

# The KGB's Directorate T

Vladimir Vetrov was a KGB spy, but his life felt more like a Chekhov story than a James Bond film. His KGB work was bureaucratic, his mistress far from a supermodel, and his wife more affectionate toward her shih tzu puppies than toward him. By the end of the 1970s, Vetrov's career, and his life, had hit a dead end. He despised his desk job and was ignored by his bosses. He detested his wife, who was having an affair with one of his friends. For recreation, he escaped to his log cabin in a village north of Moscow, which was so rustic that there was no electricity. Or he'd simply stay in Moscow and get drunk.

Vetrov's life hadn't always been so dull. In the early 1960s, he'd earned a plum foreign posting in Paris, where as a "foreign trade official" he was tasked with gathering secrets from France's high-tech industries, per Minister Shokin's "copy it" strategy. In 1963, the same year the USSR established Zelenograd, the city of scientists working on microelectronics, the KGB established a new division, Directorate T, which stood for *teknologia*. The mission: "acquire Western equipment and technology," a CIA report warned, "and improve its ability to produce integrated circuits."

In the early 1980s, the KGB reportedly employed around one thousand people to steal foreign technology. Around three hundred worked at foreign posts, with most of the rest on the eighth floor of the KGB's imposing headquarters on Moscow's Lubyanka Square, sitting atop the Stalin-era prison and torture chambers. Other Soviet intelligence services, like the military's GRU, also had spies who focused on technology theft. The Soviet consulate in San Francisco reportedly had a team of sixty agents targeting the tech firms of Silicon Valley. They stole chips directly and bought them from the black market, supplied by thieves like the man called "One Eyed Jack," who was caught in California in 1982 and accused of stealing chips from an Intel facility by hiding them in his leather jacket. Soviet spies also blackmailed Westerners with access to advanced technology. At least one British employee of a UK computer company living in Moscow died after "falling" from the window of his high-rise apartment building.

Spying continued to play a fundamental role in Soviet semiconductors, as a group of Rhode Island fishermen discovered after pulling a strange metallic buoy out of the waters of the North Atlantic in fall 1982. They hadn't expected to pick up advanced chips in their haul. When the mysterious buoy was sent to a military lab, however, it was identified as a Soviet listening device that used perfect replicas of Texas Instruments Series 5400 semiconductors. After Intel commercialized the microprocessor, meanwhile, Minister Shokin shut down a Soviet research unit trying to produce a similar device, in favor of copying American microprocessors.

However, the "copy it" strategy was far less successful than Soviet surveillance buoys suggested. It was easy enough to steal a couple examples of Intel's latest chips, or even to have an entire shipment of integrated circuits diverted to the USSR, usually via shell companies in neutral Austria or Switzerland. However, American counterintelligence occasionally unmasked the USSR's agents operating in third countries, so this was never a reliable source of supply.

Stealing chip designs was only useful if they could be produced at scale in the USSR. This was difficult to do during the early Cold War but almost impossible by the 1980s. As Silicon Valley crammed more transistors onto silicon chips, building them became steadily harder. The KGB thought its campaign of theft provided Soviet semiconductor producers with extraordinary secrets, but getting a copy of a new chip didn't guarantee Soviet engineers could produce it. The KGB began stealing semiconductor manufacturing equipment, too. The CIA claimed that the USSR had acquired nearly every facet of the semiconductor manufacturing process, including nine hundred Western machines for preparing materials needed for semiconductor fabrication; eight hundred machines for lithography and etching; and three hundred machines each for doping, packaging, and testing chips.

However, a factory needed a full suite of equipment, and when machines broke down, they needed spare parts. Sometimes spare parts for foreign machines could be produced in the USSR, but this introduced new inefficiencies and defects. The system of theft and replication never worked well enough to convince Soviet military leaders they had a steady supply of quality chips, so they minimized the use of electronics and computers in military systems.

It took time for the West to realize the scale of the theft. When the KGB first sent Vetrov to Paris in 1965, Directorate T was all but unknown. Vetrov and his colleagues worked undercover, often as employees of the Soviet Ministry of Foreign Trade. When Soviet agents visited foreign research labs, befriended executives, and tried to siphon the secrets of foreign industry, it looked as if they were simply conducting their "day job" as foreign trade officials.

The operations of Directorate T might have remained a state secret had Vetrov not decided to add intrigue to his otherwise dull existence upon moving back to Moscow. By the early 1980s, his career had stalled, his marriage was ruined, and his life was falling apart. He was a spy like James Bond, but with more desk work and fewer martinis. He decided to make life more interesting by sending a postcard to a Parisian acquaintance who, he knew, was connected with the French intelligence services.

Soon Vetrov was passing dozens of documents about Directorate T to his French handler in Moscow. French intelligence code-named him "Farewell." In total, he appears to have provided thousands of pages of documents from the heart of the KGB, unveiling a vast bureaucracy focused on stealing Western industrial secrets. A key priority: "advanced microprocessors," for which the Soviet Union lacked not only skilled engineers but also the software needed to design cutting-edge processors and the equipment needed to produce them. Western spies were shocked at just how much the Soviets stole.

In his routine of rendezvousing with French agents Vetrov had found a new activity, but he hadn't found fulfillment. The French provided him with gifts from abroad, to keep Vetrov's mistress happy, yet what Vetrov really wanted was for his wife to love him. He grew ever more delusional. On February 22, 1982, having told his son he planned to break off the relationship with his mistress, Vetrov stabbed her repeatedly in his car while parked along Moscow's ring road. Only after he was apprehended by police did the KGB realize Vetrov had betrayed his country and handed the secrets of Directorate T to Western intelligence.

The French quickly shared information about Vetrov with U.S. and other allied intelligence services. The Reagan administration responded by launching Operation Exodus, which tightened customs checks on advanced technology. By 1985, the program had seized around \$600 million worth of goods and resulted in around one thousand arrests. However, when it came to semiconductors, the Reagan administration's claim to have stopped the "massive hemorrhage of American technology to the Soviet Union" probably overstated the impact of tighter controls. The USSR's "copy it" strategy had actually benefitted the United States, guaranteeing the Soviets faced a continued technological lag. In 1985, the CIA conducted a study of Soviet microprocessors and found that the USSR produced replicas of Intel and Motorola chips like clockwork. They were always half a decade behind.