party and the government was that of an exemplary military general: he minded his own business, stuck to his area of competence, and obeyed political orders. Very characteristically, the future scientific head of the Soviet atomic project had already been nicknamed "General" by his academic peers before the war.[24] In his perception—and that of many others—the atomic project was necessary to save the country from a possible nuclear attack and, as the direct continuation of the war-time effort, required equal discipline and self-sacrifice. Kurchatov himself is known for occasionally signing his letters as "soldier Kurchatov." It was very unlikely that he would start bargaining for better

22. Kapitza to Stalin, 3 Oct 1945, in P.L. Kapitza, *Pis'ma o nauke, 1930-1980* (Moscow, 1989), 232-235; partial English trans. in Boad, Rubinin, and Shoenberg, eds. (ref. 21), 368-370.

23. "Po trevoge. Rasskaz upolnomochennogo gosudarstvennogo komiteta oborony S.V. Kaftanova," *Khimiia i zhisn', 6* (1985), 9-11.

24. A.P. Aleksandrov, ed., *Vospominaniia ob Igore Vasil'eviche Kurchatove* (Moscow, 1988), 137.

terms with Stalin. Perhaps precisely because of Kurchatov's modesty and devotion, Stalin made the move himself in January 1946, at what was apparently his first meeting with the scientist. According to Kurchatov's notes, Stalin said[25]

> that our scientists were very modest and they sometimes did not notice that they live poorly...our state suffered very much, yet it is surely possible to ensure that several thousand people can live very well, and several [hundred] people better than very well, with their own dachas, so that they can relax, and with their own cars.

Stalin did not offer scientists more political power—the party was not allowed to trade away power—but he extended their privileges to a level comparable to those of the party elite. The word "privileges," too, could not be mentioned in official discourse, but Stalin found the way to make his offer public when, on February 9, 1946, he gave one of his very rare public speeches. This was a campaign address in advance of the first postwar elections to the Supreme Soviet, and it contained the necessary promises to the electorate. To Soviet citizens Stalin promised two things: the end of rationing, and a "wide scale construction of all kinds of scientific research institutes." He assured his audience that "no doubt...if we render the necessary assistance to our scientists they will be able not only to overtake but also in the very near future to surpass the achievements of science outside the boundaries of our country."[26] The latter phrase was also a message to foreign observers. Western analysts misinterpreted Stalin's speech—perhaps quite willingly—as a declaration of hostility, and this became an important event for the beginning of the Cold War. In fact, Stalin was not interested in hostility, but offered the former allies a competition. Ostensibly this was a competition in science. But since "the achievements of science outside the boundaries of our country" obviously meant the bomb, "science" was also a parable for superpower status. Stalin was not going to accept American hegemony based on a monopoly of nuclear weapons. He would not give up claims for superpower status and was ready to compete in science and, therefore, in power.

The phrase "to catch up and surpass!" subsequently became a popular slogan of the early Cold War period. It typically referred to science—not just nuclear, but any kind—and its motivation was sincerely shared by a great many Soviet researchers, who were also happy to enjoy their newly privileged status. This status did not include much in absolute material terms: "very well" for several thousand senior scientists meant sufficient quantity and somewhat better quality food from special rations and grocery stores and, with some luck, a separate apartment for the family. Although contradictory to the egalitarian Soviet mentality, these privi-

25. Holloway (ref. 19), 148.

26. I.V. Stalin, "Pre-election speech" (9 Feb 1946), quoted from Joseph Stalin, "New five-year plan for Russia, election address," *Vital speeches of the day, 12:10* (1 Mar 1946), 300-304, on 303.

leges meant a lot in relative terms, and in practice they were highly valued in a poor country ruined by the war, with burned-out villages and leveled cities and factories, with peasants starving and big-city dwellers living in shared, one-room-per-family apartments. Perhaps even more important was social prestige and public image in society, in which scientists now ranked higher than engineers, the pre-war elite among the professionals.

