

Code Name `Mlad,' Atomic Bomb Spy; Newly Declassified Soviet Cables Point to American Physicist at Los Alamos: [FINAL Edition]
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In July 1945, the Soviet Union achieved one of history's greatest espionage coups. As World War II was drawing to a close, the Kremlin learned that the United States was about to explode the world's first atomic bomb and acquired a rough outline of the bomb's design. It was a key event in what FBI director J. Edgar Hoover later called the "crime of the century": the theft of America's nuclear secrets.

According to Soviet intelligence documents released several years ago, the information came separately from two agents operating at the heart of the U.S. bomb-building effort. One was physicist Klaus Fuchs, whose KGB code name was "Charles" and whom the British convicted of espionage in 1950. The other's code name was "Mlad," Russian for "youngster."

Mlad's identity has remained a tightly guarded secret, even after the U.S. government learned it decades ago. But a review of dozens of recently declassified Soviet and U.S. documents, buttressed by interviews, points to a likely candidate: Theodore Alvin Hall, a Harvard-educated American physicist who worked in 1944 and 1945 at the nuclear laboratory complex at Los Alamos, N.M., where the first atomic bombs were built.

Hall, now 70, was investigated for espionage by the FBI from 1950 to 1952 but was not prosecuted. He left the United States in 1962 and lives in Cambridge, England. Without cooperation from the U.S. or Russian governments, it is difficult to establish with certainty that he was the agent Mlad who, experts say, helped speed up the Soviet Union's acquisition of a nuclear arsenal by roughly two years at the opening of the Cold War.

Nevertheless, the known biographical details about Mlad -- whom both U.S. and Russian officials have identified as an American physicist who worked at Los Alamos and is still alive -- fit seamlessly with those of Hall. Hall declined either to confirm or deny that he was Mlad in response to direct questions from a Washington Post reporter who visited him at his house earlier this month, and spoke with him again in telephone conversations yesterday and Friday.

Among documents now in the public domain, a Soviet intelligence cable sent Nov. 12, 1944, identifies Hall by name as having provided information to the Soviet government. That message, sent to Moscow from the KGB, the Soviet spy service, in New York, said a Soviet agent "visited Theodore Hall, 19 years old . . . a graduate of Harvard," and that Hall "handed over . . . a report about {Los Alamos} and named key personnel employed" on the atom bomb project.

The cable was one of dozens intercepted by the U.S. government and gradually deciphered over 40 years by the National Security Agency in an effort known as the Venona program. The NSA officially revealed details of Venona, an invented word, for the first time in July.

The November 1944 cable is the only Soviet document now publicly available that names Hall as being an agent, and it does not identify him as the particularly valuable one known to the spy masters at Moscow Center as Mlad. But seven other KGB messages, also deciphered in the Venona project, contain circumstantial evidence suggesting that Hall was Mlad. For example:

The November 1944 message said Hall had given the KGB the names of key personnel in the atom bomb project. On Dec. 13, another intercepted cable cited names of 17 prominent physicists at Los Alamos -- and the NSA said in notes accompanying the released document that the source of those names was "probably" Mlad. Another cable three days later mentions a top Los Alamos physicist and said the name came from Mlad.

A January 1945 message said Mlad had been "called up into the Army" but was being allowed to continue "to work in the {Los Alamos} camp." Former associates of Hall at Los Alamos recalled that Hall was drafted around that time, but remained at the laboratory complex.

According to Soviet scientists and intelligence experts, the information provided by Fuchs, Mlad and other agents enabled the Soviet Union to acquire the atomic bomb two or three years earlier than it otherwise would have. The father of the Soviet atomic bomb, Igor Kurchatov, said in a wartime memo that the intelligence material had a "huge, invaluable significance for our state and science." The Soviet bomb tested for the first time in 1949 was a virtual copy of the first American bomb tested in July 1945.

In two conversations at his modest, two-story town house in England, and in later telephone calls, Hall declined to answer questions about intelligence activities on behalf of the Soviet Union. He said he feared that a newspaper account of such a complicated episode would inevitably be "sensational," and said such material was best handled "by an historian."

Asked directly if, as "Mlad," he had tipped off the Kremlin about the first nuclear test, Hall replied, "That is precisely the kind of question I do not want to get dragged into right now." He said: "I don't want to get into a debate with the press about this. . . . These events or supposed events happened 50 years ago. If they are made public, there will be a certain amount of interest, but it will soon die down."

