Eastern Bloc Evades Technology Embargo

Front companies in the West buy embargoed U.S. technology with virtual impunity; witness the case of the finagled photorepeater

In 1972, a Canadian attorney named Peter Virag incorporated a firm called DeVimy Test Lab Ltd., ostensibly to manufacture and test integrated circuits. Over the next 4 years, DeVimy bought sophisticated computer and electronics equipment from U.S. manufacturers for its plant near Montreal. As virtually all of the equipment was of strategic military value, the sales were possible only because Canada, a friendly nation, was to be the equipment's final destination.

Several years ago, U.S. authorities discovered that DeVimy Test Lab only existed on paper. Computer equipment destined for its plant was directed instead to a customs broker at the Montreal airport, where it was promptly shipped to Amsterdam and afterward to three cities behind the Iron Curtain. The equipment, sufficient to manufacture and test high-quality semiconductor chips, is presumably operating now in the Soviet Union, churning out material of potential use in Soviet missiles and weapons.

Virag, who listed himself as president of DeVimy, is of course not what he seemed to be. Confronted with evidence that the equipment was shipped overseas, Virag under oath told U.S. and Canadian investigators that he was in the employ of a man who presented himself as an Israeli Army major, Jacob Kelmer, operating out of Haifa. Virag, who is Jewish, said he accepted Kelmer's story that the goods were intended for Israel and cooperated in the illegal activities for that reason.

According to the Commerce Department, Kelmer is in fact the president of Excel Industries in Haifa, an import-export firm for international commodities. In a press release dated 19 August 1980, the department reports that Kelmer admitted to Israeli police that it was he who told Virag what to buy, and who arranged the shipments from Amsterdam to Prague, Warsaw, and East Berlin. Israeli national police have traced the affair one step further back. Evidence they developed indicates that Kelmer was recruited by a man in London who probably received the computer equipment purchase orders directly from Soviet operatives.

In January 1978, Virag's firm, DeVimy Test Lab, pleaded guilty in federal court to a single count of exporting restricted items without a valid U.S. license. Kelmer was indicted by a grand jury in Albany, N.Y., and a warrant was issued for his arrest. But the offense is not covered by extradition treaties anywhere, according to U.S. enforcement officials. Kelmer is safe from prosecution as long as he stays outside this country.

Such is the shadowy world of illicit diversions of high-technology goods from the United States to the Communist world. During the last decade, Commerce Department investigators have discovered about 50 such cases of concerted diversions to the Soviet Union, an amount which they admit is but a fraction of the probable total. These thefts represent a steady drain of U.S. technical know-how and strategic advantage. William Webster, director of the Federal Bureau of Investigation (FBI), says it is a serious problem "because of the damage it can do to our national security."

U.S. customs and commerce officials suggest that many of the incidents are orchestrated by a syndicate of traders and firms that serve as a front for the Soviet Union or its operatives. Virtually all of the recent enforcement actions involve diversion of computer and electronics equipment, which suggests that the Soviets see it as a useful means of catching up quickly in an area where U.S. firms are greatly ahead. Although the U.S. has erected an elaborate system of export controls, it is frequently evaded and in many instances seems to pose little more than a nuisance to Soviet buyers.

Purchase orders are placed by dummy companies and filled by American firms naïve enough to miss the fraud or lax enough to ignore the incongruities. The goods are shipped to an obscure address in a friendly nation, often a NATO ally, so an export license is either unnecessary or easy to get. Typically, the shipment will be received at the airport by a customs broker or freight forwarder, who will store it on behalf of the consignee. Then, instructions will suddenly come to send it off to a new address, often another city in Western Europe, before it finally makes its way across the Eastern border. Frequently the shipments are directed by an individual well-insulated from the testimony or factual evidence that would result in criminal prosecution or a cutoff of U.S. trading privileges. At other times, the case is airtight, the perpetrator convicted, and the route foreclosed—until a few years later, when a new name is assumed or another intermediary is hired.

In most of the cases known to officials in the enforcement branch of the U.S. Commerce Department, the American firms are hapless dupes. Some years ago, for example, a U.S. firm's West German affiliate shipped strategic laser equipment to a man in Vienna who claimed to be a professor and director at a research institute affiliated with a university. According to a Commerce Department report to Congress, however, the institute's address was actually the man's apartment, and the equipment was reshipped to the Soviets.

