



BOOK REVIEW ROUNDTABLE: Nuclear Spies

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Reviewing *The Nuclear Spies: America's Atomic Intelligence Operation Against Hitler and Stalin* by Vince Houghton

Table of Contents

1. "Introduction: Scientific Expertise, Bureaucratic Politics, and Nuclear Intelligence" by Galen Jackson
2. "This Could Be the Start of Something Big" by Timothy P. McDonnell
3. "Manufactured Consensus and Intelligence Failure" by Nancy W. Gallagher
4. "Spies and Scientists in Search of the Bomb" by Joshua Rovner

1. Scientific Expertise, Bureaucratic Politics, and Nuclear Intelligence

Galen Jackson

In *The Nuclear Spies: America's Atomic Intelligence Operation Against Hitler and Stalin*, Vince Houghton seeks to explain why the United States succeeded in producing valuable intelligence on Nazi Germany's nuclear weapons program but failed to do so in the case of the Soviet Union.¹ Houghton's argument is straightforward: The key difference between the two cases, he claims, was the degree to which the U.S. nuclear intelligence effort was centralized. Because the effort against Germany was highly centralized under the authority of Lt. Gen. Leslie Groves, it proved "immensely successful."² By contrast, Houghton contends that the Americans failed in the Soviet case because the highly organized intelligence apparatus that had been constructed during World War II was thereafter dismantled. As a consequence, attempts to gain information about the state of the U.S.S.R. nuclear program were carried out "in a decentralized, disjointed manner."³ The book's clear policy implication is that intelligence operations, especially scientific intelligence, should be organized under a centralized authority if they are to be successful.

¹ Vince Houghton, *The Nuclear Spies: America's Atomic Intelligence Operation against Hitler and Stalin* (Ithaca, NY: Cornell University Press, 2019).

² Houghton, *The Nuclear Spies*, 180.

³ Houghton, *The Nuclear Spies*, 182.

Was Centralization the Key Factor?

The reviewers in this roundtable — Nancy Gallagher, Tim McDonnell, and Joshua Rovner — had similar reactions to *The Nuclear Spies*. All three of them believe that the book is well researched, relates some fascinating stories, and explores the early period of American nuclear intelligence in great historical depth. All agree that the questions Houghton seeks to answer are still very relevant in policy terms today. The reviewers, moreover, appreciate the analytical leverage the book gains from comparing cases with dissimilar outcomes. McDonnell believes that Houghton’s description of Washington’s earliest counter-proliferation efforts offers valuable insights into the origins of U.S. nuclear nonproliferation policy, which a number of scholars believe later became a core component of American grand strategy.⁴

But ultimately, Gallagher, McDonnell, and Rovner all find Houghton’s core argument unpersuasive. All three contend that it was not mainly scientific intelligence that allowed the United States to uncover the truth about the state of Nazi Germany’s nuclear program. As McDonnell puts it, the Americans “[were] able to conclude confidently that Germany was not building the bomb only after [they] gained access to German scientists and facilities through invasion.” “In contrast,” he writes, “whatever beliefs senior American officials may have had about the weakness of Soviet science, the fact was that [Soviet Premier Joseph] Stalin’s regime was an immensely tough target for U.S. intelligence.” It was, McDonnell concludes, “the simple ability to access relevant

⁴ For this argument, see Francis J. Gavin, “Strategies of Inhibition: U.S. Grand Strategy, the Nuclear Revolution, and Nonproliferation,” *International Security* 40, no. 1 (Summer 2015), 9–46, https://www.mitpressjournals.org/doi/pdf/10.1162/ISEC_a_00205. For a different view, see Galen Jackson, “The United States, the Israeli Nuclear Program, and Nonproliferation, 1961–69,” *Security Studies* 28, no. 2 (2019), 360–393, <https://doi.org/10.1080/09636412.2019.1551570>.

information — not the organization of intelligence — [that] seems to explain much of the variation in outcomes that motivates Houghton’s study.”

Moreover, the German case did not represent an unmitigated intelligence success. As Rovner points out, top U.S. officials, including Groves, “repeatedly downplayed information suggesting that Germany did not have a significant nuclear weapons program.” Given the nature of World War II and the stakes involved, this was understandable. “The costs,” Rovner writes, “of false positives were marginal. The costs of a false negative — of missing signs of a Nazi bomb — were enormous.” But, as Rovner cautions, that is not always the case. “False positives,” he writes, “may encourage wars against states that pose no real threat, as was the case with the U.S. invasion of Iraq in 2003.”

Nor are the reviewers necessarily convinced that the decentralization of nuclear intelligence made a major difference. Rovner, for instance, suggests that the U.S. effort to uncover information about Nazi Germany’s program “may have fallen victim to a kind of analytical myopia” because its “very existence was predicated on the possibility that Germany could go nuclear.” Agencies with more general mandates, such as Britain’s Government Code and Cypher School and the U.S. Office of Strategic Services, may have had more success because they were not so fixated on the single issue of the German nuclear program. Similarly, Gallagher notes that because Groves controlled the U.S. nuclear intelligence effort, his biases might have colored the analyses produced by American operatives and scientists. In the Soviet case, she writes, “One could argue that the Soviet surprise [nuclear test] of 1949 shows that the U.S. atomic intelligence process became too tightly controlled conceptually after World War II. ... In this interpretation, the faulty consensus on the slow pace of Soviet atomic science was manufactured and

maintained by people like Groves because it bolstered their arguments for shifting from cooperation to competition with the Soviets.”

With that in mind, the reviewers are skeptical of the policy implications of Houghton’s argument. The problem in the Soviet case, Gallagher and Rovner agree, was not that the U.S. nuclear intelligence apparatus lapsed into a state of disorganization after World War II. Instead, the problem was that American officials maintained inaccurate assumptions due to the exclusion of U.S. scientific experts from government service once the war had ended. In Rovner’s view, if policymakers simply lacked a good understanding of the progress that the Soviets had made toward acquiring the bomb, as Houghton himself contends, “[then] centralization was irrelevant.” “The main obstacle to a successful intelligence effort,” Rovner concludes, “was not decentralized government intelligence. It was the rising barriers to entry for nongovernment scientists.” Gallagher agrees: “Houghton argues unconvincingly that centralized control of atomic intelligence leads to more accurate assessments ... *The Nuclear Spies* actually illustrates the danger of marginalizing experts who raise inconvenient questions.” Indeed, in Gallagher’s view one important consequence of the sidelining of American scientists from the policymaking process after the war was that early opportunities to control the Cold War nuclear arms race might have been missed.

Useful History

It is hard to argue with the reviewers’ reactions to the main argument that Houghton advances in *The Nuclear Spies*. As they note, strong U.S. scientific intelligence was not crucial in determining the lack of progress within the German wartime nuclear program. The Alsos Mission, which was carried out as the Allies invaded German-held territory, allowed the United States to ascertain the conditions of the German atomic weapon

program. Such an approach was not a viable option with respect to the Soviet nuclear program.

The Soviet Union, as the reviewers observe, represented an extremely difficult target. Even if that had not been the case, producing useful scientific intelligence is, by its very nature, a difficult objective to achieve. It requires great technical competence, the capacity to deal with tremendous uncertainty about emerging technologies, a major effort to camouflage one's own technological capabilities from the enemy, and oftentimes educated guesswork based on only fragmentary information. In that sense, it is not especially surprising that American analysts failed to accurately judge Soviet progress toward a nuclear weapon. Finally, the reviewers' conclusion that centralization does not seem to have been a key factor in the two cases is hard to dispute even on the basis of the evidence offered by Houghton. The real issue, as Rovner and Gallagher stress, was the exclusion of trained scientists from the intelligence process after World War II and policymakers' reliance on the judgment of inexpert officials like Groves.