Hall is married, with three grown children, and is suffering from Parkinson's disease and inoperable cancer, according to an entry in the class book issued in 1994 on the 50th anniversary of his graduation from Harvard. Tall, slim and balding, wearing

tortoise-shell glasses, he seemed physically frail but mentally sharp with a slightly wry sense of humor.

Hall suggested it would be worth investigating why the U.S. government had kept silent about the case, even though he said it had known the essential details "for a long time." When the reporter said the American government must have known definitively about his contact with Soviet intelligence officials by 1961 -- the year that NSA cryptologists completed their deciphering of the November 1944 cable that discussed him by name -- Hall replied, "Thereabouts."

The U.S. government's handling of the Hall case remains clouded by a number of mysteries. No charges were brought as a result of the FBI investigation of Hall in 1950-1952, even though a 1950 internal FBI document states, "Hall has been identified as a Soviet espionage agent while at Los Alamos." Furthermore, apparently neither the Justice Department nor the FBI intervened to prevent Hall from moving to England in 1962, when he was appointed to a research position in biophysics at Cambridge University's prestigious Cavendish laboratory. He now is retired.

Both the Justice Department and the FBI turned down a Post request to comment on the case on the grounds that it is still classified. Based on how previous espionage cases have been handled, one possibility is that the authorities gave Hall immunity in return for information about the KGB. Another is that they were unable to prosecute him, either because of insufficient evidence or because key evidence was based on top-secret information that the government did not wish to reveal in court.

In one of the few public statements from a U.S. official about the case, Robert Benson, an NSA historian who has worked on the Venona documents, said Mlad is still alive and his identity is known to the U.S. government. Benson declined to confirm or deny that Mlad was the code name for Hall.

In his entry in his Harvard class's 25th anniversary book in 1969, Hall reported that he did not "believe there is anything worth noting" in his personal history. The statement could scarcely have been more misleading. The story of Theodore Alvin Hall provides a fascinating new twist to one of the most enduring mysteries left from World War II and the Cold War: Who, in addition to Fuchs and other spies identified long ago, gave Moscow the secret of the atomic bomb?

White Badge Worker

The nuclear research center at Los Alamos opened for business in the spring of 1943 with a hugely ambitious goal: to produce a weapon that would end the war. The most striking fact about the scientists who worked on the Manhattan Project, the U.S. code name for the bomb-building program, was their youth. The scientific director, Robert Oppenheimer, was the grandfather at age 39. The average age of the entire staff was 25.

Oppenheimer scoured American universities for support staff. The recruitment drive produced a quartet of exceptionally talented physics students from Harvard: Ray Glauber, Kenneth Case, Frederick Dehoffmann, and Theodore Alvin Hall. They arrived in New Mexico by train at the beginning of 1944.

According to the Los Alamos archives, Hall was assigned to the G (for gadgets) division, which was responsible for mastering the physics of the implosion technique that would be used to detonate the A-bomb. Hall's special area of expertise was experimenting with X-rays to measure the effects of implosion.

As "white badge workers," the Harvard students had access to most of the secrets of Los Alamos. Oppenheimer was a firm believer in the benefits of scientific cross-fertilization. He convinced the Manhattan Project's military authorities that the bomb would only get built if his scientists were permitted to talk with each other freely.

As a result, security at Los Alamos was provided principally by the remoteness of the site. On free weekends, however, members of the scientific staff were allowed to travel to the nearby town of Santa Fe. They also received a two-week annual furlough.

A 1950 FBI document said Hall's furlough in 1944 lasted from Oct. 15 to Oct. 29. That vacation ended two weeks before the KGB in New York sent the cable saying Hall had passed information to the Soviets. Hall's handler was Sergei Kurnakov, according to the cable. A former Czarist cavalry officer who emigrated to the United States in the 1920s, Kurnakov was employed by a Communist newspaper in New York as a "military analyst." His real job was to find recruits for Soviet intelligence operations and check their bona fides.

