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Introduction by Thomas Maddux, California State University, Northridge

In August 1949 the Soviet Union detonated an atomic explosion, “Joe 1” near Semipalatinsk in Kazakhstan. Although Joseph Stalin decided to not announce the test which ended the U.S. atomic monopoly, the United States successfully used both B-29 aircraft with airborne filters and Project Rainbarrel which examined radioactivity levels in rainwater to detect the Soviet test. After several weeks of silence from the Kremlin, evaluation of the tests by U.S. officials and debate among President Harry S. Truman’s advisers, Truman had a press statement released about the Soviet explosion and affirmed the importance of “truly effective enforceable international control of atomic energy.” (p. 231) In contrast to Truman’s emphasis on control, Michael Gordin suggests that pretty much the opposite took place as the United States moved to escalate its production of atomic bombs, move forward on the development of the hydrogen bomb, and participate with the Soviet Union in an escalating arms race within the larger expanding Cold War.

Michael Gordin begins his study on the familiar ground of the first U.S. atomic explosion in the Trinity test, followed by the exchange between Truman and Stalin at the Potsdam Conference, and the ensuing discussions after the use of the atomic bombs on what approach to take on international control. As the reviewers favorably emphasize, Gordin successfully implements an international approach that examines the period of an American monopoly through the “intersection of geopolitics, intelligence, and the atomic bomb.” (p. 14) By exploring both what the U.S. and the Soviet Union were doing in their atomic projects as well as their perceptions of what the other side was developing and their reactions to these perceptions, Gordin offers a fresh perspective on this subject despite the extensive available literature.¹ As Gordin explains his method in his response, “I went about about looking at how people knew what they knew, when they knew it, and how historical actors asserted and defended their claims to knowledge about nuclear weapons: how were they made?, who was making them?, and how did one know the answers to any of these questions?” (2)

The reviewers note many positive aspects of Gordin’s study. Tsyuoshi Hasegawa offers an enthusiastic summary of the book regretting only that he would like to have Gordin and David Holloway on a panel that compared their assessments on the Soviet bomb project.² Seregey Radchenko approached Gordin’s book with some wariness as a co-author of a recent study on atomic diplomacy, but is impressed with Gordin’s narrative, his extensive research in U.S. and Russian sources, and his ability to integrate technical aspects of atomic development and detection into his narrative. As the author of another recent study on atomic diplomacy, Sean Malloy finds Gordin’s assessment of the similarities and differences between the U.S. and Soviet nuclear projects to be very impressive, most notably the

¹ See the recent H-Diplo roundtable on Campbell Craig & Sergey Radchenko, *The Atomic Bomb and the Origins of the Cold War* (New Haven, 2008) at <http://www.h-net.org/~diplo/roundtables/PDF/Roundtable-XI-8.pdf>.

² David Holloway, *Stalin and the Bomb* (New Haven, 1994).

comparison of the scientists' lack of reservations about the morality of their work in somewhat different contexts and the differences in the Soviet and American programs reflecting their "fundamentally "divergent approaches to the conduct of science, engineering, and intelligence gathering." (2)

Since all of the reviewers have written books that deal with atomic diplomacy issues and Soviet involvement, they do raise significant questions on several important issues, and Gordin responds thoughtfully to their reservations.

1. The importance of Soviet espionage activities in the Manhattan Project versus the information gained through open sources, most significantly the official history of the Manhattan Project, the Smyth Report prepared by Henry DeWolf Smyth, which was released with the approval of Leslie R. Groves, director of the project, represents a significant debatable issue. In contrast to the recent study by John Early Haynes, Harvey Klehr, and Alexander Vassiliev, *Spies: The Rise and Fall of the KGB in America* which emphasizes what the Soviet Union gained from espionage related to the Manhattan Project without dismissing the benefits of public sources of information,³ Gordin emphasizes the value of the Smyth Report as providing Soviet scientists with a manual on problems encountered in developing atomic weapons as well as an important textbook to assist in the training of Soviet weapons engineers. (pp. 99-101) At the same time Gordin recognizes the value of intelligence information such as information from Klaus Fuchs on designs for a plutonium implosion weapon. "Gordin provides a helpful reminder," Malloy points out, "that building a bomb is as much about mastering and applying basic techniques in nuclear engineering as it is about exotic scientific secrets, whether home-grown or lifted from stolen microfilm." (3) Hasegawa and Vladislav Zubok approve of Gordin's emphasis but Radchenko disagrees. Using the assessments of Igor Kurchatov, the scientific director of the Soviet atomic bomb project, Radchenko notes that Kurchatov commented in the declassified published Russian documents, that the Smyth Report was quite valuable but that Kurchatov emphasized in 1943 that intelligence information was of "enormous, priceless significance for our State and science" on gaseous diffusion of enriching uranium and on a plutonium bomb. (3)

2. The reviewers are not persuaded by Gordin's assessment of Stalin's attitude toward the atomic bomb, although all would agree with Gordin that Stalin's thoughts remain a subject of speculation. Hasegawa, for example, critically probes Gordin's explanation on why Stalin remained silent about the successful Soviet Joe-1 test, which Hasegawa considers "strained and muddled". Gordin points to a variety of considerations from Stalin's concern about an American preemptive strike before

³ For the H-Diplo roundtable on *Spies*, see <http://www.h-net.org/~diplo/roundtables/PDF/Roundtable-XI-9.pdf>.

Moscow acquired a stockpile of weapons to the suggestion that Stalin underestimated the importance of nuclear weapons and tried in general to keep things secret. Hasegawa suggests that Stalin recognized the diplomatic and military importance of the atomic bomb and took an aggressive stance in diplomatic negotiations to avoid any appearance of weakness in the face of American atomic diplomacy but at the same time avoid any direct military conflict. (6-7, 10) Zubok agrees that Stalin practiced a strategy of nuclear bluff and would have welcomed more analysis by Gordin on “Stalin’s side of the mutual atomic game.” (2) In emphasizing the importance of the atomic bomb to Stalin, Radchenko points to the “massive scale of the Soviet atomic project as a good indication that sometimes actions speak louder than words” and that Stalin wanted all the symbols of great power, the atomic bomb and fading weapons such as battleships and a few colonies. (4)

3. The impact of the Soviet bomb on the Cold War and ensuing arms race is evaluated by Gordin with a range of responses from the reviewers. In Chapter Seven, “The Year of Joe,” Gordin suggests that the atomic bomb did have a significant impact on both the Cold War conflict and the escalating arms race. Once the U.S. demonstrated the power of the atomic bomb, Stalin had to acquire the bomb, and once he acquired it, multiple diplomatic, strategic, and domestic political considerations ensured that the U.S. would feel vulnerable since it relied on atomic deterrence rather than conventional forces to contain the Soviet Union in Europe and that it would escalate its own nuclear stockpile, develop the hydrogen bomb, adopt a new strategy in NSC-68, and find confirmation of its decisions in the outbreak of the Korean War. Zubok supports this evaluation but Hasegawa and Radchenko disagree to some extent. Hasegawa suggests that the development of atomic weapons was more a manifestation of the larger discord between Washington and Moscow that led to the abandonment of negotiations in 1947. Nevertheless, Hasegawa endorses Gordin’s action-reaction dynamics flowing from atomic weapons and notes U.S. war plans from 1947 to use nuclear weapons against the Soviet Union. (8-9) Radchenko and Malloy suggest that Gordin overemphasizes the importance of the Soviet atomic bomb in 1949 since both sides had committed to Cold War policies before 1949. Malloy notes that Franklin D. Roosevelt and Truman made the decisions to exclude the Soviet Union from a nuclear partnership and that negotiations for international control had little prospect of success after 1945. “Given these underlying dynamics,” Malloy concludes, “the Soviet test in August 1949 is more akin to a marker upon a well-trod path than a starting point for the nuclear arms race.” (4) Furthermore, Malloy speculates that maybe nuclear weapons did not have “any significant impact on the actual conduct of the Cold War during the period of American monopoly” and that neither the U.S. nor the Soviet Union let them affect their behavior very much. Malloy would welcome more assessment by Gordin on thinking about the bomb since it loomed over some of the most dangerous clashes of the Cold War.

Participants:

Michael D. Gordin (Ph.D., Harvard University, 2001) is Professor of History and Director of the Program in Russian and Eurasian Studies at Princeton University, and specializes on the history of science in Russia and the Soviet Union. He is the author of *Red Cloud at Dawn: Truman, Stalin, and the End of the Atomic Monopoly* (Farrar, Straus & Giroux, 2009), *Five Days in August: How World War II Became a Nuclear War* (Princeton University Press, 2007), and *A Well-Ordered Thing: Dmitrii Mendeleev and the Shadow of the Periodic Table* (Basic Books, 2004). He is currently working on a history of debates over the boundary between science and pseudoscience in Cold War culture.

Tsuyoshi Hasegawa is professor in the Department of History at the University of California at Santa Barbara. Specializing both in the Russian Revolution and in Russo-Japanese Relations, he has written *The February Revolution: Petrograd 1917* (1981); *Daily Life of Petrograd During the Russian Revolution* (1989, in Japanese); *The Northern Territories Dispute and Russo-Japanese Relations* (1998) (See H-Diplo Roundtable Discussion), which received the Ohira Masayoshi Memorial Prize; *Racing the Enemy: Stalin, Truman, and the Surrender of Japan* (2005), which received the Robert Ferrell Book Prize from the Society of Historians of American Foreign Relations in 2006 (See H-Diplo Roundtable Discussion), and its revised translation into Japanese, *Anto: Sutarin, Toruman to Nihon kofuku* (2006), received the Yomiuri-Yoshino Sakuzo Price (2006) and the Shiba Ryotaro Prize (2007). He is the editor *The End of the Pacific War: Reappraisals* (Stanford: Stanford University Press, 2007), and coeditor, with Kazuhiko Togo, *East Asia's Haunted Present: Historical Memories and the Resurgence of Nationalism* (Westport, Connecticut and London: Praeger Security International, 2008).

Sean L. Malloy is an Assistant Professor of History and member of the founding faculty at the University of California, Merced. He is the author of *Atomic Tragedy: Henry L. Stimson and the Decision to Use the Bomb Against Japan* (Cornell University Press, 2008) as well as articles dealing with nuclear targeting in World War II and the role of atomic diplomacy in the Korean War. His forthcoming article in *Diplomatic History* will examine the American pre-Hiroshima knowledge of the radiation effects produced by nuclear weapons. Malloy's current research project explores the links between black power and Cold War dissent with an emphasis on the radical internationalism of the Black Panther Party

Sergey Radchenko is a lecturer at the University of Nottingham, Ningbo (China). He is the author of *Two Suns in the Heavens: the Sino-Soviet Struggle for Supremacy* (Woodrow Wilson Centre Press & Stanford UP, 2009), and a co-author (with Campbell Craig) of *The Atomic Bomb and the Origins of the Cold War* (Yale UP, 2008). His academic interests focus primarily on foreign relations of contemporary Asia. His current book projects include *Facing the Dragons: Soviet Union and Asia* in the last decade of the Cold War and *History of Modern Mongolia*.

