The old man had always been fiercely independent, and he entered his tenth decade with his mind clear, his memory keen and his fluent Russian still tinged with an American accent. His wife had died in 1999, and when his legs began to go he had trouble accepting help from his relatives in Moscow. He gradually withdrew from most human contact and died quietly on January 31, 2006, at age 92, taking his secrets to the grave.

A singular confluence of developments forced Zhorzh Abramovich Koval out of obscurity. First, over the past decade Western intelligence analysts and cold war historians began to grasp the role of the GRU, the Soviet (now Russian) military intelligence agency, in the development of the USSR's nuclear weapons program in the 1940s. Then in 2002, Russian historian Vladimir Lota published *The GRU and the Atom Bomb*. The book, which has yet to be translated into English, recounts the exploits of a GRU spy code-named Delmar, who, with the exception of the British scientist Klaus Fuchs, may have done more than anyone to help the Soviet Union achieve its sudden, shocking nuclear parity with the United States in 1949.

IOWA-BORN, SOVIET-

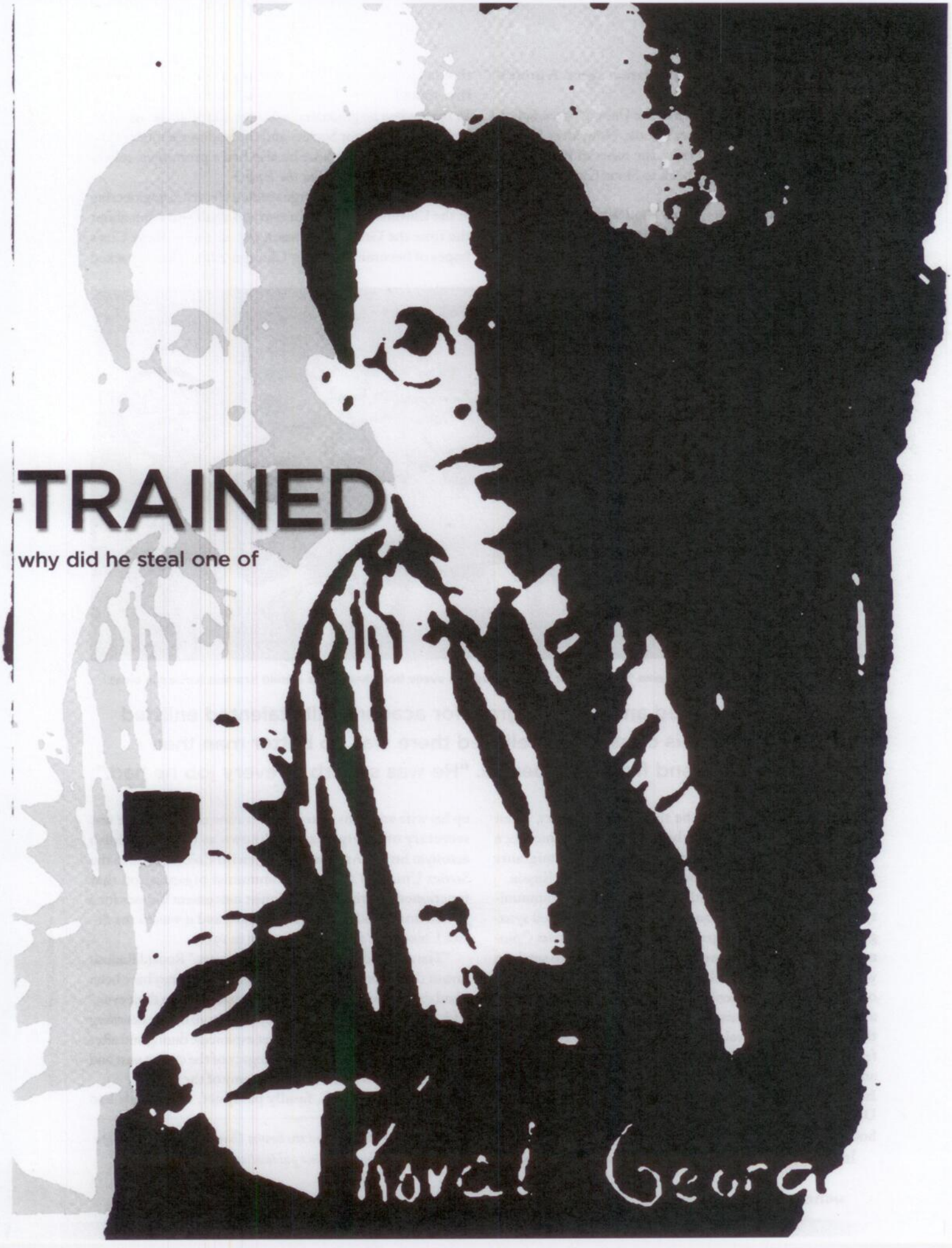
George Koval was a baseball fan and a chum to the guys in his U.S. Army unit. So America's most valuable atomic secrets for the USSR? BY MICHAEL WALSH