Nevertheless, *The Nuclear Spies* will be a valuable book for those interested in nuclear intelligence, particularly for readers who have not studied these issues. Houghton's work nicely supplements other scholarship that deals with the early stages of the nuclear age.⁵ McDonnell puts it well: "*The Nuclear Spies* is an engaging, well-researched volume that provides a good overview of early U.S. atomic intelligence." The stories that Houghton

⁵ For a sampling of this literature, see Jeffrey T. Richelson, *Spying on the Bomb: American Nuclear Intelligence from Nazi Germany to Iran and North Korea* (New York: W.W. Norton, 2006), 17–104; McGeorge Bundy, *Danger and Survival: Choices about the Bomb in the First Fifty Years* (New York: Random House, 1988); David Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939-1956* (New Haven, CT: Yale University Press, 1994); Richard Rhodes, *The Making of the Atomic Bomb* (New York: Simon and Schuster, 1986).

tells are “[g]ripping,” and the historical background that the book provides is extremely rich. Although one could quibble with certain empirical claims — Houghton downplays the role that Soviet intelligence on the U.S. nuclear program played in advancing the Soviets’ own nuclear effort, for example — in general the historical detail that *The Nuclear Spies* provides makes it an important contribution to the literature.⁶ As McDonnell points out, much of this history remains very relevant to current debates over American nonproliferation policy. For example, it is hard not to think about Operation Olympic Games — the covert U.S. effort to sabotage Iran’s nuclear program during the second Bush and Obama administrations — when one reads Houghton’s descriptions of the Allied attempts to destroy the Norsk Hydro heavy water facility in Norway or of the U.S. plans to kidnap or assassinate German scientists.⁷

⁶ Houghton, *The Nuclear Spies*, 154–155. This is not to dispute Houghton’s point that Soviet science was capable of producing nuclear weapons on its own. Scholars remain divided on the importance of U.S.S.R. intelligence on the American nuclear program to the rapidity of Moscow’s program. On this point, see, for example, William J. Broad, “Soviets Stole Bomb Idea From U.S., Book Says,” *New York Times*, Dec. 29, 2008, <https://www.nytimes.com/2008/12/30/science/30bomb.html>.

⁷ To my mind, the most fascinating story Houghton tells has to do with how close the United States came to assassinating German physicist Werner Heisenberg. Moe Berg — an American spy who, Houghton writes, had previously had a career in professional baseball and been a teammate of Red Sox legend Ted Williams — was sent to a lecture that Heisenberg delivered in Zurich in December 1944. Berg was armed with a pistol. Because he ultimately concluded that Germany lacked a sophisticated nuclear program, Berg chose not to assassinate Heisenberg, but the parallels between this account and stories about the assassination of prominent Iranian nuclear scientists in recent years are hard to miss. For this story and the description of Berg’s background, see Houghton, *The Nuclear Spies*, 75–76, 100–101, 193 n. 45. On Operation Olympic Games, see, for example, David E. Sanger, *Confront and Conceal: Obama’s Secret Wars and Surprising Use of American Power* (New York: Broadway, 2012), 188–209.

Houghton’s discussion of the weak assumptions that underlay official U.S. thinking on the Soviet nuclear program is also instructive. The Americans, he writes, simply did not think that it was possible for Moscow to develop nuclear weapons rapidly. The Soviet Union, physicist Herbert York believed, was “a basically backward country.”⁸ And many Americans, including scientists, felt that an ideological, authoritarian regime would not be capable of making the major scientific and technological strides achieved under the Manhattan Project.⁹ With that in mind, Gallagher’s point about the various psychological biases that may have plagued the postwar U.S. nuclear intelligence effort is an astute one.¹⁰ And given contemporary debates in security studies about how democratic and authoritarian states fare in the competitive world of international politics — as well as arguments over what China’s rise means for the America-led world order — the issue seems as relevant as ever.

Conclusion

Ultimately, Houghton’s argument that centralization determined U.S. success in uncovering the state of Nazi Germany’s nuclear program and failure in the Soviet case is unconvincing. As Gallagher, McDonnell, and Rovner all note, there are more compelling explanations for this variation.

⁸ Quoted in Houghton, *The Nuclear Spies*, 151.

⁹ Houghton, *The Nuclear Spies*, 168–177.

¹⁰ Indeed, many American scientists seemed to think that Nazi Germany, because it had an authoritarian system of government, enjoyed a competitive advantage in the race for nuclear weapons vis-à-vis the United States. Subsequently, however, that sentiment was reversed with respect to the Soviet Union. On this point, see Houghton, *The Nuclear Spies*, 24, 173–177.

Nevertheless, *The Nuclear Spies* is a valuable book that will force scholars and policymakers to reflect on nuclear intelligence issues. Gallagher, McDonnell, and Rovner all provide some useful policy takeaways from the history that Houghton covers. Their point about the need for scientists and intelligence officials to collaborate seems especially important in this regard. As Rovner concludes: “Informal programs promoting scientific understanding among intelligence professionals and intelligence education in the academy may be more valuable [than organizational solutions]. Such efforts are unlikely to make headlines, but they probably increase the odds that both sides will listen to one another when faced with questions about the security implications of scientific breakthroughs.”

Vince Houghton has written a very interesting book. Not everyone will agree with his conclusions, but *The Nuclear Spies* will foster useful exchanges among scholars and policymakers nonetheless. Those, in turn, will produce interesting ideas, like the ones that Gallagher, McDonnell, and Rovner have each laid out in their respective reviews.

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2. This Could Be the Start of Something Big

Timothy P. McDonnell

Since 2013, Chinese President Xi Jinping has repeatedly emphasized how important quantum computing will be in China's future. Quantum technology, he declared in 2016, could bring about "a new industrial revolution."¹¹ Speaking on artificial intelligence, Russian President Vladimir Putin averred in 2017 that "the one who becomes the leader in this sphere will be the ruler of the world."¹² Unwilling to be left behind by its rivals, the United States has prioritized research in these cutting-edge fields as well.¹³ Military science and technological competition among the United States, Russia, and China in the foreground barely conceals a related intelligence competition being waged behind the scenes. Each side collects intelligence on its rivals' scientists, universities, and laboratories, attempting to analyze their progress in order to shape research and policy.¹⁴ Uncertainty plagues this process, as participants face basic questions: How far ahead or

¹¹ Elsa B. Kania and John K. Costello, "Quantum Hegemony? China's Ambitions and the Challenge to US Innovation Leadership," *Center for a New American Security*, September 2018, 3, https://s3.amazonaws.com/files.cnas.org/documents/CNASReport-Quantum-Tech_FINAL.pdf?mtime=20180912133406..

¹² "Putin: Leader in Artificial Intelligence Will Rule World," *Associated Press*, September 2017, <https://apnews.com/bb5628f2a7424a10b3e38b07f4eb90d4>.

¹³ U.S. Department of Defense, "Summary of the 2018 Department of Defense Artificial Intelligence Strategy," <https://media.defense.gov/2019/Feb/12/2002088963/-1/-1/1/SUMMARY-OF-DOD-AI-STRATEGY.PDF>; National Science and Technology Council, "National Strategic Overview for Quantum Information Science," September 2018, <https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Strategic-Overview-for-Quantum-Information-Science.pdf>.

¹⁴ For a recent example of U.S. concerns in this regard, see Edward Wong and Julian Barnes, "US to Expel Chinese Graduate Students With Ties to China's Military Schools," *The New York Times*, May 28, 2020, <https://www.nytimes.com/2020/05/28/us/politics/china-hong-kong-trump-student-visas.html>.

behind are we? What does the adversary know that we do not? Are there opportunities to gain advantage through sabotage or misinformation? And how does this bear on the future of international politics?

This is the realm of scientific intelligence. Within this domain, all of the usual challenges of the spy trade — and there are many — are compounded by the fact that the topics of interest are at the very frontiers of human knowledge. As Samuel Goudsmit, a key figure in Vince Houghton’s latest book, *The Nuclear Spies*, observed, “a Mata Hari with a Ph.D. in physics is rare, even in detective fiction.”¹⁵ Houghton’s book contributes to our understanding of scientific intelligence by explaining how it first emerged in the United States — as atomic intelligence — during World War II and the early Cold War.

The Nuclear Spies centers on two key early cases of atomic intelligence, one a success and the other a failure. During World War II, American intelligence ultimately concluded (correctly) that the Germans were well behind in the race to build an atomic bomb. Yet despite this initial success, only five years later the postwar U.S. intelligence apparatus failed to predict the first Soviet atomic bomb test in August 1949. The United States lost its atomic monopoly with no warning at all from its new intelligence establishment. This is the puzzle that drives Houghton’s book. “Considering how successfully the United States conducted the atomic intelligence effort against the Germans in the Second World War,” he asks, “why was the U.S. government unable to create an effective atomic intelligence apparatus to monitor Soviet scientific and nuclear capabilities?”¹⁶

¹⁵ Quoted in Vince Houghton, *The Nuclear Spies: America’s Atomic Intelligence Operation Against Hitler and Stalin* (Ithaca, NY: Cornell University Press, 2019), 38. Mata Hari was the stage name of Margaretha Geertruida MacLeod, a Dutch dancer whom French authorities ultimately convicted of spying for Germany during World War I.