Vladislav M. Zubok is Professor of History at Temple University and a Research Fellow and Director of the Advanced Training Program of the Carnegie Corporation on Russia. He is co-author of *Inside the Kremlin's Cold War. From Stalin to Khrushchev* (with Constantin

Pleshakov), (1996), which won the Lionel Gelber Prize as a best English-language book on international relations in 1996; *Russian Anti-Americanism: From Stalin to Putin* (with Eric Shiraev), (2000); *A Failed Empire: The Soviet Union in the Cold War from Stalin to Gorbachev* (2007), which won the AAASS Marshall Shulman prize. His last book is *Zhivago's Children: The Last Russian Intelligentsia*. (2009). Zubok was a Senior Series Consultant and on-air commentator for CNN's "Cold War," a 24-hour documentary series, 1995-1998. He is currently working on a biography of Russian-Soviet intellectual Dmitry S. Likhachev and a book on the collapse of the USSR.

This entire book, Michael Gordin explains, stemmed from a heated argument he had with Loren Graham, his mentor, over dinner one evening. We don't know on what issues they disagreed and what position each took, but this heated argument had a salutary effect resulting in this wonderfully constructed book, written in gripping style, that tells an interesting story about how the United States and the Soviet Union played a cat and mouse game of intelligence about each other's nuclear program during the crucial period of the American atomic bomb monopoly from the time that the Americans detonated the first atomic explosion at Alamogordo on July 16, 1945 until the Soviets' "First Lightening" explosion of "Joe 1" at Semipalatinsk 21, Kazakhstan, on August 29, 1949.

This is not a book about how the Soviets built the bomb, for which we have a more complete book, *Stalin and the Bomb*, by David Holloway (Yale University Press, 1994). Gordin's book focuses on "what both sides were doing in parallel, but also on what each side thought the other side was doing, and how each imagined the other would react." (p. 16). In this cat and mouse game, geopolitics, intelligence, and the atomic bomb constituted "a triumvirate that dominated the story." (p. 14).

From its inception, the development of the atomic bomb contained an inherent contradiction. As Andrew J. Rotter argues in his recent synthetic work, *Hiroshima: The World's Bomb* (Oxford University Press, 2008), the first atomic bomb was not an exclusive American bomb, but the world's bomb, conceived by physicists who shared their knowledge in their epistemological community, and was developed in collaboration with the world's leading scientists and engineers. But geopolitics intervened from the outset. The Manhattan Project had to be carried out in secrecy to keep Germany, against which the bomb was initially intended to be used, in the dark.

World War II geopolitics had another important aspect. The Manhattan Project was kept secret not only from the Germans and the Japanese, but also from the Soviets. Behind the facade of the Grand Alliance, there was fundamental distrust between the United States and the Soviet Union. Cognizant of the role that the atomic bomb would play in the postwar world balance of power, the Americans and the British were not prepared to share their knowledge with the Soviets. To Secretary of War Henry Stimson, the atomic bomb represented a "royal straight flush" to be used to extract maximum concessions from the Soviet Union.

Georgii N. Flerov, Soviet nuclear physicist, submitted an article on the spontaneous fission of uranium to the *American Journal of Physics* (vol. 4, nos. 4-5, 1940). There has been strict censorship on anything related with uranium fission, but the Army allowed *The American Journal of Physics* to print this article, lest the non-publication should alert the Soviets about the secret project. Flerov's article was published, but no reaction followed. In fact, no publication on uranium fission appeared in American journals. Flerov alerted the State Defense Committee that a "kind of burning work is going on right now abroad." Gordin quips: Where there is no smoke, there might be fire. (p. 31). Sometimes, to hide something

often tells a good deal about something that is supposed to remain hidden. Thus, began the cat and mouse game between the Americans and the Soviets long before Trinity. This story is not new. Holloway describes this in *Stalin and the Bomb*, pp. 78-79. But in the context of how intelligence worked, Gordin's description of this episode acquires a new meaning. Gordin and Holloway have many overlaps, but these overlapping pieces of information and details have different dimensions. I find the comparison fascinating. In fact, I would love to see Gordin and Holloway on a panel discussion and debate and exchange their information.

After the Trinity explosion, Truman told Stalin at the Potsdam Conference about the weapon of enormous destructive power that the United States had just acquired without telling him that it was the atomic bomb. Thus Truman revealed something and concealed something. This concealment itself was an interesting piece of data. By this time Stalin knew that the Americans were engaged in the Manhattan Project, and that they were about to detonate the first atomic bomb. But Stalin, in turn, concealed the extent of his knowledge, which Americans interpreted as his ignorance. Here Gordin makes an enigmatic comment: "It was not supposed to happen this way." (p. 12). So how should it have happened? I will come back to this point later.

Once the genie was out of the bottle (or more precisely even before she was out), the United States began exploring how to control its awesome power. The American discussion on international control of nuclear power was closely connected with its geopolitical concerns. Gordin describes the well-known trajectory of U.S. policy from the Stimson Plan to the Baruch Plan and the Soviet rejection of the Baruch Plan, which doomed international control. Stimson's original plan was to use the atomic bomb as a stick and share the information as a carrot to secure Soviet concessions. But by the fall of 1945 this proposal to preserve the atomic monopoly by sharing limited information had collapsed. Instead, the United States attempted to perpetuate its monopoly. In November Truman signed the Agreed Declaration (with Britain and Canada) that ceded information and control only to the United Nations, fully aware that the Soviet Union was averse to using the United Nations. In 1946 the McMahon Act was passed, which made it illegal for any American to share any information about anything nuclear with any foreign power (including Britain).

Unlike liberal historians, such as Martin Sherwin and Kai Bird, *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer* (Random House, 2006), who praise the Acheson-Lilienthal Report as the real chance for international nuclear power, Gordin characterizes it as "direct and unabashed defense of monopoly as the strategy for atomic arms control." (p. 48). Of course, the Baruch Plan made it impossible for the Soviet Union to accept, since it added imposition of sanctions on violators and prohibition of vetoes. (p. 53).

Predictably, the Soviet government issued statements that these proposals were meant to perpetuate American monopoly of atomic weapons, and countered by proposing that every nation—meaning the United States—must renounce the use of the nuclear weapons and destroy their nuclear facilities. Was this position merely propaganda? Gordin here is rather sympathetic with the Soviet position. After all, while the Baruch Plan was under discussion, the U.S. continued to produce nuclear weapons. Baruch's staff recognized: "the

United States has gone so far in its demobilization of the Army and Navy that if we were to stop making bombs we would be almost defenseless and would certainly have only a modicum of military power with which so stand up to the USSR." (p. 54). The military balance was kept even with U.S. nuclear weapons matching the Soviet conventional force.

But the Soviets thought otherwise. They believed that it was the atomic bombs that broke the military balance. Gordin quotes British Ambassador to the Soviet Union Archibald Clark Kerr, who noted in December 1945: "Then plump came the Atomic Bomb. At a blow the balance which had now seemed set and steady was rudely shaken. Russia was balked by the west when everything seemed to be within her grasp." (p. 62). Stalin himself told Boris Vannikov and Igor Kurchatov that "Hiroshima had destroyed the balance of power." (Holloway, *Stalin & the Bomb*, p. 154).

As far as the Soviets were concerned, the balance had to be restored. Without meaningful arms control, the Soviet Union had no alternative but to develop its own atomic bomb. The question was: How soon?

The United States lacked what the Soviets had plenty of: spies. The American intelligence infrastructure was in disarray. How many spies did the United States have to gather intelligence about Soviet atomic plan in 1949? The answer: zero. The CIA dropped former Soviet citizens to serve as informants, but almost all of them were arrested immediately and shot. (p. 82). Without a solid basis of information, however, they had to come up with the estimates as to how long it would take the Soviet Union to detonate the first atomic bomb.

Leslie Groves suggested between 5-20 years. He did not believe that the Soviets had the capacity to develop atomic bombs at least for five years, because they lacked the necessary high precision engineering, but more importantly, they did not have enough uranium. Confident that U.S. monopoly of the Congo uranium would keep the Soviet from acquiring the necessary quantity of uranium. Groves did not know that the Soviets had control of German and Czechoslovakian uranium ores. (p. 74)

Others estimated that it would take the Soviets at least five years. The problem was lack of agreement on the starting point: five years either from the Trinity explosion or from the time they announced their estimates? No one estimated that the Soviets would have the first atomic explosion before five years from Trinity. This explains the shock of the First Lightening on August 29, 1949, only four years and six weeks since Trinity.

To explain why the Soviet Union could so quickly break the American monopoly, two explanations have been given: espionage and German scientists.

Gordin demolishes these theories. How the Soviets built the nuclear industry from scratch in the midst and aftermath of the devastating war largely on their own is told in detail by Holloway. Gordin mainly focuses on the role of three categories of foreign sources of information, and discusses their relative importance in the Soviet building of the atomic bomb. He argues that of these three the most important was the information available in

open publications. Especially important was the official history of the Manhattan Project written by the Princeton University physicist Henry DeWolf Smyth — the Smyth Report -- , which was officially approved by Groves himself. Ironically, the release of the Smyth Report met opposition from Henry Wallace and Lilienthal, who feared that too much information was given. In fact, Leo Szilard approvingly noted that the report clearly indicated the road along which any other nations would have to travel. (pp. 97-98).

Groves and others defended the release of the Smyth Report, since the most crucial information was not revealed. The report was indeed vague or silent about so many details that “no one could conceivably have used it as a playbook.” (p. 104). But Gordin asks: “What if detailed information was not what the Soviets needed?” The Soviets did not use the Smyth Report as a blueprint, but rather as a road map, and as such it helped the Soviets to accelerate their nuclear program. “It candidly revealed the scale of the effort and the sheer quantity of resources, and also hinted at some of the paths that might work and, by omission, some that probably would not.” (p. 103). What the report did not say was as important as what it said. The report was picked up in its draft stage even before Potsdam, and as soon as it was published in August, it was translated and distributed to scientists.

In addition to the Smyth Report and other information that the Soviets systematically collected from open sources, they also relied on atomic espionage, codenamed Enormoz. But information obtained through espionage had problems. First, it suffered from segmentation. Rival organizations such as the NKGB and GRU acted on their own without coordination and interaction. The spymasters in Moscow, always suspecting disinformation, had to check and double-check the obtained information. Also the information obtained from espionage was kept secret to a select few, and not shared widely by the scientists engaged in the atomic project. (pp. 153-158). This compartmentalization hampered the project. Gordin concludes: “In the end it is not clear that using American espionage data saved any time for the Soviets, although it surely saved much uncertainty.” (p. 153)

Moscow knew a lot, but not everything. Nonetheless, espionage yielded some important information that helped the Soviets to accelerate the progress. John Caincross, one of the Cambridge Five spy ring—passed the Maud Report in 1941, even before the Manhattan Project had begun. After the war Donald Maclean also provided crucial information, especially on the size of the U.S. atomic stockpile. (p. 113).

The most important spy in terms of quality and quantity of information was, of course, Klaus Fuchs. His implosion information, which was carefully omitted from the Smyth Report or any other open sources, made a major contribution to the design of the first Soviet nuclear bomb. Also his information was linked with Kurchatov’s decision to use plutonium as a fuel. (pp. 117, 150-152).