Most tellingly, in November 2007 Russian President Vladimir Putin posthumously awarded Koval, who had mustered out of the Red Army as a lowly private in 1949, a gold star marking him as a Hero of the Russian Federation—then publicly named him as Delmar. The spy's identity had been such a closely held secret that Putin himself, a former KGB officer, may have learned of it only in 2006, after he saw the man's portrait at a GRU museum opening and asked, in effect: who's *that*?

At Sioux City's Central High School, Koval (opposite: an undated photograph from his FBI file) was in the Honor Society. His spying for the Soviet Union remained a closely held secret until 2007, when then-Russian President Vladimir Putin (above) held a ceremony to honor Koval's exploits.

Ever since the award ceremony effectively blew Koval's cover, Western scholars have been revising the narrative of cold war espionage to account for his activities during the two years he worked at top-secret nuclear laboratories in Oak Ridge, Tennessee, and Dayton, Ohio. Beginning in the 1940s, intercepted Soviet intelligence cables helped implicate such KGB-run spies as Julius and Ethel Rosenberg and Harry Dexter White, a senior Treasury Department official under President Franklin Roosevelt who died of a heart attack shortly after he was called before the House Un-American Activities Committee in 1948. But except for Whittaker Chambers—the American writer who spied for the GRU in the 1930s but became a prominent anti-Communist and a principal in the 1950 perjury conviction of former State Department official Alger Hiss over his Communist ties—"we knew next to nothing about the extent of the GRU's espionage operation against the Manhattan Project until the Koval thing came up," says John Earl Haynes, a historian at the Library of Congress and an authority on the cold war.

What can be gleaned so far—from Western and Soviet archives, FBI documents, current scholarship and interviews with Koval's surviving former colleagues in the United States and his relatives in Russia—is that he was perfectly positioned to steal information about one of the most crucial parts of the bomb, the device that initiates the nuclear reaction. This required not only careful planning, rigorous training and brazen lying, but also astounding turns of luck. And in contrast to the known KGB spies, Haynes notes, "Koval was a trained agent, not an American civilian. He was that rarity, which you see a lot in fiction but rarely in


TRAINED
why did he steal one of
Karel Gero

real life—a sleeper agent. A penetration agent. A professional officer."

Most unsettling, he was born in the United States. Scholars knew that much from Lota's book. Now, after Koval's unmasking, it is possible to trace the roots of his betrayal of his native land all the way back to Sioux City, Iowa.

ITS OFFICIAL NAME WAS Central High School, but the red-brick Victorian fortress in Sioux City was better known as the Castle on the Hill. Built in 1892, it was a monument to the city's sense of itself at the turn of the century, when Sioux City seemed poised to become another Chicago, a center of culture and commerce that attracted migrants from back east and immigrants from Europe and Russia.

Those newcomers included a sizable Jewish community of merchants and craftsmen, who quickly erected synagogues and formed groups to support the *chalutzim* ("pioneers," in Hebrew) who were already beginning to settle in what would become Israel. Others brought with them some of the political and ideological movements then swirling across their homelands—including communism. Among these was Abram Koval, a carpenter who emigrated in 1910 from the Belorussian *shtetl* of Telekhany, near Minsk. He and his wife, Ethel Shenitsky Koval, raised three sons—Isaya, born in 1912; Zhorzh, or George, born on Christmas Day, 1913; and Gabriel, born in 1919—in a comfortable house not far from the Castle on the Hill.

In the 1950s, when the FBI assembled a dossier on Koval that ran to more than a thousand pages, neighbors recalled that young George spoke openly of his communist beliefs. In 1929, when he graduated from the Castle at the age of 15, he was in the Honor Society and the leading member of the debate squad. (That June he also had a prominent role in the class play: *Nothing But the Truth*.)