¹⁶ Houghton, *The Nuclear Spies*, 4.

The answer, Houghton argues, lies in the organization of intelligence. Because American fear of German technological prowess was so great, he writes, Manhattan Project chief Lt. Gen. Leslie Groves was permitted to build and operate a centralized intelligence system within the atomic bomb program. This centralized approach to atomic intelligence was “the key component in the success of the American effort against the German atomic bomb program.”¹⁷ But as Houghton claims, “the U.S. centralized atomic intelligence system was dismantled after the Second World War.” “The resulting atomic intelligence organization,” he argues, “failed in all three aspects of the intelligence cycle.... As a result, both military and civilian policymakers were given the impression that the Soviet atomic program was not of immediate concern.”¹⁸ Centralized scientific intelligence, Houghton posits, is superior scientific intelligence.

The Nuclear Spies is an engaging, well-researched volume that provides a good overview of early U.S. atomic intelligence. The writing is clear and the stories are compelling, making *The Nuclear Spies* an interesting and accessible overview of a complex and important topic. A significant shortcoming of the book, however, is that the evidence Houghton marshals does not substantiate his argument on how scientific intelligence should be organized. Regardless, the book provides a useful narrative of important episodes in early U.S. nuclear and intelligence history, while also hinting at larger themes that have played an enduring role in U.S. nuclear weapons policy.

¹⁷ Houghton, *The Nuclear Spies*, 179.

¹⁸ Houghton, *The Nuclear Spies*, 179-182.

To Centralize, or Not to Centralize?

Houghton describes the early history of U.S. atomic intelligence in the six chapters that comprise the core of the book.

Chapters 1–3 center on U.S. efforts to assess the German atomic bomb program. Late-1930s German advances in fission research, as well as the Nazi acquisition of key European research labs and resources through conquest and “the aura of German science,” all contributed to the belief that the Nazi regime was probably hard at work developing this new and powerful weapon.¹⁹ For many American scientists, “the thought of German superiority drove them almost to panic.”²⁰ Consequently, they successfully lobbied Vannevar Bush, the chairman of the Office of Scientific Research and Development, to direct the establishment of the United States’ first scientific intelligence program in the summer of 1942.

This novel intelligence effort faltered until September 1943, when it was subsumed within the Manhattan Project under the leadership of Groves, and eventually evolved into the famous Alsos Mission. Advancing just behind American invasion forces, Alsos teams of scientists and soldiers captured German physicists and facilities to advance U.S. knowledge of the presumed German atomic program.

Chapter 4 describes the culmination of the Alsos Mission. After concluding that Nazi Germany was not in fact ahead of the United States in nuclear research, the mission’s main focus became preventing German scientific facilities, resources, and know-how from

¹⁹ Houghton, *The Nuclear Spies*, 17.

²⁰ Houghton, *The Nuclear Spies*, 28.

falling into Soviet Premier Joseph Stalin's hands. This marked the end of Washington's fears of a German atomic program, but the beginning of its concerns about future Soviet nuclear developments. Tales of derring-do are woven through an excellent description of key personalities making tough choices. The perennial issue was determining how to collect aggressively without inadvertently revealing the United States' own progress towards the bomb to either the Germans or the Soviets. Readable, well-researched, and nuanced, Houghton's early chapters provide a fresh — and refreshing — treatment of events that many scholars of nuclear and intelligence issues probably think they already know well.

From here, Houghton's focus shifts towards the failure of U.S. atomic intelligence in the Soviet case. He describes massive postwar changes in the organization of American scientific intelligence that took place during the early Cold War. The net result was that the formerly centralized atomic intelligence system became diffuse. Ultimately, several factors — widespread belief in the backwardness of Soviet science, the perceived challenge of innovation in authoritarian regimes, and the basic problem of accessing relevant information — all played a role in the intelligence failure. Even so, the key culprit in Houghton's telling was the shift from a centralized to a decentralized organizational structure for U.S. atomic intelligence.

Here lies the key weakness in the argument presented in the book's conclusion. While Houghton claims that the organization of U.S. intelligence made the difference between success in the German case and failure in the Soviet case, the evidence he presents suggests otherwise. The United States was able to conclude confidently that Germany was not building the bomb only after it gained access to German scientists and facilities through invasion. In contrast, whatever beliefs senior American officials may have had about the weakness of Soviet science, the fact was that Stalin's regime was an immensely

tough target for U.S. intelligence. Opportunities to interrogate scientists and explore key labs that were available in the German case did not exist in the Soviet case. Thus, whatever other factors may have been involved, the simple ability to access relevant information — not the organization of intelligence — seems to explain much of the variation in outcomes that motivates Houghton’s study.

Origin Stories

Despite this shortcoming, Houghton makes a number of major contributions to our understanding of early American nuclear history. In particular, *The Nuclear Spies* touches on two themes that would develop into enduring features of U.S. nuclear weapons policy, though they were still nascent in the pre-1949 period covered by Houghton.

The first is Houghton’s account of the earliest examples of U.S. counterproliferation policy in action. The United States was determined to stymie or delay any efforts by either enemy Hitler or wartime ally Stalin to develop the bomb. Gripping illustrations abound. In December 1942, for instance, American atomic scientists devised “an elaborate and ruthless plan” to kidnap German physicist Werner Heisenberg.²¹ Norway’s stock of heavy water and the Norsk Hydro plant that produced it were the target of three separate commando raids, as well as an attack by 140 B-17 bombers, between October 1942 and February 1944.²² Additional bombing raids on German atomic targets were undertaken in part because “[t]he killing of scientific personnel employed therein would be particularly advantageous.”²³

²¹ Houghton, *Nuclear Spies*, 35.

²² Houghton, *Nuclear Spies*, 55-57.

²³ Quoted in Houghton, *Nuclear Spies*, 7.

Later, as the source of U.S. fears shifted from Germany to the Soviet Union, Houghton recounts the story of Operation Harborage. Led by a reinforced corps comprised of two armored divisions and an airborne division, Alsos Mission members swept in front of advancing French forces to capture German atomic facilities and scientists in southern France. Because leading French physicist Frederic Joliot-Curie held communist sympathies, the goal of the operation was to ensure “that nothing that might be of interest to the Russians should ever be allowed to fall into French hands.”²⁴

In subsequent decades, American efforts to slow, halt, and reverse the spread of nuclear weapons would become a durable element of U.S. grand strategy.²⁵ Although this point and its long-term implications are not developed in the book, Houghton reveals that the roots of this policy run deep. The United States, he shows, embraced the business of counterproliferation even before it had succeeded in building its first atomic weapon.

The second major theme that *The Nuclear Spies* highlights is the selective linkage between atomic intelligence inputs and U.S. nuclear policy choices. Frequently, the United States has proactively girded itself against threats that have not yet emerged.

²⁴ Quoted in Houghton, *Nuclear Spies*, 112-118.

²⁵ See Francis J. Gavin, “Strategies of Inhibition: U.S. Grand Strategy, the Nuclear Revolution, and Nonproliferation,” *International Security* 40, no. 1 (Summer 2015), 6, https://www.mitpressjournals.org/doi/pdf/10.1162/ISEC_a_00205; Nicholas L. Miller, *Stopping the Bomb: The Sources and Effectiveness of US Nonproliferation Policy*, (Ithaca, NY: Cornell University Press, 2018); Gene Gerzhoy, “Alliance Coercion and Nuclear Restraint: How the United States Thwarted West Germany’s Nuclear Ambitions,” *International Security* 39, no. 4 (Spring 2015), 91-129, https://doi.org/10.1162/ISEC_a_00198; Or Rabinowitz. *Bargaining on Nuclear Tests: Washington and Its Cold War Deals* (Oxford: Oxford University Press, 2014).

Occasionally, it has restrained itself despite evidence of growing adversary nuclear capabilities.

