Book Forum

The Disintegration of the USSR and the Fate of the Soviet Nuclear Arsenal

Assessing Ukraine's Relinquishment of Nuclear Weapons Left on Its Territory

- **Commentaries by Steven Pifer, Polina Sinovets, and Robin E. Möser**
- **Reply by Mariana Budjeryn**

Mariana Budjeryn, *Inheriting the Bomb: The Collapse of the USSR and the Nuclear Disarmament of Ukraine*. Baltimore: Johns Hopkins University Press, 2022. 328 pp. $34.95.

Editor's Introduction: Mariana Budjeryn's book *Inheriting the Bomb* provides an in-depth analysis of the domestic and international political context of the decision by Ukraine in the first half of the 1990s to relinquish the Soviet nuclear forces that were left on its territory after the breakup of the USSR in late 1991. That decision came only after a good deal of debate within Ukraine and extensive bargaining with foreign powers, but in many respects it was less controversial at the time than it became in later years, especially after Russia's military incursions into Ukraine in 2014 and the full-scale Russian invasion that began in February 2022. Budjeryn's book not only contains rich historical detail based on a wide array of primary sources but also broaches questions that are of great relevance in judging Russia's prolonged war against Ukraine and possible ways of ending it permanently (especially the importance of meaningful security guarantees for Ukraine, unlike the "assurances" in the Budapest Memorandum of 1994). We asked three leading experts to write appraisals of the book. This book forum includes their commentaries along with a reply by Budjeryn.

Commentary by Steven Pifer

In 1991, the Soviet Union, torn apart by a host of internal contradictions, collapsed, leaving behind some 30,000 Soviet nuclear warheads — the world's largest arsenal — scattered across several newly independent states. This

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circumstance posed one of the biggest challenges the nuclear non-proliferation regime has faced: how to avoid an increase in the number of nuclear powers. From 1991 through 1994, the U.S. government attached extremely high priority to ensuring that the demise of the Soviet Union did not produce a net increase in the number of nuclear weapons states.

In *Inheriting the Bomb: The Collapse of the USSR and the Nuclear Disarmament of Ukraine,* Mariana Budjeryn does a superb job documenting how the denuclearization process proceeded in Ukraine, including by drawing on archival materials and interviews with key players. I read the book with great interest, having taken part in the negotiations in 1993–1994 to denuclearize Ukraine as a U.S. diplomat and later, as a scholar at the Brookings Institution, writing my own account of Ukraine's denuclearization (*The Trilateral Process: The United States, Ukraine, Russia and Nuclear Weapons*). Budjeryn offers a more comprehensive narrative, rich in detail regarding the considerations and debates that took place in Kyiv.

On paper, there was ample reason to believe that Ukraine intended to be a nuclear-weapons-free state. In July 1990, the Ukrainian Soviet Socialist Republic's Verkhovna Rada (parliament) adopted a Declaration on State Sovereignty by a near-unanimous vote. Section IX of that declaration committed the Ukrainian Soviet Socialist Republic to non-nuclear status, though, as Budjeryn notes, that decision was made with little in the way of serious discussion. In October 1991, with the collapse of the Soviet Union an increasingly looming prospect, the Verkhovna Rada reaffirmed its position on Ukraine's non-nuclear status.

The more than 4,500 nuclear weapons on Ukrainian territory at the end of 1991 amounted to the world's third-largest arsenal. By May 1992, the non-strategic (tactical) nuclear weapons had been removed to Russia in a process not fully coordinated with Ukrainian authorities. That left some 1,900 strategic nuclear warheads, 176 SS-19 and SS-24 intercontinental ballistic missiles (ICBMs), 44 strategic bombers, and hundreds of air-launched cruise missiles. After the experience with non-strategic nuclear weapons, Kyiv made clear that it would have a say in the disposition of both the strategic warheads and their delivery systems.

From the perspective of U.S. diplomats, inducing Ukraine to get rid of those weapons required answering four questions to the satisfaction of Ukrainian officials. First, nuclear weapons conferred certain security benefits; what guarantees or assurances might there be for Ukraine after the nuclear weapons were gone?

Second, the strategic nuclear warheads had commercial value. They contained highly enriched uranium, which could be blended down into

low-enriched uranium and made into fuel rods for nuclear reactors. What arrangements would ensure that Ukraine realized this value?

Third, the elimination of the ICBMs, ICBM silos, strategic bombers, and other nuclear weapons infrastructure would be expensive. Given the uncertainties facing the Ukrainian economy, how would those costs be covered?

Fourth, where — in Ukraine or somewhere else — and under what conditions would the nuclear warheads and their delivery systems be eliminated?

Finding the answers to these questions was no easy task. From 1992 until September 1993, negotiations took place primarily in bilateral Ukrainian–Russian channels, with U.S. officials in contact with both sides about how the United States might assist (e.g., by joining in the provision of security assurances to Ukraine). However, after a summit meeting between Presidents Leonid Kravchuk and Boris Yeltsin in early September 1993 failed to resolve the fate of the nuclear weapons in Ukraine, the U.S. government concluded that it needed to engage more directly in what became a trilateral Ukrainian-Russian-U.S. negotiation.