After graduation, George studied electrical engineering at the University of Iowa for two and a half years. But about the time the Great Depression put an end to Sioux City's hopes of becoming another Chicago, Abram Koval packed up his wife and sons to seek his fortune elsewhere. He was secretary of an organization known as ICOR, a Yiddish acronym for the Association for Jewish Colonization in the Soviet Union. ICOR was a communist organization that functioned as a rival to the Zionist movement's hopes for a Jewish homeland in the Middle East, and it was to the Soviet Union that the Kovals moved in 1932.

At CCNY, Koval (circled in red) became "famous" for helping students evade bed check, says Arnold Kramish (circled in blue).

In 1943, Koval entered an Army program for academically talented enlisted men. "At the time his classmates believed there was no better man than George," says a friend from that period. "He was superb at every job he had."

"They had a different view of patriotism," Ronald Radosh says of the expatriate Russians. "Communism may have been a bad dream, but it was a dream that had merit in their eyes," adds Radosh, co-author (with Joyce Milton) of *The Rosenberg File* and a leading scholar of Soviet espionage during and after World War II. "It was, in part, a legacy of the czarist past and the pogroms—the czar was the enemy of the Jews."

Traveling on a U.S. family passport, the Kovals had

MICHAEL WALSH *covered the Soviet Union and Eastern Europe for* Time *magazine and other publications from 1985 to 1991.*

DUANE WEISE; P. 40 DMITRY ASTAKHOV / AFP / GETTY IMAGES; PP. 40-41 FBI

planned to return to Minsk, "but the Soviet authorities did not allow them to do that," says Maya Koval, George's 28-year-old grandniece, who lives in Moscow. "They were forced to stay in the Vladivostok area," in the so-called Jewish Autonomous Region that Stalin had established in the 1920s. They settled in the town of Birobidzhan, near the Soviet border with Manchuria. In 1936, an American named Paul Novick, who edited a Communist Yiddish-language daily in New York City, visited the town and met the Kovals. The family, he would assert to his readers, "had exchanged the uncertainty of life as small storekeepers in Sioux City for a worry-free existence for themselves and their children," according to a book Canadian political scientist Henry Srebrnik is writing on ICOR and Birobidzhan.

Working on a collective farm, Isaya, the eldest Koval son, became a champion tractor driver and married a Jewish girl from Kiev, with whom he had three girls and a boy. (He died in May 1987, in a village near Birobidzhan.) George, after improving his Russian on the collective, was accepted in 1934 to study at the Mendeleev Institute of Chemical Technology in Moscow; there he met and married Lyudmila Ivanova, a fellow student whose father owned a small chocolate factory in Moscow. Five years later he graduated with honors, and he received Soviet citizenship along the way. His brother Gabriel also attended Mendeleev, but was killed in August 1943, fighting with the Red Army.

Exactly how and when the GRU recruited George is unclear, but after he received his degree he left Moscow as part of a subterfuge: "I was drafted into the army in 1939 to cover up my disappearance from Moscow," Koval would later write to Arnold Kramish, an American scientist he would befriend. "I did not accept an offer of military training and service as an army officer at that time, was never sworn in, or wore a uniform here." Kramish is now 86 and living outside Washington, D.C. after a long career at the RAND Corporation and the Atomic Energy Commission. Partly out of a professional interest in Soviet nuclear programs, he reestablished contact with Koval in 2000 and kept in touch by letter and e-mail over the last five years of Koval's life.

Koval's CCNY classmates—unaware of his wife in Moscow—marveled at his social prowess (above: with an unidentified woman in a photo from his FBI file). He was later assigned to the Oak Ridge laboratories (below), where Manhattan Project scientists performed crucial research on plutonium.

One thing Koval's correspondence does explain is how he returned to the United States in 1940, even though his parents had relinquished their U.S. passport: "I entered the U.S. in October 1940 at San Francisco," he wrote to Kramish. "Came over on a small tanker and just walked out through the control point together with the captain, his wife and little daughter, who sailed together with him."

KOVAL MADE HIS WAY to New York City and, Kramish says, assumed deputy command of the GRU station there. The station went under the cover of the Raven Electric Company, a supplier to General Electric and other U.S. firms, with two Manhattan offices. Koval told colleagues he was a native New Yorker, an only child and an unmarried orphan. Standing six feet tall, with a penetrating gaze and a bohemian's distracted air, Koval came across as a baseball fan and an overall boon companion. "I don't know anybody who hated George," Kramish says.