For example, according to Houghton, between the late 1930s and March 1945, fear of a German bomb was the driving factor behind America's own atomic research and development program. Yet even after the Alsos Mission proved that the Nazis were well behind the Americans in atomic development, work on the bomb continued apace. News that Germany was not racing towards the bomb did not alter Washington's determination to rapidly complete the Manhattan Project and continue growing its supply of fissile material. All that changed was the underlying policy rationale. With Germany nearing defeat, the possibility that the Soviet allies could someday become adversaries quickly became the central concern driving the ongoing development and production of U.S. nuclear weapons.²⁶

A similar pattern of threat anticipation was evident in the lead-up to President Harry Truman's January 1950 decision to pursue the development of the hydrogen bomb. On July 1, 1949, nearly two months prior to Moscow's first atomic test, the Central Intelligence Agency estimated that the Soviet Union could not build a bomb before mid-1951.²⁷ That same month, Truman commissioned a National Security Council study on the desirability of a "proposed acceleration of the atomic energy program." When the report was completed in October, its authors had reached the unanimous conclusion that

²⁶ Rhodes Richard, *The Making of the Atomic Bomb* (New York: Simon & Schuster, 1986), 605-626; Francis G. Gosling, *The Manhattan Project: Making the Atomic Bomb* (Washington, DC.: United States Department of Energy National Security History Series, 2010), 87, 89, https://www.energy.gov/sites/prod/files/Manhattan_Project_2010.pdf.

²⁷ Houghton, *Nuclear Spies*, 147-148.

accelerating atomic development would be militarily useful, technically feasible, and economically beneficial.

Militarily, the Joint Chiefs of Staff believed that “this accelerated program will constitute a net improvement in our military posture both as a deterrent to war, and as preparation for war should it prove unavoidable.” Diplomatically, the committee argued that “in the light of the North Atlantic Pact ... it appears likely that Western Europe would consider an expansion of our program not only a desirable development but also positive evidence of our intent to increase our military strength for the security of all.” From a technical and financial perspective, the Atomic Energy Commission concluded that “it is probable that atomic bombs may be employed economically in lieu of conventional bombs against relatively small targets.” Crucially, the report’s authors also concluded that “the recent atomic explosion in the USSR increases the urgency with which this proposed program should be undertaken and executed, but this acceleration should be clearly understood to be a projection of previous plans based on our own capabilities, rather than as a counter-development to the Soviet explosion.”²⁸ For Truman himself, the fact that the Soviet Union might someday be able to build a hydrogen bomb seemed especially important.²⁹ Thus, many forces augured towards Truman’s January 1950 decision to develop the hydrogen bomb. But the recent Soviet atomic test and related intelligence failure were not among them.

²⁸ “Report to the President by the Special Committee of the National Security Council on the Proposed Acceleration of the Atomic Energy Program,” Oct. 10, 1949, Digital National Security Archive, document NP00058.

²⁹ Kai Bird and Martin J. Sherwin, *American Prometheus: The Triumph and Tragedy of Robert Oppenheimer* (New York: Vintage Books, 2006), 428.

This sort of fickle relationship between intelligence, extant threats, and American nuclear policy choices would periodically reemerge in subsequent decades. Throughout the mid- and late-1960s, President Lyndon Johnson and especially Defense Secretary Robert McNamara chose to limit the growth of the U.S. nuclear arsenal despite intelligence estimates which predicted Soviet movement towards numerical parity.³⁰ In the 1990s, following the collapse of its Soviet nuclear rival, the United States began posturing its nuclear forces to counter an entirely new threat: nuclear-armed rogue states. While senior officials feared that rogue dictators would increasingly challenge American interests around the globe, only one such threat — North Korea — has actually emerged over the past thirty years.³¹

The implication is significant and deserves to be explored further. Major choices about nuclear weapons policy are made at the highest levels because of how they impact what the United States *can* do and because of the signals they send about what the country *might* do. Adversaries observe U.S. nuclear policy choices and calculate their own responses. Acting in anticipation of threats may inspire foes to balance against the United States, while exercising restraint despite intelligence warning may suggest weakness.

³⁰ John Prados, *The Soviet Estimate: U.S. Intelligence Analysis and Soviet Strategic Forces* (Princeton, NJ: Princeton University Press, 1986); Richard L. Kugler, “The Politics of Restraint: Robert McNamara and the Strategic Nuclear Forces, 1963-1968, (Ph.D. diss., Massachusetts Institute of Technology, 1975).

³¹ Secretary of Defense Dick Cheney, FDefense Strategy for the 1990s: The Regional Defense Strategy,” *National Security Archive Electronic*, Briefing Book No 245, January 1993, <https://nsarchive2.gwu.edu/nukevault/ebb245/>; Secretary of Defense Les Aspin, “*Annual Report to the President and Congress*” (Washington DC: U.S. Government Printing Office, January 1994) 6, https://history.defense.gov/Portals/70/Documents/annual_reports/1994_DoD_AR.pdf?ver=2014-06-24-152508-117; George Lee Butler, *Uncommon Cause A Life at Odds with Convention*, Vol. 2. (Denver, CO: Outskirts Press 2016), 40, 161; William S. Cohen, “Nuclear Weapons Sustainment Programs,” Office of the Secretary of Defense, May 1997, <https://fas.org/nuke/guide/usa/doctrine/dod/sustain/document.html#TOC>.

Thus, with his detailed account of the relationship between intelligence inputs and U.S. nuclear policy choices at the dawn of the nuclear age, Houghton has surfaced an enduring issue of fundamental importance.

Conclusion

The Nuclear Spies is a valuable book on the early history of U.S. atomic intelligence. Particularly strong in its discussion of World War II, the Manhattan Project, and the Alsos Mission, it lends texture and nuance to episodes that many readers of this review will know in passing. Its primary weakness lies in its conclusion about the value of centralized intelligence. The book makes its most significant contribution by unearthing the roots of what would become important threads in the subsequent history of U.S. nuclear policy. The persistence of American efforts to inhibit proliferation, including through force, as well as the uneven relationship between intelligence inputs and policy outcomes are both important. By describing the origins of these two recurring themes, Vince Houghton has made a valuable contribution to our understanding of the history of U.S. nuclear weapons policy.

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3. Manufactured Consensus and Intelligence Failure

Nancy W. Gallagher

Vince Houghton's *The Nuclear Spies: America's Atomic Intelligence Operation Against Hitler and Stalin* is entertaining and illuminating.³² It provides fascinating details on how the United States tried to assess the progress of nuclear weapons programs in Germany during World War II and in the Soviet Union during the postwar period. Because Houghton's account leaves out or glosses over historical information that does not fit his narrative, however, readers should question his thesis and its policy implications. Houghton argues unconvincingly that centralized control of atomic intelligence leads to more accurate assessments and better decisions. *The Nuclear Spies* actually illustrates the danger of marginalizing experts who raise inconvenient questions about assumptions being used to build or buttress a policy consensus favoring a purely competitive approach to security in the nuclear age.

Intelligence Centralization and Success: Correlation or Causation?

Houghton's research shows that the U.S. atomic intelligence process successfully corrected faulty policy assumptions in the German case, but not in the Soviet case. His explanation is that U.S. policymakers were more worried about advances in Germany's nuclear weapons program, and thus more inclined to establish a dedicated, well-resourced, highly centralized system to collect and analyze information about it, because they had more respect for German science than for Soviet science.

³² Vince Houghton, *The Nuclear Spies: America's Atomic Intelligence Operation Against Hitler and Stalin* (Ithaca, NY: Cornell University Press, 2019).

Houghton argues that a highly centralized scientific intelligence process like the one established by Lt. Gen. Leslie Groves during World War II was necessary to surmount normal bureaucratic infighting among intelligence agencies. A centralized process could overcome the special challenges of atomic intelligence, such as the scarcity of individuals with both esoteric scientific expertise and espionage skills. After various less-centralized efforts failed, Groves leveraged policymakers' concern about the German nuclear threat in order to obtain authority and funding. He assembled a top-rate team of scientific and intelligence experts and assumed control over all operations related to atomic intelligence and secured cooperation from U.S. and allied military and intelligence units. Despite difficult and dangerous wartime conditions, this atomic intelligence apparatus collected convincing evidence that the German nuclear program remained at the basic research stage in the spring of 1945.

Houghton laments that these centralized arrangements were dismantled after World War II. He implies that if a highly centralized U.S. atomic intelligence operation had continued to function during the early Cold War years, it would have corrected the “[faulty] consensus among the intelligence community, American scientists, the military, and the civilian political leadership ... that the earliest probable date for a Soviet atomic bomb was 1953.”³³ Yet nothing comparable to the German effort was established to track scientific progress in the Soviet Union even after its 1949 atomic bomb test invalidated that prediction.