Like many other material rewards, such privileges were distributed in late Stalinist society strictly according to hierarchical criteria. The physicist Sergei Frish recalled with irony that as early as 1943, the Soviet Academy of Sciences used to have among its system of special stores and buffets some specially designated "for full members only." (Frish only became a corresponding member of the Academy.) Many postwar apparatchiks and some scientists developed the kind of obesity that reflected the stressful and sleepless life of the managerial elite and was also characteristic of those who had suffered enough from hunger in earlier years. Higher privileges in Stalinist society came together with grave responsibilities, increased dangers, and sacrifices at work. Valentin Berezhkov noted with some puzzlement that he had never had a cold during all the years that he worked as Stalin's personal interpreter; for the first time he felt sick and took a day off only after Stalin's death. Kurchatov, among others, received high doses of radiation while repairing a malfunctioned nuclear reactor in 1949.[27] Like Sergei Korolev, the head of the Soviet space program, and many Stalinist ministers, Kurchatov died at an early age of heart failure. For him and many others, those sacrifices were not unusual—in comparison to the much greater sacrifices by soldiers and civilians during the war—and worthy of the higher goal, "to catch up and surpass!"

5. THE POST-STALIN SETTLEMENT

By 1955 the Soviet atomic quest could be considered successful with the test of the first deliverable H-bomb. It brought a feeling of improved security and confidence in Soviet superpower status. Scientists had fulfilled their promise, and the government did not economize on honors, privileges, and new investments in scientific infrastructure. However, the public stature and prestige of scientists had risen so high that privileges alone were not sufficient, and a new round of negotiations was in sight. This time it was not a politically sophisticated senior scientist, but a young and inexperienced unsociable genius, Andrei Sakharov, who challenged the boundaries of the existing compromise. This did not come out of his political opposition to the regime—which started later—but arose because Sakharov himself was a believer in the ideal image of the socialist system, its morality and

27. S.E. Frish, *Skvoz' prizmu vremeni: vospominaniia* (Moscow, 1992), 332; V.M. Berezhkov, *At Stalin's side: His interpreter's memoirs from the October Revolution to the fall of the dictator's empire* (Secaucus, NJ, 1994); Arkadii Kruglov, *Kak sozdavalas' atomnaia promyshlennost' v SSSR* (Moscow, 1994), 74.

professed goals. Most scientists lose their political naiveté somewhere on the way up to positions of political importance. In his concentration on weapons design and his social isolation in the secret laboratory, Sakharov rose so quickly that he still possessed youthful idealism at the time of his first direct dialogue with political power.

Immediately after the successful test of 1955, the deputy minister of defense, Mitrofan Nedelin, hosted a banquet where Sakharov, as the chief designer of the device, was invited to propose the first toast:[28]

> Glass in hand, I rose and said something like: "May all our devices explode as successfully as today's, but always over the test sites and never over the cities." The table fell silent, as if I had said something indecent. Nedelin grinned a bit crookedly. Then he rose, glass in hand, and said: "Let me tell a parable. An old man wearing only a shirt was praying before an icon. 'Guide me, harden me. Guide me, harden me.' His wife, who was lying on the stove, said: 'Just pray to be hard, old man, I can guide it in myself.' Let's drink to getting hard."

Marshal Nedelin was a soldier: expressing his professional philosophy on the relationship with political leadership, he advised Sakharov to adopt a similar attitude. The topic of power sharing was as commonsensical as it was unspeakable in serious public discussion, like matters of sex in puritan Soviet culture. Nedelin thus alluded to it by means of a sexual allegory.

Sakharov was shocked and offended by what he felt was a rude and obscene demonstration of the limits he was not allowed to trespass. The episode provoked in him critical thoughts that his social world was not exactly as it was ideally described. But rather than accepting the unspoken compromise, he continued to take the Soviet metaphysics literally, not separating science completely from politics and values. Thus he asked an uncomfortable question, "what moral and political conclusions should be drawn from [scientific] figures,"[29] when estimating the radiation dangers of atmospheric nuclear tests. Soviet officials welcomed this as long as it helped them to criticize U.S. policies, but not when it started to contradict their own decisions on when to resume nuclear testing. On one such occasion, Nikita Khrushchev reprimanded Sakharov in a public but still friendly fashion.[30]

> Sakharov goes further. He's moved beyond science into politics. Here he's poking his nose where it doesn't belong. You can be a good scientist without understanding a thing about politics....Leave politics to us—we're the specialists. You make your bombs and test them, and we won't interfere with you; we'll help you....Sakharov, don't try to tell us what to do or how to behave.