On January 2, 1941—just months after he walked into the United States—Koval registered for the draft, listing a Bronx home address. Raven secured him a job-related deferment for a year beginning in February 1942; according to the Russian historian Lota, Koval's Soviet handlers wanted him to steal information about *chemical* weapons and believed that his ability to do so would be compromised if he were drafted. But the deferment expired, and on February 4, 1943, George A. Koval was inducted into the United States Army.

After basic training at Fort Dix, New Jersey, Private Koval was sent to the Citadel in Charleston, South Carolina, to join the 3410th Specialized Training and Reassignment Unit. And on August 11 of that year he was admitted to a new unit, the Army Specialized Training Program (ASTP). One of his colleagues there, Duane Weise, believes Koval scored particularly high on the Army's analog to the IQ test. The move marked Koval's first step toward the nation's nuclear labs.

The Army had established the ASTP in December 1942 to provide academically talented enlisted men with an undergraduate education and specialized technical training at colleges and universities across the country. Koval was sent to

FBI; ED CLARK / TIME LIFE PICTURES / GETTY IMAGES

study electrical engineering at the City College of New York (CCNY); his surviving former ASTP fellows say he became something of a role model, even a father figure, to them. "At the time his classmates believed there was no better man than George," says Kramish, who was also in the program. "He was superb at every job he had."

Koval was a decade older than the others, Kramish says, and acted more maturely. "That was one of the anomalies about him," Kramish recalls. "In retrospect, there were mysteries that made him stand out." One, he says, was that Koval never seemed to do any homework. ("Of course, that was because he was already a college graduate back in Moscow, although we didn't know that at the time.") Another talent was helping his chums evade bed check by arranging pillows and blankets into "sleeping" bodies. ("He was famous for that," Kramish says.) And he smoked his cigarettes down to where they almost burned his fingers as he pinched the butt. ("That was a very distinctive Eastern European habit," Kramish adds, "which I never knew about until I went to Europe after the war.") Koval's surviving classmates (who at the time knew nothing of a wife in the Soviet Union) also say he was a notable ladies' man.

Stewart Bloom, 86, another CCNY trainee, recalls that Koval lacked a New York accent. "I always thought he was straight out of Iowa," says Bloom, a Chicago native. But in the urgency of war, Bloom says, he gave it little thought until nearly a decade after the war ended, when FBI agents showed up at the Brookhaven National Laboratory on Long Island, where he was then working, to ask about his former colleague.

The ASTP proved short-lived. Toward the end of 1943, just a few months after Koval enrolled, the war was tipping in favor of the Allies and the military was demanding ever more combat troops for a final push to victory. In early 1944, the program was dissolved and most of the participants were sent to the infantry.

Not Koval. He, along with Kramish and about a dozen others from CCNY, was selected for something called the Special Engineer Detachment (SED). It was part of the Manhattan Project, the covert enterprise that organized the talents of U.S., British and Canadian scientists at facilities across the United States for the purpose of designing and building an atomic bomb.

By the time Koval joined the SED in mid-1944, Manhattan Project scientists were pursuing two very different bombs. One was based on a known and relatively simple technology that required a rare, enriched form of uranium. (Indeed, it was in such short supply that its first "test" was in the bomb that destroyed Hiroshima.) The other bomb would use plutonium—an element that had not been isolated until 1941. The Oak Ridge laboratories were central to the development of both types of bombs.

Koval was assigned to Oak Ridge.

Spying by Klaus Fuchs (above) at the Los Alamos laboratories, combined with Koval's espionage, accelerated the Soviets' atomic program. Fuchs, however, was apprehended and imprisoned. In 1949, the USSR tested its first atomic bomb (below), initiating a nuclear arms race with the United States.

ULLSTEIN BILD / GRANGER COLLECTION, NEW YORK; GRANGER COLLECTION, NEW YORK; KEYSTONE / HULTON ARCHIVE / GETTY IMAGES

THERE, KOVAL'S GOOD FORTUNE seemed only to build on itself, almost like a nuclear reaction: he was made a "health physics officer," charged with monitoring radiation levels throughout the sprawling facility. That, according to FBI files, gave him top-secret clearance. "He was one of the very few people who had access to the entire program," says Kramish, who worked in a different Oak Ridge lab. Still, the two saw each other frequently. In August 1944, Kramish was transferred to Philadelphia (where he was injured in a lab accident that killed two co-workers), but he returned to Oak Ridge before being assigned to Los Alamos, New Mexico.