Kurnakov reported to his superiors that Hall was a member of the Communist Youth League. Hall "had an exceptionally keen mind and a broad outlook, and is politically developed," the cable said. It is not known whether the information about Hall's political orientation turned up in the U.S. security check before he went to Los Alamos. At that stage of the war, the Soviet Union was a major ally of the United States in the struggle against Nazi Germany. Many in the United States, especially leftists, believed America had a duty to help Moscow.

According to the coded message, Hall decided to cooperate with Soviet intelligence on the advice of his former Harvard roommate, Saville Sax, who died in 1980. Hall provided the Soviets with a report about Los Alamos and "named the key personnel employed on ENORMOUS," the Russian code name for the Manhattan Project, the cable said. A decision was made to "maintain liaison" in the future with Hall through Sax and "not to bring in anyone else," it said.

Ray Glauber, now a professor of physics at Harvard University, is a former roommate of both Hall and Sax. He remembers Sax as "a rather unusual fellow with an odd way of speaking," who appeared to exercise influence over Hall. Glauber said Sax showed up unexpectedly at Harvard's Lowell House in the summer of 1943 as Hall's new roommate.

"He was not a student I had ever seen before," recalled Glauber. "There was some friendship between them {Sax and Hall} that I did not share."

Like Hall, Sax was a member of the Communist Youth league, according to the November 1944 cable. The message made particular mention of his mother, Bluma Sax, whom it described as a Communist Party member living in New York who worked for an organization called "Russian War Relief."

One of the key bits of circumstantial evidence suggesting that Hall was Mlad is a Jan. 23, 1945, KGB document that referred to Mlad and another agent, code-named "Star" (or "old man"). Standard Soviet intelligence practice would call for Moscow Center to invent code names for its recruits, in order to reduce the risk of exposure by American cryptologists. Several details suggest that Hall was Mlad, and that Sax, one year his senior, was Star.

Mlad's recruitment added to the intelligence riches obtained from Los Alamos by the Soviets, who already had at least two agents working there. Historians have said the most important was Fuchs, a member of the British delegation to the Manhattan Project. A refugee from Nazi Germany, Fuchs had been funneling atomic secrets to the Soviets since 1942. He was unmasked as a Soviet spy in 1950 and sentenced by a British court to 15 years in prison.

It long has been known that another agent was David Greenglass, the brother of Ethel Rosenberg, who, with her husband Julius, was executed for treason in 1953 in a highly controversial case. Greenglass was working as a machinist in the explosives division at Los Alamos.

The Soviets used a single courier, Harry Gold, for contacts with both Fuchs and Greenglass. The arrest of Fuchs in January 1950, on the basis of a tip-off from U.S. cryptologists, led directly to the arrests of Gold, Greenglass, and the Rosenbergs.

But those four made up only a part of the Soviet spy apparatus that penetrated the Manhattan Project, according to a former Soviet intelligence officer who controlled most of the atomic spies in the United States. In an interview with *The Post* in 1992 a few months before his death, the officer, Anatoly Yatskov, boasted that the FBI had succeeded in uncovering "only half, or less than half" of his network.

Yatskov said he used a woman courier, Leontine Cohen, to contact his other source or sources at Los Alamos apart from Fuchs or Greenglass. Indirect corroboration for this assertion comes from a Dec. 13, 1944, cable to Moscow Center, in which the

Soviet KGB resident in New York noted that it was "risky to concentrate all contacts relating to ENORMOUS" on Gold alone.

In addition to Hall, Fuchs, and Greenglass, the Soviets had at least two other sources in the Manhattan Project who had been supplying information since 1943: "Pers" (Russian for "Persian") and "Quantum." The existence of these two agents is documented by Soviet intelligence intercepts, but the U.S. government so far has been unable to figure out their identities, according to the NSA.

There is no direct evidence that either Pers or Quantum was operating at Los Alamos. Soviet intelligence officials earlier talked also about an agent whom they said was code-named "Perseus." The Venona documents suggest that Perseus probably was not a single individual, but a composite including characteristics of Pers and Mlad.

'Ridiculous Soldier'

The same January 1945 cable that referred to Mlad and Star reported that KGB agent Yatskov in New York took over as Star's controller from KGB recruiter Kurnakov. According to the message, Kurnakov was "extremely displeased" to lose control of Star. Yatskov had the advantage, however, of having diplomatic cover as a member of the Soviet consulate in New York. He also outranked Kurnakov, whose role was confined to checking and talent spotting.

