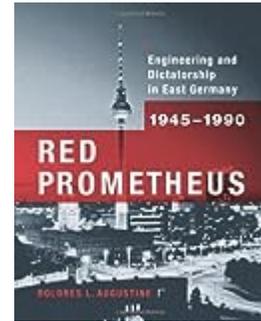




**Dolores Augustine.** *Red Prometheus: Engineering and Dictatorship in East Germany, 1945-1990.* Cambridge: The MIT Press, 2007. XXX, 381 S. \$40.00 (cloth), ISBN 978-0-262-01236-2.



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## How They Used Their Chance

In preparation for its eleventh and final *Parteitag* in 1986, the Social Unity Party (SED) of the German Democratic Republic (GDR) produced a colorful poster that blared the headline “Wir haben die Chance genutzt!” Under photographs of Soviet soldiers liberating Berlin in 1945, the deliberations of Erich Honecker with other political leaders, and text that celebrated the GDR as a land of peace and prosperity, the poster featured a female engineer operating a huge bank of computers and other complex electronic equipment. This imagery pointed to a central message in East German rhetoric: that the socialist nation and its centrally planned economy, combined with German traditions in engineering and innovation, could bring real advances in the realms of science and technology.

Dolores L. Augustine tests these claims in *Red Prometheus*. A strong addition to the recent works that go beyond the realm of politics to investigate the GDR’s complex history, Augustine’s research interests become evident in the book’s opening words, “What is the relationship between dictatorship and science” (p. xi)?

Beginning with that question, Augustine examines the levels of scientific achievement that occurred under the Nazi, Soviet, and other oppressive regimes. Focusing on the GDR’s high-tech industries, Augustine moves beyond Cold War assumptions that scientific enterprise under totalitarian regimes had to be inherently inferior, and presents a more nuanced view that addresses both East Germany’s impressive successes and tragic failures.

The history begins with fascinating details on several of the thousands of German scientists and engineers who were transferred to the Soviet Union in the aftermath of World War II. Many found themselves tempted by Soviet offers of status, higher food rations, and the opportunity to help build a more technocratic society. When permitted to return to their homelands in the new GDR, they were reassured similarly with promises of becoming privileged leaders in a new nation. Under GDR leader Walter Ulbricht, scientists and engineers typically began their careers with a satisfying degree of prestige and worked in a relatively apolitical environment.

In time, however, many scientists and engineers found reasons to abandon the East German experiment. By 1958, about one hundred engineers left the GDR every month, frustrated by low pay, travel restrictions, professional hassles, and other limitations. GDR leaders were desperate to combat the brain drain, and after agonizing debates about how to respond, the Berlin Wall was built. Scientists and engineers thus lost many of their ties to the West, and became increasingly oriented toward the Soviet Union and other socialist nations to the east. For those who stayed behind, the regime introduced aggressive but short-lived projects in nuclear energy, aircraft manufacturing, and aeronautical engineering before concentrating on a handful of high-tech industries that kept East Germany among the technological leaders of the socialist world. These changes also had important gender implications—just as the regime aggressively promoted opportunities for women to enter the workforce as scientists and engineers, the professional status of these occupations diminished.

In chapters that form the core of the book, Augustine explores developments in East Germany's high-tech industries—semiconductors, optics, lasers, and microelectronics—particularly by tracing the careers of Matthias Falter (1908-85), Werner Hartmann (1912-88), Herbert Kortum (1907-79), and Paul GÄ¶rlich (1905-86). In case after case, the scientists' and engineers' initial progress and promising research projects ran into roadblocks. Soviet allies pulled their support whenever it appeared that scientists in the satellite nation might surpass their own achievements. For their part, western governments pressured their allies to limit trade and technology transfer to the East. Perhaps most importantly, bureaucracies increasingly shifted from a meritocracy that recognized skilled science to a political state that favored loyalty to the dominant SED.

