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How Soviets Steal U.S. High-Tech Secrets

The KGB uses blackmail, bribery and deception to plunder U.S. technology worth billions to Moscow.

In Moscow's espionage offensive against the United States, no prize is more valued than secrets of America's high technology.

Like his predecessors, Kremlin chief Mikhail Gorbachev counts on pilfered American industrial secrets to help rescue the Soviet Union from economic stagnation and to keep pace in the superpower arms race.

No fewer than 2,000 intelligence agents, smugglers and international middlemen are at work for Moscow around the globe obtaining everything from sophisticated computers to pinhead-size microchips in a no-holds-barred offensive where stakes are high, payoffs handsome and personal risks relatively small. "Gaining access to our advanced technology continues to be their top priority," says William Casey, director of the Central Intelligence Agency. "It's a big effort."

Moscow saves billions of dollars and years of military research by making use of stolen computers, semiconductor-manufacturing gear and other high-tech equipment that the West counts on to offset huge Soviet numerical advantages in weapons.

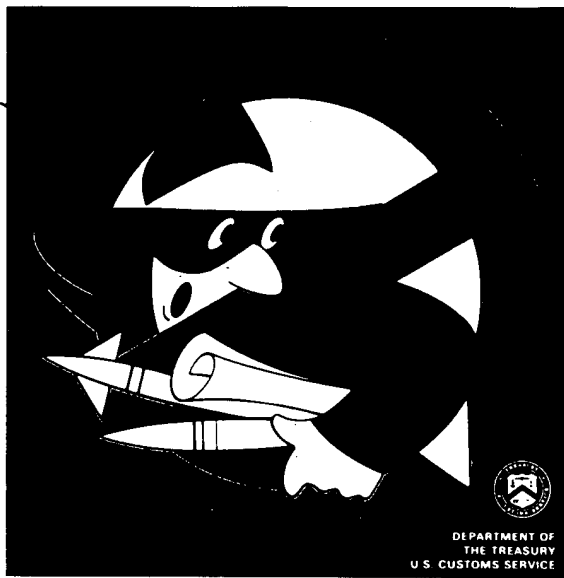
By quickly adopting U.S. technology, as it has done in at least 150 weapons systems, the Soviet Union improves its position in the arms race and boosts defense costs to American taxpayers as U.S. planners counter a heightened Soviet threat.

"The implications over the long term are drastic," says Deputy Assistant Defense Secretary Stephen Bryen, head of the Pentagon's drive to block technology losses to Moscow. "We're now faced with a very high-risk kind of situation."

"Shopping" list. The Kremlin effort is as determined, organized and brazen as it is successful. The Soviet State Committee for Science and Technology each year updates a coordinated acquisition plan as thick as a telephone book and assigns responsibility for obtaining each item to the KGB or Warsaw Pact intelligence services.

As a result of past acquisitions, sophisticated laser range finders on Soviet tanks are carbon copies of U.S. devices, precision transmission gears for heavy-lift helicopters are forged on American-made machine tools. MiG-25 Foxbat jets are equipped with look-down, shoot-down radar systems comparable to those on America's sleek F-15s. And Soviet cruise missiles incorporate the same designs—in some cases, components—as U.S. counterparts. The Atoll air-to-air missile is so closely based on blueprints of the American Sidewinder that even a single left-hand-threading screw is repeated.

The result: "Russia," warns Bryen,



U.S. Customs Service declares war on high-tech spies.

"has begun to field weapons close to equal to ours."

Moving among 11,000 companies that hold U.S. defense contracts, as well as hundreds of firms overseas that are privy to U.S. technology, KGB and other Soviet-bloc agents harvest a rich collection of secrets and hardware. Aside from the flood of illicit shipments to the Soviet bloc, legal U.S. technology exports to overseas markets last year totaled more than 60 billion dollars.

