

A Struggle for the Soviet Future: The Birth of Scientific Forecasting in the Soviet Union

Egle Rindzeviciute

▶ **To cite this version:**

Egle Rindzeviciute. A Struggle for the Soviet Future: The Birth of Scientific Forecasting in the Soviet Union. Slavic Review, 2016, 75 (1), pp.52-76. 10.5612/slavicreview.75.1.52 . hal-02186354

HAL Id: hal-02186354

https://sciencespo.hal.science/hal-02186354

Submitted on 17 Jul 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International License

A Struggle for the Soviet Future: The Birth of Scientific Forecasting in the Soviet Union

Eglė Rindzevičiūtė

This article argues for the importance of Soviet forecasting and scientific future studies in shaping Soviet governmentalities in the post-Stalinist period.[1] The de-Stalinization of Soviet governance not only involved the abolition of Iosif Stalin's personality cult but also led to wider intellectual changes in conceptions of the nature, possibilities, and tasks of governance. Some of these changes, such as the impact of cybernetics after its rehabilitation in 1956, have been explored by historians of science and technology.[2] However, although cybernetic control is based on prediction and therefore principally oriented toward the future, a new branch of scientific governance, scientific forecasting, has been overlooked, despite its transformative role as an applied policy science. Scientific forecasting sought to generate knowledge about the future states of the Soviet economy and society, becoming a field of reform, innovation, and power struggle, one that needs to be rediscovered by scholars.[3] This article lays the groundwork for such rediscovery, outlining a brief history of Soviet scientific forecasting and drawing out its relation to east-west intellectual and governmental interaction.

The introduction of scientific forecasting into Soviet governance was highly significant because its effects were quite ambivalent. Forecasting was intended to give planners more control over the future of the economy and society. However, the methodological principles of forecasting were incompatible with many features of the Soviet governmental apparatus, in particular state secrecy and the compartmentalization of data. As early as the mid-1960s, Soviet economic planners called for more transparency (glasnost) and, indeed, horizontal democracy, because these were understood as absolutely necessary for the new, scientific Soviet governmentality. In this way, the his-

This study was part of the research project "A Political History of the Future : Knowledge Production and Future Governance 1945–2010" (FUTUREPOL), funded by the European Research Council, at Sciences Po, Paris. I thank the FUTUREPOL team, particularly Jenny Andersson, as well as Barbara Czarniawska, Irina Sandomirskaja, and the two anonymous reviewers for their constructive comments.

1. The governmentality approach is increasingly influential in the Soviet studies. Oleg Kharkhordin, *The Collective and the Individual in Russia: A Study of Practices* (Berkeley, 1999); Eglė Rindzevičiūtė, *Constructing Soviet Cultural Policy: Cybernetics and Governance in Lithuania after World War II* (Linköping, 2008); Eglė Rindzevičiūtė, *The Power of Systems: How Policy Sciences Opened Up the Cold War World* (Ithaca, forthcoming); Johanna Bockman, *Markets in the Name of Socialism: The Left-Wing Origins of Neoliberalism* (Stanford, 2011); and Stephen J. Collier, *Post-Soviet Social: Neoliberalism, Social Modernity, Biopolitics* (Princeton, 2011).

2. See, for example, Slava Gerovitch, *From Newspeak to Cyberspeak: A History of Soviet Cybernetics* (Cambridge, Mass., 2002).

3. The history of scientific forecasting, Soviet and western alike, is mainly produced by the forecasters' self-narratives. For a Russian example, see P. V. Agapov, V. V. Afanas'ev, and G. N. Kachura, *Sotsial'noe prognozirovanie* (Moscow, 2009); and the many writings by Igor' Bestuzhev-Lada.

tory of Soviet scientific forecasting is also the history of the developments that connected de-Stalinization to perestroika.

The focus on scientific forecasting is also important because it offers a new case for studies of the Soviet system's opening up to the west: the development of scientific forecasting was anchored in international networks of scientists, policymakers, and activists.[4] According to Hunter Heyck, 1956 proved to be an annus mirabilis for the development of new ideas about governability and control in the United States. Around this date, a whole array of foundational texts were published declaring the birth of new policy sciences, such as decision analysis, operations research, and systems analysis.[5] These new fields were components of a particular future-oriented governmentality that built on a specific understanding of modernization as a universal process driven by the U.S. vision of technoscientific progress.[6] But these policy sciences also alerted governments to rapidly emerging technical and social changes, thus creating the need for richer, more reliable anticipatory knowledge. The western world that Nikita Khrushchev sought "to catch up to and surpass" imposed a requirement on the Soviets to change and embrace a new way of thinking about the knowability of both nature and society and the uses of this knowledge for governmental purposes.[7] To live up to its self-proclaimed status as an advanced country, the Soviet Union bought into this new world of advanced methods and problems.

Scientific forecasting, to be sure, is one of many innovative scientific approaches belonging to the hybrid field of future studies, which took shape during the 1950s and boomed in the 1960s.[8] The approaches diverged, as scholars were guided by quite contrasting visions as to the role of scientific expertise

4. Jenny Andersson, "The Great Future Debate and the Struggle for the World," *American Historical Review* 117, no. 5 (December 2012): 1411–30; Grégoire Mallard and Andrew Lakoff, "How Claims to Know the Future Are Used to Understand the Present: Techniques of Prospection in the Field of National Security," in Charles Camic, Neil Gross, and Michele Lamont, eds., *Social Knowledge in the Making* (Chicago, 2011), 339–78; and Jenny Andersson and Eglė Rindzevičiūtė, eds., *The Struggle for Long-Term in Transnational Science and Politics: Forging the Future* (London, 2015). For a recent discussion of the legacy of future studies in the social sciences, see Helga Nowotny, *The Cunning of Uncertainty* (Cambridge, Eng., 2015); and Louise Amoore, *The Politics of Possibility: Risk and Security beyond Probability* (Durham, 2013).

5. Hunter Heyck, *Age of System: Understanding the Development of Modern Social Science* (Baltimore, 2015).

6. On the U.S. notion of modernization, based on Walt Whitman Rostow's concept of development, see Nils Gilman, *Mandarins of the Future: Modernization Theory in Cold War America* (Baltimore, 2003).

7. See, for example, Philip Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science* (Cambridge, Eng., 2002); S. M. Amadae, *Rationalizing Capitalist Democracy* (Chicago, 2003); and Paul Erikson, Judy L. Klein, Lorraine Daston, Rebecca Lemov, Thomas Sturm, and Michael D. Gordin, *How Reason Almost Lost Its Mind: The Strange Career of Cold War Rationality* (Chicago, 2013).

8. The term *scientific forecasting*, translated into Russian as *nauchnoe prognozirovanie*, designates different future studies methods, some of which capitalized on mathematical methods and sought to extrapolate current trends into the future while others put a premium on expert evaluation and scenario methods that combined quantitative and qualitative approaches. In this article, I treat forecasting and scientific future studies as synonymous. For an accessible overview of different approaches in future studies,

in government. If the Austrian writer Robert Jungk promoted future studies as a democratic process from below, the U.S. scientist Herman Kahn sought to influence high politics with his cost-benefit scenarios of the world future in *On Thermonuclear War* (1960). Indeed, in the United States, much future studies work came from the military-industrial complex, most notably the RAND Corporation, where Kahn began his career. At RAND, Olaf Helmer and his team developed the Delphi method, an influential technique of anonymous expert surveying conducted over several rounds to bring specialists' views close to consensus, first publicized in 1964. Large-scale planning was another area in which scientific examination of the future was developed and promoted by international organizations, such as the Organization for Economic Cooperation and Development (OECD), for which the prominent representative of technoscientific forecasting Erich Jantsch conceptualized explorative and normative forecasting techniques in 1967.

The 1960s boom in future studies increased awareness that more knowledge about the future produced more uncertainty. Even the scientific forecasters, representing the most quantitative branch of future studies, admitted that their method was able to produce alternative paths of development only for narrow sectors and short-term periods; for example, a reliable demographic forecast of a given state's population could be made for the next thirty years, but only if the factor of migration was excluded. The introduction of more complexity would make any future, even a communist one, essentially uncertain in the long term and, in consequence, knowable and governable only to a limited extent. How could this approach, apparently so disruptive with regard to what was described by James Scott as the Soviet high modernist ambition to rationally plan and control the development of both society and nature, be adopted and used in the Soviet Union?

In this article, I examine these questions through two cases central to the history of Soviet forecasting: the debates about long-term economic planning in the 1960s, and the emergence of social forecasting. I argue that due to its postpositivist epistemology, but also its close relation to the strategically important computer technologies, scientific forecasting was particularly conducive to criticism of Soviet economic planning. Scientific forecasting enabled some actors to reform (at least intellectually) Soviet governance: a demand for glasnost in the circulation of data was posed as a necessary condition for producing valid forecasts as early as the 1960s.[9] Other actors assumed a more complacent approach, seeing the scientific forecasting of society as a tool of surveillance and a shortcut to a political career. I argue that, whether reformative or complacent, Soviet forecasting incrementally undermined the ambition for total, centralized control.

Due to space limitations, this article will briefly introduce the interwar experiments in the development of future studies for the purposes of communist

see Tuomo Kuosa, *The Evolution of Strategic Foresight: Navigating Public Policy Making* (Farnham, 2012).