Houghton does not argue that the intelligence community's failure to correctly predict when the Soviet Union would become a nuclear power negatively impacted American

³³ Houghton, *The Nuclear Spies*, 1.

security. Policymakers compensated for uncertainty about potential adversaries' scientific research by perpetually increasing U.S. offensive, defensive, and intelligence capabilities, both nuclear and conventional. The book ends with Houghton's judgment that relying on a purely competitive approach to security in the nuclear age "wasn't a perfect solution. But since we are still here to argue about it? Good enough."³⁴

Re-Evaluating the Benefits and Risks of Intelligence Centralization

It is easy to get caught up in Houghton's narrative and accept his conclusion that having a highly centralized nuclear intelligence process brought success in the German case and could have averted failure four years later. Houghton tells a fascinating story about the disciplined coordination, ingenuity, bravery, and luck that characterized atomic espionage during World War II. However, the logical premise of his argument is unconvincing. If Groves had remained in charge of a centralized and resourced atomic intelligence operation after the war ended, it does not necessarily follow that American leaders would have expected the Soviets to test in 1949.

There is a practical problem with Houghton's claim that centralization made the difference between success and failure. Groves used top-down control over people, resources, and information to send the right mix of intelligence operatives and scientific experts to the frontlines in Europe. Yet the Alsos Mission, which spearheaded the U.S. nuclear intelligence collection effort during the war, could not get to key German scientists working in Strasbourg, France until Allied troops had liberated that territory.³⁵ Houghton fails to recognize that even if Groves had been able to establish an Alsos

³⁴ Houghton, *The Nuclear Spies*, 184.

³⁵ Houghton, *The Nuclear Spies*, 95.

Mission for the Soviet Union in the late 1940s, it would not have been able to capture and interview Soviet scientists behind the Iron Curtain.

There is also a psychological reason why a highly centralized scientific intelligence operation run by somebody like Groves would have been more likely to discover the truth about the German nuclear program than about the Soviet program. As an intelligence operation becomes more tightly controlled, it is more likely to exhibit groupthink shaped by its leader's biases.³⁶ Groves and his team of nuclear spies were predisposed by their admiration for German science to assume that German work on nuclear weapons was ahead of the Manhattan Project. But they also hoped to find evidence disproving that belief. Their overarching objective was to defeat Hitler and win World War II. An Allied victory would be much more likely if German nuclear scientists were still at the basic research stage, well behind the U.S. program.³⁷

In the Soviet case, U.S. political and military leaders were highly motivated to maintain their false belief that a communist country could not make nuclear weapons as quickly as a wealthy democracy. Houghton recounts how Groves and others associated with the Truman administration reiterated reassuring but naïve reasons why Stalin could not assemble the scientists, materials, technologies, and infrastructure needed to test an atomic device before 1953. Even after American aircraft collected radionuclide particles judged to be conclusive evidence of a Soviet test, Secretary of Defense Louis Johnson initially refused to believe them.³⁸

³⁶ Irving Janis, *Victims of Groupthink: A Psychological Study of Foreign-Policy Decisions and Fiascoes* (Boston, MA: Houghton-Mifflin, 1972).

³⁷ On motivated reasoning in international relations, see for example, Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976).

³⁸ Houghton, *The Nuclear Spies*, 151.

One could argue that the Soviet surprise of 1949 shows that the U.S. atomic intelligence process became too tightly controlled conceptually after World War II, even as its organizational structure loosened. In this interpretation, the faulty consensus on the slow pace of Soviet atomic science was manufactured and maintained by people like Groves because it bolstered their arguments for shifting from cooperation to competition with the Soviets after their common enemy had been defeated. By emphasizing the success of Groves' centralized nuclear intelligence operation during World War II, Houghton ignores or elides how Groves' attempt to control U.S. intelligence assessments of the Soviet nuclear program weakened efforts at nuclear diplomacy during the postwar period.

Constricting Intelligence to Construct a False Consensus

Houghton acknowledges that several scientists and diplomats predicted in 1945 that the Soviets could test their own atomic bomb by 1949. Yet he blames those same individuals for their inability to correct the U.S. atomic intelligence community's misconceptions regarding the progress of the Soviet program. It would be more accurate to say that they were deliberately marginalized from postwar debates about U.S. nuclear policy by unilateralists who saw no reason to relinquish the political and military advantages of being the world's sole nuclear power. These unilateralists, including Groves, believed that the Soviets could not make their own nuclear weapons before the United States could develop an "antidote" to them. They excluded anyone with a different perspective from positions of influence in the intelligence community and the policymaking process.³⁹ They

³⁹ Barton Bernstein, "The Quest for Security: American Foreign Policy and International Control of Atomic Energy, 1942-1946," *Journal of American History* 60, no. 4 (March 1974), 1011,

ignored contradictory information from non-governmental sources, ridiculed cooperative proposals, and actively discredited analysis from some of the most knowledgeable scientists, such as J. Robert Oppenheimer, by questioning their loyalty to the United States.⁴⁰

In a chapter titled “Regression,” Houghton documents how some military and intelligence officials recommended maintaining a centralized atomic intelligence agency after World War II. He claims that a key reason why these proposals were not adopted was opposition from scientists and diplomats who preferred international control of atomic energy to a world of competing nuclear powers and clandestine atomic intelligence. When American scientists warned that their Soviet counterparts could make nuclear weapons in a short period of time, Houghton avers, they were ignored because they “had alienated themselves from those in power by advocating for the internationalization of atomic energy.”⁴¹

Houghton uses a selective reading of available evidence to suggest that these scientists destroyed their own credibility with policymakers by advancing proposals for the international control of atomic energy that were naïve, illogical, and unworthy of serious consideration. He recounts that one American scientist wanted to disclose all information about atomic weapons to the Soviets before using them against Japan because Moscow had always been “very friendly to science” and might, therefore, be open to international cooperation.⁴² Similarly, he lists some preliminary ideas about international control, such

<https://www.jstor.org/stable/1901011>; Felix Belair, Jr., “Plea to Give Soviets Atom Secrets Stirs Debate in Cabinet,” *New York Times*, Sept. 22, 1945.

⁴⁰ Houghton, *The Nuclear Spies*, 128-129, 134-139.

⁴¹ Houghton, *The Nuclear Spies*, 161.

⁴² Quoted in Houghton, *The Nuclear Spies*, 135.

as Vannevar Bush's recommendation for an international atomic authority with robust inspection rights and Albert Einstein's argument for a world government. Houghton's selection of half-baked suggestions aligns with Groves' desire to depict international control of atomic energy as a dangerous fantasy advanced by ivory tower academics. Yet he fails to mention the Acheson-Lilienthal Committee's much more carefully developed recommendations for a new form of international cooperation to promote peaceful uses of atomic energy and prevent a nuclear arms race, or any other cooperative option that would have been worthy of serious consideration.⁴³

Houghton mischaracterizes the proposal that Bernard Baruch, the American representative to the United Nations Atomic Energy Commission, presented to that body in June 1946. Houghton says that the Baruch Plan involved the creation of "a limited world government" with the authority to open up the Soviet Union to "the U.S.-controlled United Nations."⁴⁴ In reality, the Baruch Plan entailed establishing an international body, not a supranational one. It would have granted the United Nations Security Council authority to make decisions about enforcement without the permanent members being able to veto them. That falls far short of putting the entire United Nations under American control.

Despite Houghton's depiction of the Baruch Plan as a magnanimous American offer to give up its atomic arsenal, in reality it was more of a public relations ploy than a serious policy proposal. It included many elements that guaranteed Soviet rejection, such as specifying that international inspectors would get immediate and unrestricted access to conduct a uranium survey throughout the Soviet Union. It also stipulated that U.S.

⁴³ Houghton, *The Nuclear Spies*, 136-138.

⁴⁴ Houghton, *The Nuclear Spies*, 138.

nuclear disarmament would not occur until the control system was fully functional and there was an ironclad “guarantee of safety, not only against the offenders in the atomic areas but against the illegal users of other weapons — bacteriological, biological, gas, perhaps — why not! — against war itself.”⁴⁵ In other words, Baruch was trying to legitimize the U.S. nuclear monopoly by offering to establish international control after appealing, but unobtainable, conditions were met. When the Soviets predictably rejected Baruch’s terms, Houghton observes, “no one was happier ... than Leslie Groves.”⁴⁶

The Costs of Marginalizing Voices for Cooperation

The antipathy that Groves and other unilateralists felt toward anyone who genuinely favored international control of atomic energy was a major cause of a key problem that Houghton notes in his “Regression” chapter: the lack of qualified scientists working on nuclear intelligence for the Truman administration. Houghton does not, however, seem to fully understand that this was a direct consequence of efforts to silence voices for cooperation from the nuclear policymaking process.