Targeted for bribery, blackmail and deception are any of the hundreds of thousands of defense-industry employees with access to secrets. For \$103,000, say prosecutors, William H. Bell, a radar engineer for the Hughes Aircraft Company in Los Angeles, sold

details of a quiet radar similar to that of the supersecret Stealth bomber, a new radar system for the Navy and a new sonar device to Polish spy Marian Zacharski. Bell, convicted of spying, is now serving eight years in prison.

For \$25,000, prosecutors charge, Thomas Patrick Cavanagh, a defense engineer in Los Angeles, was ready to sell Stealth blueprints, manuals and drawings to the Soviets. He was arrested, authorities say, before the materials were compromised.

Doctored documents. Smuggling provides the Soviets with an even richer reward. Their export agents falsify the documents needed to circumvent restrictions on the export of sensitive technology. Some shipments, however, do slip through amid the 100,000 individual export licenses granted each year for high-technology transfers.

Examples are many. Federal prosecutors in California allege that a pair of high-tech traders, Vladimir Vesely and Walter Podolece, unlawfully exported approximately 5,000 sophisticated electronic tubes, among other items, without licenses. The equipment wound up in Eastern Europe.

Often, smugglers simply crate pieces of equipment for clandestine shipment to the East. The chief of a U.S. computer firm recently was charged with smuggling 36 unlicensed shipments of restricted desk-top computers valued at \$350,000 to East-bloc buyers in Europe.

Customs agents in Denver arrested an American and a Briton in 1983 as they tried to export to Moscow the seismograph system needed for measuring nuclear explosions, as well as a laser device for testing fiber optics and etching computer microchips. Another time, professional smugglers in California flew an entire comput-

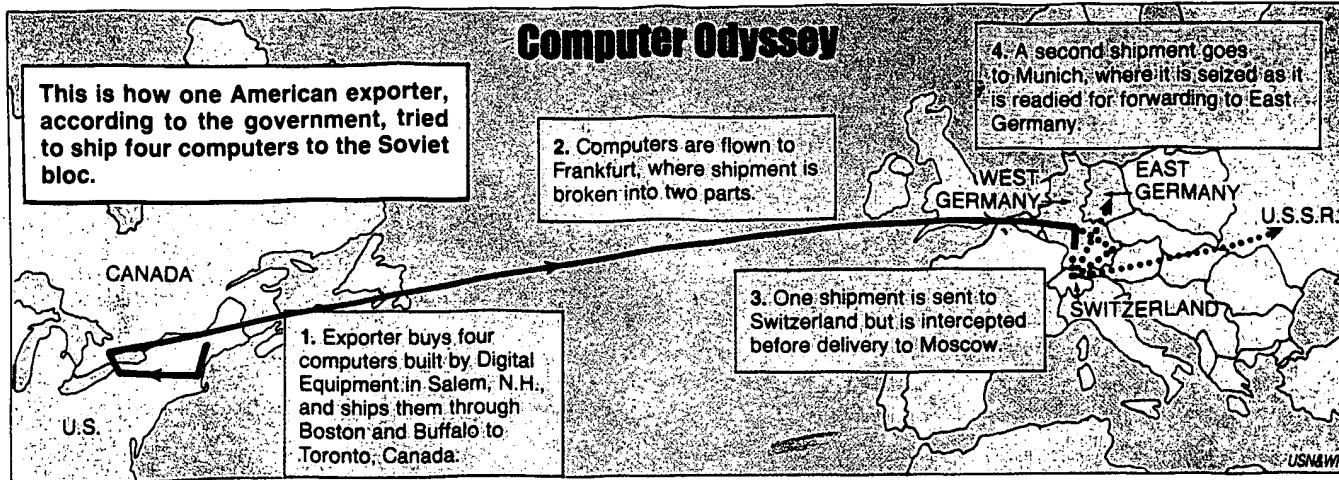
er system to Mexico City aboard a chartered airplane to rendezvous with a commercial airliner bound for Amsterdam and points East. Customs agents intercepted the shipment.