9. Note that the word *glasnost* was also used by the KGB in the late 1950s to rehabilitate its status. Julie Elkner, "The Changing Face of Repression under Khrushchev," in Melanie Ilic and Jeremy Smith, eds., *Soviet State and Society under Nikita Khrushchev* (London, 2009), 149.

governance, before situating post–World War II future studies as a component of cybernetic governmentality. This will be followed by a longer discussion of debates about forecasting as a tool to improve economic planning conducted at the State Planning Institute (Gosplan) in 1966.[10] These debates were of central importance because they set a formula according to which scientific studies of the future of Soviet society were subordinated to economic planning goals. The article's last section will provide a critical perspective on the contribution of Igor' Bestuzhev-Lada, a Russian scholar who is described in the internal historiography of future studies as the key, pioneering promoter of social forecasting in the Soviet Union. However, Bestuzhev-Lada remains unknown in the histories of Soviet science, even sociology, although he worked at the prominent Institute for Concrete Social Research, which has attracted a lot of historians' attention because of its dramatic fate: the institute sought to rejuvenate Soviet social studies with western sociological theories and as a result was purged and placed under tight ideological control. Bestuzhev-Lada nevertheless looked beyond sociology. Outlining his efforts to dominate the field of social forecasting, I demonstrate how the struggle for the Soviet future turned into a struggle for Soviet future studies.

Knowing and Controlling the Future in Postrevolutionary Russia

Soviet forecasting evolved in close proximity to planning, and their histories are closely intertwined. In Russian historiography, the roots of Soviet forecasting are traced back to the idea of the State Commission for Electrification of Russia (GOELRO) to develop a fifteen-year state plan for the development of electrical infrastructure, launched in 1920. GOELRO planners and engineers became aware that the electricity grid's costly and large-scale infrastructure could not be developed without precise knowledge of the types and locations of the future industries to be served by it. Furthermore, as the plan's implementation extended at least fifteen years, the planning had to anticipate future technology changes.[11]

The GOELRO project led to the institutionalization of centralized national planning in Soviet Russia and the establishment of a central planning commission (Gosplan), where the first methodological thinking about the future was articulated by the urban planner Vladimir (Rudnev) Bazarov. A childhood friend of the pioneering systems theorist Aleksandr (Malinovskii) Bogdanov, Bazarov was involved in the writing of the first perspective plan (*perspektyvnyi plan*), in 1921–29. Convinced that technoscientific development was a continuous process, which could not be wholly determined beforehand, Bazarov published articles claiming that Soviet plans should never specify the means

10. The most influential institutes were those of the All-Union Academy of Sciences, Gosplan, and the State Committee for Science and Technology under the Council of Ministers. The Central Institute for Mathematical Economics calculated economic and demographic forecasts, the academy's Computer Center did forecasts on oil and gas procurement and environmental and climate change, labor markets were forecasted by the Institute of International Labor Movement, and the lifestyle and the attitudes of youth were explored at the Institute for Concrete Social Research.

11. Collier, *Post-Soviet Social.*

and ends in minute detail. Instead, the plans should be open-ended "plans-prognoses." Indicating that policy measures would be adjusted as the need arose, this approach stated the necessity of an open and flexible framework to govern the future.[12]

A deep, epistemological question remained, however: could the future be known scientifically? The answer was formulated in the adjacent milieu of the nascent management science (*nauchnaia organizatsiia truda*, NOT) in the 1910s–20s. One of the first systematic Russian thinkers about the management of the future was the French-educated Valer'ian Murav'ev, a research secretary at the Central Institute for Labor, founded by Aleksei Gastev in Moscow in 1920.[13] Murav'ev's essay "The Mastery of Time as the Key Task in the Organization of Work" (1924) elaborated on the Einsteinian notion of time. For Murav'ev, if time were understood as an expression of the relations between things, it would be possible to know the future by studying these abstracted sequences of material relations. To know the future is to accumulate knowledge about possible configurations of things and their relations and then to sequence these configurations—an immense task, but possible from an epistemological point of view.[14] In a similar way, the knowability of the future was postulated in terms of a theory of developmental cycles, most famously the economist Nikolai Kondrat'ev's idea of long economic waves.[15]

The future was defined as consisting of both material and social components—technical structures, people, and behavior. An important addition here was behaviorist time control, developed in Russian time and motion studies. Gastev, together with Platon Kerzhentsev, a journalist and member of the communist government, founded the League of Time, which sought to "systematize time" via planning, in 1923, aiming to transform the backward practices of Soviet industries and administration by introducing precision: "Instead of 'maybe'—an exact calculation; instead of 'in some way'—a well-thought-through plan; instead of 'somehow'—a scientific method; instead of 'in some time'—at 20 hours 35 minutes on the 15th of October."[16] Once future configurations were sequenced, they could be controlled, and controlled precisely. Many more examples could be called in to support my case, but the point is that the fundamental set of approaches to temporality in relation to governance emerged in postrevolutionary Russia: the need for flexible planning based on forecasting (at that time a linear statistical extrapolation), a contention that governed objects, be they human bodies, firms, or large-scale technical systems, were fundamentally knowable. No less important was the postulate that no efficient organizing was possible without exact and empirical scientific knowledge.

In retrospect, these innovative efforts were severely limited in their appli-

12. V. S. Klebaner, "V. A. Bazarov: Myslitel', uchenyi, grazhdanin," *Problemy prognozirovaniia* 6 (2004): 153–54.

13. I thank Oleg Genisaretskii for drawing my attention to Murav'ev.

14. V. N. Murav'ev, *Ovladenie vremenem kak osnovnaia zadacha truda* (Moscow, 1924).

15. N. D. Kondrat'ev, *Bol'shie tsikly kon"iunktury i teoriia predvideniia* (Moscow, 1924–28; 2002).

16. P. M. Kerzhentsev, *Printsipy organizatsii* (Moscow, 1921; 1968), 376.

cation and literally short-lived. Soviet planning processes, as detailed by Peter Rutland and then Paul Gregory, remained hopelessly confused, and only five-year plans provided some general guidelines, albeit in a highly aggregated manner.[17] Soviet workers remained unskilled and their living conditions were often worse than before the revolution.[18] Soviet management scientists lacked basic equipment to conduct their experiments or to train managers.[19] That many time-motion studies could not be empirically conducted for a lack of stopwatches was one of the lesser concerns: the changing political climate would soon claim the very lives of the scientific time managers. Gosplan was purged in 1937. Murav'ev was sentenced to death on political grounds but died from disease before the execution. Kondrat'ev, Gastev, Kerzhentsev, and Bazarov were executed in 1938–40. Access to their work was forbidden to both the public and specialists. Gastev's and Kerzhentsev's work would be republished in the mid-1960s, but Murav'ev's and Bazarov's would become available in Russian only in the 1990s. Therefore, the post-Stalinist predictive policy sciences—in particular, technology assessment—developed in dialogue with American and western European scholarship rather than within its own, Russian tradition. A fundamental role in opening up a space for this dialogue was played by cybernetics.

Cybernetic Governmentality of the Soviet Future

Scientific forecasting, based on statistical time series and used to identify probabilistic future states of a given process, was part of what I call a cybernetic governmentality.[20] In line with Michel Foucault, I use the concept *governmentality* to emphasize that state governance should not be reduced to law, formal bureaucracy, and the exercise of power through the external imposition of force. The exercise of governmental power can also be traced in the different intellectual and material techniques of ordering human behavior or the environment.[21] After the war, cybernetics became a significant source of such governmental techniques. Developed by the American mathematician Norbert Wiener during WWII and widely disseminated beginning in the 1940s, cybernetics, a science of communication and control, was first banned

17. Peter Rutland, *The Myth of the Plan: Lessons of Soviet Planning Experience* (London, 1985). Gregory suggests that the Soviet economy was in fact guided by shorter-term operational plans. According to him, five-year plans were only "propaganda instruments," used to focus "the population on the bright future." He does not, however, discuss the role of longer-term, fifteen- to twenty-year plans. Paul Gregory, *The Political Economy of Stalinism: Evidence from the Soviet Secret Archives* (Cambridge, Eng., 2004), 118–20, 124.

18. Loren Graham, *The Ghost of the Executed Engineer: Technology and the Fall of the Soviet Union* (Cambridge, Mass., 1996).

19. Daniel A. Wren, "Scientific Management in the U.S.S.R., with Particular Reference to the Contribution of Walter N. Polakov," *Academy of Management Review* 5, no. 1 (January 1980): 1–11.

20. I developed the concept of system-cybernetic governmentality in Rindzevičiūtė, *The Power of Systems*.

21. For the classic discussion of the Foucauldian approach to governmentality, see Graham Burchell, Colin Gordon, and Peter Miller, eds., *The Foucault Effect: Studies in Governmentality* (Chicago, 1991).

in 1948 then rehabilitated in the Soviet Union in 1956, eventually being declared *the* science of governance. In the Soviet Union, cybernetics stimulated the invention of cyberspeak, a policy jargon of advanced socialism, but it also transformed Soviet governance by giving it a new orientation to the future.[22] Goal-oriented cybernetic control linked the past, present, and future through feedback loops of free-flowing information, a process that was a world apart from dictatorial goal-setting.