Houghton attributes the absence of nuclear physicists in the postwar intelligence community partly to scientists’ desire for more academic freedom and professional recognition than they had enjoyed while doing classified work during the wartime emergency. He also blames the atmosphere of anti-communism and anti-intellectualism that characterized the early Cold War years, observing that “theoretical physicists were particularly hard hit by this Cold War hysteria.” Houghton mentions that Oppenheimer,

⁴⁵ Statement by Bernard Baruch before the United Nations Atomic Energy Commission, Hunter College, New York, June 14, 1946, <http://www.atomicarchive.com/Docs/Deterrence/BaruchPlan.shtml>.

⁴⁶ Houghton, *The Nuclear Spies*, 139.

who had been the director of Los Alamos National Laboratory during the Manhattan Project, “became the most public face of the abuse of scientists by the U.S. government.”⁴⁷ But he does not connect the shortage of scientific input into nuclear decisions to deliberate efforts by unilateralists to keep scientists who advocated for cooperation from participating.

Groves went to great lengths to discredit Oppenheimer and his associates because their knowledge of how quickly Soviet scientists could solve critical nuclear problems contradicted unilateralists’ claims that secrecy and control of global uranium supply could prolong the U.S. nuclear monopoly. Oppenheimer’s contacts were scrutinized, his loyalty questioned, and his security clearance revoked in 1954 because he was the most innovative thinker and influential advocate for nuclear arms control. That some of his closest associates had been members of the American branch of the Communist Party before World War II was a convenient justification, not the main motivation.

The biggest cost of marginalizing nuclear scientists like Oppenheimer from nuclear policy deliberations was not the loss of technical expertise among intelligence analysts that Houghton laments. Instead, the most damaging result was the absence among top decision-makers of anyone who understood how quickly the United States could move from having an atomic monopoly to facing thermonuclear devastation without agreement on international control of atomic energy.

Oppenheimer was the driving intellectual force behind the Acheson-Lilienthal Committee’s novel recommendations for a way to promote peaceful uses of nuclear technology and to control its military applications in a way that could satisfy both U.S.

⁴⁷ Houghton, *The Nuclear Spies*, 128.

and Soviet security concerns.⁴⁸ Neither superpower was willing to give power to a supranational organization, so the committee recommended that a multinational scientific entity take responsibility for enriching uranium to the low levels needed for power plants. This scientific entity would conduct all other dangerous nuclear activities, such as dual-use operations that could be misused to make weapons. If countries could operate their own nuclear power plants — but not their own enrichment or reprocessing facilities — then fewer inspections would be needed to check for clandestine weapons programs.

The committee proposed sharing enough nuclear information for the Soviets to help design and implement a multilateral managerial control system but did not advocate complete nuclear transparency. It did not recommend any of the elements in the Baruch Plan that the Soviets found most objectionable. Committee members wanted the United States to offer a proposal that the Soviets might seriously consider. They knew it was a long shot: Lilienthal later compared the endeavor to trying to convince somebody who has previously only jumped ten feet to leap a 20-foot chasm because “the alternative was so bad.”⁴⁹ Yet the technical consultants’ logic was so compelling that the entire committee, including Groves, joined in the consensus recommendations.

President Truman did not present the committee’s version of multilateral control at the United Nations Atomic Energy Commission because nobody in his inner circle fully

⁴⁸ “A Report on the International Control of Atomic Energy,” Prepared for the Secretary of State’s Committee on Atomic Energy, March 16, 1946, Washington, DC,

https://www.cia.gov/library/readingroom/docs/Report_on_the_International_Control_of_Atomic_Energy_16_Mar_1946.PDF.

⁴⁹ Quoted in Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-1950* (New York: Alfred A. Knopf, 1980), 156 n.

understood the need to try something that audacious.⁵⁰ Instead, he delegated responsibility for the commission negotiations to Baruch, who shared Groves' misguided belief that the United States would have time to find an "antidote" to nuclear weapons before the Soviets could conduct their first nuclear test.⁵¹ Baruch saw no reason for the United States to give up "any winning weapons" unless impossible conditions were met,⁵² so he changed the committee proposal in ways that guaranteed Soviet rejection and made nuclear competition seem like the only realistic option. The Soviets made some meaningful concessions during the commission negotiations, such as accepting some inspections and agreeing that routine operations of the international control agency should not be vetoable.⁵³ Instead of showing reciprocal flexibility, Baruch pressed in December 1946 for a quick up-or-down vote on the U.S. proposal to force the Soviet Union and Poland to vote against it so that "the [American] public would be aroused to the danger that confronts us ... [producing] widespread support for military preparedness."⁵⁴

⁵⁰ For an excellent history of the U.S. approach to the question of the international control of atomic energy, including counterfactual analysis, see, McGeorge Bundy, *Danger and Survival: Choices About the Bomb in the First Fifty Years* (New York: Random House, 1988), 130-196.

⁵¹ Felix Belair, Jr., "Plea to Give Soviets Atom Secret Stirrs Debate in Cabinet," *New York Times* (September 22, 1945), 2.

⁵² "Baruch's Speech at Opening Session of U.N. Atomic Energy Commission," *New York Times* (June 15, 1946), 4.

⁵³ Joseph Nogee, *Soviet Policy Towards International Control of Atomic Energy* (South Bend, IN: Notre Dame University Press, 1961), 36-38.

⁵⁴ Quoted in Bernstein, "The Quest for Security," 1043.

The Untold Part of the Story of Nuclear Survival

Houghton leaves readers with the impression that uncertainties and errors in U.S. intelligence assessments of Soviet scientific progress did not lead to disaster because the United States made sure that its military and intelligence capabilities were always ahead of whatever the Soviets might be able to do. His history ends in 1949: The next decade tells a different story. The United States initially followed the unilateralist recommendations in National Security Council Paper 68 to greatly increase U.S. military spending, build up its nuclear and conventional forces, and adopt a more assertive form of containment now that Stalin had nuclear weapons. Both the Truman and the Eisenhower administrations ignored fresh warnings from scientific advisory committees about new levels of nuclear danger that loomed just over the horizon if the superpowers did not find some way to control the arms race. After the Soviets launched the world's first satellite in 1957, indicating a capacity to develop intercontinental ballistic missiles before the United States, Eisenhower finally elevated scientists who had been continuing to develop new ideas about arms control to senior policymaking positions, where they could effectively counter unilateralists who had guided postwar U.S. nuclear policy.

As Cold War tensions mounted and unilateralists pressed to build up the American nuclear stockpile and atomic intelligence capabilities, Oppenheimer and other scientists on the United Nations Atomic Energy Commission's General Advisory Committee continued to argue for innovative forms of arms control. During debates about accelerating U.S. thermonuclear weapons development in response to the Soviet test of a fission device, a majority of the committee were opposed on the grounds that there was no military or moral rationale for having weapons that were hundreds, or even thousands, of times more destructive than atomic bombs. Physicists Enrico Fermi and I. I. Rabi proposed a compromise between self-restraint and arms racing — a reciprocal pledge not

to test thermonuclear weapons that could be verified with existing forms of remote sensing rather than inspections. Neither alternative to rapid hydrogen bomb development was seriously considered by Truman administration officials or by the Congressional committee charged with nuclear oversight, even though General Advisory Committee members correctly predicted that the lag time between the first U.S. and Soviet thermonuclear tests would be even shorter than it had been between their first atomic tests.⁵⁵

Between the U.S. “Mike” test of November 1952 and the Soviet “Joe” test of August 1953, a panel of consultants led by Oppenheimer wrote a report for the secretary of state. It recommended a bilateral agreement with the Soviet Union promising not to stockpile enough thermonuclear weapons to deliver “a surprise knockout blow.”⁵⁶ This was an early version of a new logic for using partial, potentially achievable arms control measures to enhance nuclear deterrence rather than setting unobtainable conditions for total nuclear disarmament. The new Eisenhower administration began a comprehensive review of U.S. nuclear policy. Before Oppenheimer’s analysis could influence those deliberations, though, his security clearance was revoked. Groves was among those who testified that Oppenheimer could not be trusted with nuclear secrets.

