An event that is significant, highly unusual, and previously unknown demands imaginative handling by the historian. The KR Affair even developed into a Late Stalinist morality tale for both screen and stage, Zhdanov contriving the original scandal as political theater in the form of the Court of Honor. To drive home this theatricality on multiple levels, Krementsov himself adopts the form of a play. Opening the book with appropriate theatrical quotes, each chapter is also presented as an "act," while he includes an extensive list of "characters" from each, although the sheer number of names somewhat blurs this clarification.

Underneath the drama, the book actually begins and ends as a straightforward biography of the two scientists but, reflecting the complexity of "KR," the other chapters vary substantially in theme and content. Krementsov moves from biography on to the context of the antibiotic revolution of the 1930s and 1940s, the effect of the war in stimulating pharmaceutical research and production, American-Soviet oncological cooperation up to the beginning of the Cold War, the complex story of the genesis and enactment of the Court of Honor, and further to the postwar internal battles of Soviet cancer research. Krementsov even has a full chapter on the cultural presentation of the KR Affair.

To explain what happened, Krementsov fully employs many interpretative ideas currently in use in Soviet history, including the importance of client-patron relations and professional in-fighting under Stalinism. His analysis of Soviet science has evolved from his first book, *Stalinist Science*. Partly because the focus is much sharper in *The Cure*, the analysis is more nuanced. After weighing the influence of early Cold War mobilization on the KR story, Krementsov argues instead for the "complex institutional and disciplinary struggles that go on everywhere in science" (p. 158).

The near-simultaneous monograph by Esakov and Levina on the KR Affair differs from Krementsov in many respects. They trace the history of every Court of Honor, for the KR Affair was the first of many over 1947–48 for which documentation can be found. Esakov and Levina reproduce verbatim the correspondence and key documents of the KR Affair. However, while Esakov-Levina is encyclopedic, Krementsov's book is highly accessible. *The Cure* reaches beyond a Russian specialist audience to people outside the Russian field, especially historians of science, medicine and the Cold War.

There are a handful of factual errors around the edges of *The Cure*; for example, the foundation of the Academy of Medical Sciences was delayed by the war, not accelerated by it. However, none of these undermine the argument and the book is is distinguished by its fine empirical texture, the author deploying a wide range of original sources, from secret police interrogations to interviews with, and documents from, the relatives of the KR participants.

Krementsov does leave room for further scholarship: to my mind, the deepest implication of "KR" is the profound impact of antibiotic "magic bullets," as elsewhere, on the Soviet Union. Thanks to him and the Esakov-Levina team we have, indirectly, a deep and detailed understanding of the impact of the international "pharmaceutical revolution" on the top of the Soviet hierarchy. The way is now open for a study of the multiple influences, social and cultural as well as medical, of antibiotics on the Soviet population in general. Perhaps he will oblige us with another fine monograph.

Chris Burton, University of East London

Gerovitch, Slava. *From Newspeak to Cyberspeak: A History of Soviet Cybernetics*. Cambridge: MIT Press, 2002. xiv + 369 pp. ISBN 0-262-07232-7.

Like cybernetics itself, this book is about something very specific and it is also about everything and nothing in particular. Specifically, it is about how scientists and scientific organizations came to take control of the language through which they negotiated their relationship with the Soviet state, and how the Soviet state then coopted it. This subject is very important because it significantly influenced the degree of autonomy of Soviet science and scientists in their research activities. The book is about everything because it must cover the complex evolution of philosophy, physics,

mathematics, statistics, computing, linguistics, military science, biology, sociology, and economics in their changing historical context, and it succeeds in this to a surprising extent. Still there will be at least one annoyed reader for every word not in the index: "What? No mention of global warming?" It is also about nothing in particular because that might perhaps be what cybernetics was all about.

Specifically, cybernetics was the brainchild of Norbert Wiener, who published his seminal *Cybernetics, or Control and Communication in the Animal and the Machine* in 1948. He derived "cybernetics" with the same root as the word "governor" from the Greek word for a steersman. Although we learn that cybernetics may not reduced to a single concept, at its core was the idea of self-correcting action achieved through the exchange of information by an agent with its environment. Another core idea was that of negative feedback, associated with the ideas of automatic stabilization and equilibrium. Cyberneticians applied the idea of self-correction to agents of all kinds, conscious and unconscious, animate and inanimate: thus a society, a government, an airline, an aircraft pilot, a beehive, a bee, a chromosome, a servo-assisted machine, and a computer could all be seen as operating on cybernetic lines. For this reason they were also keen on man-machine analogies and the idea of artificial intelligence.

The emergence of cybernetics in the West came at an awkward time for Soviet science. In 1948, Stalin was reimposing political controls on cultural expression and East-West scientific channels of communication were being closed down. Artificial rewards were being invented for scientific endeavor in home-grown variants that would substantiate Soviet claims to priority at the frontier of progress, most notoriously in plant biology. Slava Gerovitch describes this as a dialectic between two alternative paradigms of Soviet science policy: "overtake and surpass" versus "criticize and destroy." While the balance between these two varied through time and across fields, "criticize and destroy" was the instinctive official reaction to cybernetics.

Gerovitch explains this in terms of an opposition between "cyberspeak" and "newspeak." The latter was the Orwellian official language of the era of prewar and wartime mobilization. Intransigence in the face of society was a defining feature of official policy in this era. Stalinist decision-makers whose word was law did not want to become cogs in a self-correcting mechanism that responded smoothly to new information from society. These *rukovoditeli* (literally: "governors") feared that cybernetics would take away their freedom of action and turn them into passive agents of their environment.

From a cybernetics perspective the story of the book is about the correction of the Stalinist overreaction. Cybernetics did not subvert Soviet society in any fundamental way, and eventually cyberspeak became seamlessly integrated into Soviet official discourse. This process, as Gerovitch describes it, had two phases. At first scientists struggling for greater autonomy within the Soviet system used cybernetics to challenge newspeak and assert control over the language in which they negotiated with politicians over priorities, funding, and institutions. Later, as cybernetics became respectable, scientists converted it to support their rent-seeking strategy of lobbying for new projects and organizations with funding streams attached. Cyberspeak became the language of the moderate reform-minded consensus. One imagines Kosygin and Ustinov musing over a glass of cognac: "We are all cyberneticians now!"

Gerovitch has compiled a fascinating study with a huge range of references to the contemporary literature in English and Russian, East and West, and to published and private memoirs, and institutional and scientific archives. He writes well; everyone will find something entertaining, something instructive, and something unsettling. It is hard to tell who will constitute his core readers, but he deserves to be widely read.

Mark Harrison, University of Warwick