A mechanical universe was replaced with a cybernetic one. The metaphor of workers as cogs in the machine was replaced by one of people as carriers and conductors of information in Soviet governmental discourses.[23] Significantly, the cybernetic notion of "teleological" or purpose-guided behavior rejected Newtonian mechanical causality, because cybernetics referred to an activity that was determined not by past causes but by future goals and regulated through real-time feedback loops.[24] Alongside cybernetics, the systems approach postulated complexity and interconnectivity: no single actor, be it human or machine, could be appropriately controlled without taking into account its multiple links.[25] We need to pause here to stress that Wiener's idea of teleology should not be confused with the Soviet concept *tselevoe planirovanie*, created in the 1920s and translated in English as "teleological planning," because these are two different approaches that invoke different types of governmentality. According to Stephen Collier, tselevoe planirovanie put a premium on the plan's internal consistency, preferably expressed numerically, and thus promised the illusion of total control over planning instruments and targets.[26] Therefore, tselevoe planirovanie had none of the flexibility of a real-time feedback system as conceptualized by Wiener, designed to respond to the ever-changing environment in order to stay on course.

Furthermore, the intellectualization of control was accompanied by intellectualized work enabled by advances in computer technology. Left-leaning western thinkers warned that automation threatened to make manual labor redundant and to completely transform class-based politics and society.[27] In the 1950s, a group of liberal intellectuals associated with the Congress of Cultural Freedom formulated a vision of a new, postindustrial society based on an economy driven by services and information.[28] By the mid-1950s, the

22. Gerovitch, *From Newspeak*.

23. Arkhiv Rossiiskoi akademii nauk (ARAN), f. 1977, op. 2, d. 5, l. 2.

24. Arturo Rosenblueth, Norbert Wiener, and Julian Bigelow, "Behavior, Purpose and Teleology," *Philosophy of Science* 10, no. 1 (January 1943): 18–24.

25. Agathe C. Hughes and Thomas P. Hughes, eds., *Systems, Experts, and Computers: The Systems Approach in Management and Engineering, World War II and After* (Cambridge, Mass., 2000).

26. Collier, *Post-Soviet Social*, 62–64.

27. David F. Noble, *Forces of Production: A Social History of Industrial Automation* (Oxford, 1986).

28. Funded by the CIA, the congress contributed to the discrediting of the leftist movement in the west. However, this did not entirely obstruct the spread of the participants' ideas, such as the idea of a new service and knowledge-production–driven economy by one of the founders of management as an intellectual field, Peter Drucker, in his *The Landmarks of Tomorrow* (New York, 1959). In the Soviet context, much more controversial were the ideas articulated by David Bell in his *The End of Ideology: On the Exhaustion of Politi-*

theory of the scientific-technical revolution (STR) had emerged, according to which technoscience drove both economic growth and social change, leading to major transformations in both state socialist and capitalist societies.[29] The Soviets adopted a particular version of the STR articulated by the leftist British scientist and public intellectual John Desmond Bernal back in 1939.[30] One of the underlying reasons for introducing the STR into the Marxist-Leninist version of development was its emphasis on universalism and "peaceful struggle in economics," which was expected to facilitate east-west technology transfer.[31]

Underscoring the fundamental importance of prediction in controlling complex, goal-oriented processes, this cybernetic governmentality bred new approaches and techniques for extracting knowledge about the future. Obviously, in the Soviet Union, these ideas were subject to careful political censorship. For instance, the western term *futurology*, coined by the German scholar Ossip Flechtheim in 1943, was not well received; the theory was derided as a bourgeois science, although unlike cybernetics and genetics, it was never completely rejected. Indeed, Flechtheim's call to liberate the future, be it state socialist or capitalist, from technocrats could hardly appeal to the Soviets. Being similarly skeptical about the plural *futures studies*, the Soviets preferred *prognozirovanie*, translated into English as "forecasting." Yet western future studies based on quantitative methods were borrowed in piecemeal fashion, making them correspond crudely with dialectic materialism. For instance, in 1969, two influential scientists from the military-industrial complex and promoters of information theory, Germogen Pospelov and Vitalii Maksimenko, pointed out that "the best-known method in our country" was the Delphi method, adding that although it was created at RAND, the method could only be useful in a state socialist regime.[32] These ideological quibbles, however, did little more than disguise the power of scientific forecasting, which was both the medium and the message.

---

cal Ideas in the Fifties (Glencoe, 1960) and *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York, 1973). For more, see Frances Stonor Saunders, *Who Paid the Piper? The CIA and the Cultural Cold War* (London, 1999); and Elena Aronova, "The Congress for Cultural Freedom, 'Minerva,' and the Quest for Instituting 'Science Studies' in the Age of Cold War," *Minerva* 50, no. 3 (September 2012): 307–37.

29. Margaret J. Osler, *Rethinking the Scientific Revolution* (Cambridge, Eng., 2000).

30. "Sotsial'nye posledstviia nauchno-tekhnicheskoi revoliutsii i sovetskii rabochii klass," ARAN, f. 1977, op. 2, d. 5, l. 1. Bernal's *Science in History* (1954) was published in Russian as *Nauka v istorii obshchestva* (Moscow, 1956). For more on Bernal and the STR, see H. Floris Cohen, *The Scientific Revolution: An Historiographical Inquiry* (Chicago, 1994). Theorists in other state socialist regimes formulated their own versions of the STR, for instance, the Czechoslovak scholar Radovan Richta. See Vítězslav Sommer, "Forecasting the Post-Socialist Future: *Prognostika* in Late Socialist Czechoslovakia, 1970–1989," in Andersson and Rindzevičiūtė, eds., *The Struggle for the Long-Term*, 144–68.

31. "NTR i problemy klassovoi bor'by" (1969), ARAN, f. 1957, op. 1, d. 62, ll. 44–45.

32. The term *Delphi method* was originally created by Abraham Kaplan in 1950, and the method was developed by Olaf Helmer, Norman Dalkey, and T. J. Gordon at RAND. On Soviet adaptation of the Delphi method, see G. S. Pospelov and V. I. Maksimenko, "Predislovie," in I. V. Bestuzhev-Lada and R. A. Fesenko, *Gorizonty nauki i tekhniki* (Moscow, 1969), 8–9; and Jenny Andersson, "Forging the American Future: RAND, the Commission for the Year 2000 and the Rise of Futurology" (forthcoming).

Forecasting in Service of Centralized Planning?

After Stalin's death, Soviet planners turned their attention back to the western experience of economic governance. During postwar reconstruction, but even more so in response to the Soviet economy's slowing growth, which became evident by the late 1950s, Gosplan grew and professionalized.[33] An important innovation was the 1955 establishment of the Scientific Research Institute of Economics (NIEI), dedicated to macroeconomic problems and the development of normative conceptual foundations for perspective planning.[34] One of NIEI's tasks was to learn from similar governmental bodies in the west. In November 1958, NIEI director and prominent economist Anatolii Efimov, together with six colleagues, embarked on a two-week trip to France. There was a good reason for that: the French government put a premium on large-scale and rather centralized planning, and, under Pierre Massé, as commissaire général du Plan, new methods of planning based on long-term forecasting were developed. Thus, in addition to factory visits, Soviet economists learned about political economist Jean Monnet's plans and the work of the commissariat. Back in Moscow, Efimov wrote in his report that French "planning organs naturally need to satisfy themselves with merely making a kind of 'program-prognosis,' which is made on the most general level and does not command anyone. It is in this sense that the term 'planning' is used in relation to the French economy." Having labelled this kind of planning "indicative," Efimov continued: "It is clear that under the indicative system of planning, even the most perfect method of making the branches of the economy proportionate cannot guarantee a lawful development of economics."[35] This encounter with French practices of central planning was crucial because it contributed to the establishment of a particular notion of forecasting in the Soviet Union. Forecasting was understood as "failed planning," a compromise and a tool that a weak state planning agency used to coordinate a free market economy, designed to compensate for the absence of central directive–based planning. Accordingly, forecasting was deemed unnecessary in directive-led Soviet economic planning.

And indeed, long-term plans could be and were made without forecasting. The first long-term plan (for fifteen years) was made by Gosplan just before the Nazi invasion in 1941. In the late 1950s, Gosplan produced a twenty-year plan called "a general perspective" for the period 1961–80.[36] Both plans claimed to be based on interbranch balances, which in fact could be classified as a type

33. Gregory, *The Political Economy of Stalinism*.

34. Rossiiskii gosudarstvennyi arkhiv ekonomiki (RGAE), f. 99, op. 1, ll. 1–4. From 1960 to 1964, NIEI was under the State Economic Council.

35. "Otchet" (November 1958), RGAE, f. 99, op. 1, d. 858, ll. 5–6.

36. A 1957 scheme for continuous planning included general perspective plans (for fifteen to twenty years), five-year plans, and annual plans. RGAE, f. 99, op. 1, d. 862, ll. 21–22. A French planner noted that Gosplan's perspective planning was based on calculations of optimal development of existing trends. French prospective planning indicated several quite different futures and was "not thinkable" for Soviet economists. Robert Fraisse, "Notes sur planification a long terme en Union Sovietique" (December 1966), BR 4/513/8, Sciences Po, 11.

of forecasting, as it enabled modeling future configurations of the economy. The 1941 plan was, however, merely a conceptual exercise, because there was not a sufficiently developed mathematical method for calculating such a balance. The 1950s plan was no better. The talented economist Emil' Ershov, who would leave later NIEI to become the director of the Central Institute of Mathematical Economics (TsEMI), recalled a complete absence of any methodological literature when he was asked to develop the interbranch balances in the late 1950s.[37] The calculations done for the 1961–80 plan were criticized by both westerners, most famously Wassily Leontief, and Soviet economists.[38]

However, predictive methods were necessary for any complex automated systems and, just like cybernetics, which was publicly banned between 1948 and 1955, were developed secretly in the military-industrial complex. In turn, scientific forecasting was first formulated as part of the process of military-technology assessment and defense strategy: in the 1940s–50s, complex statistical series extrapolation methods, as well as other methods of decision sciences, were most certainly developed at Soviet military-research institutions.[39] Soviet publications on forecasting in research and development also preceded the ones in economic planning. For instance, in 1964, *Voprosy filosofii* (The Issues of Philosophy) published the first article about forecasting methods in organizing scientific research, authored by Genadii Dobrov, a Ukrainian scientist who participated in pioneering projects for the development of computers in Kyiv and later established himself as the leading authority on research policy.[40] Memoirs also hint that the spread of forecasting in the Soviet Union resembled that in the United States, where the military control techniques developed at RAND were extended to the civil sector, although Russian historiography remains opaque about this.[41]

It was the introduction of a new large-scale technical project that propelled scientific forecasting in Soviet economic planning forward in the late 1950s, just like it did in the 1920s. The breakthrough came when the Soviet government decided to develop Siberian oil and gas fields and build a pipeline to Europe, a project that equaled GOELRO in significance. As a vice chairman of the Council of Ministers and then chairman from 1964, Aleksei Kosygin personally supported this project and was aware that the new technological structure required a longer-term outlook. He was also receptive to the ideas of the prominent Russian computer scientists Germogen Pospelov and Viktor

37. Grigorii Sapov, "Tri interv'iu s E. B. Ershovym. Pervoe interv'iu" (February–March 1999), at www.sapov.ru/staroe/si06.html (last accessed December 5, 2015).

