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**SLAVA GEROVITCH, From Newspeak to Cyberspeak: A History of Soviet Cybernetics. Cambridge, MA and London: MIT Press, 2002. pp. xiv+369. ISBN 0-262-07232-7. £25.95 (hardback).**

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There are many contexts for the emergence of cybernetics: technical and scientific innovation; a culture of mechanization, automation and computation; the merging of disciplinary boundaries

from mathematics to physics to biology. In this history of cybernetics in the former Soviet Union, Slava Gerovitch considers the fate of the science as a form of political and ideological language. Throughout a sometimes detailed exploration of Soviet academic politics in the Cold War era, the author's experience of the USA, where this research was completed, informs and enhances personal knowledge of his native country.

In the West cybernetics is closely associated with Norbert Wiener, who gave it both name and fame when he published *Cybernetics, or Control and Communication in the Animal and the Machine* in 1948. But the component concepts – notably mechanical analogues of the nervous system and mathematical models of communication – had all been current (if under-marketed) for several decades. Even Wiener's term was not new; it had first been used by Ampère in 1843. What brought these elements together into a new science of self-regulating systems was the common perception that, to be accounted a mature and 'complete' science on a par with nineteenth-century physics, twentieth-century biology had to forsake mere observation in favour of mathematical and mechanistic models. Significant contributions came from scientists and mathematicians of Russian origin, among them Markov, Oparin and Rashevsky. Gerovitch introduces us to many more, in a story that moves from perilous dissent under Stalin to decay and desuetude in the Brezhnev years.

Taking the long view of Soviet cybernetics, Gerovitch develops a perspective from which it emerges as, appropriately, a self-regulating system. He argues that the ambiguities and accommodations of the politically nuanced language of newspeak found a natural affinity with cyberspeak. At first cybernetics was a code – a cover for mild dissidence, admired as a replacement for, as Gerovitch puts it, 'the vague and manipulative language of ideological discourse in fields that mathematics had not yet reached' (p. 199). Cybernetics promised a grand and ideologically neutral unification of human knowledge. But such unification had necessarily to engage with political debate and institutional disputes. Cybernetical language thus became political language – a medium for scientists to criticize the philosophers. This delicate balance was not to last. 'Well trained in newspeak techniques', Gerovitch comments, 'some philosophers now adopted cyberspeak as a new ideological language' (p. 257). Adopted, adapted, universal but diluted, cybernetics in the Brezhnev years was, he argues, 'transformed from a vehicle of reform into a pillar of the *status quo*' (p. 279). By the 1970s it had become unrecognizable to its first mathematically trained proponents, who now felt the need to disown it as a pseudo-science. The promised language of truth and objectivity had become the newspeak it had once ridiculed.

The story of Soviet cybernetics thus presented was a battle over vocabulary, between scientists wanting a pure, politically free terminology, ideal and mathematical, and ideologists wishing another kind of universality with nothing left out of politics. Comparisons and contrasts with the fate of cybernetics elsewhere are instructive. In general, though the science had its roots in mathematical formulations, extending the boundaries of precision and logic from the statistics of thermodynamics into the fuzzy world of communication and behaviour, the mathematical underpinnings diluted as the claims broadened. In the West, shorn of its precision, cybernetics rapidly faded, leaving only a faintly sinister aura – the fear of a world controlled by machines. In the USSR, by contrast, it was the initial claim to mathematical verity that first aroused suspicion, marking cybernetics as a science of behaviour standing outside ideology. In the post-Stalin era, with the mathematical rigour taken away, what was left proved an ideal vehicle for the ideology of 'scientific socialism': universal, amenable to pragmatic interpretation, yet with all the cachet of approved words such as 'rational', 'objective', 'progressive' and 'scientific'. In the Soviet case, cybernetical language was employed as much as a means of concealment as of precision. Gerovitch describes the contrast in academic language between the USSR and the USA as between acceptance of ambiguity and a desire for at least the appearance of precision. Yet, for each community in its own way, the search for a universal scientific language – the desire to pin

everything down with 'precise language', to reduce the world to the certainties of mathematics – remained central.

Derived from a doctoral thesis, *From Newspeak to Cyberspeak* probably contains more information on cybernetics in the old USSR than anyone will ever need. It is nevertheless a welcome achievement: scholarly, well researched and unrivalled in the expertise with which it tells a story of singular interest.

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