In a few such diversions, there is overt complicity by American firms. On 5 December 1980, for example, Walter Spawr and his wife Frances, owners of Spawr Optical Research, Inc., of Corona, California, were convicted in federal court of exporting copper water-cooled mirrors to Switzerland and West Germany for reshipment to the Soviet Union. The shipments were made shortly after the firm's application for a license to export to the Soviet Union was denied. Wolfgang Weber, the Spawrs' West German sales agent, testified at the trial that the custom order for the mirrors had been placed by a professor from the Physics Institute of Moscow University who was apparently engaged in particle beam and laser research. An intelligence source says that the mirrors may have been used in Soviet antisatellite weapons. The conviction is being appealed.

In another example, two officials of I.I. Industries, Inc., of Sunnyvale, California, were convicted for having sold semiconductor equipment to the Soviets "through a convoluted international route that included sales to false firms in the United States, Canada, Switzerland, and West Germany," according to a 1977 Commerce Department report to Congress. The officials were sentenced to 18 months in prison.

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Whatever the complicity of U.S. firms, the steady diversion of high-technology goods has until recently been succored by thin investigations and lax enforcement, Sharon Connally, the Commerce Department's current enforcement head, acknowledges. The department previously had only a dozen or so investigators working on diversion cases, which number in the hundreds each year. As a result, leads were let dangle and convictions not pressed. While Commerce is assisted regularly by the Customs Service, the FBI, the CIA, and the State Department's intelligence unit, "these agencies all have their own priorities and we are somewhere down the line," according to Will Skidmore, an official with Commerce's Export Administration.

White House officials, asking not to be named, report that in the past, other agencies, as well as many manufacturers, rarely took the department's efforts seriously. "The export controls were not being strictly enforced," one says. The department's dual function of enforcing the controls and promoting international trade, including East-West trade, was thought to conflict with its investigations. Zbigniew Brzezinski, President Carter's national security adviser, was among those who urged that enforcement responsibility be shifted to the Customs Service, but Commerce officials fought the move and won.

Connally, formerly an investigator for the Internal Revenue Service, reports that prosecutions have recently increased, that penalties have stiffened, and that the violations of more companies have been openly publicized as an additional enforcement technique. She points to a recent case in which RCA paid a civil penalty for exporting a restricted oscilloscope to Poland. Even though the oscilloscope was returned, the company was ordered to submit its exports to ongoing federal scrutiny. (RCA's subsidiaries in England and Belgium had previously been fined for three unlicensed exports of nonstrategic electronics to Czechoslovakia.) The penalty was only $12,500, but Connally claims the case might have been handled even more leniently in the past. Connally adds that 25 new investigators will be hired next year if federal budget officials approve. Still, the staff will be small compared to the volume of exports through which it must sift. The enforcement branch has only a single field office in New York City. And officials are still protective of details surrounding incidents of wrongdoing. Industry self-policing, such as it is, remains the primary enforcement mechanism, Connally says.

In short, the chance of the department detecting and blocking an illicit diversion before it occurs is small indeed. The consequence is that the Soviets and their operatives often seem to get what they want—just so long as the equipment is compact and not solely of military value. (The illegal exporter's pretense is always that goods are intended for civilian use.) U.S. customs and commerce enforcement records show that everything from a neutron generator and various lasers to entire computer systems and a console printer has been obtained in recent years, with a total value in the millions of dollars. So easily does this system function that the Soviets need not recruit new conspirators each time someone is caught. Little or no scrutiny of past offenders enables them to commit new violations.

Jacob Kelmer, the supposed buyer for the Israeli Army, seems a case in point. Born in Israel, Kelmer, 49, obtained a master's degree in electrical engineering from Rensselaer Polytechnic Institute in New York. Around 1970, Kelmer formed DEK Electronics in Haifa to represent U.S. electronics firms in local sales. According to the Commerce Department, Kelmer purchased oscilloscopes and other restricted electronic equipment worth more than $100,000 from a U.S. firm in 1971, supposedly for DEK's Israeli customers, but the equipment was shipped to Vienna, where it "disappeared," presumably into Eastern Europe. (Oscilloscopes capable of operating in a broad bandwidth or at extremely high frequencies are essential to testing and repair of nuclear weaponry, lasers, and military telecommunications equipment.) Kelmer denied that the equipment went anywhere but Israel, but refused to answer Commerce Department inquiries. Barred in 1972 from directly ordering U.S. goods, Kelmer hired Virag to do it for him.