38. "Stenograma" (Moscow, December 14, 1966), RGAE, f. 99, op. 1, d. 869; Bernard Rosier, ed., *Wassily Leontief: Textes et itinéraire* (Paris, 1986).

39. I base this statement on the memoir by N. N. Moiseev, *Kak daleko do zavtreshnego dnia . . . : Svobodnye razmyshleniia, 1917–1993* (Moscow, 1997).

40. Iu. V. Ershov and A. S. Popovich, "Propushchennaia vozmozhnost' obognat' Ameriku, ili k chemu provodit ignorirovanie prognoz," *Top Club Journal* 3, no. 21 (2012): 8–17; Genadii Dobrov, "O predvidenii razvitiia nauki," *Voprosy filosofii*, no. 10 (1964): 71–82.

41. See N. N. Moiseev, *Kak daleko*; Fred Kaplan, *The Wizards of Armagedon* (Stanford, 1991); and Joy Rohde, *Armed with Expertise: The Militarization of American Social Research during the Cold War* (Ithaca, 2013).

Glushkov, who offered to computerize planning and reorient it to incorporate different methods of forecasting.[42] Furthermore, Kosygin worked in tandem with his son-in-law, Dzhermen Gvishiani, an influential westernizer of Soviet management and mediator of many large east-west trade deals. The 1920s Soviet version of Taylorism was revived and upgraded by Gvishiani, who in 1963 authoritatively announced that "governance was first and foremost a science," claiming that both personal experience and a narrow specialization in engineering were "totally insufficient" in the context of the increasingly complex role of governance and calling for extensive retraining of Soviet managers.[43] Once Khrushchev was ousted, in 1964, and Kosygin climbed up the political hierarchy to become second only to Leonid Brezhnev, the future of Soviet scientific future studies was sealed. Planning was to be optimal, scientific, and based on a wide array of short- and long-term predictions.[44] In his 1965 speech at Gosplan, Kosygin proclaimed that scientific forecasting was the key component of planning, because "planning is a science." Gosplan should from then on supply the republics' governments and companies with scientific forecasts, to be revised in light of local context and sent back to the central planners.[45] Kosygin's notion of forecasting's role in planning would remain set for the next twenty-five years: "Discussions of scientific forecasts need to precede the development of plans for the branches of the national economy. . . . We need to forecast scientifically the development of every branch of industry to be able to give way in time to the most advanced and progressive developments."[46] From 1965, both Gosplan and the Academy of Sciences institutes began to develop long-term forecasts for economic development.[47] In December 1966, the first open academic meeting dedicated to the conceptual development of long-term planning on the basis of forecasting was organized in Moscow.[48] Arranged at NIEI, this meeting was stormed by enthusiastic crowds of scholars. According to Efimov, the novelty and importance of scientific future studies was "illustrated by the energy with which many comrades attempted to enter this hall. Such *Anschlag* is normally seen only in grand theater premiers. This is understandable, because the question of long-term prognosis is so exciting for us."[49] Although about 250 participants registered to attend a session on forecasting the national economy, more than 450 showed up; another session on mathematical forecasting was attended by

42. Dmitry Travin and Otar Marganiya, "Resource Curse: Rethinking the Soviet Experience," in Vladimir Gel'man and Otar Marganiya, eds., *Resource Curse and Post-Soviet Eurasia: Oil, Gas and Modernization* (Lanham, 2010), 31–32; D. V. Efremenko, *Vvedenie v otsenku tekhniki* (Moscow, 2002), 59.

43. Dzhermen Gvishiani, "Upravlenie—prezhde vsego nauka," *Izvestiia*, no. 118 (May 19, 1963): 2.

44. On Kosygin, see Aappo Kähönen, "Optimal Planning, Optimal Economy, Optimal Life? The Kosygin Reforms, 1965–72," in Katalin Miklóssy and Melanie Ilic, eds., *Competition in Socialist Society* (London, 2014), 23–40.

45. Aleksei Kosygin, "Povyshenie nauchnoi obosnovannosti planov—vazhneishaia zadacha planovykh organov," *Planovoe khoziaistvo*, no. 4 (April 1965): 4.

46. Ibid., 4–5.

47. RGAE, f. 4372, op. 65, l. 3; RGAE, f. 99, op. 1, d. 869, l. 3.

48. "Stenograma," l. 115.

49. RGAE, f. 99, op. 1, d. 869, l. 15.

100 persons.[50] The obligatory propaganda dues were paid to the superiority of the Soviet system: the Soviet Union was called "the motherland of planning," and the Gosplan veteran Shamai Turetskii claimed that French planners borrowed the "very essence of forecasting" from Russia.[51] The contention that GOELRO was the root of scientific forecasting was cemented and the speakers invoked the importance of cross-branch forecasting to estimate the future demand for energy many times. The interwar tradition was invoked in the plenary session of this meeting: Gosplan economists referred to the 1920s' achievements in Soviet long-term planning and the debates about the long-term prognoses as if self-evident and well known to all, although the names of Bazarov and Gastev were not mentioned in the verbatim transcripts.[52] All this was probably both ideological and pragmatic. Having established the Soviet forecasting tradition's precedence, it was possible to claim that the government could and should learn from the capitalist experience.[53]

The archival records of these discussions show that Soviet economists hoped to use this official orientation to promote forecasting as a tool to change ad hoc and nonsystematic Soviet planning in practice. Kosygin himself complained that far too many held the "primitive view" that Gosplan's role was not so much to develop all-union targets but to mechanically glue together the plans using separate proposals from republics.[54] In this context, the use of forecasting was expected to simultaneously discipline and expand the intellectual scope of Gosplan.[55] The meeting discarded the earlier idea of forecasting as failed state planning. If Gvishiani proclaimed that governance was, first, a science, a young economist, Boris Breev, insisted that "governance is not possible without prognosis."[56] In his lengthy talk, Abel Aganbegian, who was then in his mid-30s and later rose to become an economic advisor to Mikhail Gorbachev, pronounced that prognoses were not "a step back from planning," a possible interpretation of Kosygin's formula of forecasting as a stage of preplanning, but "a move deeper."[57]

The reformative effect of scientific forecasting was also noted: forecasts explore several alternative directions of development, thus implying that the Soviet future was open to different trajectories.[58] To this, Leonid Kantorovich, the prominent economist and creator of linear planning's input-output methodology, added that the plans should be understood as probabilistic, not deterministic. The economy, he argued, "could not be expected to develop according to the plan," and hence multiple possibilities need always be considered.[59] This "realistic" view was shared by many leading mathematical

50. Ibid., ll. 97–105.
51. Ibid., ll. 43–46, 52.
52. Ibid., l. 27.
53. Ibid., l. 13.
54. Kosygin, "Povyshenie," 4.
55. RGAE, f. 99, op. 2, op. 1.
56. "Stenograma," l. 17.
57. Ibid., ll. 32–33.
58. This was a modest pluralism referring to different routes leading to different levels of achievement, such as maximum, minimum, and average. RGAE, f. 99, op. 1, d. 869, ll. 7–9.
59. Ibid., ll. 64–68.

economists. Ershov, for example, recalled thinking that it would have been the utmost nonsense to expect the five-year plans to be implemented; however, it is important to note that such views could only be voiced in closed, academic discussions and not in public.[60]

The emphasis on glasnost was perhaps the most striking aspect of these discussions in 1966. An economist argued that the existing forecasts for separate branches, such as carbon fuels, were simply absurd and incorrect, because future development of a particular sector was extrapolated without regard to the changes happening in related sectors. To be able to forecast meant sharing the data horizontally across academic and governmental organizations. Furthermore, the methodology of forecasting, it was argued, demanded that Soviet planners openly face some inconvenient facts: Breev insisted that the current practice of grounding the plans exclusively on "achievements" was gravely misleading. Calling for an "analytical history of national economic planning," he added, somewhat realistically, that this requirement was not expected "to be fulfilled soon."[61]