Where such efforts fail, the East bloc turns to foreign third parties who devise intricate schemes to divert legal exports of U.S. high technology to intermediate destinations and then on to the East. Fully 75 percent of illicit shipments of high technology are now thought to reach the Soviet Union this way.

"The game is diversions," says Customs Commissioner William von Raab, "much more so than ever before."

While the KGB's hand rarely shows directly in such cases, U.S. investigators insist that Soviet-bloc agents give mid-

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dlemen advice and lists of items being sought. Says Roger Urbanski, who heads the Customs Service's export-control campaign: "There is no doubt in my mind that U.S. and European middlemen receive direct orders for these goods from Soviet customers."

Few schemes have been as convoluted as the 1983 plan masterminded by Richard Mueller, a West German, to divert to the East one of Digital Equipment Corporation's prized VAX 11/782 computer systems, useful for guidance of intercontinental ballistic missiles, targeting of anti-aircraft missiles and the manufacture of integrated circuits.

At least a half-dozen phony companies were set up in South Africa to receive crates containing the comput-

er components and send them on in containers to Sweden and West Germany. A tipster foiled the plot as the containers were being loaded on ships bound for the Soviet Union, although a few earlier shipments did reach that destination.

Clandestine voyage. Japanese officials in Osaka recently seized a Soviet-bound container labeled "ship parts" and found a computerized U.S. sonar device powerful enough to detect large objects to a depth of nearly 40,000 feet. The equipment, made in New England and capable of producing detailed, photolike pictures of

ocean floors, had been shipped to Louisiana, then to New York, on to Norway and by ship to the Far East.

For every shipment interdicted, investigators worry that others get through. Among examples that prosecutors say have succeeded:

- More than 1 million dollars in computer-aided design equipment bought by an Arizona firm, sent through Buffalo, N.Y., then diverted through Canada, West Germany and Switzerland to the East bloc.

- Millions of parts, including night-vision goggles and semiconductors shipped through New York City and West Germany to North Korea by an Iranian living in West Germany, working with a Soviet-born Canadian living in New York.

- Some 6.5 million dollars in high-technology gear, including equipment to manufacture advanced integrated circuits for weapons, that was obtained with the help of a Maryland-based confeder-

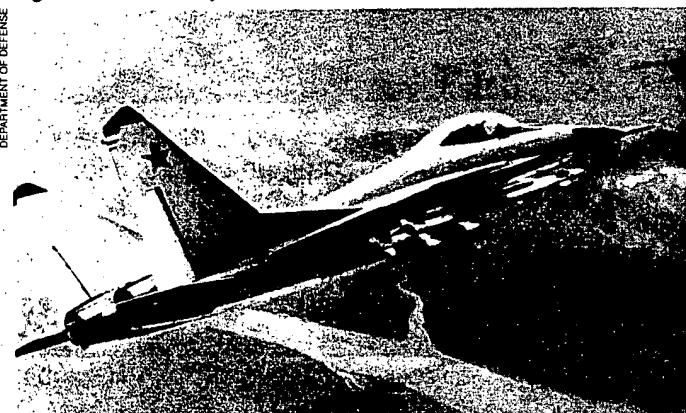


AVIATIONWEEK

Soviets use machine tools secured from the U.S. to build world's heaviest helicopter.

U.S. High Tech Feeds Soviet Arms Buildup

Updated computers in MIG-29 fighter are based on technical drawings obtained illicitly from American defense contractors.



DEPARTMENT OF DEFENSE



Guidance system of mobile SS-20 Soviet intermediate-range missiles relies on microcircuitry developed by the U.S.

DEPARTMENT OF DEFENSE

ate who shipped it via West Germany and Austria to the Soviet Union.

Losing technology to the East, however, is not restricted to actions of spies, smugglers and middlemen. Differences in perspective between Europeans and Americans underlie much of the continued shipment of U.S. technology to the East. Economically hard-pressed European nations seek improved trade ties as well as ways to ease tensions by reinforcing the web of economic, political, commercial and cultural ties with the Soviet superpower that shares their continent.