It was only after the atomic bombings on Hiroshima and Nagasaki that the Soviet atomic project began in earnest. Like Holloway, Gordin admires the Soviet scientists and administrators (including Beria) for building their own nuclear program from scratch. Of

course, unlike the Americans, the Soviet had an advantage: being the second, they already knew that a nuclear bomb was feasible.

The Soviet scientists who participated in the atomic project had no moral misgivings about developing the weapons of mass destruction. The nuclear threat to the Soviet homeland from the American bombs made morality irrelevant. It was not Stalin's bomb, but the Soviet bomb, as Gordin asserts: "When we find traces of Soviet physicists examining the moral justification of their weapons work, we see that Stalin occupied a very small place in their reasoning and the Americans a massive one." (p. 142).

Gordin also introduces fascinating relationships between the Soviet physicists and the leaders. His admiration is reserved for Igor Kurchatov both as the scientist and the administrator responsible for the atomic project. But comparable to Robert Oppenheimer was Iuliii Khariton. Gordin also tells fascinating stories about Lev Landau and Peter Kapitsa (spelled in the book as Kapitza, though misspelled twice on p. 151), who stayed out of the atomic program. Considering the purge that destroyed Soviet genetics and biology, the regime's lenient treatment of physicists was surprising. (Landau disliked making the bomb for Stalin, and Kapitsa criticized Beria's lack of scientific knowledge. pp. 146, 151-152. According to Holloway, Beria asked Stalin's permission to arrest Kapitsa, but Stalin rejected this request. Holloway, *Stalin and the Bomb*, p. 144). Only the nuclear project saved Soviet physicists. The Soviet physics conference was supposed to be held in 1949, presumably to purge the physicists, as the Soviet biologists had been hit by Trofim Lysenko, but the conference was cancelled. Presumably Stalin could not afford to send those physicists busily preparing the first atomic explosion to the Gulags. Landau famously quipped that the cancellation of the physics conference was "the first successful example of nuclear deterrence." (p. 148).

The first Soviet nuclear explosion, codenamed the First Lightening, took place on August 29, 1949 at Semiparatinsk 21 test site in Kazakhstan. Although the American scientists' reactions to Trinity have been recorded in minute details, little attention has been paid to the Soviet scientists' reaction to the First Lightening. It is to Gordin's credit that he recorded them in detail. Their reactions were mostly unemotional and descriptive. (pp. 172-175).

Beria immediately called Stalin in Moscow, and told him that that RDS-1 had gone off successfully. Stalin casually retorted that he already knew, and hang up. (p. 176). I wonder who tipped off the information to Stalin before Beria.

Stalin, however, did not trumpet this triumphant feat of Soviet science and technology. In fact, if the Soviets were to adhere to the strategy of nuclear deterrence, it would have been imperative to announce that the Soviet Union now possessed the atomic bomb. Stalin's silence about the First Lightening raises two questions. First, how did the United States find out that the Soviet had the first atomic explosion? Second, why did Stalin remain silent?

The Americans did not have spies within the Soviet Union. They detected the first Soviet nuclear explosion only through technical means—atmospheric monitoring (“bug-catchers” flown by the Air Weather Service B-29s from Alaska) and checking radioactivity levels in rainwater (Naval Research Laboratory’s Project Rainbarrel). (pp. 202-203).

So, several times a week, the Weather Service B-29’s flew between Alaska and the Soviet Pacific Coast and whenever it rained, NRL stations in Alaska and Washington, D.C. ran tests on rain samples. There were 111 false alarms that exceeded the alert level of Geiger counters, but Alert 112, code named, Vermont, was something else. No one doubted that a nuclear explosion took place in the Soviet Union. (pp. 203-204).

The question was what to do with this information, when the Soviet Union remained silent. Truman was informed about the conclusive evidence of the Soviet explosion on September 9. The Truman administration was divided on what to do with this information. George Kennan, David Lilienthal, and Louis Johnson (Secretary of Defense) were for releasing the information, while Dean Acheson (then Secretary of State) was against it. Truman was initially in favor of Acheson’s position. In fact, Truman did not believe that the Soviets could succeed in detonating the nuclear weapon so soon. But eventually, the President issued a statement on September 23, announcing the Soviet nuclear explosion, carefully hiding how this information was obtained. Now it was the Soviets who had to think how they should respond to Truman’s announcement of Joe-1.

But why did Stalin remain silent on his atomic bomb? Gordin’s explanations here are somewhat strained and muddled. First, Stalin was worried about a preemptive strike from the Americans. Second, the Soviet Union lacked a stockpile. According to Gordin, “Stalin may indeed have made the announcement himself once he had more bombs on his stockpile.” These two explanations make sense, since in order for nuclear deterrence to work, one side must possess the retaliatory capability after absorbing the first strike from the other side. But Gordin immediately adds: “or when the geopolitical scene made such a sudden revelation advantageous.” In what geopolitical situations is such a revelation advantageous? One should recall that Khrushchev brandished the Soviet nuclear arsenal that he did not possess in the second half of the 1950s, and, on the contrary, under Brezhnev, the Soviets were so eager to impress on the Americans during the arms control negotiations how unthreatening their nuclear weapons were. This raises the question as to how and on what criteria the Soviet turned their faucet hot and cold.

Then Gordin provides a third explanation: Stalin underestimated the nuclear weapon. He treated the nuclear test not differently from any other weapons innovations. After all, the permanently operating principles of Stalin’s military doctrine included nothing about the nuclear weapon. (p. 240). Gordin, however, quickly dismisses this explanation as “interpreting too much.” Then he shifts to the fourth explanation: everything nuclear was kept secret. But Truman’s revelation caught the Soviet Union flatfooted. The Soviets had to say something, and issued the TASS statement in response, which did not admit that the Soviet Union had in fact detonated an atomic device. In fact, the Soviet Union did not explicitly admit possession of nuclear weapons until 1951. (pp. 240-243). One might suspect that if they were caught flatfooted, this might have stemmed from the contradiction

between the official position that depicted the nuclear weapon as an evil weapon of mass destruction to be abolished and their possession of the very evil weapons. I remember vividly how a Communist activist in Japan, who naively and sincerely believed any Soviet propaganda as an article of faith, explained to me that the radioactive fallout resulting from Soviet atomic tests was not as dangerous as that of the American fallout that killed a Japanese fisherman. I can imagine how Truman's revelation complicated Soviet peace offensive propagandists.

There was no question about the impact of Joe-1: the American monopoly was broken: "It became clear that the United States could not rely on the threat of nuclear bombardment every time the Soviets acted in a manner contrary to American interests. After all, the Soviet Union could now retaliate in kind." (p. 268). The Soviet possession of the atomic bomb may have created a realistic possibility of arms control, since both sides now stood on equal footing. But this did not happen. The iron law of the arms race set in: the action-reaction phenomenon. The American monopoly was broken by Soviet reaction: Joe-1. Now the Americans started to seek nuclear superiority. Before Joe-1, the Americans underestimated Soviet industrial and scientific capability; now they concluded: "the Russians will do substantially better than the average prediction ... in atomic bombs, in electronics, and in aircraft." (p. 258). The Congress adopted the Civil Defense Act in 1950. The Americans exponentially increased their stockpile. And, of course, Joe-1 led to the U.S. decision to develop the H-bomb.

After Joe-1, a war plan codenamed Offtackle was adopted. This called for 220 atomic bombs to be delivered on 104 urban Soviet targets with a reserve of 72 weapons. This plan required accelerating production of bombs and bombers. This is indeed "overkill."

The balance that underlay the monopoly—American nukes versus Soviet soldiers—was broken. The only way to offset Soviet conventional forces was to bring Western Europe into the military equation. The United States would permanently stay in Western Europe as the integral force within NATO. The nature of the National Security Council, created in 1947, also changed with the new mission. The upshot of this process was the adoption of NSC-68.

Thus, the American monopoly and its end by Soviet detonation of Joe 1 set the patterns of actions and reactions. In the concluding chapter, Gordin examined these patterns in five areas: the superpower race, the contrasting style of intelligence gathering, the first limited arms-control treaties, nuclear weapons proliferation, and ecological destruction.

This is a somewhat long-winded summary of this excellent book. But even this long summary does not do justice to the many juicy details of episodes and characters contained in the book. The book used solid U.S. archival and secondary sources and recent Russian publications. I have nothing but praise for Gordin's book, but provoked by this fascinating work, I would like to make the following comments.

First, I would like to comment on a counterfactual that Gordin himself raises. In the beginning he introduces Truman's half-revelation of the atomic bomb to Stalin at the

Potsdam Conference, and states: “Truman turned out to be too clever by half. It was not supposed to happen this way.” (p. 12). He ends the book: “Of the triad of geopolitics, intelligence, and the atomic bomb, only the geopolitics have changed. It was not supposed to happen this way.” (p. 306). What then was supposed to happen? But before I answer this question, I would like to raise the second issue: the possibility of successful international control of the nuclear energy.

Unlike Sherwin and Bird, I do not believe that the Acheson-Lilienthal proposal had a realistic chance of the Soviets’ accepting it. The Baruch plan, of course, made it absolutely impossible for the Soviets to agree with international control. Here, I tend to agree with Gordin, who considers the Acheson-Lilienthal proposal basically an attempt by the United States to perpetuate its atomic monopoly. But I would go further. Any attempt at international control would have met Soviet rejection, since what Stalin and the Soviet leaders wanted was their own bomb. As Holloway states, “neither it [the Acheson-Lilienthal Report] nor the Baruch plan took into account the Soviet determination to acquire the atomic bomb” (Holloway, *Stalin and the Bomb*, p. 162.)

Which brings us to the second question. Even if Truman had revealed to Stalin that the “bomb of enormous destructive capacity” was the atomic bomb, things would not have changed much. Stalin knew that the United States had been engaged in the atomic program, excluding the Soviet Union. Thus, the only alternative that could have changed was genuine international collaboration on the atomic program, including the Soviet Union. The problem thus began with FDR, not with Truman. Had the genuine international collaboration been instituted, Klaus Fuchs and Ted Hall would have been heroes, not traitors.

The third, somewhat related, issue is the relationship between the atomic bomb and the Cold War. Gordin states: “Atomic weapons and the cold war not only were born at the same time, but each also deeply shaped the development of the other.” (p. 26). This begs the question: when, indeed, did the Cold War begin? Did the Cold War begin with the Trinity explosion? When the United States dropped the atomic bombs on Hiroshima? Or on Hiroshima and Nagasaki? (One must remember that the Soviet Union entered the war between Hiroshima and Nagasaki.) Or when the Manhattan Project was initiated? Depending on the answer, either FDR or Truman can be the candidate who started the Cold War.

My view of this is that the U.S.-Soviet relations with regard to the development of the atomic weapons are not the major cause of the Cold War. They constituted one of the most serious — perhaps the most serious of all -- fissures of the Grand Alliance. The atomic bombs were, however, not responsible for directly triggering the Cold War, although they shaped the course of the Cold War. Despite major differences, the Grand Alliance continued after the war, and the Soviet Union and the United States (and Britain) continued to negotiate. The Cold War, in my opinion, began only when both sides concluded that there was nothing to gain from negotiations and that both sides were irreconcilably separated into two different camps. This conclusion did not come until 1947. If my view is correct,

then it is necessary to see how each development of atomic development on each side corresponded to which specific developments of the Cold War.