The NIEI economists' calls for glasnost did not stop at the data issue. The 1966 meeting went as far as to insist on public discussion of forecasts. To be sure, no one meant involving the general public in the discussions; by *public*, they were referring to academic experts, thus placing the Soviet future in their preserve.[62] Gosplan economists frankly asserted that forecasting did not challenge the existing power concentration because it was limited to a "small circle of specialists" at the top of government.[63] Nevertheless, this suggestion, albeit clearly elitist, was an important step in questioning the Politburo's monopoly on information.[64] Looking back, it is quite clear that these arguments alone did not translate into action; they did not lead to breaking up the strictly centralized, supervised, and compartmentalized data flows within Gosplan. Although the Academy of Sciences and branch institutes were ordered to develop forecasts pertaining to their respective sectors, they had virtually no access to the data pertaining to other, crucially relevant sectors. The result was methodologically flawed branch studies. Even the most technical and narrow forecasting required a much higher degree of open information flow than the Soviet system was prepared to allow for. In practice, Gosplan remained a medieval fiefdom in which branch decisions continued to be made without any regard to cross-branch effects.[65]

Nevertheless, I suggest that the legitimation and prioritization of scientific forecasting had a domino effect that brought about further changes in Soviet governmentality. One of the reasons was a particular view of the STR, which required the revision of Marxist-Leninist dogmas to accommodate the view that science and technology were no longer a superstructure but a direct driver of social transformation. Society was therefore incorporated into

60. Sapov, "Tri interv'iu."
61. "Stenograma," (Moscow, December 14, 1966), RGAE, f.99, op.1, d.869, ll.16-23.
62. Ibid., l. 26.
63. Ibid, l.2.
64. ARAN, f. 2, op. 1, d. 858, l.176.
65. On clientelism in Soviet policymaking, see Stephen Fortescue, ed., *Russian Politics: From Lenin to Putin* (Basingstoke, 2010); ARAN, f.2, op.1, d.858, ll. 172-173.

the range of things whose future had to be scientifically examined to ensure effective development of large-scale projects, such as oil and gas fields and computer technologies. Enter social forecasting, a branch of applied sociology that served as both a gate and a bottleneck for Soviet future studies.

Soviet Future Studies, the Bestuzhev-Lada Way

Soviet sociology was fully rehabilitated at about the same time that forecasting was publicly acknowledged as the key methodology of the planning process: the Soviet Association of Sociology was formally recognized in 1966. The history of the first Soviet sociological institution, the Institute for Concrete Social Research (IKSI), established in Moscow in 1968, reveals the importance of prediction in the painstaking search for sure footing on the shaky grounds of communist social science.[66] Social forecasting would later be described as "the most advanced form of governing social relations and processes, which makes it possible to scientifically predict and solve social problems."[67] The problems of Soviet society, in other words, could be anticipated and prevented, but this emphasis on governability and control was explicitly contrasted with the epistemology of forecasting, according to which societal development was probabilistic. If society was governed by random chance, one had to acknowledge that at least some of the aspects of Soviet society's future were beyond knowledge and control.[68] It was this gray zone between the promise of control and the postulation of uncertainty that was used by scholars wishing to escape the straitjacket of Marxist-Leninist development theory.

To be sure, this subversive effect of social forecasting was explicitly addressed and measures were taken to rein it in by specifying the institutional subordination and areas of application: first, the priority of party authority and its directives was asserted; second, social forecasting was strictly subordinated to the needs of economic planning.[69] This was translated in practice in the following way: Future norms and values would be the prerogative of the party ideologues; thus, any normative forecasting would be subject to censorship. Then, social forecasting's primary aim would be to harvest and feed social information needed to formulate performance indicators, enabling the increase in labor productivity and matching consumption needs. Explorative forecasting was allowed within certain limits, as it was recognized that the government should be aware of "really existing" social trends in Soviet society, diverging from ideologically approved values.[70] In line with this, social forecasting's research agenda was placed under the umbrella of the studies of the scientific-technical revolution and scientific-technical progress (STP). The

66. In the summer of 1968, IKSI was established as a separate institute, based on the Department of Social Research (est. February 1966) at the Institute of Philosophy. ARAN, f. 1977, op. 1, d. 2, ll. 1–2. See Elizabeth A. Weinberg, *Sociology in the Soviet Union and Beyond: Social Enquiry and Social Change* (Aldershot, 2004).

67. "Sotsial'nyi progress v SSSR" (1973), ARAN, f. 1977, op. 2, d. 66, l. 52.

68. IKSI's research plan (1969), ARAN, f. 1977, op. 1, d. 7, l. 3.

69. RGAE, f. 99, op. 1, d. 869, l. 47.

70. Ibid., l. 77. The reports were sent to Gosplan, the State Committee for Science and Technology (GKNT), and the Foreign Ministry. ARAN, f. 1977, op. 1, d. 40, l. 4.

announcement of the STR, in 1956, was followed by Khrushchev's declaration that the Soviet Union would catch up to and surpass the United States, foreseeing the building of communism in two decades.[71] The STR and STP were recognized as the only legitimate drivers of societal change in addition to the political guidance of the party. As the STR and STP both influenced society and depended on the existing social order, social forecasting studies were to measure the implications of these two aspects. Such studies promised a refreshing complexity and the capacity to formulate research questions beyond Marxism-Leninism. Yet in practice, social forecasting was to a large extent limited to simple statistical studies of the changing structure of labor markets, related education patterns, leisure, and social needs.

To fend off ideological attacks, Soviet sociologists preferred quantitative methods of social forecasting; after all, even Stalin mocked those who claimed that mathematics was also political. Yet it was the subordination to economic planning, entailing a constant demand for social statistics, that provided the institutional rationale for organizing social forecasting as a subdiscipline of sociology. All this, alas, proved to be insufficient to elevate social forecasting to a priority science on a par with cybernetics and systems analysis. At IKSI, this soon became evident. Large in terms of staff, it was as underequipped as the NOT institute in the 1920s: Soviet sociologists lacked enough calculators to work out the effects of the STR.[72] Just like NOT, IKSI would be shaken by severe, although not as violent, political turbulence soon after its establishment.[73] I will now detail how social forecasting sailed through the political turbulences at IKSI, its sails ripped and flopping in the end.

The existing historiography of Soviet social forecasting revolves much around the personality of Igor' Bestuzhev-Lada, one of the few who attempted to institutionalize future studies as a separate discipline in the Soviet Union, but he is also named as the pioneer of world futures studies.[74] Born in 1927

71. Osler, *Rethinking the Scientific Revolution.*

72. IKSI staff grew from about 100 in 1968 to almost 300 in the mid-1970s, and Bestuzhev-Lada's unit grew to 15 staff members. A year after its establishment, IKSI lacked basic equipment, such as desks and typewriters. Scholars complained about having to work in insufficiently lit basement offices. IKSI's first computer, a Minsk-32, arrived only in 1971. ARAN, f. 1977, op. 1, d. 42, ll. 1–2; ARAN, f. 1977, op. 1, d. 7, l. 114; and ARAN, f. 1977, op. 1, d. 38, l. 16.

73. At the end of the 1960s, two publications attracted harsh ideological criticism: a humble print run of lecture notes on western sociological theories, by Iurii Levada, and the collection *The Mathematical Modeling of Social Processes*, edited by Iurii Osipov, Aganbegian, and Moiseev. See B. M. Firsov, *Istoriia sovetskoi sotsiologii 1950–1980 gg.: Kurs lektsii* (St. Petersburg, 2001).

74. Bestuzhev-Lada succeeded in establishing his position as "the leading Soviet forecaster" in western historiography. One of the reasons why is that almost all historical writings about Soviet forecasting either are produced by Bestuzhev-Lada himself or draw heavily on his narrative. See, for example, Gordon Rocca, "'A Second Party in Our Midst': The History of the Soviet Scientific Forecasting Association," *Social Studies of Science* 11, no. 2 (1981): 199–247; and Igor' Bestuzhev-Lada, ed., *Malaia rossiiskaia entsiklopedia prognostiki* (Moscow, 2007). His early involvement in the emerging futurist networks is also acknowledged by western authors. Wendell Bell, *Foundations of Futures Studies: History, Purposes, and Knowledge*, vol. 1, *Human Science for a New Era* (New Brunswick, 2003), 36.

into a peasant family in a small Mordovian village called Lada (hence his pen name), about 500 km from Moscow, Bestuzhev-Lada began his academic career as a military historian of the Crimean War in the 1950s. As a young historian, he sought directly to influence governmental policies. For instance, in 1951, Bestuzhev-Lada sent a letter to Stalin suggesting taking away by force those children who were inappropriately reared by their parents in order to educate them as communist citizens in orphanages. Retrospectively, he attributes high significance to this correspondence as an expression of his desire to be useful and serve the central power organs.[75] This striving will mark his later attempts to shape the nascent field of Soviet future studies.

