and the events surrounding the December uprising cannot be recounted without reference to the work of Grigoris Farakos. Finally, while the effort to incorporate the experience of ordinary individuals is laudable, even just spicing up the text requires substantially more than the five interviews included.

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From Newspeak to Cyberspeak: A History of Soviet Cybernetics. By *Slava Gerovitch.*
Cambridge, MA: MIT Press, 2002. Pp. xiv + 369. $42.00 (cloth); $24.00 (paper).

On September 9, 1985, the Soviet Union's perennial poet of permitted dissent, Yevgenii Yevtushenko, published a minor piece of verse in the newspaper *Truth* (*Pravda*) under the title "The Naysayers." Railing against those who had crushed the spirit of freedom and innovation during the preceding two decades, Yevtushenko's poem rattled off case after case of contemporary Soviet backwardness—all by way of lending support to Mikhail Gorbachev's nascent campaign of socialist renewal. "Shielding their fellow citizens from every harmful venture," wrote Yevtushenko bitterly, "the naysayers / Saw in the entire field of cybernetics only dark mysticism / And deprived our future children of computers."

Soviet readers could be forgiven for scratching their heads over this effort at high-tech pathos. As Slava Gerovitch's pioneering monograph demonstrates, the history of cybernetics in the USSR was neither uniformly dark nor predictable. Instead, his study of the most ambitious interdisciplinary movement of the cold war period suggests that cybernetics was itself partly responsible for the stunted development of Soviet computer technology. More important, Gerovitch shows how the strange career of the "science of control" (*kibernetik* is Greek for "steersman") sheds new light on post-Stalinist intellectual life, relations between the academic intelligentsia and the Soviet state, and the fate of utopian ambitions in the twentieth century's most aggressively utopian society.

As an object of historical study, cybernetics presents a diffuse target. Neither a discipline nor a technique nor a doctrine, it consists of an array of analogies between human beings and machines. As part of the global postwar cult of science and technology, cybernetics claimed to offer a universal method of solving problems by translating a variety of issues— from fields as diverse as biology, linguistics, and economics—into the precise language of mathematical formulas and computer simulation. Concepts such as "feedback loop," "entropy," and "signal-to-noise ratio" were taken from their original inorganic contexts and applied to living organisms, societies, and cultures. One of the many offshoots of the cybernetic approach, for example, is the use of computer software and hardware to model the functions of mind and brain.

Gerovitch briefly surveys the emergence of cybernetics in the West, particularly through the work of the renowned MIT mathematician Norbert Wiener. The book's main focus, however, is on the field's development in the Soviet Union from the early 1950s to the 1970s, as captured in a wide array of archival sources, published materials, and interviews conducted by the author. Gerovitch's approach blends discursive analysis (cybernetics as a kind of scientific Esperanto) with the history of institutions (as sites of competition and communication among groups of intellectuals as well as between intellectuals and the party-state). Part of the appeal of cybernetics to postwar Soviet intellectuals lay in its potential to displace the arid hegemony of Marxist-Leninist "dialectical materialism"— *diamat* to its native speakers, later immortalized by Orwell as "newspeak"—with an objective lexicon grounded in "exact methods" and ideological neutrality. In this sense, Soviet cybernetics can be understood as a vehicle for the de-Stalinization of Soviet science (in the broad sense of *Wissenschaft*). As the book's title suggests, however, cyberspeak soon took on many of the attributes and functions of newspeak, including semantic slip-

periness and utility as a political weapon—indeed, as an instrument of its own brand of ideological hegemony. What is especially refreshing about Gerovitch's approach in this regard is his insistence that "cyberspeak" was actively cultivated by Soviet intellectuals themselves rather than imposed upon them by the state. This allows him to explore its productive as well as its repressive consequences for Soviet scholarship.

A book about metadisciplinary discourse could easily succumb to its own arid abstractions. To his great credit, Gerovitch's analysis remains lucid and jargon-free even as it surveys an impressive range of academic disciplines. He leavens his text, moreover, with memorable sketches of leading protagonists such as the mathematicians Aleksei Liapunov and Andrei Kolmogorov and the linguist Isaak Revzin. These and other cybernetic pioneers come across not just as adepts who could talk the talk but also as highly intelligent and creative scholars engaged in a quintessentially modern search for method—and, in their case, for a haven of objectivity beyond the ubiquitous *diamat.*

Some of the most fascinating sections of the book explore the application of cybernetics to the social sciences. In the late 1950s, at the height of the "thaw" under Nikita Khrushchev, a group of economists explored computer modeling as a means to simulate market forces, a kind of virtual supply-and-demand feedback loop meant "to provide quasi-market stimuli for individual enterprises" (275) within the framework of the USSR's command economy. One enthusiast, inspired by Khrushchev's stated goal of achieving Communism by 1980, even claimed that centralized cybernetic management of the economy would eliminate the need for money. In the end, however, such plans proved stillborn, as various government ministries resisted attempts to reduce their control over the economic planning process, liberal economists insisted that only real market mechanisms and administrative decentralization could increase the productivity of the Soviet economy, and the post-Khrushchev party leadership proved increasingly allergic to systemic reform of any kind.

Gerovitch tells a similar tale about jurisprudence, in which attempts to fashion mathematical models of crime and punishment as part of the struggle against politicized (or capricious) justice were stymied by inertia and by the urgent need to confront the wave of petty crime unleashed by Khrushchev's "thaw." In linguistics, cybernetic "secondary modeling systems" made a vital contribution to the burgeoning field of semiotics (that is, the study of symbolic languages) but found their home in a literally and figuratively marginal university in Soviet Estonia.

In the end, Gerovitch concludes, "Soviet cyberneticians were looking for a technological solution to an inherently political problem" (257)—namely, the problem of de-ideologizing scholarship. Cyberspeak took on much of the dogmatic omnicompetence of newspeak as its practitioners adopted the practices of their bureaucratic patrons in the state and party apparatus. Cybernetics' greatest impact, in fact, was to be found in one of the most ideologically neutral arenas of Soviet life: the military-industrial complex, where the use of computers was jealously guarded, thereby limiting their application to civilian needs. As one post-Soviet commentator put it, in contrast to Yevtushenko's poem, Soviet cybernetics "chained the technological élan of a great nation. Domestic science wasted immeasurable time and effort on the chimera of cybernetics, while the field of computer technology was deprived of full-scale funding" (4).

Given cybernetics' utopian ambitions, it is perhaps not surprising that its reach should exceed its grasp. While *From Newspeak to Cyberspeak* pays careful attention to the field's international origins, a more sustained comparison of its ultimate fate in the Soviet Union with that in other states would shed useful light on the peculiarities of the Soviet setting. It might also be fruitful to situate the struggle between cybernetics and dialectical materialism within the *longue durée* of the contest between science and philosophy, extending back to Galileo and the neo-Aristotelians and, indeed, to the scientific revolution. Nonetheless, Gerovitch has produced a superbly argued study, a cautionary history of a scientific holy grail, pursued in a country where utopian dreams were rarely in short supply.

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