28. Andrei Sakharov, *Memoirs* (New York, 1990), 194.
29. Gennady Gorelik, "Andrei Sakharov: From Russian theoretical physics to international practical humanics," talk given at the Berkeley conference.
30. Sakharov (ref. 28), 217.

Neither this advice, nor Sakharov's growing political maturity, prevented him from further interference in political affairs. In 1964, the Academy of Sciences was in the process of approving results for the elections of new members. The biology division presented several elected candidatures, among them Nikolai Nuzhdin, a particularly obnoxious associate of Lysenko. Although Lysenko's reputation and influence among politicians were then on the verge of collapsing, he was still officially in favor. Several physicists and mathematicians agreed to join efforts to vote down Nuzhdin, and they did. The mathematician Pavel Aleksandrov and the biochemist Vladimir Engelgardt questioned Nuzhdin's academic credentials, and the physicist Igor Tamm criticized him for opposing recent discoveries of gene structure and therefore hindering practical applications. Had Sakharov been informed of the conspiracy, he would have left the matter to more experienced senior colleagues. His entry into discussion was unprepared and emotional, once again breaking the politically acceptable code of public speech: "I urge all present academicians to vote in such a way that all positive votes belong only to persons who, together with Nuzhdin, together with Lysenko, share responsibility for the shameful, difficult period in the development of Soviet science which is currently coming to an end."[31]

The phrase provoked immediate scandal and impassioned protest by Lysenko. The Academy's president Mstislav Keldysh tried to smooth things over, calling Sakharov's remark tactless and urging the meeting to proceed to other topics. The exact wording of Sakharov's comments, however, did not refer to a individual candidate alone, but also implied a critique of the political decision by the Party to back Lysenko in 1948. Khrushchev was outraged by Sakharov's remarks and burst out angrily at the Central Committee Plenum in July 1964: "Comrades, for political leadership, I think, we have our Party and the Central Committee, and if the Academy of Sciences intervenes, we dissolve the Academy to hell."[32] He was protecting the politicians' sphere of expertise from public criticism, just as some scientists might have protected their field of professional expertise from external interventions. The threat to the Academy was not meant very seriously: Khrushchev was expressing his emotions rather than a potential action. But by letting emotions lead him, Khrushchev, like Sakharov, broke the code of accepted political talk. Three months later, when the Central Committee voted him out of the office, the inventory of Khrushchev's "serious political mistakes" included his "tactless" tone in relationship with the Academy and, further down on the list, his mistaken sup-

31. "Stenogramma zasedaniia Obshchego sobraniia Akademii nauk SSSR, 22-26 iiunia 1964 goda," in B.L. Alt'shuler et al., eds., *On mezhdu nami zhil... Vospominaniia o Sakharove* (Moscow, 1996), 857-866, on 861.

32. N.S. Khrushchev, "Rech'na Plenume TsK KPSS, iiul' 1964," quoted in V. Yu. Afiani and S.S. Ilizarov, "My razgonim k chertovoi materi akademiiu nauk'—zaiavil 11 iiulia 1964 g. pervyi sekretar' TsK KPSS N.S. Khrushchev," *Voprosy istorii estestvoznaniia i tekhniki, 1* (1999), 167-173, on 168.

port of Lysenko.[33] In post-Stalin and post-bomb times, the party needed to learn polite and non-confrontational ways of addressing science, if it wanted to receive the same in return.

6. CONCLUSIONS

In the late Soviet period, polite intercourse became the dominant characteristic of the relationship between political and academic elites. The public prestige and privileges of scientists in Soviet society remained in relative, though not absolute terms greater than in the West. The scientific establishment was granted a considerable degree of autonomy within the walls of the research institutes and inside a number of "scientific towns," such as Akademgorodok in Siberia, which were inhabited and managed largely by scientists themselves.[34] The party learned the lesson of the Lysenko mistake and paid respect to conventional boundaries of scientists' sphere of authority, no longer venturing into the risky business of openly taking sides in scientific controversies.