In his many writings, Bestuzhev-Lada explicitly acknowledges his ambition to become a pioneer of, and then a dominant figure in, future studies in Soviet Russia. In his memoir, he recalls wishing to write a science-fiction story on moral communist citizenship. Having consulted the library catalogue section on "Utopian socialism," he found H. G. Wells's *Anticipations of the Reaction of Mechanical and Scientific Progress upon Human Life and Thought* (1901) and K. E. Tsiolkovskii's "The Future of Earth and Mankind" (1928). These works, claimed Bestuzhev-Lada, gave him the idea that the future could be studied scientifically in the same way as the past. He even insisted on having coined the term *futurology* in 1956, completely independently of Flechtheim.[76] It is, however, uncertain if he was such a pioneer: Bestuzhev-Lada's first publications in the future studies field appeared in 1967; hence, they postdated both Dobrov's work in technology assessment and Kosygin's call for forecasting.[77]

Bestuzhev-Lada's career moves clearly illustrate his striving for administrative and academic power. In the summer of 1966, Edvard Arab-Ogly, a former editor of *Voprosy filosofii* and *Problemy mira i sotsializma* (*World Marxist Review*), then the head of the Department of Concrete Social Research at the Institute of International Labor Movement (IMRD), offered Bestuzhev-Lada a position as head of a unit (*sektor*) for forecasting the socioeconomic consequences of the STR.[78] In the mid-1960s, IMRD provided a pocket of relative liberty for highly heterogeneous scholarship, united by its search for ways to bypass communist dogma, and Arab-Ogly was personally interested in forecasting, especially in the field of demography.[79]

75. I. V. Bestuzhev-Lada, "Prognozirovanie bylo iznachal'no oberecheno na pogrom," in G. S. Batygin and S. M. Iarmoliuk, eds., *Rossiiskaia sotsiologiia shestidesiatykh godov v vospominaniiakh i dokumentakh* (St. Petersburg, 1999), 417–18.

76. Ibid., 405.

77. The 1967 paper was intended for the first World Futures Conference, organized by Johan Galtung in Oslo. Both Bestuzhev-Lada and Dobrov were invited but, due to bureaucratic delays, could not attend. Their papers were published in the conference proceedings, *Mankind 2000*. ARAN, f. 1977, op. 2, d. 60, l. 4. Bestuzhev's first publications in the field of scientific forecasting include a contribution to a joint report edited by Rumiantsev, *Problemy obschei i sotsial'noi prognostiki* (Moscow, 1968), and lecture notes on social forecasting, published in 1969.

78. Bestuzhev-Lada, "Prognozirovanie," 406–7; ARAN, f. 1957, op. 1, d. 29, l. 16; Report of the work at IKSI (1968), ARAN, f. 1977, op. 1, d. 2, ll. 20–37.

79. See, for example, a nostalgic tale about the intellectual circles at IMRD in the documentary *Otdel* (dir. Aleksandr Arkhangel'skii, 2010). Bestuzhev-Lada did not feature in this film. Arab-Ogly actively networked with western thinkers: in 1959, he met Daniel

To get this higher administrative position, Bestuzhev-Lada was ready to sacrifice his academic prestige: at that time, IMRD belonged to the trade union sphere (it became an academy institute only later) and had a lower status than the Institute of History.[80] Nevertheless, for Bestuzhev-Lada to head a unit was a step toward establishing himself as the main authority in the field of Soviet forecasting, and he was not keen on competitors. One of my informants suggested that Bestuzhev-Lada prevented the publication of a book on approaches to prediction authored by several colleagues at IMRD, including Merab Mamardashvili, Aleksandr Zinov'ev, and Oleg Genisaretskii.[81] Bestuzhev-Lada's ambitions were high, and he dreamt about creating a scientific council for forecasting at the Academy of Sciences.[82] Therefore, when academician Aleksei Rumiantsev invited Bestuzhev-Lada to join the newly established IKSI as head of a department (*otdel*) two years later with the promise of a staff of about seventy, he immediately agreed (and cunningly planned to maintain control of his IMRD unit as a vice chairman).[83]

In February 1969, Bestuzhev-Lada joined IKSI, only to find that things did not work out as expected. He did not get to chair the promised department with seventy staff members but only a unit with four or five. There was no office space either: in the beginning, the unit held meetings in an apartment in the *naukograd* (science town) Dubna, outside Moscow. Then, it turned out that Bestuzhev-Lada had to share his research agenda with another influential scholar, Anatolii Zvorykin, the head of a unit for studies of the STR's social consequences, who collaborated closely with several international research programs at UNESCO. IKSI research was increasingly subordinated to the needs of Gosplan, which meant more fiddling with statistics and indicators than Bestuzhev-Lada was intellectually and personally prepared to accept.[84] In contrast, Zvorykin seemed to be both more comfortable with the functionalist view of the STR and much better equipped to conduct statistical trend surveys (albeit simple ones).[85]

It is therefore not surprising that Bestuzhev-Lada was more active not as a researcher but an organizer, seeking to both consolidate Soviet forecasting

---

Bell, as well as Raymond Aron and Robert Merton, in the ISA Congress in Italy. From the late 1950s, he was in contact with French Christian Marxist Roger Garaudy, who would be the first to publish Bestuzhev-Lada's writings in the west in 1968. E. A. Arab-Ogly, *Demograficheskie i ekologicheskie prognozy: Kritika sovremennykh burzhuaznykh kontseptsii* (Moscow, 1978); E. A. Arab-Ogly, "Togda kazalos', chto koe-to udavalos' . . . ," in Batygin and Iarmoliuk, eds., *Rossiiskaia sotsiologiia*, 364–65, 369.

80. Bestuzhev-Lada, "Prognozirovanie," 407.

81. Interview with Russian scientist, Moscow, April 12, 2013.

82. Bestuzhev-Lada, "Prognozirovanie," 405–6.

83. Ibid., 415–16.

84. ARAN, f. 1977, op. 1, d. 42, ll. 1–5. In his memoir, Bestuzhev-Lada writes that he hated mathematics almost as much as homosexuality. Igor' Bestuzhev-Lada, *Svozhu schety s zhizn'iu: Zapiski futurologa o proshedshem i prikhodiashchem* (Moscow, 2004), 289–90.

85. This is suggested by the speed with which Zvorykin completed his research projects at IKSI. Although Bestuzhev-Lada began his work in winter 1969, his first research project about forecasting youths' future values was not launched until 1972. During this time, Zvorykin delivered several reports on his research findings to the academy and the Central Committee. I base this observation on the IKSI documents kept at ARAN, f. 1977.

as an autonomous field and establish links with western future studies.[86] His international contacts dated back to the IMRD stage. In 1967, Robert Jungk and Fritz Baade, prominent institutional entrepreneurs of future studies who would later be involved in Soviet energy forecasts, visited Moscow and met Bestuzhev-Lada at the apartment of Ivan Efremov, a scientist and author of the famous novel *The Andromeda Nebula* (1957), which describes a global communist society several thousand years in the future.[87] At this meeting, the idea of the World Future Studies Federation was discussed. Inspired by this conversation and seeing a window of opportunity, Bestuzhev-Lada initiated a forecasting section at the Soviet Sociology Association, an initiative that, reportedly, was not welcomed by all members of the board.[88] Nevertheless, Bestuzhev-Lada was included in the Soviet delegations to the World Futures Conference in Oslo (1967) and Tokyo (1970), but he could not go: according to archival documents, for bureaucratic reasons the Soviet delegation was late and did not participate.[89] In 1969, on the invitation of Johan Galtung, a pro-Soviet thinker and the founder of peace and conflict studies and, indeed, the World Future Studies Federation, Bestuzhev-Lada visited the Peace Research Institute Oslo.[90] Further international contacts were developed through the International Sociology Association (ISA), which united leftist sociologists and was supported by UNESCO. Bestuzhev-Lada was first elected as the head of the STR section of the seventh ISA Congress of Sociology, held in Varna in 1970, and later as a vice chairman, alongside the prominent French futurist Bertrand de Jouvenel, of ISA's committee for future studies, and was included as a founding member of the World Future Studies Federation (established in 1973). He later described the year 1970 as the high point in his international career, and indeed Bestuzhev-Lada established himself as a gatekeeper for Soviet-western interaction on social forecasting.[91] Furthermore, unlike some of his colleagues, he emerged unscathed from the political overhaul of IKSI in 1970–71. Bestuzhev-Lada got entangled in this process because he participated in the unsanctioned Society for Scientific Forecasting.

The story of the Society for Scientific Forecasting (SSF) is hazy. Facts are

86. In 1969, Bestuzhev-Lada spoke at a number of the academy institutes and delivered a course on the history of forecasting at the philosophy department of Moscow State University. ARAN, f. 1977, op. 1, d. 7, l. 86.

87. Due to the lack of space, the connections between scientific forecasting and science-fiction writing cannot be addressed in this article; the subject, indeed, merits a study of its own. I will only note that Efremov's biographers appear to have overlooked his international connections with western futurologists, something that might have explained the KGB's suspicion of Efremov after his death. Ol'ga Eremina and Nikolai Smirnov, *Ivan Efremov* (Moscow, 2013).

88. The Soviet Sociological Association was established in June 1958. Dmitri N. Shalin, "The Development of Soviet Sociology, 1956–1976," *Annual Review of Sociology* 4 (1978): 171–91; Bestuzhev-Lada, "Prognozirovanie," 406, 414–15.

89. ARAN, f. 1977, op. 2, d. 60.

90. Bestuzhev-Lada was instructed to strictly focus on the perspectives of the socio-economic aspects of disarmament in his Oslo talk. IKSI (September 1970) ARAN, f. 1977, op. 1, d. 52, ll. 70–72; "Direktivnye ukazaniia" (IMRD, October 30, 1968), ARAN, f. 1957, op. 1, d. 39, l. 38. I could not locate his report on this visit; Rocca indicated that Bestuzhev-Lada indeed went in person to Oslo.