Virag, 44, is a general practice attorney in Montreal who emigrated from Hungary in 1957. He was pulled into Kelmer's scheme by a longtime acquaintance in the United States, who told of a "cousin" in the Israeli Army who wished to buy electronics equipment secretly. Shortly after Virag established DeVimy Test Lab on behalf of the "cousin," the "cousin" stepped aside in favor of Jacob Kelmer. Virag says that he was asked if he was "ready to help the state of Israel" and that he agreed.

The Commerce Department hearing officer concluded that "the vision of high dollar profits . . . encouraged Virag to become a willing dupe in an illegal plot. Once involved, Virag was unable or unwilling to extricate himself." Kelmer's initial purchase orders for Virag were for small items of marginal strategic importance. In 1973, for example, Virag obtained a chemical reaction chamber used to produce gallium arsenide, a component of the light-emitting diodes in computer displays—and also of strategically important microwave communications devices.

Virag obtained the device from a California computer firm, supposedly to supply the semiconductor business that he was establishing with the help of European investors and a bank in New York. Although he had no plant as yet, the California firm was assured that a lease had been signed on a site near Montreal. The sale was completed and, unbeknownst to the seller, the device was immediately shipped from Canada to Amsterdam, where it was reshipped to East Berlin. When the firm's representative arrived to check on the start-up of the machine, he was told that the machine—and the still prospective business—had been transfered to Holland for tax advantages. Despite these shifting and ambiguous plans, as well as the complete absence of factual information about Virag's investors, the California firm reported no irregularities to U.S. authorities.

Once this export succeeded, Kelmer asked Virag to obtain information on a machine used to etch integrated circuits onto semiconductor chips, a photorepeater. Kelmer was interested in photorepeaters produced by the top two American manufacturers, Electromask, Inc., and the GCA Corporation, which were then considerably more efficient and sophisticated than anything possessed by the Soviets. After reviewing sales brochures forwarded by Virag, Kelmer selected GCA over Electromask.

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Salesmen at GCA were given the same story as their counterparts at the firm in California. Once the tale was swallowed, Virag and Kelmer arranged for two electrical engineers to spend 3 weeks at GCA's plant in Bedford, Massachusetts, learning how the photorepeater and its accessories operated. One of the engineers was Bryan Williamson, now with an electronics firm in England. "I was under the assumption that the equipment was to stay in Canada, where I was to be employed by them," Williamson says. "When in fact it didn't come to fruition, I wanted to know what the hell happened and found that it had been misdirected." Williamson violated no law by acting as a consulting engineer, and says he has cooperated with the ongoing Commerce Department investigation into the scheme. In 1968, he and a firm that employed him in Dublin, Ireland, were barred from receiving U.S. exports after he failed to respond to inquiries about the potential diversion to Eastern Europe of restricted U.S. oscilloscopes. "I was asked to buy equipment for my company which I did, and it was then shipped unknowingly to a prohibited destination. When in fact it was discovered, all was admitted and that was the end of it as far as I was concerned," Williamson says.

Shortly after Williamson completed his technical training at the GCA plant in 1976, the photorepeater system was shipped by truck to Canada. GCA officials were led to believe that the equipment would be stored in a warehouse until DeVimy's manufacturing facilities were complete, and that they would then assist in its installation. Virag says that the day after the equipment arrived, he and Kelmer had it shipped to Amsterdam, where customs officials found it was promptly reshipped to Prague, Czechoslovakia. GCA was led to believe it was being paid (several hundred thousand dollars) from funds supplied to DeVimy by its European investors. Actually, the funds came from an account in Montreal maintained by Virag, one that was replenished regularly from two accounts in Zurich, Switzerland, that cannot be traced any further.