The fourth issue is Gordin's assertion that the U.S. did not take advantage of its atomic monopoly and made no war plans against the Soviet Union before the Soviets succeeded in possessing atomic weapons. The only war plan involving nuclear weapons mentioned by Gordin was Operation Offtackle in October 1949, only after the Joe-1 explosion. According to Laurence Freedman, the United States was initially unsure if the atomic bomb should be used as the weapon of first or last resort. Truman said to Lilienthal "I don't think we ought to use this thing unless we absolutely have to." But as East-West tensions grew, the actual use of the atomic bomb began to be seriously considered. In early 1947, that is long before Joe 1, the Air Force began to believe that the atomic bombs could be effectively used in the early stage of a war. In the middle of 1947 all the military services began to develop a joint war plan, codenamed Half-Moon. According to this plan, Soviet urban industrial concentrations constituted the "highest priority target system," which, if destroyed, "should so cripple the soviet industrial and control centers as to reduce drastically the offensive and defensive power of their armed forces." The strategic offensive was to last for thirty days, primarily by atomic bombings, against 70 target areas where 28 million people lived. It was estimated that 10% of these people would be killed and another 15 percent wounded." Laurence Freedman, *The Evolution of Nuclear Strategy*, Third Edition (Palgrave Macmillan, 2003), pp. 50-52.

According to Raymond Pollock of the Los Alamos National Laboratory in his classified study of the U.S. nuclear stockpile the U.S. military adopted a war plan, "Broiler," in 1947, which called for 34 atomic weapons to be used against 24 cities. But as the stockpile expanded, so did the target list. "Plan Trojan," approved in December 1948, called for 133 atomic weapons on 70 cities. In May 1949, however, a study headed by Air Force Lt.-General Harmon reported that even if all 133 weapons detonated on target, "the Soviet leadership would not be critically weakened." This conclusion triggered the substantial increase in nuclear stockpile, and this increase in stockpile in turn led to the shift of targets from urban centers to specific military targets, in other words, from counter-value to counter-force. (Raymond Pollock, "A Short History of the U.S. Nuclear Stockpile, 1945-1985 (U)," January 2, 1991, Center for National Security Study, Los Alamos National Laboratory, <http://www.doeal.gov/FOIADocs/PR00065.pdf>).

Of course, making war plans is not the same as implementing them. But it is important to recognize that the United States was seriously mapping out the nuclear employment policy before the Soviets exploded Joe-1. Thus, I believe that Gordin's statement that the U.S. did not take advantage of its atomic monopoly should be somewhat modified.

Last, but not least, there is the question of Stalin's attitude toward the atomic bomb. In Gordin's book, Stalin does not figure prominently. On the one hand, Stalin attempted to downplay the role of the atomic weapon. But did he really think that the atomic weapon was merely another weapon, unworthy to be included among the permanently operating principles? Holloway argues that Stalin saw the immediate threat of the atomic bomb not

as military in nature, but as a threat of atomic diplomacy and “tried to counter this symbolic power by treating the bomb as unimportant.” (Holloway, *Stalin and the Bomb*, pp. 154-155). That is the reason why Stalin took an overly belligerent stand in diplomatic negotiations only to show that he was not intimidated by the American nuclear blackmail.

Or was this merely his ploy? At heart, he may have taken the military threat of the atomic bomb very seriously, or even been frightened by it, as Vladislav Zubok argues. (Vladislav Zubok, *A Failed Empire: The Soviet Union in the Cold War from Stalin to Gorbachev* (North Carolina University Press, 2007)). That explains why he eschewed any confrontations that could have lured the Soviet Union into direct military conflict with the United States in the Berlin Blockade and the Korean War.

Gordin may be right to say that we can never know what Stalin really thought about the atomic bomb. But one thing seems clear: he took the bomb seriously. Although Gordin seems to downplay Stalin’s role in building the atomic bomb, there is no doubt in my mind that Stalin was the ultimate initiator, instigator, and organizer of the Soviet atomic bomb. It was indeed Stalin’s bomb.

There is much to praise in Michael D. Gordin's well-researched and engaging "biography" of Joe-1, the August 1949 Soviet nuclear test that ended the short-lived U.S. monopoly. As agreement generally makes for an uninteresting roundtable, I am going to briefly outline what I see as some of the more important methodological contributions made by *Red Cloud at Dawn* and then move on to a more lengthy critique of the larger issues raised by Gordin's thought-provoking study.

Though the nuclear arms race and the origins of the Cold War have been extensively chronicled, Gordin brings two very useful analytical frameworks to these well-worn subjects. First, he joins a select group of historians who have taken a truly international approach. While most scholars would readily concede that both early nuclear history and the origins of the Cold War are inherently international topics, few have the linguistic facility (among other assets) necessary to conduct research in the relevant primary and secondary sources across national boundaries. Like Tsuyoshi Hasegawa's groundbreaking study of the end of World War II in the Pacific, *Racing the Enemy* (2005), Campbell Craig and Sergey Radchenko's recent work on *The Atomic Bomb and the Origins of the Cold War* (2008) and Andrew Rotter's synthetic *Hiroshima: The World's Bomb* (2008), Gordin's work situates nuclear weapons at the center of an overlapping series of international political, military, and scientific developments.

While *Red Cloud at Dawn* is not going to displace David Holloway's *Stalin and Bomb* (1994) as the standard work on the early Soviet nuclear program, Gordin's comparative approach and ability to read and research fluently in Russian, German, and English sources yields numerous dividends. I was struck, for example, by his treatment of the way in which scientists on the Soviet, American, and German nuclear projects wrestled (or not) with the morality of their endeavors. Exploring the "moral implications of being a Soviet atomic weaponeer," (p. 141) Gordin finds no evidence that the scientists involved in building Stalin's bomb expressed even private reservations over their actions. Though it might be tempting to attribute the lack of dissent to the uniquely repressive climate created by Stalinism, Gordin makes a convincing argument that in this case the similarities between the Soviet and American nuclear programs outweighed the differences. Prior to the defeat of the Nazi regime, few if any scientists attached to the Manhattan Project expressed any moral qualms about their work. Gordin concludes that the same combination of immersion in thorny technical problems and a belief that they were racing the clock against a dangerous foe worked to suppress moral concerns among the Soviet atomic scientists. The difference was that in the Soviet case, the threat was not simply an abstraction: "the American possessed not one atomic bomb, they possessed several; they not only had them, but they had used them against a nonnuclear adversary – *twice*." (p. 142, emphasis in original)

If the motivations of the scientists in the wartime Manhattan Project and the post-Hiroshima Soviet nuclear effort were strikingly similar, Gordin also highlights the numerous differences between the two programs. Many of those differences flowed from

fundamentally divergent approaches to the conduct of science, engineering, and intelligence gathering. The way in which figures on both the Soviet and the American side thought about these issues affected not only their own approach to building the bomb, but also their predictions about what the other side might do. Gordin's second major methodological contribution is to explore not only the knowledge necessary to build the bomb (whether indigenous or acquired from foreign sources), but also the more systematic impact of different ways of thinking and knowing with respect to nuclear weapons in the Soviet Union and the United States.

Gordin's focus on nuclear epistemology gives him useful leverage on long-standing and controversial questions (such as the importance of espionage to the Soviet project) while opening up some productive new lines of inquiry. On the American side, for example, Gordin explores the seldom-discussed decision by General Leslie R. Groves to approve the post-Hiroshima public release of a report by Manhattan Project physicist Henry DeWolf Smyth that revealed not only the basic science behind the bomb, but also many of the specific engineering challenges that confronted the American program. While lacking the detailed technical specifications necessary to actually build a bomb, Gordin concludes that Smyth report was "perhaps the most important single source of American information" for the Soviet nuclear program, one that "went a long way toward unpacking the black box of the Manhattan Project." (p. 99) Why did the notoriously security-conscious Groves approve releasing such a revealing report? The answer, Gordin suggests, is that Groves was "thinking like a bomb designer" by fixating on "the most technical, most advanced secrets" (which did not appear in the report) rather than on the vast but more mundane challenge of mastering the basic science and building the physical infrastructure necessary to pursue nuclear weapons. (p. 93) For a non-nuclear nation mobilizing to build the bomb, getting a sense of the overall problems to be solved and the scope of the effort necessary is just as important as the technical minutia of weapons design. Gordin concludes that the Smyth report significantly accelerated the Soviet program by serving as both "a general guide to the problems of building nuclear weapons" and "a textbook for the rapid training of Soviet nuclear weapons designers." (pp. 99, 101)

Though Gordin highlights the importance of "open source" foreign data (such as the Smyth report), he also delves into the role played by atomic espionage. Whereas Craig and Radchenko focused on the international and domestic policy implications of such espionage in their recent work on *The Atomic Bomb and the Origins of the Cold War*, Gordin is more concerned with the role that the purloined data had on the process of building a Soviet bomb. While not entirely dismissive of the importance of espionage (particularly the designs for a plutonium implosion weapon obtained from Klaus Fuchs), Gordin casts doubt on the notion that it accelerated the pace of the Soviet program. For both political and technical reasons, "every single piece of data obtained from the American project needed to be subjected to critical analysis, deconstruction, and wholesale reverification, which amounted in some cases to consciously reinventing the wheel." (p. 153) Moreover, even when the stolen data was clear and complete (which it often was not), there were subtle but important engineering complications posed by relying on foreign blueprints. Even "basic building materials – epoxies, washers, solder, -- were different in the Soviet Union and the United States, so the physical properties of the Soviet materials had to be

established precisely even in those few cases where the Soviets had access to full American details.” (p. 154-5) In his account of the road to Joe-1, Gordin provides a helpful reminder that building a bomb is as much about mastering and applying basic techniques in nuclear engineering as it is about exotic scientific secrets, whether home-grown or lifted from stolen microfilm.

Red Cloud at Dawn is a fine account of the way in which science, engineering, intelligence, and politics shaped both the Soviet effort to build nuclear weapons and the American perception of that program from 1945 through the end of the U.S. monopoly in August 1949. But what impact did the Soviet test, and nuclear weapons more broadly, have on the origins and evolution of the Cold War? Joe-1 is a very useful organizational device around which to base a comparison of the Soviet and American approaches to building and testing a bomb (as well the related issues of nuclear intelligence gathering). I am not convinced, however, that is a good point at which to get any significant leverage on the larger issues surrounding the nuclear arms race or the Cold War.

Gordin contends that Joe-1 “marked the beginning of an arms race that would ultimately lead to nuclear proliferation between the two superpowers.” (p. 13) While such proliferation is an historical fact, I do not share Gordin’s conviction that events in the year 1949 were “pivotal to the launching of the arms race.” (p. 22) As the author seems to concede at times, the key policymakers in Washington and Moscow had already committed to policies that led toward both the Cold War and the nuclear arms race long before the Soviets tested their first bomb. Certainly, as Gordin suggests, other paths were *possible* up to and even after Joe-1. But such alternatives were also highly unlikely by 1949. Indeed, with respect to the nuclear arms race the evidence is very strong that most of the key decisions on both sides had already been made by the time the fallout had settled over Hiroshima and Nagasaki.