During both the Truman and Eisenhower administrations, self-serving intelligence assessments were used to justify the need for more nuclear warheads and delivery

⁵⁵ Barton Bernstein, “Crossing the Rubicon: A Missed Opportunity to Stop the H-Bomb?” *International Security* 14, no. 2 (Fall 1989), 132-160, <https://www.jstor.org/stable/2538857>.

⁵⁶ Report by the Panel of Consultants of the Department of State to the Secretary of State, “Armaments and American Policy,” January 1953, Document 67 in United States Department of State, *Foreign Relations of the United States, 1952-1954: Volume 2, Part 2: National Security Affairs* (Washington, DC: Government Printing Office, 1984), 1083, <https://history.state.gov/historicaldocuments/frus1952-54vo2p2/d67>.

vehicles. As David Alan Rosenberg has written, uncertainty about Soviet nuclear capabilities encouraged “creative guesswork” that always exaggerated the number of targets that the Strategic Air Command should try to destroy at the outset of a war.⁵⁷ Eisenhower became convinced early in the review process that mobilizing for unconstrained military competition would turn his country into a “garrison state” that could still be destroyed by Soviet missiles in a matter of hours.⁵⁸ He repeatedly pressed his advisors for a new approach to arms control that could enhance U.S. security on terms that the Soviets might be willing to accept. The president wanted more independent scientific advice because he was frustrated by another manufactured consensus among military leaders and weapons scientists — that the United States should keep testing larger nuclear weapons because the Soviets would never agree to the types of verification needed for arms control.⁵⁹

Eisenhower created a cabinet-level presidential science advisor position, which brought James Killian into the inner circle of decision-making on nuclear issues. Killian challenged the verification-first consensus by asking his advisory committee to determine whether a ban on nuclear tests could be verified using remote sensing technologies and a small number of onsite inspections. The committee’s positive assessment encouraged

⁵⁷ David Alan Rosenberg, “The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960,” *International Security* 7, no. 4 (Spring 1983), 50, <https://www.jstor.org/stable/2626731>.

⁵⁸ On Eisenhower’s concerns that excessive military spending would turn the United States into a “garrison state,” see Aaron Friedberg, *In the Shadow of the Garrison State* (Princeton, NJ: Princeton University Press, 2000).

⁵⁹ Eisenhower makes this point in the declassified minutes of “Morning Conference on August 9, 1957,” Document 281 in United States Department of State, *Foreign Relations of the United States, 1955-1957: Volume XX: Regulation of Armaments, Atomic Energy* (Washington, DC: U.S. Government Printing Office, 1990), <https://history.state.gov/historicaldocuments/frus1955-57v20/d281>.

Eisenhower to start the first serious effort to reach agreement on some type of nuclear arms control. The negotiations culminated in the 1963 Limited Test Ban Treaty and the practice of using arms control with “adequate” verification to enhance deterrence stability.⁶⁰

In short, Eisenhower recognized that a purely competitive approach to security in the nuclear age would lead to disaster. He was not able to start negotiating with the Soviets until he changed his policymaking process to include the type of scientific perspective that Groves and other unilateralists had worked to exclude. Killian and his advisory committee had the knowledge, intelligence, and top-level access needed to break down the false consensus that the Soviets would never agree to robust verification arrangements, or that the benefits of arms control would outweigh the risk of militarily significant violations. This shows the value of widening the sources of information and expanding the perspectives considered when making top-level nuclear policy decisions, as opposed to the intelligence process that produced the false consensus on Soviet nuclear incompetence that perplexed Houghton.

Conclusion

The many formal and informal arms control measures negotiated during and after the Cold War never came close to the Acheson-Lilienthal Committee’s vision for the international control of all dangerous nuclear activities. Nor did they stop both superpowers from making major advances in the long list of military capabilities that Houghton mentions at the end of his book. But they did help slow the arms race, reduce misperceptions, improve crisis management, enhance strategic stability, and stem

⁶⁰ Nancy W. Gallagher, *The Politics of Verification* (Baltimore, MD: Johns Hopkins University Press, 1999).

proliferation. Thus, they deserve some credit for why we are still here to argue the relative merits of competitive versus cooperative security strategies. Unfortunately, these issues lie outside the scope of Houghton's analysis. Though he provides a well-written account of nuclear intelligence during World War II, Houghton's thesis on the need for centralization is unconvincing and his approach to the failures of the postwar period leaves out key information regarding the efforts of Groves and other unilateralists to marginalize scientists.

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4. Spies and Scientists in Search of the Bomb

Joshua Rovner

Scientific intelligence combines public information about a state's research infrastructure with clandestine details of its military intentions. A healthy relationship between the scientific and intelligence communities helps states focus their espionage efforts. Intelligence services collect information from sources unavailable to researchers; scientists interpret the information using methods unfamiliar to spies. Done well, scientific intelligence can provide useful forecasts of emerging technologies that might affect the balance of power, along with specific warnings about looming threats.

But scientific intelligence is not easy to do well. It requires cooperation between communities with very different instincts. Scientists operate on trust and transparency, sharing ideas and research in order to promote collective and cumulative knowledge. Intelligence agencies operate on mistrust and secrecy, stealing information and guarding it jealously from their rivals.

Vince Houghton's new book, *The Nuclear Spies*, offers some suggestions on how to make it work.⁶¹ Houghton focuses on scientific intelligence during and immediately after World War II, when the nascent U.S. intelligence community tried to estimate German and Soviet progress toward the atomic bomb. His arguments are relevant today given the present debates over emerging technologies like artificial intelligence and autonomous vehicles. As with nuclear weapons, the science underlying these innovations is complex and sometimes bewildering to non-expert policymakers who need to make decisions

⁶¹ Vince Houghton, *The Nuclear Spies: America's Atomic Intelligence Operation against Hitler and Stalin* (Ithaca, NY: Cornell University Press, 2019).

based on their understanding of looming threats. Scientific intelligence can help them understand. The problem, however, is how to encourage collaboration among scientists and secret agencies, which are naturally shy about sharing information. Houghton does well to highlight this enduring challenge. His solution, however, is unconvincing.

Centralize to Succeed?

Houghton covers a lot of fascinating historical ground, especially in his chapters on the U.S. effort to assess Nazi Germany's nuclear research program. A gifted writer, he explains key scientific concepts with refreshing clarity and offers a glimpse into the laborious and often maddening process of intelligence collection against a very hard target. The task force assembled to assess German progress had to work indirectly, searching for clues from the openly available scientific literature, interviewing researchers who had contacts with German counterparts, and soliciting help from the British, who had partially broken German codes and were sifting through intercepted communications. The effort culminated in two missions to Europe during which teams of U.S. scientists and intelligence officers accompanied invasion forces to track down German scientists and secure their records.

What made this strategy possible, Houghton writes, was a centralized bureaucracy overseen by a powerful bureaucrat. Lt. Gen. Leslie Groves, best known for his administration of the Manhattan Project during the war, was also responsible for nuclear intelligence. Concentrating authority allowed the intelligence mission to proceed without becoming hamstrung by interagency fights. It encouraged an efficient process of discovering key individuals, questioning them on the spot, and using their answers to drive the search forward. Creating a hierarchy also made it possible to adjudicate disputes among scientists and intelligence officers, helping both sides navigate their

fraught relationship. The result was a success story: The Americans were able to verify that Nazi Germany did not have the bomb and would not get the bomb before the end of the war. In less than a year, the American mission went from concept to triumph.

Houghton paints an entirely different picture of the postwar intelligence effort against the Soviet Union. Scientific intelligence became decentralized. The wartime agencies disbanded, and those that followed were weak and riven by interagency fighting. The Central Intelligence Agency (CIA), established in 1947, had almost no authority over the military intelligence services. The director of central intelligence had little power to direct anything outside the CIA. All of these factors made it hard to coordinate information on the Soviet nuclear program and to foster collaboration with the academic scientific community. This situation was especially problematic, Houghton writes, because some scientists were warning against underestimating the Soviet Union. The conventional wisdom among government officials and industrial leaders was that Moscow was a long way from having the bomb, however, and the intelligence community estimated that Moscow would not get there until at least 1953. The Soviet Union surprised them all by testing its first nuclear device in 1949. Houghton posits that they would not have been surprised if a centralized scientific intelligence program had been in place.