The January cable mentions that Mlad was drafted into the U.S. Army at about this time, although he continued to work at Los Alamos. Both Glauber and Case remember that Hall was drafted, adding that he was a very reluctant soldier who made no attempt to hide his contempt for the Army. Los Alamos has declined to release Hall's military record.

"He was the most ridiculous soldier you ever saw," recalled Case, who later became a professor of physics at Rockefeller University. "He didn't dress right, he didn't shave. He was disreputable. He acted as if he was completely annoyed with the Army."

Both Glauber and Case said they had no reason to suspect their former Harvard colleague of spying for the Soviets. That, in itself, is hardly unusual. "I had breakfast, lunch and dinner with Fuchs for two years, and I did not suspect him either," Case said.

In March, the New York KGB residency cabled Moscow to say that Mlad had provided a list of places where work on ENORMOUS was being carried out, including the site of a top-secret plutonium-processing plant at Hanford, Wash. Mlad also provided a description of four different methods for producing enriched uranium, according to the message.

According to Yatskov, courier Cohen visited New Mexico shortly before the first atomic test on July 16, 1945. In the 1992 interview, Yatskov described how Cohen picked up top secret documents from a physicist and hid the papers in a box of Kleenex. When she arrived at the Albuquerque train station for her return trip to New York, she discovered that plainclothes police were checking all the passengers. She later boasted that she had nonchalantly asked one of the officers to hold her Kleenex box while she searched for a ticket.

"They never looked into the box," said Yatskov. "When she handed me the materials {in New York}, they were about how the atom bomb was to be tested."

Since both Fuchs and Greenglass were using a different courier -- Gold -- the available information suggests that the physicist whom Cohen saw at Los Alamos was Mlad.

Yatskov has identified Cohen's contact at Los Alamos as one of the sources of the first crude outline of the design of the atomic bomb tested in July 1945. The outline, which was obtained by a Soviet scientific journal in 1992 from the KGB, gives a fair description of the implosion method for detonating the bomb.

Other documents released in Moscow in 1992 show that Soviet nuclear physicists were well informed about the implosion experiments at Los Alamos, which was Hall's special area of research.

The former head of security at Los Alamos, Lt. Col. John Lansdale, said in an interview he believes that Hall would have had access to much of the most secret information about the Manhattan Project. But he said he was unaware of any security breaches committed by Hall during his time at Los Alamos.

Deciphering Cables

The U.S. government did not begin to suspect Soviet penetration of the Manhattan Project until several years after the war. The first real break in the case came in the summer of 1948, when a brilliant young cryptographer, Meredith Gardner, began deciphering Soviet intelligence telegrams dating back to World War II.

By 1949, Gardner's discoveries had enabled the FBI to identify Fuchs as a likely source of Soviet intelligence information. British counterintelligence officers extracted a confession from Fuchs in late January 1950. Three months later, FBI agents interviewed Fuchs in prison in Britain and got him to identify Gold as the courier he used to contact the Soviets.

Declassified FBI documents show that soon afterward, in the spring of 1950, the FBI launched an intensive investigation to identify an "unknown subject" suspected of espionage. The bureau soon was hot on the trail of Hall and Sax.

According to Robert Lamphere, who led the FBI investigation into espionage at Los Alamos, the "unknown subject" inquiry was triggered by a newly deciphered Venona message. FBI offices throughout the country were instructed to look for a former Los Alamos employee who had taken a furlough in November 1944. The information included in the leads sent to FBI offices suggests the inquiry was triggered by the initial, partial deciphering of the November 1944 and January 1945 KGB cables.

Shortly after the launching of the "unknown subject" inquiry, the Soviet courier Gold began telling the FBI about a "soldier" at Los Alamos who was one of his contacts but whose name he could not remember. Suspicion fell on Hall, then living in Chicago. An internal memo to FBI Director Hoover in early June 1950 suggested that Hall was the "unknown subject." Both Hall and Sax, who also had moved to Chicago, were placed under surveillance by the FBI. A parallel investigation of Sax's mother was ordered.

But the FBI's interest in Hall declined after Gold identified David Greenglass as his soldier contact at Los Alamos. The FBI then concluded that Greenglass also was the "unknown subject" who had taken the November 1944 furlough.