Virag needed two more pieces of restricted computer equipment to complete the semiconductor manufacturing system. One is an autoprober that probes the electrical contact points on a semiconductor chip; the other is a computer simulator that attaches to the autoprober, enabling the operator to search for manufacturing defects. The first was obtained from a computer firm in Mountain View, California, at a cost of $40,000, and immediately shipped through Montreal and Amsterdam to Warsaw, Poland. For the second piece of equipment, Virag approached a California semiconductor firm nearing financial bankruptcy. In addition to buying two of the simulators (at a cost of several hundred thousand dollars), Virag engaged the recently deposed head of the company as his consultant. Apparently, the consultant's only role was to travel to the GCA headquarters and verify the quality of the photorepeater system.

The simulators were shipped through Amsterdam to a freight-forwarding firm in Vienna, Austria, with a record of unusual activities. The firm, Express Internationale Spedition, was barred from receiving U.S. exports in 1959, for refusing to answer inquiries about the potential diversion to the Soviet Union of 40 tons of tin mill black plate. The denial of export rights was extended in 1971, after the Commerce Department learned the firm had shipped a sophisticated U.S.-made oscilloscope and parts to the Soviet Union, at the request of an Austrian import-exporter, who was also denied export rights. The denial order against the firm expired in April 1976.

The initial success of the Virag-Kelmer scheme proved to be its eventual downfall. The Soviets were apparently so pleased with the GCA photorepeater that they wanted another. Virag contacted GCA in early 1977 to arrange for a second purchase, prompting the company's officials to inquire about installation of the first. Pressed, Virag told the firm that labor problems and political unrest had prevented him from completing DeVimy's facilities.

Much to its credit, GCA promptly called the Commerce Department. DeVimy Test Lab pleaded guilty in Albany, New York, and received a $1500 fine. Kelmer was indicted for exports of the photorepeater system with knowledge that its ultimate destination was Czechoslovakia, and he was denied U.S. export privileges for another 15 years.

Who was the mastermind behind this scheme? Despite statements from both Williamson and Kelmer, the Commerce Department has not brought additional charges against anyone. It claims the investigation is continuing.

Tracking down leads may be complicated by the simple fact that numerous import-exporters, freight forwarders, and overseas sales agents apparently take advantage of the opportunity to turn a fast ruble beneath the table. Although an index of transshipment points covers more than a dozen nations, the political-

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Epidemiologists Try to Help Stop More Atlanta Murders

In an uncommon alliance, epidemiologists at the Center for Disease Control are assisting officials in Atlanta in the hope of preventing more slayings of black children there.

The scientists are searching for common characteristics among the slain children by gathering data from sources, including school records and interviews with teachers. The information is to be used to identify youngsters who would be likely targets of future homicides.

To the frustration of Atlanta's residents and authorities, the count of missing and murdered children continues to creep up. This week, two missing children were added to the list of dead after their skeletons were found by police. And last week another child was added to the missing list, raising the number of disappearances to three. So far, 13 children have been killed since July 1979 by unknown assailants. All of the children have been between the ages of 8 and 15 and have come from poor families.

Robert Feldman, chief of enteric diseases at CDC and an epidemiologist, said that the scientists are applying the same techniques of epidemiology to study the histories of the dead children as in analyzing outbreaks of disease. They are examining a wide range of characteristics such as the children's test grades, their conduct at school, and even their height. Are the murders an epidemic? On two counts they are not, Feldman said. It is not unusual that children are murdered nor is the number of dead abnormally high. "What we have, though, is an unusually high number of homicides of children that are unsolved."

CDC epidemiologists have studied homicides once before for Atlanta officials when they compared characteristics of murders committed in the area during 1971–1972 to those during 1961–1962.

While the scientists are trying to help to prevent more killings, Atlanta police have been unsuccessful in solving the homicides already reported. Police have enlisted the aid of homicide experts from around the country and a psychic, but to no avail.

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ly neutral, economically prosperous nations of Switzerland and Austria are favored locales.

U.S. enforcement authorities acknowledge that diversions pose an unceasing challenge. As many of these cases go undiscovered until the exports are completed, the best the authorities can do is investigate and prosecute, closing for a while a successful transfer route. At best, these efforts only slow the drain of Western economic and strategic advantage. As long as Western firms prove willing to trade with obscure and shadowy figures in other nations, however, the spill of Western competitive advantage will continue.—R. JEFFREY SMITH

AAAS in Canada Seeks Peace Without Hawks

Beam weapons, creationism, human rights, and the role of the media were among the topics of the Toronto meeting

Toronto. Two downtown hotels, separated by a battleground of banks attempting to outvie one another in architectural flamboyance, were the site of the AAAS's annual meeting held on 3 to 8 January this year. A cold snap, which brought Toronto its lowest temperatures on record since 1859, kept visitors confined to the underground shopping malls for much of the time, or left them to stare at the Sheraton's heated outdoor waterfall, which protested the biting cold with clouds of vapor.