Intelligence Triumphs in Context

Houghton deserves credit for comparing an intelligence success with a well-known failure. The intelligence literature overwhelmingly focuses on blunders, which makes it difficult to test competing explanations about the factors that lead to either better or worse outcomes. Social scientists call this method selecting on the dependent variable —

a cardinal sin for researchers. Happily, there is a list of recent exceptions to the rule, to which we can add this book.⁶²

That said, the World War II case is not as clear-cut as Houghton portrays. Groves and others repeatedly downplayed information suggesting that Germany did not have a significant nuclear weapons program. They assumed that the paucity of evidence was a sign of German operational security and shrugged off contrary information as the product of German deception.⁶³ For example, when they noticed that German scientists were allowed to publish on topics that were censored in the United States, they assumed that the Nazi regime must have been deliberately conveying a false impression of laxity to lull outsiders into false optimism. Similarly, British code breakers never saw evidence that such a program existed, but the Americans undervalued this finding because they did not have direct access to the source.⁶⁴

In hindsight, we recognize these conclusions as analytical errors. They were reasonable errors, to be sure, given the nature of Nazi Germany and the value of erring on the side of suspicion. But, how would we treat them if the situation were reversed? Suppose that intelligence officials had downplayed evidence pointing in the other direction and were surprised by German progress toward the bomb. I suspect historians would be a lot less forgiving.

⁶² See especially, Rose McDermott and Uri Bar-Joseph, *Intelligence Success and Failure: The Human Factor* (New York: Oxford University Press, 2017); Thomas Juneau, ed., *Strategic Analysis in Support of International Policy Making: Case Studies in Achieving Analytical Relevance* (Lanham, MD: Rowman & Littlefield, 2017); and Erik J. Dahl, *Intelligence and Surprise Attack: Failure and Success from Pearl Harbor to 9/11 and Beyond* (Washington, DC: Georgetown University Press, 2013).

⁶³ Houghton, *The Nuclear Spies*, 44-45.

⁶⁴ Houghton, *The Nuclear Spies*, 54.

The nature of the war encouraged false positives. By the time the Manhattan Project's intelligence effort began in earnest, the United States was already committed to destroying the German army and deposing the Nazi regime. In a war of unlimited objectives, it made sense to close off any possible pathways to Nazi survival. The likelihood that Germany was pursuing nuclear weapons, however small, bore intense scrutiny. Groves had good reasons to remain suspicious, even after accumulating evidence suggested that Germany's research program was moribund. The costs of false positives were marginal. The costs of a false negative — of missing signs of a Nazi bomb — were enormous. For this reason, we understandably forgive the Americans' analytical failures and applaud their dogged pursuit of a program that did not exist.

But in other cases, assuming the worst can have serious consequences. False positives may encourage wars against states that pose no real threat, as was the case with the U.S. invasion of Iraq in 2003. Tracking proliferation is a difficult problem for intelligence agencies. Ironclad proof is rare. Instead, analysts piece together a mosaic from a large number of hints based on sources that are not always reliable. The strategic objectives in World War II allowed intelligence officials to indulge in worst-case assumptions. There was no worse case than Adolf Hitler with the bomb. But making such assumptions in other cases may lead to overly aggressive counterproliferation policies, including preventive war against suspect states. How we judge success and failure in any given case depends on the larger strategic context.

Intelligence assessments may also depend on the scope of a given intelligence agency's portfolio. Groves' task force had a single mission: track down any signs that Germany was making progress. It may have fallen victim to a kind of analytical myopia given that its very existence was predicated on the possibility that Germany could go nuclear. Larger

intelligence services with broader missions provided more accurate assessments of German progress. Great Britain's Government Code and Cypher School, for example, broke the Enigma encryption device and read thousands of communications but found no compelling evidence that Germany was at work on the bomb. Meanwhile, the American Office of Strategic Services cultivated a source who provided what Houghton calls "arguably the most productive insight into German atomic progress."⁶⁵ Those organizations deserve more attention. They may have sensed the truth about Germany months before November 1944, when Alsos operatives discovered a set of documents in Strasbourg that convinced them, finally, that Germany would never get the bomb.

How the Alsos team reached Strasbourg is a marvelous story and well told. But its success doesn't appear to have much to do with organizational centralization, which Houghton emphasizes as key to the intelligence triumph during World War II and to the failure during the postwar period. Nor was the Alsos Mission a triumph of scientific intelligence. Rather, it is the story of a very small intelligence unit that accompanied an invasion force and then did gumshoe work to find the location of key scientists. Alsos personnel were in the business of high-stakes manhunting. While they certainly helped interview European scientists, it is not clear that the questions they asked were beyond the reach of any decent detective. American scientists were probably most important before the war, when they sounded the alarm that the Nazi regime had the wherewithal to go nuclear. Their advice went a long way towards inspiring the Manhattan Project and energized the intelligence effort against Germany. But their involvement probably did not determine the success of the Alsos Mission, as Houghton contends.

⁶⁵ Houghton, *The Nuclear Spies*, 74.

Organizational Design Is Not the Problem

If the Germany case is a mixed success, the Soviet case is a clear failure. Houghton blames the dissolution of the wartime intelligence services and the weakly centralized community that emerged in the late 1940s for the U.S. inability to correctly predict when the Soviet Union would acquire a nuclear weapon. He describes a number of other factors that encouraged overly sanguine estimates, but decentralization is at the top of his list. The weakly empowered director of central intelligence never had the power over nuclear intelligence that Groves enjoyed in the war. “Nothing done internally within the CIA would make the various intelligence organizations more willing to share intelligence and to put aside their parochial interests,” Houghton concludes. “Thus, as the United States entered the year that would prove to be pivotal for Cold War geopolitics, it still lacked a coordinated and effective scientific intelligence apparatus.”⁶⁶

The problem with this argument comes in Chapter 6, which indicates that few, if any, officials in Washington had a good understanding of Moscow’s progress. Houghton lists all the reasons why they were wrong. Officials doubted that the Soviet Union had enough highly enriched uranium for a bomb, or that it had the industrial capability to enrich more. Most importantly, they doubted that scientists could thrive under Soviet rule because communist ideology and the totalitarian Stalinist regime would kneecap the objective scientific inquiry required to pull off such a technologically demanding feat. Conversations with industrial leaders reinforced these conclusions.

Because officials were wrong about Soviet progress, centralization was irrelevant. At best, a stronger central authority would have consolidated a set of incorrect beliefs. At worst, it

⁶⁶ Houghton, *The Nuclear Spies*, 131.

would have hardened them with the imprimatur of a powerful intelligence chief. Houghton's argument about the failure of centralization would only make sense if he could show that better estimates were scattered around the community yet remained uncoordinated due to a lack of centralization. The evidence he presents, however, shows that better estimates did not exist.

Academic scientists were impressed with the Soviet research community and concerned that the Soviet Union would soon achieve a nuclear weapons capability.⁶⁷ Although they made the case in public and private, their views were largely ignored. This fact offers the most striking contrast with the World War II case in which prominent scientists had access to policymakers and alerted them to the threat of a Nazi bomb. After the war, however, scientists "had alienated themselves from those in power by advocating for the internationalization of atomic energy."⁶⁸ Out of favor because of their policy views and tainted by suspicions that they were affiliated with international communism, the scientists were not able to convince officials in Washington that Moscow would soon possess a nuclear arsenal. The main obstacle to a successful intelligence effort was not decentralized government intelligence. It was the rising barriers to entry for nongovernment scientists.

What do the two cases suggest about scientific intelligence? The good news is that, despite their differences, collaboration among professional scientists and intelligence professionals is possible. The World War II experience proved that much, even if questions remain about the results of the Alsos operations. The Roosevelt administration was committed to discovering Nazi nuclear intentions and gave intelligence chiefs

⁶⁷ Houghton, *The Nuclear Spies*, 158-159.

⁶⁸ Houghton, *The Nuclear Spies*, 161.

considerable flexibility to recruit scientists and employ them in unorthodox ways. Strong policy support, even after frustrating setbacks, was key to their success. The bad news is that policy enthusiasm for this kind of collaboration is hard to sustain in the absence of an obvious national security threat, as was the case in the immediate aftermath of the war. Centrifugal forces pull science and intelligence apart when there is nothing pushing them together. Organizational solutions like those that Houghton recommends are likely to disappoint. Informal programs promoting scientific understanding among intelligence professionals and intelligence education in the academy may be more valuable. Such efforts are unlikely to make headlines, but they probably increase the odds that both sides will listen to one another when faced with questions about the security implications of scientific breakthroughs.

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