By the 1960s and 1970s, East German leaders turned to espionage as a central method of monitoring scientists within their own country and as a tool for pilfering technologies from the outside. Hartmann was taken into custody repeatedly, accused of sabotage, negligence, bourgeois values, and alleged anti-Soviet attitudes (evident, for example, in his use of the term "Russian" rather than "Soviet"). By the 1980s, hundreds of informants from the Ministry for State Security (Stasi) infiltrated high-tech firms such as Zeiss, motivated by misguided but fundamental assumptions that political conformity was essential for economic success, and that the nation's relatively poor economic progress could only be explained by sabotage. Even in this milieu, Augustine presents fascinat-

ing evidence of individual resistance to dictatorship. Following Alf LÄ¼dtke's well-known notion of *Eigen-Sinn* (an individual's stubborn resistance to authority), Augustine demonstrates that some used the Stasi as a vehicle for lodging complaints about government and industrial leaders. In effect, these secret communications substituted for westerners' routine and open participation in civil society.

Augustine also explores East German efforts to inculcate faith in the nation's emerging progress in technological fields. Such technological nationalism and its focus on future achievements suggested "gratification postponement" (p. 225), part of an East German culture that promised its citizens that material and consumer comforts were just over the horizon. This "productivist conception of citizenship" (p. 251), Augustine suggests, replaced the consumerist values more dominant in the West. Again, these ideas served as a partial substitute for political participation.

A later chapter—one based on thorough and innovative oral histories of two groups of engineers, one exclusively female—explores the work environment in East Germany's technical fields. Here Augustine examines the incentives and limitations that female and high-tech engineers confronted within the GDR system, and the difficulties that many faced in the aftermath of German reunification. Although a valuable project, this section covers issues and time periods that do not correspond with the rest of the book; they might have been excised and published in another venue.

Augustine taps into a wealth of evidence that other scholars of East German technology have not explored. For instance, by uncovering Hartmann's personal memoirs, interviewing his widow, and digging into his multiple struggles with the political authorities, she ably portrays the complex and contingent questions that this talented scholar, German patriot, and non-communist faced in coming to terms with the GDR regime. Through extensive research in Stasi records, she uncovered fascinating evidence of the divided loyalties of Hartmann and other scientists and engineers in the context of system that treated them, at various times, as victims, perpetrators, and bystanders in a tangled web of espionage and counterespionage. In all, an unusually compelling and personal study of the challenges that confronted East Germany's leading scientists and engineers emerges.

The book is also well-grounded in the historiography, including American and German scholars' discussions of the role of science in the German and Soviet regimes. Au-

gustine is careful to chart a middle course, finding shades of gray between those who present black and white analyses of the science that emerged from totalitarian states. In that regard, it is notable that she does not more directly address and only occasionally cites the scholarship of Raymond Stokes, whose fine work deals with many of the same issues, technologies, and even some of the same personalities.[1] Both authors ask similar questions about the reasons for East Germany's technological failures—and just, as notably, its sporadic successes—yet their analyses and approaches to the source material differ. The case of semiconductor pioneer Herbert Kortum is an instructive example. While Stokes utilized institutional and official sources that described Kortum's alleged intransigence, mismanagement, and unreliability, Augustine probed the engineer's biography and writings to reveal a dedicated scientist who grew increasingly frustrated in “an almost Kafkaesque bureaucratic system”

that put obstacles in the way of his technological innovations (p. 136).

In all, Augustine's book will join Stokes's as essential reading for those interested in the history of science and technology in the socialist world. More broadly, Augustine also points to another reason for the collapse of the GDR. In the end, she suggests, “SED policymakers achieved the worst of all worlds” (p. 144). Political leaders' decisions drove many talented scientists and engineers out of the country, reduced opportunities for those who stayed, offered few manufactured technological products of value to the East German consumer, and contributed to the downward spiral of the entire system.

#### Note

[1]. Raymond G. Stokes, *Constructing Socialism: Technology and Change in East Germany, 1945-1990* (Baltimore: Johns Hopkins University Press, 2000).

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