On the U.S. side, the most important decisions were made in 1943-1944 when Franklin D. Roosevelt agreed with British Prime Minister Winston Churchill to keep the bomb project secret from the Soviets, their nominal wartime ally. Under Roosevelt, the United States engaged in what turned out to be a lopsided arms race against both Nazi Germany *and* the Soviet Union. Whether FDR had made up his mind to keep the bomb in the hands of the Western allies after the war or was open to surrendering the monopoly as part of a larger postwar settlement is ultimately irrelevant. Upon Roosevelt’s death in April 1945, Harry S. Truman inherited a policy that excluded the USSR from the nuclear partnership in both letter and in deed. As Gordin concedes, “The postwar exclusion of the Soviet Union from the atomic alliance followed as a matter of course” from the wartime policy set by Roosevelt and Churchill. (p. 32) Pulling back from the nuclear arms race would have required reversing that policy in favor of some form of international control involving the Soviets, preferably before the weapon was used in combat. Such a dramatic change would have required an almost unthinkable act of political courage on the part of the new president.

After the war, only the plan offered by outgoing Secretary of War Henry L. Stimson came close to challenging the U.S. commitment to maintaining a nuclear monopoly. But the

Stimson plan, while visionary in some respects, was vague, hastily formed, and easily rejected. As Gordin notes, neither the Acheson-Lilienthal draft plan for international control nor the modified Baruch plan presented to the United Nations in 1946 contemplated surrendering the American nuclear monopoly until some point in the indeterminate future. On the Soviet side, it seems quite clear that after Hiroshima, Stalin was irrevocably committed to getting his own bomb.¹ Realistically, the only post-Hiroshima options open to U.S. policy makers hoping to forestall an eventual Soviet bomb were either a massive preventive war (politically and militarily impractical, not to mention immoral and illegal) or to call the Soviets on their bluff and accept the Gromyko plan with its call for unilateral American nuclear disarmament (a perhaps more noble course that seems equally unlikely to have succeeded). Given these underlying dynamics, the Soviet test in August 1949 is more akin to a marker upon a well-trod path than a starting point for the nuclear arms race.

To put it somewhat more provocatively, would it have fundamentally altered the dynamics of either the Cold War or the nuclear arms race if the Soviet test had happened in, say, 1947 or 1953? An earlier or later test surely would have affected the timing of the various responses to Joe-1 that Gordin chronicles in this book (such as the decision to expand America's fission bomb arsenal and launch a crash program to build a hydrogen bomb). It is also possible that an earlier or later test might have interacted in unpredictable ways with other world events in such a way as to produce large scale changes in American or Soviet policy. Given the structural, ideological, and personal background, however, I am personally skeptical that the timing of the Soviet test made any difference in the overall development of either the Cold War or the arms race.

More fundamentally, I think Gordin misses an opportunity to extend his examination of the structures of knowledge surrounding nuclear weapons a little further to ask why the bomb did matter at all during this period of the Cold War. In his previous work, *Five Days in August: How World War II Became a Nuclear War* (2007), Gordin argued that a number of important figures on the American side did not consider the bomb to be a "special" or unique weapon prior to its use against Japan. "It was [the Japanese] surrender," he suggested, "that selected the Awe-Inspiring Bomb as the proper mode of thinking about these weapons. . . ." At the time of its publication, I found Gordin's argument in *Five Days in August* somewhat overdrawn.² But in raising the question of how (and why) American leaders came to see the bomb as a special and uniquely important weapon, he opened up a useful and productive discussion that has led me to question some of the assumptions in

¹ Craig and Radchenko suggest that Stalin was committed to the bomb at any cost by 1944 while David Holloway and Geoffrey Roberts posit Hiroshima as the crucial moment. Campbell Craig and Sergey Radchenko, *The Atomic Bomb and the Origins of the Cold War* (New Haven, 2008), 61; David Holloway, *Stalin and the Bomb* (New Haven, 1994), 133; Geoffrey Roberts, *Stalin's Wars: From World War II to Cold War, 1939-1953* (New Haven 2006), 292.

² Michael D. Gordin, *Five Days in August: How World War II Became a Nuclear War* (Princeton, 2007), 14. For a critique see Sean L. Malloy, *Atomic Tragedy: Henry L. Stimson and the Decision to Use the Bomb Against Japan* (Ithaca, 2008), 49-50, 199 (note 2).

my own work on the subject. It is somewhat curious, then, that in *Red Cloud at Dawn* it is taken for granted that the bomb was a very special weapon indeed.

Having dealt with the issue in *Five Days in August*, Gordin may have concluded that little more needed to be said on how and why the bomb came to achieve such a preeminent place in the Cold War. Or perhaps his treatment of the bomb in *Red Cloud at Dawn* simply reflects the views of the leaders about whom he writes. As Gordin notes in a passing account of the British decision to pursue their own bomb after the war:

Why was the United Kingdom proliferating? A good question, yet one difficult to answer because the decision to acquire an “independent nuclear deterrent” was taken for granted to such an extent that the active reasoning was rarely ever spelled out. (p. 44)

By the time of Joe-1, the significance of the bomb was so widely agreed upon that few contemporary figures felt the need to explain why, exactly, it was so important. And yet, as Gordin acknowledges at several junctures in *Red Cloud at Dawn*, for all its perceived importance there is no evidence that the bomb had any significant impact on the actual conduct of the Cold War during the period of the American monopoly.

As Gregg Herken chronicled some thirty years ago in *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-1950* (1980), the nuclear monopoly accrued no significant military or diplomatic benefits to the United States. Whatever we might conclude about American motives, in practice “atomic diplomacy” was inarguably a bust. Truman and Secretary of State James F. Byrnes quickly found that the U.S. monopoly on the bomb had apparently made the Soviet *more* intractable rather than less. More practically, there were simply too few American bombs during the monopoly period to offset the Soviet conventional military advantage. American nuclear war planning in 1945-1949 was in large part an exercise in creative fiction that ignored not only the limited U.S. stockpile, but also the difficulties in command and control created by the 1946 McMahon Act, which put civilians in control of the bomb rather than the military, and by Truman’s apparent reluctance to seriously consider the conditions under which he might be willing to authorize its use in combat. As for Stalin, while he was set on getting the bomb, he apparently did not let possession of it (or lack thereof) dictate Soviet Cold War foreign or military policy. “On the Soviet side,” Gordin concludes, “the success of First Lightning [the Soviet name for their nuclear test]. . . did not alter very much at all.” (p. 248)

If the nuclear monopoly failed to advance American military and diplomatic objectives and did not significantly affect the behavior of the Soviet Union, why did Joe-1 (and more broadly, nuclear weapons) matter at all? Few of the figures in *Red Cloud at Dawn* wrestle with this fundamental question. Gordin does highlight contemporary CIA and State Department Policy Planning Staff documents that cast doubt on whether the Soviet test marked a watershed in the Cold War. (pp. 237-8, 248) Yet even those policymakers who seemed to grasp that Joe-1 was both inevitable and had little effect on the underlying dynamics of the Cold War seemed shocked and shaken by the Soviet test. “This was

expected,” Gordin writes of the Soviet test, “but it was still a different world.” (p. 245) This seems to me an interesting paradox related to ways of thinking about nuclear weapons that could have benefited from a more systematic application of the tools that Gordin employs elsewhere in the book with respect ways of thinking about the bomb.

Clearly, the atomic bomb was a crucial element in the Cold War. The nuclear arms race either pre-dated the Cold War or was present at its creation, depending on how one figures the dates, and the bomb loomed over some of that conflict’s most dramatic and dangerous moments. But after reading *Red Cloud at Dawn*, I think there still remains work to be done in order to explain how and why Cold War leaders came to attach such importance to “special” weapons that had proved to have little practical military or diplomatic utility.

I was a little wary when I first picked up Michael Gordin's *Red Cloud at Dawn* and flipped through the pages: red flags were set off by the painfully familiar names and acronyms – Truman, Stalin, Baruch, Lilienthal, AEC, UNAEC, AFOAT, control, detection. As someone who had recently completed, with Campbell Craig, a book on a similar subject¹, and had read all too much and yet not enough to understand all the intricacies of atomic diplomacy of the late 1940s, I experienced a faint sense of fatigue (as in “do we need to hear the same story again?”), as well as intellectual excitement (“what if there is something new?”), and even some mild apprehension (“what did he find that *we missed*?”).

But a minute after I started reading I was carried away by Gordin's seamless narrative, for even though much of this story is fairly well known, the way he tells the story makes a world of a difference for the reader. The story unfolds like a novel: familiar characters present themselves from new angles; familiar arguments show a new layer of complexity; and even impossible technicalities of atomic development, detection and control, begin to fit together, like pieces of a puzzle. The book makes a very good impression against a crowded terrain. Importantly, this is a work of international history. Gordin commendably relies on Russian sources to complement his analysis on the US side; the result is a balanced account which goes further than your average book on the subject in explaining what the actors on both sides knew of the other, and how this knowledge, imperfect or perhaps even misleading, contributed to decision-making in Washington and Moscow in the early years of the Cold War.

Gordin follows the atomic story from Potsdam to the *couloirs* of the United Nations (where Bernard Baruch famously presented his plans for atomic control in 1946), to secret research laboratories in the USSR (giving a short but helpful overview of the Soviet atomic project), to Washington of 1949, when Truman's announcement of the first Soviet nuclear test shaped important policy choices, not least the expansion of the US nuclear arsenal, the development of the hydrogen bomb, and the enshrining of the principles of containment in NSC-68. Assuming most readers' familiarity with the broad outlines of this story, I will address several specific points.

Gordin offers a sober account of the U.S. failure to predict the first Soviet nuclear detonation, Joe-1. The problem was deeper than a simple intelligence failure, although the pathetic state of the American intelligence establishment in the early postwar years (under-financing, under-staffing, and constant reorganizations) goes a long way towards explaining the dreadful inadequacies of intelligence estimates. It must be remembered of course that the Soviet atomic project was exceedingly secretive, so even if the CIA or its predecessors had more resources, it is far from certain that they could offer better predictions. But the problem was that too often intelligence estimates taken completely off

¹ Campbell Craig & Sergey Radchenko, *The Atomic Bomb and the Origins of the Cold War* (New Haven: Yale UP, 2008).

the wall served as the basis of policy decisions on the logical premise that it was the job of the intelligence community to provide reliable estimates. In addition, once the fuzzy estimate of “5 to 20 years” entered the policy discourse, this unhelpful number acquired sacred properties, remaining constant through the years: 5 to 20 years in 1945 stayed the same in the run-up to Joe-1. Gordin’s analysis thus tells a great deal about how policy makers, as well as the public, fell victim to their own simplistic assumptions based on often repeated and so supposedly impregnable truths.

Gordin’s analysis of the Soviet atomic project skips most of the intricate detail already explored in the existing literature and opts out of taking sides, overtly, in the pointless argument about the relative merits of Soviet spies versus Soviet scientists in delivering the bomb. But he asserts, correctly, that the Soviet bomb was not developed in isolation from atomic efforts of other countries, with the Manhattan Project exercising the decisive influence in this respect. Interestingly, Gordin claims that open information freely obtainable from foreign sources was more important to the Soviets than the insights collected through espionage efforts. Although he is not explicit on this score, it seems that the author’s underlying argument is that General Leslie Groves did more damage to US national security than Klaus Fuchs because it was Groves who approved the release of the 1945 Smyth Report, the public account of the Manhattan Project, which proved to be nothing less than “crucial” (p. 99) for the Soviet bomb effort.²

This judgment is based on the recently declassified Russian documents published in the mammoth series *Atomnyi Proekt SSSR*, and on the memoir literature, although the author omits the most important piece of evidence in his favor: Igor Kurchatov’s assessment of the Smyth Report. When shown the book, Kurchatov announced that it “sheds light on a number of questions, which had not yet been solved by our scientists working on problem no. 1 and that in his opinion the book would be of great interest for people working on this problem.”³ In Gordin’s view, the book’s impact went far beyond the secret laboratories, as it circulated widely in the scientific community and so in effect served as a basic textbook for a growing number of Soviet nuclear physicists.