Arms control was a major theme of the AAAS convention, a topic also of concern to the association's Canadian hosts: Prime Minister Trudeau—away on a skiing trip in Austria when the meeting began—has proposed an important four-point disarmament plan to the United Nations. But Trudeau's Minister of Science and Technology, who doubles as Minister for the Environment, appeared at the meeting to plead for stronger action in the United States against the problems of acid rain. Despite the enthusiasm in Ottawa, neither topic at present enjoys high political fashion in Washington.

The keynote lecture to the AAAS meeting was given by Canadian literary critic Northrop Frye, who politely explained why science is not the stuff of poetry. In the 18th century, people tried to make it so:

> Let curious minds, who would the air inspect,
> On its elastic energy reflect—

was one such result. Another poem of the period, in honor of Jenner's discovery of vaccination, began "Inoculation, Heavenly Maid, descend!" "This does not seem to be the kind of thing poetry can do," remarked Frye. The poet and scientist, he suggested, "may use, up to a point, the same language, or even treat the same themes, but the structure of poetry and the structure of science remain two things."

On Sunday, the following day, began the first of eight symposia on arms control. The MX missile was described by Herbert Scoville, president of the Arms Control Association, as a "disaster for our security, our economy and the environment." IBM physicist Richard Garwin, in whose hands lucidity is a deadly weapon, continued to demolish the MX's remaining pretensions to being a serious armament, then turned his fire upon the Pentagon's newest toys, the laser and charged particle beams. All that survived the carnage was the offshore submarine force proposed by Garwin and Sidney Drell as a cheaper and less vulnerable substitute for the MX system.

Garwin gained everyone's attention by replying to a question that, in his view, "There is a 50:50 chance of nuclear war by the year 2000" and that it was "highly likely" that just a few nuclear weapons would be fired by that date.

The sessions on arms control were of high enough quality and yet, as the umpteenth dove wrung his hands, the thought occurred that the audience might have been better entertained, even more fully edified, if an occasional hawk had been around to voice a discordant note. Meeting arranger Arthur Herschman says he mentioned this point to the organizer of the eight sessions, who replied that he " 'could not find a hawk.' "

At a press conference held by officers of the AAAS, incoming president Allan Bromley of Yale said he was "very optimistic about the future of R & D under the new Administration."

Paul Warnke, on the other hand, was "deeply troubled" about the interruption of the SALT process. Warnke, former chief SALT negotiator for the United States, is a compelling public speaker who combines a lawyer's precision in use of words with a passionate commitment to the feasibility of negotiation. "It would be a mistake to suppose that the security of the United States can be improved by reducing the security of the Soviet Union," he warned in a lecture full of aphorisms: "We don't have to like them, but we know we have to live with them. The bottom line is no existence or coexistence." Every new Administration, he noted, says that it is going to get really tough with the Russians, but Warnke thought little of the reemerging idea that the Soviets can be outspent in military preparedness: "This prescription will mean a long wait, a massive bill, and far less security than we have today," he said in the lapidary phrases of one who has distilled an issue to its quintessence.

Sunday afternoon brought a retreat from the problems of the present into a scarcely fathomable mystery of the not so distant past: the reception accorded by geologists in Europe and the United States to Wegener's theory of continental drift. Any child can see, from a glance at the globe, that the hump of South America fits snugly against the armpit of Africa, yet it took geologists almost 40 years, from 1922 to about 1960, to accept that the continents are in motion, and they did so only when the discovery of the symmetric pattern of seafloor magnetic anomalies had made the conclusion all but inescapable. "In England, as well as in North America, we really have to search the realm of the psychology of science, rather than that of geophysics, to get the answer," suggested Ursula Marvin of the Astrophysical Observatory in Cambridge, Massachusetts. "We excuse people for not accepting drift because they didn't have a mechanism, but they had that in 1928," she remarked in reference to the widely noted paper by geologist Arthur Holmes in which he correctly advocated convection currents as the force that moves the continents.

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