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Can-do Spirit Versus The Apparatchiks

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Engineering Communism: How Two Americans Spied for Stalin and Founded the Soviet Silicon Valley By Steven T. Usdin Yale University Press 329pp, Pounds 22.50 ISBN 0 300 10874 5

Steven Usdin's *Engineering Communism* has it all: a spy novel, a family saga, a political thriller and a technology report. The book traces the dramatic lives and deeds of two American friends, Joel Barr and Alfred Sarant: their conversion to communism, their collaboration with Soviet intelligence during the Second World War, their narrow escape from the FBI and flight to the Soviet Union and their subsequent work at the forefront of Soviet microelectronics research. Using, among other sources, his extensive interviews with Barr and Barr's personal papers, Usdin weaves together a fascinating story. The book lets the reader glimpse behind the Iron Curtain and illuminates striking contrasts, as well as similarities, between the Cold War rivals. Students of the history of the Cold War, computer industry or intelligence services will find a wealth of information in this well-documented book.

The first, "American", part of the book starts off with an excellent discussion of the spread of communist beliefs among young Jewish immigrants from Eastern Europe in 1930s New York. Witnessing social and economic injustice and feeling alienated from the bourgeois values of mainstream America, many engineering students from the City College of New York became attracted to communist ideals. During the Second World War, while working for the US Army and various military contractors, Barr and Sarant saw it as their duty to aid Communist Russia by passing military technology secrets, including radar designs, to Soviet agents. The US's policy of hiding the latest military technologies from its Soviet allies (and some from its British allies as well) reinforced Barr and Sarant's conviction that their acts were morally justified. Usdin's account draws on internal FBI reports and demonstrates clearly that the wartime FBI hunt for communist sympathisers in fact distracted the FBI from finding actual spies, even when those spies were indeed communists. The lack of co-ordination among US counterintelligence agencies- a persistent problem - further delayed the discovery of Julius Rosenberg's spy ring, to which Barr and Sarant belonged. When the FBI finally put them under surveillance, they were able to escape fairly easily.

In the second, "Soviet", part of the story Barr and Sarant reappeared in Leningrad in 1956, disguised as engineers from Czechoslovakia named, respectively, Joseph Berg and Philip Staros. They were put in charge of an electronics research laboratory and started experimenting with computer technologies. Closely monitoring US developments in microelectronics, Staros and Berg proposed various techniques for the miniaturisation of electronic components and developed several working computer prototypes for military and civilian applications. Their careers took a dramatic turn in May 1962, when they managed to cut through the layers of Soviet bureaucracy to arrange a personal visit to their lab by Premier Nikita Khrushchev.

"Rarely in history has so much power been aggregated in the hands of an individual so poorly equipped to wield it," writes Usdin. No, this is not about George W. Bush. Despite Usdin's comment, however, Khrushchev showed sufficient

presence of mind to appreciate the promise of microelectronics and gave Staros and Berg the green light to construct a giant microelectronics research and production centre in Zelenograd near Moscow, the Soviet equivalent of Silicon Valley. By following Staros and Berg's efforts to revolutionise Soviet microelectronics, Usdin's book provides a rare insight into the inner workings of Soviet industrial bureaucracy. In particular, it vividly illustrates how much power ministry officials and regional party bosses exercised in subverting and transforming Khrushchev's policies. Staros and Berg were sidelined - their personal appeal to Khrushchev arrived too late. His downfall in 1964 led to their removal from the Zelenograd project.

Their role in the rise of Soviet microelectronics remains the subject of controversy in Russia today. A documentary film produced by a Russian independent TV channel a few years ago portrayed them as the "fathers" of Soviet microelectronics. This caused a flurry of angry responses from veterans of the Soviet computer industry. The critics insisted that the credit belonged to Russian scientists. They also alleged that Staros and Berg's computers were unreliable and represented a technological dead end.

Usdin's interpretation, relying on interviews with the men's families, friends and colleagues, presents only one side of the debate.

While the technical part of their work deserves further investigation, the clash of their innovative management style with the rigid rules of Soviet industrial administration is clearly documented. Their efforts to hire intelligent engineers without any attention to ethnic or political background, to encourage individual initiative and to introduce forward-looking, risky proposals brought them into conflict with their superiors in the industry and with Leningrad party bosses. Soviet microelectronics suffered from a systemic failure to adapt to change and an over-reliance on "proven" but obsolete designs.

Although filled with insights about US spy-hunting and the Soviet electronics industry, Engineering Communism is first and foremost a poignant story of talented individuals caught in the crossfires of the Cold War. Were they traitors? True believers? Ambitious schemers? Unappreciated geniuses? Whether trying to elude their FBI investigators or to outsmart their risk-averse Soviet superiors, Staros and Berg resorted to engineering inventiveness to create plausible stories. When telling the truth is forbidden, the only choice is between bigger and lesser lies.

Misunderstood and ultimately shunned on both sides of the Iron Curtain, Sarant-Staros and Barr-Berg defied the binary categories of the Cold War.

They tried to prove, against both sides' dogmatism and cynicism, that it should be possible to admire American engineering and still oppose the US political system, to fight Soviet bureaucracy and still believe in communist ideals.

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