"These things could not have been planned by the Soviets or anyone," writes nuclear historian Robert S. Norris in "George Koval, Manhattan Project Spy," a paper to be presented at a conference in Washington this month and published in the *Journal of Cold War Studies*. "Rather, it was just a lucky hit for the GRU."

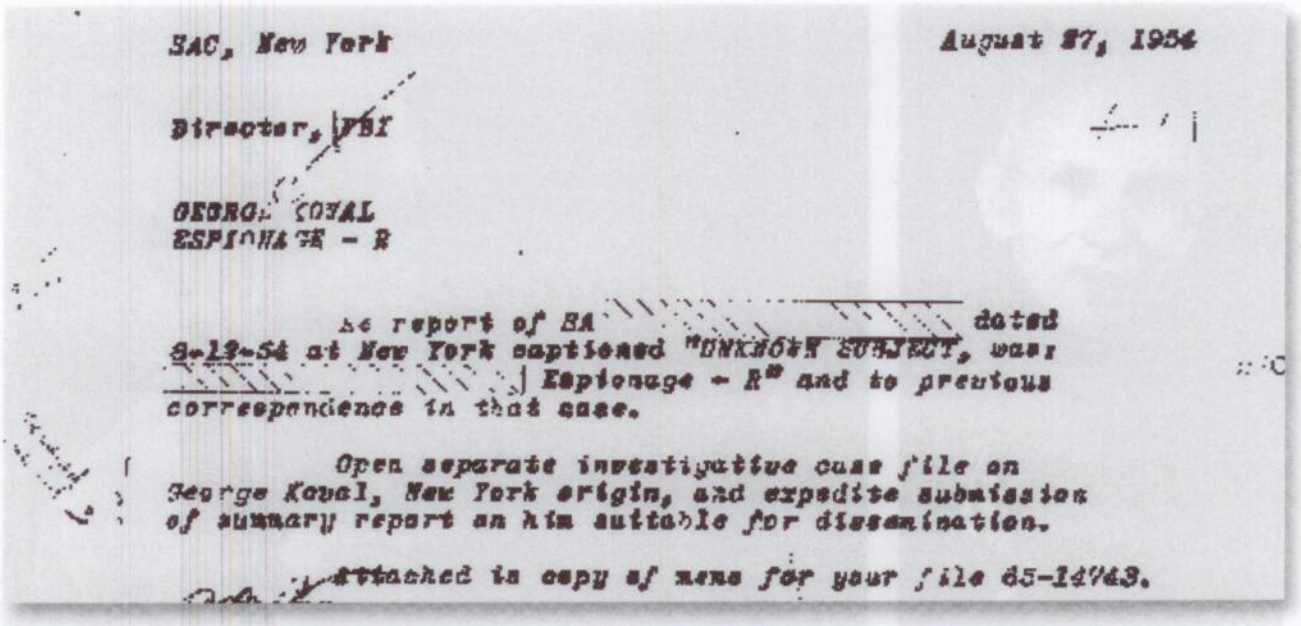
Based on experiments conducted at Oak Ridge and elsewhere, reactors that could produce enough plutonium for a bomb were commissioned in Hanford, Washington. Meanwhile, scientists discovered that reactor-produced plutonium was too unstable for the bomb design they had in mind; the material would fizzle out. They had to come up with an "initiator" that would help the plutonium achieve the necessary chain reaction. For that initiator, they chose a form of another rare element, poloni-

um—which was also produced at Hanford and Oak Ridge.

According to Lota, Koval was charged with keeping track of Oak Ridge's polonium. Through a Soviet contact known by the code name Clyde, Koval transmitted production information about it to Moscow via couriers, coded cables and the diplomatic pouch from the Soviet Embassy in Washington. One key fact he passed along was that Oak Ridge's polonium was being sent to Manhattan Project labs in Los Alamos—where Klaus Fuchs happened to be working as a Soviet agent.

Oppenheimer, the scientific director of the Manhattan Project, to quote the *Bhagavad-Gita*: "I am become death, the destroyer of worlds." It gave U.S. war planners the confidence to deploy a plutonium-based bomb, in addition to the uranium-based one in their arsenal.