Yet, in my view, for all the useful information in the Smyth Report, intelligence was by far more important to the Soviet effort. Let us again turn to Kurchatov’s own assessments, specifically, his appraisal of the intelligence materials dated April 7, 1943 – two and a half years before the Smyth Report, just as the research phase of the Soviet A-bomb project was taking off. Kurchatov stated that the spy data had “enormous, priceless significance for our State and science.”⁴ Why? Because they showed that gaseous diffusion was the “only

² The value of the Smyth report of the Soviet atomic project has been recognized by many authors, but Gordin’s analysis is perhaps the most extensive and rich in detail.

³ L.D. Riabev (ed.), *Atomnyi proekt SSSR: dokumenty i materialy*, book 2, vol. 1 (Moscow & Sarov, 2002), p. 403.

⁴ L.D. Riabev (ed.), *Atomnyi proekt SSSR: dokumenty i materialy*, book 1, vol. 1 (Moscow & Sarov, 1998), p. 314.

rational way” of enriching uranium – this was “a surprise for our physicists and chemists.”⁵ By the same token, it is entirely clear that the idea of using a plutonium core for a bomb first occurred to Kurchatov when he read intelligence materials in the spring of 1943. Thus, he wrote in his assessment on March 22: “if eka-osmium [plutonium] really has the same qualities as uranium-235 it can be extracted from the “uranium pile” and utilized as the material for an eka-osmium [plutonium] bomb.”⁶ Kurchatov concluded that the prospects of this research were “unusually exciting.” Clearly, the “logical chain” (p. 149) leading to the Soviet Fat Man device began here. Some of this rather compelling evidence is not discussed in Gordin’s book, although he does, usefully, point the readers’ attention to the value of the intelligence materials on the implosion method of detonating a plutonium bomb (p. 150).

The author offers a very interesting account of the technologies and the policy process which paved way for Truman’s announcement (in September 1949) of the first Soviet nuclear test, and the fallout from this announcement. According to Gordin, “essentially everything was rethought” (p. 249). Still, he warns against reading history backwards, arguing that as seen from the perspective of 1949, the end of US atomic monopoly brought (at least to some) renewed hopes of international control. “Most scientists, government officials, and military officers had expected that the end of the atomic monopoly would bring changes, but no one had expected those changes to be so negative and to come so quickly. There was little to do but settle in to the cold war.” (p. 284). The author’s tendency to stress September 23, 1949 as a turning point in the Cold War (the day that America knew and the Soviets knew that America knew) has some persuasive power, although I think it is overly centered on Washington. After all, Moscow had had to live with the U.S. A-bomb since 1945 and, from the Soviet perspective, the key elements of the Cold War were in the play well before 1949, with an important exception – Stalin did not yet have the bomb.

Gordin’s analysis of the Soviet reaction to Truman’s September 23 announcement is very perceptive. He interprets the TASS claim that the Soviet Union knew the secret of atomic weapons since 1947 as Stalin’s early attempt to exercise deterrence vis-à-vis the U.S. If the Soviets obtained their first bomb in 1947, so the logic goes, by 1949 they must have a substantial amount of bombs – and that would presumably deter the U.S. from initiating a first strike. If this was really the logic behind the TASS statement, Stalin’s “atomic diplomacy” comes out in a new light. Or, to offer a very different explanation, the unusual claim may have been intended to address U.S. fears of a sudden Soviet move. If the USSR had the bomb since 1947 then August 29, 1949 was just another day, business as usual. Could this be Stalin’s attempt to signal atomic “responsibility” to the U.S.? We do not know yet, but, one way or another, the TASS statement certainly warrants attention afforded to it in the book.

⁵ Ibid.

⁶ Ibid., p. 327.

This important insight aside, I am less satisfied with Gordin's treatment of Stalin's attitude toward the A-bomb, evidenced in statements like "the success of First Lightning [Joe-1] did not alter very much at all" (p. 248), and a rather superficial account of Stalin's decisions in the lead-up to the Korean War (p. 282). It is interesting that the author downplays Stalin's appreciation of the power of the A-bomb – he presumably believed it to be just another weapon. In fact, Stalin said something to this effect a few times, but we should take the massive scale of the Soviet atomic project as a good indication that sometimes actions speak louder than words. Moreover, Stalin appreciated the significance of the A-bomb, especially as a status symbol of a great power. In this respect, his pursuit of atomic weaponry may be likened to Stalin's fascination with battleships (the Soviet program to build these relics of the interwar naval race resumed after 1945 in the face of evidence that battleships were not so useful after all). A great power had to have great battleships. A great power had to have an atomic bomb. The book does not go deep enough to discuss the bomb in the context of Stalin's overall postwar strategy. Of course, the evidence is thin and sparse, but there is enough circumstantial evidence to pull together a stronger argument than what Gordin attempts in *Red Cloud at Dawn*.

That said, I can only commend the author for his excellent scholarship, and congratulate him on a very interesting, engaging and vivid book on a tricky subject.

Princeton University's scholar Michael D. Gordin is known as a historian of Russian science, and for this reason I expected something like a sequel to *Stalin and the Bomb* by David Holloway. Instead, Gordin wrote an international history, focusing on the U.S. and the USSR, with the main protagonist of this history being the state of fear – produced by the American atomic monopoly, by expectation of its inevitable end, and by the uncertainty about what the world of nuclear proliferation would bring.

The book brings together successfully various strands of the history of signaling, information, and misinformation waged by the U.S. and Soviet leaders from the first American atomic test in Alamogordo to the first Soviet test in Semipalatinsk. The author concludes that American use of the atomic bombs twice against Japan left Stalin determined to end the American monopoly at any cost. So, did Hiroshima provoke the cold war? And can one also say that Hiroshima predetermined a colossal nuclear arms race between the U.S. and the USSR? Gordin does not answer these major questions directly. Yet, indirectly, the book answers “yes” to both questions: Hiroshima helped to provoke a cold war and an arms race not only because the Soviets got scared, but – more importantly – because Americans got frightened even more than the Soviets. Once the Americans used atomic weapons against others, they began to expect that others might be in a position to use the same weapons against them. And that was such a terrifying thought that they remained virtually paralyzed by it.

Gordin's book is a sequel to his earlier volume *Five Days in August* (2007), should be read together with Campbell Craig and Sergey Radchenko, *The Atomic Bomb and the Origins of the Cold War* (Yale University Press, 2008). All of these authors use the same methodologies and take advantage of the recently revealed phenomenal Soviet materials, especially the monumental “Atomic Project of the USSR: Documents and Materials,” (ed. L.D. Riabiev), published in Russia in 2000-2004. At the same time, Gordin contextualizes the impact of Soviet atomic espionage better than other authors. The book explores three factors that helped the Soviets to break the American atomic monopoly after four years: the spy-ring in North America that passed atomic secrets to the USSR; Hiroshima and Nagasaki that proved the atomic weapons worked; and the Smyth Report of August 1945 that Gordin considers perhaps the most important single source of American information that Moscow obtained. His analysis of the internal debates in the U.S. that made the Smyth Report possible is one of the best parts of the book. By publishing the report, the U.S. atomic authorities hoped to establish a clear line between the information that the public deserved to know, and the classified data. Nevertheless, the Smyth Report gave the organizers of the Soviet atomic project a comprehensive blueprint for action, and an indispensable textbook for training thousands of Soviet physicists and engineers for the Soviet atomic project. Gordin devotes a few pages to the Igor Gouzenko affair, but does not even mention the disastrous effect of Elizabeth Bentley's defection in early November 1945 that caused the freeze on the entire Soviet atomic network, as well as political intelligence in the United States. For more details: see “Vassilyev Notebooks” and John E. Haynes, Harvey Klehr, and

Alexander Vassiliev, *Spies. The Rise and Fall of the KGB in America* (New Haven: Yale University Press, 2009).

Diplomatic historians will appreciate Gordin's analysis of how the Truman Administration dealt with the nuclear uncertainty of 1946-49: the time when US atomic monopoly might turn into U.S. atomic vulnerability. The Administration found itself in a bind: one had to respond to a Soviet bomb by a massive counter-effort, but without provoking the public into a state of frenzy in which people would demand a pre-emptive strike against the Russians. The sense of American exceptionalism, strangely, assuaged the dilemma for four years. Americans, as Gordin writes, continued to kick the problem down the road, repeating the "five years' mantra" i.e. that it would take at least five years for the USSR to acquire its atomic weapon. Many Americans who had worked in the Soviet Union in the early 1930s contributed to the image of Soviet backwardness in the discussion on Soviet chances to build the bomb. These Americans could have advised the Truman Administration that the Stalinist system was capable of spectacular achievements, despite the general backwardness of the land. Yet, the American atomic establishment and above all Truman, however, did not want to hear this part of the story. The flip side of American exceptionalism was downplaying of Russian capacities to succeed in the atomic area.

At the same time, Americans allotted just enough resources to create a special service that enabled the U.S. to detect the Semipalatinsk test – an extraordinary technological achievement for that time. American pent-up fears got released after August 1949 – resulting in Truman's decision to create thermonuclear weapons, and in the new global military strategy of the cold war, known as NSC-68. These are familiar pages of cold war history, yet again Gordin's account freshen them up. It is fascinating how similar were American officials to Stalin and his men in their obsession about atomic secrecy. In 1945, the Truman Administration chose to keep the atomic secret not only from the Soviets, but from its democratic allies, Great Britain and Canada. And in August-September 1949, Gordin writes, the U.S. officials at first did not want to release the intelligence about the first Soviet test. Curiously, they feared a negative impact on American allies, already concerned by the devaluation of the British pound. Truman changed his mind and made his famous announcement about the Soviet test on September 23, almost a month after the event, only because he feared that the new Soviet foreign minister Andrei Vyshinsky would do it later on the same day in his speech at the United Nations. The fear of being pre-empted by Soviet propaganda trumped all other factors and considerations. Gordin's analysis here is truly enlightening and excellent.

Gordin is less successful in shedding a new light on Stalin's side of the mutual atomic game. Of course, we know that Stalin's strategy between July 1945 and August 1949 was nuclear bluff. Still, this bluff created different kinds of pressures and commitments for the Soviet leaders. I wish Gordin gave more thought to this. For instance, Molotov, with Stalin's consent, announced on November 6, 1947 that the Soviet Union had mastered nuclear secrets. From Molotov's interviews with Felix Chuev we know (Gordin does not mention it), that Stalin was delighted by Molotov's announcement. I also saw in the Moscow archives how Stalin edited a preface to the Soviet translation of an article from *Look* by D. Hogerton and E. Raymond, two American engineers, who wrote with confidence that the Russians

would not have the bomb until 1954. Stalin approved the conclusion ending with defiant words: "Let the venal press read on tea-leaves in what year will Russia have the atomic bomb! We shall see!" The translation was published in 1948. We now know that Beria promised to test the first bomb in 1948, more than a year earlier than the bomb was actually tested. Why did Stalin authorize its publication? Does this mean that the Soviet leader became a hostage of his own campaign of bluff? Or that he wanted to use this publication for mobilization of the army of scientists and engineers that worked on the atomic project?