Reciprocally, scientists were not supposed to openly contradict official ideology or the party's political management of society. They had to behave appropriately as polite political animals and pay due respect to social conventions. Those who satisfied these requirements could receive certain privileges unthinkable for other Soviet citizens, like occasional and carefully measured permission to travel abroad. For the most part, the academic community learned how to live up to the terms of the new compromise in a non-confrontational way. Only Sakharov and a few other dissidents continued to insist that scientific expertise made them qualified to speak on political matters and to complain that "the scientific method of directing policy, the economy, arts, education, and military affairs still has not become a reality."[35] The unauthorized circulation and eventual foreign publication of this political essay in 1968 destroyed Sakharov's last ties to the political establishment.

The new polite relationship between science and politics carefully respected their mutual spheres of authority. How, then, could the high-level harmony between Science and Party be worked out in the mundane world? The solution found in the late Soviet period consisted of reciprocal cooptation. The party still lacked the means to divide political power in any official and explicit way, granting a portion of it to scientists as a guild. But it found a way to give selected representatives of the scientific establishment the status of politicians, by electing some top

33. "Kak snimali N.S. Khrushcheva. Materialy plenuma TsK KPSS. Oktiabr' 1964 g," *Istoricheskii Arkhiv, 1* (1993), 3-19, on 8.

34. On Akademgorodok, see Paul R. Josephson, *New Atlantis revisited: Akademgorodok, the Siberian city of science* (Princeton, 1997).

35. Andrei Sakharov, "Reflections on progress, peaceful coexistence and intellectual freedom," *New York Times* (22 Jul 1968). For excerpts and historical background see "Andrei Sakharov: Soviet physics, nuclear weapons, and human rights," internet exhibit at http://www.aip.org/history/sakharov.

academicians to the party's Central Committee and thus admitting them to the political elite proper. Reciprocally, the Academy of Sciences granted some representative managers of science and industry the status of scholars by electing them regular members of the Academy. This ritual of exchanging members between two tribes helped achieve a harmonious relationship for the first time in Soviet history. From 1964 until the end of the Soviet era, no record exists of any major disagreement between the Academy and the party.

The problem moved elsewhere: since only the top representatives of the academic hierarchy might move in political circles, the majority of scientists felt even more deprived of political power. A rift developed inside the academic hierarchy between those admitted to the political elite and the rest. The new location of the boundary between science and politics manifested itself openly during the era of Gorbachev's *perestroika*, when the Academy's official leadership was among the staunchest defenders of the Soviet status quo, while the rank-and-file intelligentsia demanded the most radical reforms.[36] The Soviet-type compromise between Knowledge and Power was no longer acceptable to them. Having alienated a major portion of its own elite, the Soviet regime lost its viability years before *perestroika*. In 1991 pro-democracy opposition by white-collar, scientific and technical workers in Moscow and Leningrad, together with nationalistic movements on the outskirts, finally brought down the rule of the communist party and then the U.S.S.R. itself. At least for Soviet science, success immediately proved to be self-destructive: together with the regime and the party, its moderate privileges, financial support, and elite social status were also gone.

The Soviet cultural experience is of a more enduring character, as various aspects of it—by borrowing, disguise, or negation—have been transformed into features of contemporary life. At the height of the Cold War, the Soviet and American metaphysics of Power and Knowledge had one thing in common: scientism, or the idea that Power depended upon Knowledge in ways that were most essential. They disagreed about the opposite direction of the arrow: in the U.S., science was proclaimed independent of ideology and politics, while Soviets thought that the boundary was permeable both ways. Rejecting the ideology of pure science, Soviet Marxists proclaimed instead the ideology of practically oriented and politically laden research. A further aspect of the difference was the metaphysics of Power itself: for the Soviets, power was indivisible and linked together with ideology. Today it is hardly possible to maintain either an unconditional belief in pure and apolitical science, or an ideology of undivided totalitarian power. Having abandoned these elements of the metaphysics of the two Cold War rivals, contemporary societies are trying to combine the rest, the idea of political pluralism and the view of science as entangled with society and its values.

36. Peter Kneen, "Soviet science policy under Gorbachev," *Soviet studies, 41* (1989), 69-87; Stephen Fortescue, "The Russian Academy of Sciences and the Soviet Academy of Sciences: Continuity or disjunction," *Minerva, 30* (1992), 459-478; Graham, *What have we learned* (ref. 1), chapt. 4.