91. Bestuzhev-Lada, "Prognozirovanie," 420.

scarce and can only be drawn from conflicting personal memoirs and the few archival documents, which are essentially accusations and therefore very likely heavily biased.[92] Established in 1968, but never formally registered, the society stemmed from a Committee for All-Union Symposia in Scientific Forecasting (established in February 1967) at the Soviet Sociology Association and chaired by Bestuzhev-Lada.[93] Although it was supported by the top leaders of the Academy of Sciences and included members of Gosplan, apparently no formal permission from the Central Committee was sought. It has to be added that such informal arrangements were not unusual: even large construction projects were begun without formal permissions in the Soviet Union.[94]

The society was headed by the academician Vasilii Parin, a prominent biophysicist who specialized in space research and conducted several studies about future medical developments.[95] In the documents, Bestuzhev-Lada is named as co-organizer of SSF, although he denied having this role and, in line with the prosecutors of SSF, claimed that this organization was used as a vehicle for extending the personal influence of the engineer B. N. Tardov of the Research Institute of the Metallurgical Ministry.[96] In 1969, Tardov, acting as vice president, attempted to formally register SSF as a public all-union organization, governed by an assembly and assuming academic activities, such as conferring academic degrees. In 1970, SSF planned to organize 1,600 events involving 200,000 participants. The problem with SSF, it seems, was not so much the content but the form and scale of its activities: SSF emerged from the bottom up and organized its activities horizontally across the industrial branches and academic institutes.

In June 1971, an investigation was started and the outcomes were severe, although not for everyone. Consumed with anxiety, Parin had a stroke and died before he could be summoned for questioning. Tardov was repressed and moved to Latvia.[97] In contrast, Bestuzhev-Lada made an informal agreement

92. In the 1980s, Rocca painstakingly tried to map the development of the SSF but with little success. Some information about it can be found in Firsov, *Istoriia sovetskoi sotsiologii*. The current state of knowledge leaves one with a lot of unanswered questions about this initiative.

93. In his autobiography, Bestuzhev-Lada claims that the basis for the spontaneous prognosis conferences and, eventually, the association was his seminar at IMRD in 1967. In May 1968, this committee organized the Public Institute for Social Prognosis, with Bestuzhev-Lada named as director, although he denied that he was appointed to this position. Bestuzhev-Lada was in charge of the organizing of the second congress in scientific prognosis, and Tardov took over when organizing the third congress. Bestuzhev-Lada, "Prognozirovanie," 421–22; Bestuzhev-Lada, *Svozhu schety*.

94. See, for example, Eglė Rindzevičiūtė, "When Formal Organisations Meet Informal Relations in Soviet Lithuania: Action Nets, Networks and Boundary Objects in the Construction of the Lithuanian Sea Museum," *Lithuanian Historical Studies* 15 (2011): 107–34.

95. Vasilii Parin, "Nauchnye trudy za 1935–71," ARAN, f. 1640, op. 1.

96. One document noted that Dobrov and Bestuzhev-Lada refused to join this initiative to reform the committee into an association. "Zapiska otdela nauki i otdela propagandy TsK KPSS o grubykh narusheniiakh ustanovlennogo poriadka pri sozdanii vsesoiuznogo obshchestva nauchnogo prognozirovaniia (October 21, 1970)," in Batygin and Iarmoliuk, eds., *Rossiiskaia sotsiologiia*, 528–30.

97. "Dopol'nenie k zapiske o grubykh narusheniiakh ustanovlennogo poriadka pri sozdanii vsesoiuznogo obshchestva nauchnogo prognozirovaniia (March 5, 1971)," in Batygin and Iarmoliuk, eds., *Rossiiskaia sotsiologiia*, 536–40; Firsov, *Istoriia sovetskoi sotsiologii*, 31.

with prosecutors to serve as scapegoat; in his words, they needed to punish someone with a PhD, and therefore he was given a reprimand (*vygovor*). To say that he got off lightly is an understatement: Bestuzhev-Lada writes in his memoir that by way of compensation, he received two holiday trips abroad and was then instructed to suspend his academic activities for one year, during which time he mainly stayed in his summer house. Bestuzhev-Lada kept his position as a unit head at IKSI (renamed the ISI in 1972). In June 1972, he was back at work, included in a group providing expertise for the complex national program of social development.[98] In September 1972, Bestuzhev-Lada traveled to Bucharest to participate in the third Future Studies Conference, organized with the personal support of Nicolae Ceauşescu.[99] Following this conference, the Presidium of the Soviet Academy of Sciences decided not to formally support the organization of the World Future Studies Federation but instead to consider Soviet participation in future meetings on a case-by-case basis.[100] This allowed Bestuzhev-Lada to attend the WFSF meetings but without the formal status of Soviet participation, although he was named as a founding member.

How are we to understand this turmoil? Was it an attack on the postpositivist method, with its potential for producing undesirable Soviet futures? It is difficult to say, because SSF had not yet produced any distinctive empirical forecasts. Although the purge of SSF coincided with purges at IKSI, it is unclear if they were directly related.[101] It is likely that these attacks were of a personal nature, using ideology as a rhetorical tool to legitimize decisions.[102] In spring 1972, Rumiantsev was dismissed from his high position and replaced by Mikhail Rutkevich, a hardline communist but also a promoter of sociology at Ural State University.[103] Some prominent sociologists, such as Levada and Grushin, who specialized in public opinion surveys, were transferred to TsEMI. Some IKSI employees found shelter under Gvishiani at the GKNT Institute of Management Problems and, after 1976, the Institute for Systems Research (VNIISI). Social forecasting was retained as a unit at the reorganized ISI, and in 1972 a commission for forecasting was organized under the All-Union Council of Scientific Societies, which mainly engaged in retraining academics.[104]

98. Bestuzhev-Lada, "Prognozirovanie," 422–23; "Prikaz no. 14–104" (Moscow, June 23, 1972), ARAN, f. 1977, op. 1, d. 59, ll. 17–18. In July, Bestuzhev-Lada was appointed as the head of the unit for methodological problems of forecasting social needs.

99. ARAN, f. 1977, op. 2, d. 60.

100. This was a great achievement, because the influential philosopher and academician Bonifatii M. Kedrov spoke vehemently against participating in such conferences. ARAN, f. 1731, op. 1, d. 160, ll. 127–36. Another issue was that at the Bucharest conference, the famous western futurologist Robert Jungk pressured the Soviet Union to permit Jewish scientists to emigrate.

101. The common denominator for these purges is probably the attack on Rumiantsev. For instance, a letter to the Central Committee which listed the ideological errors committed at IKSI did not mention either Bestuzhev-Lada or forecasting. "Zapiska TsK KPSS o rabote IKSI AN SSSR," TsKhSD, f. 4, op. 20, d. 770, ll. 41–42, in Batygin and Iarmoliuk, eds., *Rossiiskaia sotsiologiia*, 551–53.

102. Nikolai Krementsov, *Stalinist Science* (Princeton, 1996).

103. ARAN, f. 2, op. 6m, d. 500, ll. 180–81.

104. From 1975, the commission organized annual conferences and summer schools in forecasting. *Rabochaia kniga po prognozirovaniiu* (Moscow, 1982), 69.

Unlike the NIEI economists, Bestuzhev-Lada hardly ever expressed concern with the issue of glasnost and data flow. He did, however, insist on social forecasters' central role in government. Back in the late 1960s, Bestuzhev-Lada contacted several aides of Politburo members and suggested the establishment of a secret commission for social forecasting dedicated to analyzing the social consequences of political decisions made by the Politburo. The idea was that this secret commission would work in partnership with the military-industrial complex and reinforce his authority at the Academy of Sciences.[105] If Bestuzhev-Lada was keen to help the security apparatus control society, what kind of society did his future methods invoke?

Soviet Future Society Forecasted

Bestuzhev-Lada's early work shared many visions with Efremov's *Andromeda Nebula*—first of all, a global orientation and a belief in inexhaustible resources. His turn from historical research to current affairs was documented in the book *Esli mir razoruzhitsia* . . . (If the World Disarms . . . , 1961), written as a propaganda commentary on peace talks between Nikita Khruschev and John F. Kennedy in Vienna. Outlining several alternatives for societal development that could be boosted by redirecting armament expenditures, *If the World Disarms* engaged with themes that were becoming central in future studies: the consequences of nuclear war and possible societal and industrial futures. Bestuzhev-Lada described the progress achieved by transforming natural systems without any regard to possible ecological consequences.[106] He listed megaprojects for industrializing the north, such as constructing "new Leningrads" and "new Stockholms" by removing permafrost, warming up the Northern Ocean, and redirecting the Gulf Stream to create a "British climate" in the Far East.[107] Welcoming future population growth, Bestuzhev-Lada found it "unacceptable" that such a large surface area of the Earth is occupied by the ocean. This major restructuring of the natural world could start, for example, with draining the Mediterranean Sea and creating picturesque islands, a process that "would not be costly at all."[108]

These remarkable Stalinist visions disappeared from Bestuzhev-Lada's writings in the 1970s–80s. In retrospect, he explained his initiative to establish a secret commission at the Politburo as an attempt to return to this kind of thinking, and, indeed, he did return to it after 1990. During the IKSI overhaul, Bestuzhev-Lada probably learned the lesson that it was safest to say nothing of substance. Visionary content was now replaced with a dry discussion of

105. In his interview, Bestuzhev-Lada mentions regular meetings with Politburo members' assistants in 1967–69; he wrote, "In my thoughts, I was far away from IKSI and close to the Politburo." Bestuzhev-Lada, "Prognozirovanie," 420.

106. On the high modernist plans for large-scale industrialization, which had catastrophic effects on the natural environment, see Paul R. Josephson, *Industrialized Nature: Brute Force Technology and the Transformation of the Natural World* (Washington, D.C., 2002).