We still do not know the answers to these questions. We do not even know with certainty when the American atomic monopoly was no more for millions of Soviet citizens and communist allies of the USSR. Was it on August 23, 1949? But on September 25 TASS categorically denied that the USSR had just tested the bomb. Apparently, this was done to avoid an American pre-emptive strike and gain time to build more bombs. It might have also betrayed a moment of Stalin's dismay, as he did not count on the Americans learning about the test. Officially, the Soviets publicly acknowledged a successful atomic test only in 1951. Does this mean that for those millions of people the American atomic monopoly was broken only in 1951? Or was it in November 1947, when Molotov made his bluffing speech? Gordin omitted a curious, if unconfirmed episode: in July 1949, before the Semipalatinsk test, the Chinese communist delegation came to Moscow and allegedly watched there a film about a successful Soviet atomic test. Confusingly, in the available records of the Stalin's talks with Mao Zedong in Moscow in January 1950 atomic weapons were not mentioned. Yet, as scholars admit, the end of American monopoly played a role in Stalin's decision to approve of Kim Il Sung's plan to reunify Korea by force. Clearly, we have not yet reached the point of certainty on the role of the atomic factor, especially perceptions of the atomic factor, on this crucial turning point in the cold war.

The book is intended for a broader audience, but its inner complexity may also appeal to graduate students, studying intelligence and policy-making. Gordin recapitulates well the parallel developments in the U.S. and Soviet atomic programs, the Soviet initial intelligence advantage in penetration of the Manhattan Project, and American technological response in creating an efficient technology of air-sampling and radioactivity detection. At the end of the book Gordon lists consequences of the end of American atomic monopoly, among them: the escalation of American fears, the militarization of containment, Stalin's decision to authorize the Korean war, and above all nuclear proliferation and the end of all prospects for atomic disarmament and even arms control. Here Gordin, in my opinion, ascribes too much meaning to the differences between the Soviet and American "intelligence cultures," the American being more technological and the Soviet relying more on human agents, particularly illuminating or grounded in facts. The author himself admits that the Soviets gradually learned to rely on technological intelligence. And, as we know, Soviet access to the Manhattan project was a historical fluke that ended in 1945. There was nothing analogous in subsequent KGB and GRU operations in North America. At the same time, from the 1950s on the Americans and the British learned to recruit agents inside the Soviet Union.

Why would anyone write a history of the Soviet atomic bomb? The question seems especially pointed given that since David Holloway's magisterial *Stalin and the Bomb* (1994) has for over fifteen years continually proven itself as accurate and insightful through the deluge of archival revelations and memoir publications that seem a staple of post-Soviet Russian writing on the topic. Perhaps more to the point, as Vladislav Zubok notes, what is a historian of Russian *science* doing writing an international history of the first Soviet nuclear test of 29 August 1949, dubbed First Lightning (*Pervaia molniia*) by the Soviets and Joe-1 by the Americans? One might think, with good reason, that this surely should be something better left to military and diplomatic historians. I would like to begin my response to these four astute, thoughtful, and engaged reviews by hazarding an answer: Certain interpretive methods developed over the past few decades by historians of science can contribute to the lively conversation among diplomatic and military historians about the dawn of the nuclear age. *Red Cloud at Dawn* is an effort at joining this conversation, and in the discussion that follows I continue this dialogue, since the reviewers have elicited (certainly for me) some potentially exciting avenues for future research.

Nuclear weapons are, on one level, scientific and technical objects, deriving their explosive power from the behavior of heavy nuclei under particular conditions, and this aspect of these devices has been told well by historians of science (albeit sometimes with a higher level of technical detail than suits many readers).¹ There are some places in *Red Cloud at Dawn* where this kind of focused attention to the science is the centerpiece (such as the chapter on the mechanism for the remote detection of Soviet nuclear blasts). But one does not live by science alone. Historians of science over the last thirty years have become increasingly interested in relating the interconnections between technical stories and broader contexts, embedding scientists and the work they do in a matrix of culture.² These approaches have become more subtle over time, and we now happily have a set of tools which facilitate the exploration of these dense interconnections, usually through attention to flows of communication and patterns of replication of scientific findings.³ Historians of science have thus largely shifted from chronicling the establishment of landmarks of scientific thought to becoming very sensitive to the *instability* of knowledge and highly aware of how much *work* it takes to make knowledge travel.

¹ For the technical history of the Manhattan Project, see Lillian Hoddeson, Paul W. Henriksen, Roger A. Meade, and Catherine Westfall, *Critical Assembly: A Technical History of Los Alamos during the Oppenheimer Years, 1943-1945* (Cambridge: Cambridge University Press, 1993).

² The landmark effort in this direction was Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985).

³ The primary contribution here came from British sociology of science, in particular Harry Collins, *Changing Order: Replication and Induction in Scientific Practice* (London: Sage, 1985).

It is only rarely that these techniques have been applied to the history of nuclear weapons, yet these after all represent a case of attempting (and succeeding) the replication of a scientific and technological result.⁴ I wrote *Red Cloud at Dawn* in part to query how the history of the first years of nuclear weapons would look different if — rather than focusing on Oppenheimer and Stalin and Truman and Lilienthal, or on the Berlin Airlift and HUAC and the election of 1948 (I share some of Sergey Radchenko's fatigue with these) — we turned our attention to the paths of knowledge instead. So I went about looking at how people knew what they knew, when they knew it, and how historical actors asserted and defended their claims to knowledge about nuclear weapons: how were they made?, who was making them?, how did one know the answers to any of these questions?

This is the method that underlies the book. I lay it out to situate the project among the very informed criticisms made by the four reviewers. There are places where I think my approach has proven moderately successful at illuminating the interconnections between different aspects of the complicated story of the first five years of the Atomic Age; and there are other places where I think the method has imposed limitations on my analysis, and the reviewers rightly point those out. Instead of attempting to rebut the reviewers point by point — which would be both tedious for the reader and unproductive for the general conversation — I have chosen to focus on their points of commonality, which I group into three categories: sources, counterfactuals, and Stalin.

First, to the issue of sources, and how to read them. This draws most directly from the techniques of the history of science. All historians, naturally, pay a great deal of attention to what their sources say. Yet historians of science, in part because of their attention to the instability of knowledge, tend to focus more explicitly on how those sources were made, how they were communicated by author(s) to reader(s), and the flexibility of their interpretations. This is largely a virtue born of necessity: scientific communication is often quite dry, and locating the points of interaction with broader historical themes requires devoting a lot of attention to what was deliberately *excluded* from the communications, as well as what was included. The case in point from *Red Cloud at Dawn* is my treatment of the Smyth Report, the official history of the Manhattan Project compiled by Princeton physicist Henry DeWolf Smyth and released on 12 August 1945 (that is, before the war was even over). All of the reviewers pointed quite flatteringly to this particular aspect of my argument. The Smyth Report is rarely read these days as more than a historical curiosity, but in 1945 it represented one of only two ways in which officially cleared information from the core of the Manhattan Project — highly censored, redacted, and massaged information — reached those without very high levels of security clearance.⁵ This meant

⁴ My inspiration has been one of the rare attempts at this: Donald MacKenzie and Graham Spinardi, "Tacit Knowledge, Nuclear Weapons Design, and the Uninvention of Nuclear Weapons," *American Journal of Sociology* 101 (1995): 44-99.

⁵ The other route was the journalism of William Leonard Laurence, the official press writer for the Manhattan Project, who later won a Pulitzer Prize for his coverage, including a flight on the mission to bomb Nagasaki. I chronicled the peculiarities of Laurence's vision of the atomic bomb in *Five Days in August: How World War II Became a Nuclear War* (Princeton: Princeton University Press, 2007), chapter 6.

not only the general American public, but also American politicians and diplomats, international readers, and (as I describe) almost all levels of the Soviet atomic project.

There are two points worth stressing with respect to the Smyth Report: writing and reading. The Report was carefully written out of both a spirit of public service and public relations, and it was written to comply with very strict security protocols. The author (Smyth) and his editors (principally Leslie Groves, but also the various directors of segments of the Manhattan Project) wanted to reveal only what was least important, thus maintaining a security fence around what they believed were the crucial secrets necessary to build a bomb. Most of the Report's readers did not know this, and to them the document was a transparent giveaway of atomic information, almost shockingly so. The authorship point directs our focus to how these important documents were consciously *built* — with a lot of labor and for a specific purpose — and suggests that the intentions of the authors show us a great deal of how individuals at various levels of the project imagined the shape and importance of the bomb. I deploy this strategy at multiple points in the book with various crucial documents: e.g., the report to persuade President Truman affirming that a nuclear blast was detected in the Soviet Union. Here, to address one of Sean Malloy's comments, is the connection with *Five Days in August*: this story continues the argument proposed there, where the very "uniqueness" of the atomic bomb itself was a narrative built to serve particular ends. That work was largely concluded by the time *Red Cloud at Dawn* begins, and so I did not stress it here, which might have been an oversight on my part. (To reiterate a point made in that earlier book: just because a claim has to be "constructed" and argued for does not mean it isn't, in some very real sense, true. The bomb could both be unique and simultaneously needed to have that uniqueness argued for. Albert Einstein's General Theory of Relativity provides a case in point: true, but still presented in a particular way.)⁶

The point about readership is harder to get at, but even more important. It is one thing to point to how documents were written; it is quite another to figure out how they were used. At times, as with the Smyth Report, documents were used to subvert the original goals of the authors: the Soviets managed to reverse engineer the process of exclusion in the construction of the text, and thus read between the lines to figure out what was missing, as well as using it as a primer in nuclear physics. The greatest challenge here is of documentation — most readers don't leave nearly enough traces for us to map this out, and the fences of classification and Stalinist secrecy make this even harder.

It is at the level of how documents were *read* that Sergey Radchenko and I differ about the importance of espionage information (what I call "spy data," to show a symmetry with scientific data) in the Soviet project. In the book, I argue strongly that the German specialists brought over to the Soviet Union to work on atomic weapons were substantially less significant than popular imagination holds (or held), and here Radchenko and I agree.

⁶ Alistair Sponsel, "Constructing a 'Revolution in Science': The Campaign to Promote a Favourable Reception for the 1919 Solar Eclipse Experiments," *British Journal for the History of Science* 35 (2002): 439-467.