Technology transfer may be a threat to Western security in the eyes of Washington, yet in the capitals of Europe the trade is often viewed as a contribution to political stability on the Continent. And business executives in Europe and elsewhere complain that U.S. restrictions on transfers of technology often impede commerce unnecessarily.

Complaints over U.S. restrictions often get short shrift from U.S. officials, who commonly press member countries of the North Atlantic Treaty Organization to tighten restrictions on technology transfers. U.S. officials note that close economic, humanitarian and political ties between East and West Germany allow as many as 10,000 East-bloc spies to work in West Germany. Among them: Professionals working for the KGB's "T section," which specializes in industrial espionage.

Even more vulnerable, from an American point of view, are neutral countries that resist enforcement of U.S. trade laws and pursue economic ties without regard to Washington. U.S. officials in 1983 approved a shipment of advanced semiconductor-manufacturing equipment to a firm in Vienna only to find later that crucial parts had disappeared into the East bloc. All that remained in the warehouse: The equipment's outer housing.

Confronted with such an array of loopholes, U.S. officials are struggling to make it harder for the East to obtain the technology of the West. Says Defense Secretary Caspar Weinberger: "For every dollar spent today on the technology-security program, the taxpayer saves at a minimum nearly \$350 in projected defense spending."

Harsher sanctions. The Reagan administration has added teeth to the effort by toughening restrictions on exports of sensitive technology. Export violations are being more vigorously prosecuted at home and abroad. One example: The U.S. slapped a 3.1-million-dollar fine on a Swedish firm, Dataaab Contracting Company, for exporting to the Soviet Union air-traffic-control equipment that was far more sophisticated than would

have been allowed by U.S. license. The equipment outfitted airports in Moscow and elsewhere with radar digitizers and computerized tracking that are useful in Soviet air defenses.

The Reagan administration has been quietly pressing allies and others to crack down on exporters of U.S. technology who circumvent U.S. export-licensing procedures. Officials in neutral Sweden earlier this year charged a former senior official of a major Swedish electronics firm with transferring restricted U.S. data-processing technology by illegally shipping six sophisticated computers made in Fort Lauderdale, Fla., to the Soviet Union as part of a huge steel-mill contract with Moscow.

Equally, the administration has been moving ahead with Operation Exodus, mobilizing the Customs Service's 900 inspectors in a campaign of searches, "sting" operations and investigations designed to snare contraband before it reaches the Soviet Union. Added to that, the CIA and FBI have increased the money and manpower they devote to unmasking Soviet high-tech thievery.

Careful scrutiny. The Pentagon, spurred by Assistant Secretary of Defense Richard Perle, has boosted efforts to thwart Soviet acquisition of Western know-how legally. In an attempt to prevent potentially useful information surfacing at sales, business and research seminars and academic-exchange programs, the Defense Department has forced researchers to withdraw even unclassified technical papers at meetings attended by East-bloc scientists.

Most important, the Pentagon and the Commerce Department have tightened export-licensing procedures. Estimates Weinberger: "We already have saved the taxpayers 20 billion to 50 billion dollars in additional future defense expenditures [that] would have been needed to counter Soviet technological advances had various types of critical technology and hardware been licensed for export to the Eastern bloc."

Technology kept from the Soviets, says Weinberger, would have saved Moscow up to 13 billion dollars through shortcuts on military development.

For all the new curbs, however, Reagan administration experts concede that important technology will still slip into the hands of America's adversaries. So much is at stake that the U.S.S.R. is sparing no effort to take advantage of the vulnerabilities of an open society.

The result, say insiders, will be an extension of the behind-the-scenes battle to capture—or protect—the U.S. technology that plays such a vital role in the U.S.-Soviet balance of power. □

By ROBERT S. DUDNEY