By then, Germany had surrendered, but Japan had not. Just three weeks later, on August 6, 1945, the uranium-based bomb was detonated over the city of Hiroshima, killing 70,000 people immediately and 70,000 more by the end of the year. And on August 9, 1945, a replica of the Trinity



SAC, New York

August 27, 1954

Director, FBI

GEORGE KOVAL
ESPIONAGE - R

Re report of SA [redacted] dated 8-13-54 at New York captioned "UNKNOWN SUBJECT, was; [redacted] Espionage - R" and to previous correspondence in that case.

Open separate investigative case file on George Koval, New York origin, and expedite submission of summary report on him suitable for dissemination.

Attached is copy of memo for your file 65-14743.

The FBI launched an investigation into Koval in the mid-1950s—but by then he had left the United States and settled in Moscow.

Almost 60 years after the Soviets exploded their first atomic bomb, the Russian Defense Ministry said that the initiator had been "prepared to the 'recipe' provided by military intelligence agent Delmar—Zhorzh Abramovich Koval."

"Fuchs passed the Soviets really detailed information on the design of the bombs," says David Holloway, a professor of history and political science at Stanford University and a leading authority on the atomic arms race. But Koval, he adds, knew that the polonium coming out of Oak Ridge "played some role in the development of the bomb"—knowledge that helped the Soviets connect the dots between Oak Ridge and Los Alamos.

On June 27, 1945, after almost a year at Oak Ridge, Koval was transferred to a top-secret laboratory in Dayton, Ohio. This may have been his most damaging placement; it was there that the polonium-based initiator went into production. Once again, Koval was designated a health physics officer, free to roam the installation.

That July 16, the initiator passed a crucial test: the world's first atomic bomb exploded at a site called Trinity within the bombing range in Alamogordo, New Mexico. This was the explosion that prompted J. Robert

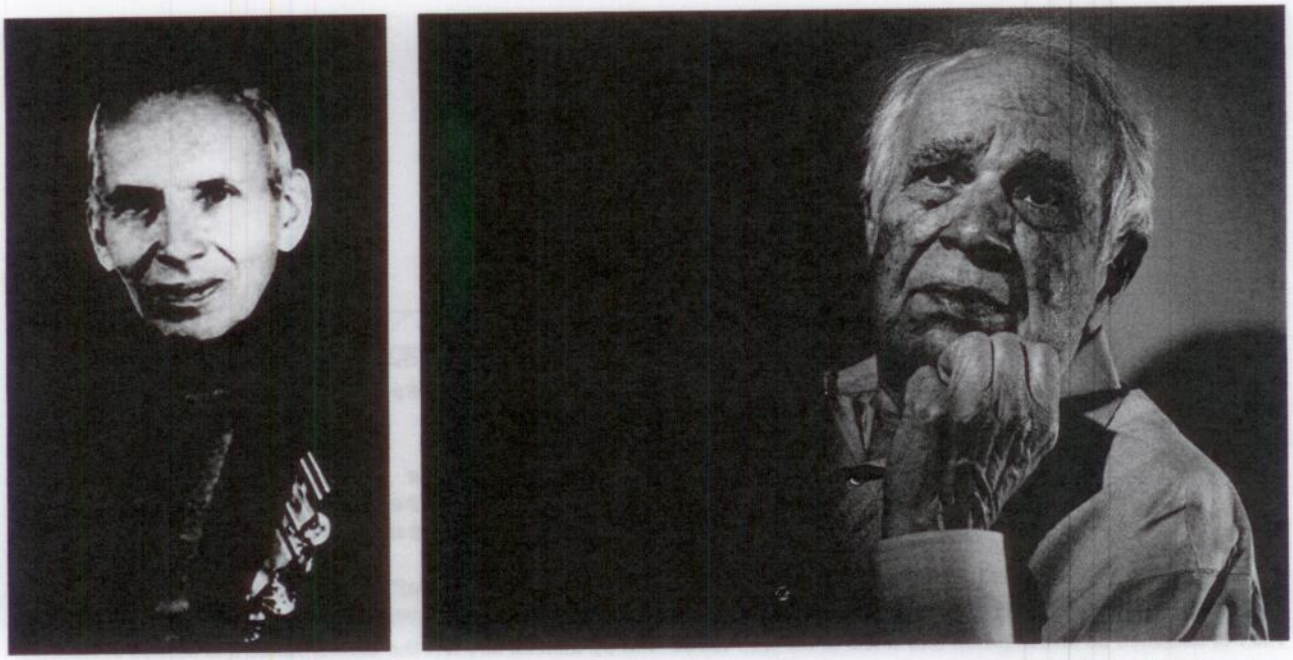
bomb exploded over Nagasaki. Five days later, Japanese Emperor Hirohito announced his nation's surrender.