Where we disagree — although less than it seems on the surface — is on the relative weight of “open source” information (like the Smyth Report) and spy data (like Klaus Fuchs’s transmitted documents through the elaborate ENORMOZ spy network) for the Soviet development of their first nuclear bomb. I stress the open source information for two reasons: it is usually neglected in accounts of the Soviet project, being substantially less sexy than the cloak-and-dagger world of spycraft; and many documents from within the Soviet project repeatedly emphasize how important this open information was. The question is not which was quantitatively more helpful to the Soviets (or, conversely, damaging to the Americans), but what their qualitative impacts on Soviet choices were. I did not mean to say that the spy data was insignificant, or anything less than crucial — Radchenko is surely correct in his assessment of their importance, and cites several documents that I regret to have omitted from *Red Cloud at Dawn*. My point was partially corrective, but more significantly to highlight how these documents were read. Aside from Igor Kurchatov, Iulii Khariton, and a tiny handful of others, *nobody read the spy data*. They were too classified for a wide distribution, so their circulation was tiny, certainly when compared with open source data. And because of the suspect provenance of much of the espionage data, all of it was double- and triple-checked to assure its reliability. We should not imagine that the secret American documents arrived at Arzamas-16 and were trivially turned into sources for the Soviet project. They had to be made into useful sources, at the expense of a great deal of labor and anxiety. So I agree with Radchenko that these documents were crucial, especially after they were transformed into Soviet documents and their American provenance sanitized, and I perhaps understated their significance; but I did so in order to emphasize how problematic these documents were as documents, and to highlight the practices of the Soviet bomb designers in getting around those difficulties.

I turn now to counterfactuals, and the points raised by Sean Malloy and Tsuyoshi Hasegawa, focusing for the moment on the American side of the book. (Radchenko notes that my choice to pivot the narrative around 1949 is very Washington-centric, and he is absolutely correct. The “internationalness” of this international history breaks down to about two-thirds American, one-third Soviet.) Both of these reviewers raise serious and thought-provoking issues concerning how we should think about the place of the atomic bomb in the Cold War. It seems the three of us do not disagree about what happened when, but we do substantially differ about how to interpret the arc of the early Cold War. And, interestingly, both of them couch their objections in terms of counterfactuals. This is not that surprising, given how much of the historiography of the end of World War II and the postwar period is written through counterfactual questions, beginning from the well-worn series of counterfactuals about the atomic bombing that Hasegawa ably discusses at the end of his *Racing the Enemy* (2005). I must admit that I am uncomfortable with thinking through historical events using counterfactuals, largely because we have no way of knowing what would happen if events had turned out otherwise: no documents are extant from these nonexistent pasts. At the same time, any claim about causation (“Baruch destroyed the chance for atomic arms control”) implies a counterfactual (“If it hadn’t been for Baruch, atomic arms control would have succeeded”), and history is in the business of explaining causes. Nonetheless, I have tried in both books about the atomic bomb to steer clear of counterfactual reasoning, although I haven’t been able to avoid it entirely, given how hard-wired it is into our collective unconscious as historians.

This might seem a strange statement coming from the author of a book that begins and ends with the sentence: “It was not supposed to happen this way.” Hasegawa rightly asks: Then how was it supposed to happen? I did not mean to say that there should have been another past, that different choices would necessarily have led to different, perhaps better outcomes: perhaps there wouldn’t have been an arms race; perhaps Stalin wouldn’t have developed his bomb; perhaps the Cold War wouldn’t have happened. I can’t even begin to imagine how to go about answering those questions as a historian. That opening sentence implies a sort of counterfactual, but not in the conventional sense. Most historical counterfactuals are imposed by historians onto the past in order to help think through the choices that the actors made, often with very productive results. Instead, I mean that at each point in the story, the historical actors made decisions by imagining a series of possible outcomes of their actions. The counterfactual opening refers to Truman’s imagined futures, most of which did not come to be. A less problematic way of thinking about counterfactuals, at least for me, is to consider them as the futures that the historical actors actually thought were feasible, and then explore why those did not come to pass. Repeatedly throughout the book, I focus on events that surprised those individuals, that forced them to reevaluate their expected futures in light of present events: for example, Stalin did expect to develop his bomb, but he did not expect the Americans to detect it, and then announce it, so soon. At these moments of rupture and confusion the actors are clearest about how they are rethinking their assumptions and planning for a new future conditioned by the present. I spend a chapter on American forecasts for how long it would take the Soviets to develop their atomic bomb because in that case the articulations of what the future looked like to people in the past were clearest. So when Hasegawa asks whether there might have been successful arms control, I must respectfully demur. Instead, I note that Baruch, Lilienthal, and many other American policymakers really and truly believed that it was possible. Whether Stalin did... that will be a point addressed a little later.

Malloy and Hasegawa both press me on whether atomic weapons were necessarily central to the evolution of the Cold War. Both rightly point out that certain patterns of secrecy vis-à-vis the Soviets, among other crucial proto-Cold War moves, were already well in place during World War II. I agree completely. Malloy pushes this point to question whether Joe-1 actually gives us much purchase on how the Cold War came about. Posing his own counterfactual, he asks whether the history would have been different if the test had actually happened in 1947 (when Viacheslav Molotov first claimed the Soviets had nuclear weapons) or in 1953 (the year of Stalin’s death)? I don’t want to duck the question. My response both to Malloy and to Hasegawa’s third major criticism is that I do not maintain that atomic weapons “caused” the Cold War in any straightforward way. Rather, there were two related but independent processes underway in the United States government: thinking about nuclear weapons; and thinking about the Soviet Union. Both of these processes started in World War II (thinking about the Soviets started, of course, much earlier),⁷ and the two streams continued to evolve and interact with each other over the

⁷ David C. Engerman, *Modernization from the Other Shore: American Intellectuals and the Romance of Russian Development* (Cambridge, MA: Harvard University Press, 2003).

following years. I believe that the end of the American monopoly in 1949 *fused* those two strands irreversibly. Perhaps this would have happened whenever the Soviet test had occurred, whether 1947 or 1953, but the particular historical shape of the American side of the Cold War, especially the specific characteristics related to nuclear weapons, took the forms it did in the context of the specific moment of 1949. When Hasegawa doubts whether atomic weapons were central to the Cold War, I do not necessarily disagree; but surely the thinking and discourse about weapons, as well as the institutional regimes that had been erected around them since the Manhattan Project (compartmentalization, secrecy), came to color the kind of Cold War we eventually got. And that was true at all the stages of atomic war planning, both before and after Joe-1, but differently so before and after. (I do address the Broiler war plans, to respond to Hasegawa, on p. 260, in the context of analyzing some of these transformations.)

This brings me to Malloy's provocative and deep question: "If the nuclear monopoly failed to advance American military and diplomatic objectives and did not significantly affect the behavior of the Soviet Union, why did Joe-1 (and more broadly, nuclear weapons) matter at all?" Good question. Echoing my earlier point about documents: texts do not write themselves and do not interpret themselves; but the processes by which they are written and then interpreted take place with very specific historical coloring, depending on the context of both writer and reader. Nuclear weapons also don't build themselves, and they don't carry meaning embedded in their plutonium (the argument of *Five Days in August*), but they are put together within specific national and international contexts, and their meanings — does Joe-1 mean arms control is more or less likely? — are open to a broad range of interpretation (but not infinitely so). The Americans did not take "full advantage" of their atomic monopoly, that much is clear from the historical record as we read it now. But it was not necessarily obvious to Truman and his advisors what it would mean to take advantage of it: how exactly should one go about flexing atomic muscle? And how would you know whether it worked? These were actual questions the historical actors posed. We need more research to fully flesh out the different takes of various individuals to these burning issues. This is what I tried to do in this book by paying close attention to the varieties of engagement with particular issues. Acheson, Lilienthal, and Oppenheimer each had different levels of investment in the Acheson-Lilienthal Report, and Bernard Baruch, Anatoly Gromyko, and Clement Attlee all read that text differently. Within the Soviet atomic project, different individuals had distinct understandings of the reliability or importance of different pieces of evidence. Staying sensitive to the extremely local context of individual interactions seems to me necessary to get beyond broad-brush revisionist vs. traditional castings of the origins of the nuclear arms race.

Finally, it is time for Stalin. As mentioned earlier, the international dimensions of the book are decidedly uneven. At least two thirds of the book are devoted to American events because the United States, being the atomic monopolist, played a very large part in the decisions and actions of all the other players, not least the Soviet Union. While the Soviets take up the bulk of the remainder, some attention is also devoted to postwar Britain and the German zone. It is hard to delineate these boundaries precisely because of the method outlined earlier: look for the things that move — scientists, uranium ore, documents (open source and espionage) — and track how those communications and miscommunications

took place. This method, however, definitely imposes its own set of limitations, and Radchenko and Zubok call me on them.

The biggest omission from the book is a discussion of nuclear weapons in the Soviet Union *after* the test of the first device on 29 August 1949 at Semipalatinsk-21 in Kazakhstan. Here again I was following the method — the information about the test — which traveled widely in the United States and much less widely in the Soviet Union. The German nuclear scientists working for the Soviets learned about the test from overhearing a report of Truman's announcement on BBC radio, and many Russian histories persist in dating the test to 23 September 1949, the date of Truman's announcement, rather than 29 August, an error that demonstrates that the information for thinking about Joe-1 was heavily Western. More research needs to be done on Soviet reactions to the TASS announcement to resolve Zubok's intriguing question about precisely when Soviet citizens came to believe the monopoly was over. Preliminary evidence indicates that for some it was 1947, but for others it came with the TASS announcement, but these tentative answers are far from definitive. (I would note that while I take a lot of time to break down the rhetoric of Truman's announcement, my treatment of the TASS response is briefer. Radchenko's proposed nuanced reading is brilliant; I only wish I had thought of it.) In any event, I followed the documents about the blast, which peter out rapidly on the Soviet side.

As a result, I did not probe deeply into Stalin's own reasoning on nuclear weapons, which is surely the elephant in the room. Did they change his views on military strategy? On geopolitics? And if they did, were those changed views then reflected in modified policy? I confess that I do not know the answers to these questions, and they are to my mind still wide-open research questions for us. Radchenko's proposed parallel to battleships is enormously suggestive, for example. The connections between the Soviet test and the North Korean invasion of South Korea, as well as to the Chinese nuclear project, are likewise tantalizing, but the evidence is far too sparse, too contradictory, and too removed from my primary emphasis about flows of information between the two superpowers to address in this book. It remains one of the crucial open questions of early nuclear history, and I hope someone is on this trail as we speak. On a related theme about Stalin's views, Zubok provides the useful illustration of the Russian translation of Hogerton and Raymond's *Look* piece that predicted a very long timeframe for the Soviet bomb, released in the Soviet Union shortly before the Soviets actually performed their first test. Stalin's marginalia on the typescript are amazing, and I sadly became aware of this fascinating document when the book was already in production. Why did Stalin authorize such a document to be published? Was he trying to motivate his scientists? Downplay the bomb? Again, it is notoriously difficult to get into Stalin's head on any issues, and these issues of foreign policy and geopolitics might be hardest of all. Zubok and Radchenko justifiably would have liked more on these features, and I agree it mars the symmetry of the book. This was a consequence of the method, and I should have realized that it would generate its own set of blind spots, along with points of insight. The dialectic relationship between concealment and revelation, after all, is one of the main themes of the book.

I would like to conclude by thanking the reviewers for putting so much thought into their responses, and to apologize for not fully answering their very apt critiques here, and also to

H-Diplo, for providing me with the opportunity to have such a fruitful engagement. I trust that historians of science will still be allowed to graze in the pastures of international, diplomatic, and military history in the future.

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