In a 1986 book, Lamphere noted that Greenglass had taken his furlough in late December 1944, but added that the match was "pretty close." Lamphere now says that Hall, whose furlough was in late October, was probably a better candidate to be the "unknown subject."

At the time of the inquiry, the FBI's Chicago Field Office expressed doubt that Hall was "the unknown subject." On June 13, 1950, it reported to Hoover that both Sax and Hall were openly associating with "known Communists." This was taken as evidence that, whatever they may have done in the past, they were no longer spying for the Soviet Union because then it would be too risky to be seen in such company. The FBI memo reported that neither Hall nor Sax appeared to be "presently engaged in surreptitious espionage work."

The FBI later would establish that Cohen fled the country in the summer of 1950 with her husband Morris at just the time that Hall came under suspicion.

As it later turned out, the Soviets were well aware by early 1950 that American cryptographers had broken their wartime codes. As Lamphere recalls in his book, "The FBI-KGB War," full briefings about the Venona project were provided by the United States to the Washington representative of MI-6, the British counterintelligence service. This was none other than Kim Philby, one of the most celebrated agents in KGB history, who passed on the Venona information to the Kremlin.

FBI Interviews

The FBI investigation of Hall and Sax picked up steam again in early 1951, according to declassified but still heavily censored FBI documents. On March 13, 1951, the Chicago office informed Hoover that the two men would be "interviewed in the near future" in an attempt to obtain "corroborating evidence regarding the bureau source allegation." This was evidently a reference to Venona documents.

Other documents in the FBI archives indicate that the interviews with Hall and Sax were conducted soon afterward. At the end of March, FBI agents in Chicago requested the assistance of half a dozen other FBI offices in interviewing known associates of the two men, in an apparent attempt to check up on their accounts.

Traces of this espionage investigation can be found in the files of Klaus Fuchs, David Greenglass, and Harry Gold, which were released to the public in 1975.

The only clue to the outcome of the Hall-Sax investigation is an FBI report, dated Jan. 18, 1952. It recommended that Hall's name be "removed from the special section of the security index and placed in the regular section," an indication that his security status had somehow been changed. The explanation for this action has been blacked out in the FBI documents that were released. That same year, Hall left the University of Chicago and got a new job at the Sloan-Kettering Institute for cancer research in New York, studying X-ray techniques.

Evidence about Hall accumulated gradually over decades, meaning that only fragmentary data was available to the FBI agents who investigated him in the early 1950s. The key November 1944 document was fully decrypted only in 1961, and NSA code-breakers worked on other Venona documents until as late as 1980. Soviet intelligence documents detailing the extent of Moscow's penetration of the Manhattan Project were only made public in 1992, following the collapse of Communism.

In a telephone interview from his home in Arizona, former FBI agent Lamphere said that he was "amazed" by the detail of the final Venona transcripts. He said they were much richer than anything to which he had access in the early 1950s, when the deciphering program was still in its infancy.

The next big development occurred in 1961, with the NSA's completion of the decoding of the November 1944 cable. The following year, Hall moved to England.

Coincidentally or not, 1961 was also an important year in the remarkable espionage career of Morris and Leontine Cohen. After fleeing the United States in 1950, they made their way first to Russia, and then to England. Using assumed names, they posed as a pair of antiquarian booksellers. Their real task was to provide communications between the KGB and a Soviet spy ring in the British navy. The spy ring was exposed in 1961, and the Cohens were arrested.

The KGB made extraordinary efforts to secure the release of the Cohens in exchange for a jailed British businessman. This in itself was a sign of their importance to Moscow, which had never before negotiated for the freedom of non-Soviet citizens. It was only after the Cohens went to Moscow that the extent of their involvement in atomic espionage became fully known.

The Cohens and most of the other principals in the case, with direct knowledge of what took place in Los Alamos in 1944 and 1945, are no longer alive. Saville Sax died 16 years ago in Illinois at the age of 56. Leontine Cohen died in Moscow in 1992. Anatoly Yatskov and Morris Cohen died in 1993.

Although Hall refused to answer questions about espionage activities, he was happy to talk about his scientific accomplishments, which include the development of a technique for the analysis of the composition of elemental components using an electron microscope. During his 40-year-career as a physicist and biophysicist, he published more than 160 scientific papers.

When a reporter suggested that he had had a very interesting life, Hall gave a rueful laugh. "It's not over yet."