Amid the devastation of the two cities, there were widespread calls for a ban on nuclear weapons. The United States and the Soviet Union proposed an international system of nuclear arms control, but that never happened. Indeed, the Soviets intensified an atomic-bomb program they had begun during the war. As early as October 31, 1946, the CIA estimated that they would succeed "some time between 1950 and 1953"; as the months passed that estimate tilted more toward 1953.

But on August 29, 1949, the Soviets detonated their first atomic bomb, at their Semipalatinsk Test Site in Kazakhstan. The device was a plutonium weapon. Not until 2007 did Russian military officials disclose one crucial factor in their accelerated achievement: the initiator for that bomb was "prepared to the 'recipe' provided by military intelligence agent Delmar—Zhorzh Abramovich

Koval," the Defense Ministry newspaper *Krasnaya Zvezda* reported when Koval received his gold star.

In 1949, President Harry Truman calmly apprised the American public of the Soviets' test. "We have evidence that within recent weeks an atomic explosion occurred in the USSR," he announced on September 24, in a statement of 217 words, not one of which was "bomb" or "weapon." "Ever since atomic energy was first released by man, the eventual development of this new force by other nations was to be expected," he said. "This probability has always been taken into account by us." Behind the scenes, however, nuclear scientists, generals and policy makers were furiously debating whether the United States should push for arms control or for the next generation of nuclear weapons. Truman rendered that debate moot in January 1950, when he authorized the development of a hydrogen bomb. The nuclear arms race had begun in earnest.



Kramish (right: in March 2009) tracked down his buddy Koval (left: an undated portrait) after a silence that lasted five decades.

"I'm afraid that you will be disappointed to learn that I did not receive any high awards upon my return," Koval wrote from Moscow. The paper trail created to hide his spy career had a "very strong negative effect on my life."

GIVEN THAT GEORGE KOVAL used his real name, it is tempting to wonder why he didn't fall under suspicion as a security risk until long after it was too late. (Klaus Fuchs was caught after the war, implicated in the same group of intercepted Soviet cables that exposed the Rosenbergs and others. Fuchs served more than nine years in a British prison and then emigrated to Dresden, where he died at age 76 in 1988.) Scholars and analysts are still trying to find out why Koval went undetected.

One reason may be that the Soviets were U.S. allies at the time; counterintelligence efforts were focused on German agents. Another is that interservice rivalry hobbled the Manhattan Project's efforts to vet its scientists. According to Kramish and others, Gen. Leslie Groves, the military director of the Manhattan Project, did not trust the FBI to do security checks on the scientists, preferring to rely on Army counterintelligence officers. A third possibility is that in wartime, the Allies chose scientific talent over pristine clearance records. "People like Oppenheimer had all sorts of questionable connections. The question was: What do you do about it?" says Jon Lellenberg, a retired policy and strategy official with the Office of the Secretary of Defense. "If Oppenheimer was as essential as he seemed, and as committed to success as he was, it was probably deemed worth some political risk for the sake of the program."

And finally, there was the timing: by 1949, when the Soviets exploded their bomb, George Koval had left the United States.

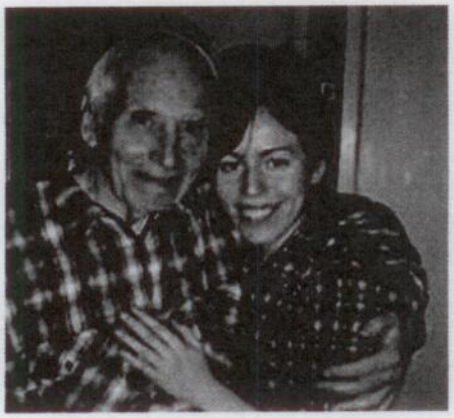
His exit was unhurried. Honorably discharged from the Army in 1946, he returned to the Bronx and to CCNY. He joined Eta Kappa Nu, an electrical-engineering fraternity, and received his bachelor's degree in electrical engineering *cum laude* on February 1, 1948. A few months later, he told friends that he was thinking about going abroad, to Poland or Israel. According to Norris, Koval secured a U.S. passport for six months' travel to Europe on behalf of a company called Atlas Trading. That October he sailed for

RED STAR; BRENDAN SMIALOWSKI

Le Havre aboard the ocean liner *America*, never to return.