107. Igor' V. Lada, *Esli mir razoruzhitsia* . . . (Moscow, 1961), 6, 18, 43–44.

108. Lada, *Esli mir*, 63. Bestuzhev-Lada co-authored with Oleg Pisarzhevskii a revised version of this book, titled *Kontury griadushchego* (The Contours of the Future, 1965).

methodology that signaled the need to embed scientific forecasters structurally in the top decision-making processes. Even *Okno v budushchee: Sovremennye problemy sotsial'nogo prognozirovaniia* (A Window to the Future: The Contemporary Problems of Social Prognosis, 1970), which Bestuzhev-Lada described as the key work done at IMRD, was a superficial introduction to western future studies containing no Soviet data.[109] His main interest was in the development of expert surveys, a version of the Delphi method in which a group of anonymous experts are asked to assess the likelihood of future developments. Their answers are statistically aggregated and circulated within the group, and they then revise their opinions based on this aggregated data. While this technique was clearly problematic—it was unlikely that a Soviet expert would trust a promise of anonymity—it is important to note that here the medium became the message: Bestuzhev-Lada's version of the Soviet future was an intellectual infrastructure, a skeleton of governmental control mechanisms, with forecasters situated close to the signal-issuing center.

Bestuzhev-Lada's studies did not foresee change in Soviet society's future. One telling example can be invoked here. From 1972, Bestuzhev-Lada's unit developed social indicators and forecasted young people's future needs.[110] A transcript of an internal discussion reveals that Bestuzhev-Lada built his analysis on the assumption that "people in the 1990s will behave in the same way as today," resulting in a shallow and conservative study. His colleagues disagreed: Shlapentokh suggested that should the environment that satisfied their needs disappear, the needs would disappear too; Lisichkin pointed to the forecasts predicting about 85 percent more new goods in France in 1985 and thus, quite possibly, different needs among young people.[111] Bestuzhev-Lada, however, remained unwilling to use forecasting to reveal the unexpected. His caution to avoid uncovering any new issues is well illustrated by the choice to copy and paste pages and pages on societal problems and future directions from the party programs in his books.[112] Even in the late 1980s, when social value studies were extended to include studies of deviation, such as alcohol and drugs problems, Soviet social forecasting never articulated disruptive social change. Putting a premium on trends and continuity, social forecasting served as a tool for conserving the status quo.

The changes that finally took place were rooted instead in other academic milieus, closer to the heart of economic planning: TsEMI and VNIISI. The names of the participants in the 1966 debate on forecasting surfaced after 1986, most prominently Aganbegian, who became Mikhail Gorbachev's economic advisor. Yet the link between perestroika and the 1960s is found in the 1970s, when economic and technoscientific forecasting became solidly established as an area of east-west cooperation. Equipped with western computers, VNIISI made alternative long-term forecasts and submitted them to

109. This and other books authored by Bestuzhev-Lada were outcomes of the work of his whole research group at IKSI, with sometimes dozens of contributions.

110. IKSI (March 3, 1972), ARAN, f. 1977, op. 1, d. 61, l. 11.

111. IKSI protocols (February 6, 1973, March 6–15, 1973), ARAN, f. 1977, op. 1, d. 91, ll. 6–9.

112. See I. V. Bestuzhev-Lada and S. F. Frolov, *Poiskovoe sotsial'noe prognozirovanie: Perspektivnye problem obshchestva. Opyt sistematizatsii* (Moscow, 1984), 81–84.

the Politburo.[113] Then, economists succeeded in institutionalizing forecasting where Bestuzhev-Lada could not, although this took two decades: in 1986, the Institute of Economics and Forecasting of Technoscientific Progress was formed from several departments at TsEMI on the initiative of Aleksandr Anchishkin, Iurii Iaremenko, and Stanislav Shatalin. From the late 1970s, Soviet environmental scientists and economists began applying their forecasts to model substantially different, alternative Soviet futures. It was none other than Shatalin, in his capacity as economic advisor to Gorbachev, who masterminded combining the expertise of eastern European and western planners to design the restructuring of state socialist economies, the program for which was developed in 1989 and situated at the International Institute for Applied Systems Analysis, in Austria, an institute created under the patronage of Kosygin and Gvishiani.[114]

The outcomes, as we now know, exceeded all expectations. One should not, however, resort to the trivial observation of forecasters' failure to predict the collapse of the Soviet Union: rather, this is a perfect demonstration that forecasting is not about foretelling but about forging of a new future.

The search for new intellectual models of governance was a strong feature of de-Stalinization. This article demonstrates that scientific forecasting was an example of such innovation, introduced to rejuvenate the existing practices of Soviet economic planning. The key task of forecasting—to contextualize current and often ad hoc decisions by showing their long-term consequences—was potent with critique. Yet the critical role of Soviet forecasting cannot be understood through a reductionist binary opposition between party control and resistance: even as a tool to implement party directives, forecasting had subversive effects.[115] To be sure, as Frederic Jameson famously noted, images of the future have long been invoked by critics of the present.[116] But some Soviet forecasting contributed not so much with ready-made images but with a special methodology that clashed strongly with the bureaucratic logic of Soviet planning. Instead of challenging the political dogmas of the command economy and the superiority of state socialism, scientific forecasting incrementally modified the very essence of governance by suggesting that the uncertain outcomes of any policies could never be avoided, thus paving the road for a particular, Soviet version of what Michael Power describes as risk management.[117]

Paul Gregory has argued that with the exception of short, quarterly plans,

113. Eglė Rindzevičiūtė, "Toward a Joint Future beyond the Iron Curtain: East-West Politics of Global Modelling," in Andersson and Rindzevičiūtė, eds., *The Struggle for Long-Term*, 115–43.

114. "Academician S. Shatalin," *Options* (September 1989): 10–11.

115. Soviet forecasters could be described as "policy intellectuals": although sometimes critical of the existing Soviet governance, they did not dissent. As Arab-Ogly has put it, "Of course, I deeply respected dissidents, both back then and today. However, we did our own thing." Arab-Ogly, "Togda kazalos', chto koe-to udavalos'," 366.

116. Fredric Jameson, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London, 2005).

117. Michael Power, *Organized Uncertainty: Designing a World of Risk Management* (Oxford, 2007).

the exuberant Soviet planning system had little impact on actual performance.[118] My analysis calls Gregory's view into question, suggesting that the impact of long-term planning based on scientific forecasting should not be reduced to economic performance but can also be found in changing understandings of what it means to govern. As revealed in the 1966 NIEI debate, leading Soviet economists expected that forecasting's methodological imperatives would enable them to overcome the fragmentation of Soviet planning into branches. Their aims matched those of high politics: the Soviet government, concerned with maintaining its image as a superpower, could not afford to lag behind in the development of predictive policy sciences. In practice, this ambition was reined in by both the lack and the strict control of data.[119] Just like the interwar time managers who were not provided with timers to test their models, the forecasters at the institutes of the Soviet Academy of Sciences lacked access to computers and, in fact, to the data needed for forecasting.

This lack of data was acknowledged only in internal reports: regardless of the propaganda of technoscientific progress that was to propel the Soviet Union into the foremost ranks of advanced countries, the Gosplan statisticians complained that "statistical data on technoscientific progress in the Soviet Union is collected absolutely inadequately."[120] In a discussion at the Presidium of the Soviet Academy of Sciences in 1983, the economist Shatalin stated that although TsEMI employed a thousand staff, it had not managed to construct an optimal plan for the Soviet economy during its two decades of existence; in turn, even the twenty thousand staff members of the Gosplan system never produced a well-balanced plan.[121]

For my argument, it is centrally important that this gap was noticed and criticized. This criticism hinted that new governmental norms that enabled observers to view actual Soviet practices as structurally defective were in place. The future of the Soviet economy was constructed as more open, probabilistic, and even uncertain, particularly regarding intensifying extraction of gas and oil resources, which, it became clear in the 1970s, would eventually be exhausted.[122] In contrast, it appears to have been much more difficult to use social forecasting to articulate different futures for Soviet society, although this difficulty might have been due to personal as much as ideological politics.[123]

Soviet forecasting contributed to the development of a belief that gover-

118. Gregory, *The Political Economy of Stalinism*.

119. For example, in 1969 Rumiantsev complained to M. A. Suslov that the kind of social research done in nonmilitary research centers in the United States was classified and done in secret institutes in the Soviet Union. This, argued Rumiantsev, was an obstacle to both Soviet science and governance. "Zapiska A. M. Rumiantseva M. A. Suslovu o poezdke v SShA" (January 22, 1969), cited in Batygin and Iarmoliuk, eds., *Rossiiskaia sotsiologiia*, 604.

120. "Otchet" (Geneva, October 2–7, 1967), RGAE, f. 99, op. 1, d. 890, l. 54.

121. "Stenograma" (April 28, 1983), ARAN, f. 2, op. 1, d. 858, l. 169.

122. In May 1972, GKNT warned the Central Committee that coal, oil, and gas resources would be exhausted within the next 150 years. RGAE, f. 9480, op. 9, d. 1566 (1), l. 69.

123. Bestuzhev-Lada's hope to advance his career through policy science was never fulfilled, and he regretted not having left an academic school behind. Bestuzhev-Lada, "Prognozirovanie," 426–27.

nance without reliable information was condemned to fail. The present state of any sector could not be interpreted without reference to the future, and the future could not be known without data about the past. Soviet forecasters made this vicious loop explicit in the 1960s, calling for better visibility and accountability and paving the way for glasnost and the policies that opened up Soviet society for a more free flow of information. Although forecasters remained a minority, their field's very existence points to the heterogeneity of the Soviet governmental landscape that did contain resources for democratic change and where scientific forecasting laid the foundation for a less authoritarian future.