It is unclear what prompted the FBI to open its mid-1950s investigation into Koval. The resultant raw files, contained in six volumes, include typically exhaustive FBI interviews with Koval's friends, relatives and colleagues, most of whose names are redacted. While the transcripts provide a few hints to Koval's whereabouts after he left the United States—a postcard from Argentina, a reported sighting in Paris—they offer no conclusions about his activities or motivations.

In the following decades, Kramish tried to find his old Army friend, even after he deduced from his FBI interview that Koval had been a spy. Around 2000, Kramish says, he was at the National Archives and by "serendipity" came across some references to Koval and the Mendeleev Chemical Institute. Kramish contacted the institute and secured a telephone number for him. Kramish called, and Koval answered. "It was an emotional moment for both of us," Kramish says. They began corresponding by letter, he says, and then Koval's grandniece persuaded him to use e-mail.



Koval eventually found a teaching job at the Mendeleev Chemical Institute, where his students made fun of his American-accented Russian. "George was the head of our family," says his grandniece Maya (above: with Koval in 2003; below: Koval with niece Galina in 2005). But he "never told us about his work. That was a forbidden topic."

Koval's postwar life in Russia was apparently uneventful. "I'm afraid that you will be disappointed to learn that I did not receive any high awards upon my return," he wrote to Kramish in May 2003. "Life in the Soviet Union was such that my activities instead of bringing me awards, had an opposite, very strong negative effect on my life." When he left the Soviet military in 1949, he wrote, "I received discharge papers as an untrained rifleman in the rank of private—with 9 years of service in the armed forces!" This lackluster record, coupled with his academic and foreign background, "made me a very suspicious character," he wrote, especially amid "the terrible government-instigated-and-carried-out anti-Semitic campaign, which was at its peak in the early fifties." He sought work as a researcher or teacher, but "no one wanted to risk hiring me"—partly, he believed, because someone with his record might be an American spy.

He asked his contact at the GRU for help finding a job—"the only time I ever did." The contact delivered—but, Koval wrote, "even the orders of the Minister of Education brought me nothing better than a job as a laboratory assistant." That was at the Mendeleev Institute. Eventually, he worked his way into a teaching job there. According to a longtime Mendeleev colleague, Yury Lebedev, Koval's students would sometimes giggle when he pronounced the Russian words for "thermocouple" and other technical terms in an American accent. Lebedev says Koval made frequent trips to Khabarovsk to see relatives and, in 1966, brought his nephew Gennady to Moscow to live with him and study at Mendeleev.

Grandniece Maya, a marketing communications manager, came to live with Koval in his Moscow apartment four years before his death. "George was the head of our family—clever, wise and very, very kind," she said in an e-mail interview. "We admired his intellect, his knowledge and his sense of tact. We knew about his work for the GRU. No details—we just suspected that it was somehow related to the nuclear bomb, that's it. George never told us about his work. That was a forbidden topic."

During Koval's decades as an academic in Moscow, the fact that his service to his adopted homeland went unacknowledged rankled him. In 2003 he wrote to Kramish that he had received a minor medal after he returned to Russia, but bigger rewards "went to the career men." Fuchs "got his award, not a very high-ranking one (and was disgruntled about that) only when he was already released and was working as a physicist" in East Germany. And "only quite recently, when Lota began digging in the archives and brought my story to light, was I presented with a rarely awarded medal" for service in foreign intelligence, at a closed ceremony.

Still, despite the perceived slights and his uneasy return to Soviet life, George Koval ended his e-mail on a stoic note: "Maybe I should not complain (and I am not complaining—just describing how things were in the Soviet Union at that time), but be thankful that I did not find myself in a Gulag, as might well have happened."

To the end, he remained unapologetic about betraying the country of his birth. His ASTP colleague Duane Weise, looking back on Koval's turns of luck, offers the theory that he was actually a double agent. "It's just a hypothesis, but there are too many coincidences," Weise says. Kramish, however, sees the matter more directly: "Koval never had any regrets," he says. "He believed in the system." ○

YURY LEBEDEV; MAYA KOVAL