In January 1994, the trilateral negotiation produced the Trilateral Statement, which laid out the answers to the four questions. It set the terms for Ukraine to transfer the strategic nuclear warheads to Russia for elimination and U.S. and Russian commitments to facilitate the process. Ukraine would receive compensation from Russia for the value of the highly enriched uranium in the form of fuel rods containing an equivalent amount of low-enriched uranium (less the conversion costs). The United States would provide funding through the Cooperative Threat Reduction Program for the elimination of the ICBMs, ICBM silos, and strategic bombers in Ukraine. Finally, the Trilateral Statement contained the security assurances that Ukraine would receive from Russia, the United Kingdom, and the United States once it had acceded to the Non-Proliferation Treaty (NPT) as a non-nuclear state.

In December 1994 at a summit of the Organization for Security and Cooperation in Europe (OSCE) in Budapest, Ukraine transmitted its instrument of accession to the NPT, and the leaders of Russia, Ukraine, the United Kingdom, and the United States signed the Budapest Memorandum of Security Assurances for Ukraine. By June 1996, the last strategic warheads had left Ukraine and arrived in Russia for elimination. Under the terms of the 1991 U.S.–Soviet Strategic Arms Reduction Treaty (START I) and the 1992 Lisbon Protocol, under which Russia, Belarus, Kazakhstan, and Ukraine undertook to carry out the Soviet Union's START I commitments, Belarus, Kazakhstan, and Ukraine eliminated the strategic delivery systems on their territory by December 2001.

Budjeryn documents how attitudes among Ukrainians regarding their nuclear inheritance evolved over the three years from the end of the Soviet Union through the signing at the Budapest summit. In 1992, while not renouncing Ukraine's commitment to become a state free of nuclear weapons, Verkhovna Rada deputies spoke about Ukraine's "ownership" of the nuclear arms on its territory, and the Foreign Ministry claimed that Ukraine had the "right of ownership" of all parts of those nuclear weapons. The Verkhovna Rada further suggested that Ukraine would have, for some time, status as a "temporary nuclear power." However, as Budjeryn explains, the existing international normative space made no allowance for that ownership claim or status.

The Ukrainian position was anathema to Russian officials. They took the view that, as far as the NPT was concerned, there were only two categories of states: nuclear weapons states, which in the NPT context meant China, France, Russia, the United Kingdom, and the United States, and non-nuclear weapons states. That left no room for Ukrainian ownership of the weapons or status as a temporary nuclear power.

U.S. officials tried to sidestep the ownership question, finding that it led to sterile and unproductive debate between Ukrainian and Russian officials. However, they did make clear the U.S. view that Ukraine had a right to the commercial value of the highly enriched uranium in the warheads. The U.S. position on warheads differed from that on the ICBMs and strategic bombers. U.S. officials treated the delivery systems as if they were Ukrainian, negotiated directly with Kyiv on steps for their elimination, and voiced no objection when the Ukrainian government decided to transfer some SS-19 ICBMs and Blackjack strategic bombers to Russia in return for debt relief.

Closely related to the question of ownership were the questions of command and control and of custody of the nuclear arms in Ukraine. Budjeryn delves into these questions, though her assessments differ from those held by U.S. officials in the early 1990s.

Budjeryn writes that operational command and control for an order to launch the ICBMs in Ukraine lay in Russia and that, although the Ukrainian president would have access to a special hotline for consulting about a decision to use nuclear weapons, that would not include any link to the system for authorizing a launch. She further writes that President Kravchuk asked Ukrainian specialists to develop a technical mechanism — a "blocking button" — to allow him to veto a launch order, but that proved infeasible. Kravchuk thus had nothing more than a "procedural veto," but that rested "entirely on the loyalty of the 43rd Missile Army commander General [Volodymyr] Mikhtyuk and his willingness to consult Kravchuk after receiving launch orders from Moscow."

In conversations with U.S. diplomats, Ukrainian officials described the command-and-control arrangements in different terms. They said that, in addition to a launch order from Russian Strategic Rocket Forces, Kravchuk had to give an affirmative launch order. They seemed confident that, absent such an order from the Ukrainian president, ICBMs based in Ukraine would not be launched.

A related difference deals with the physical custody of spare ICBM warheads and warheads that had been removed from air-launched cruise missiles to be carried by Ukrainian-based strategic bombers, as well as warheads held in storage as opposed to mounted on ICBMs in missile silos. Budjeryn suggests that the Twelfth Main Directorate of the Ministry of Defense (GUMO), the directorate in Russia's Ministry of Defense overseeing nuclear weapons, controlled the storage facilities for those warheads.

Originally, this was what U.S. State Department officials believed. However, in autumn 1993, their Ukrainian counterparts told them that all military personnel in Ukraine had taken loyalty oaths to Ukraine in 1992 except for those in the Russian Black Sea Fleet, which had extensive port and other facilities in Crimea but nothing to do with strategic nuclear weapons in Ukraine. The Ukrainian officials further claimed that the storage sites for nuclear warheads were run entirely by Ukrainian military personnel. In conversations I had with retired senior Russian military officers in December 2008 and September 2019, they confirmed that this had been the case—that is, the warheads had been in the sole custody of Ukrainian personnel. They explained that they had confidence that their Ukrainian counterparts would act responsibly regarding the nuclear warheads, in large part because of personal relationships that had developed when the Ukrainian and Russian officers served together in the USSR's Strategic Missile Forces.

Interestingly, Budjeryn writes that senior missile commanders in Ukraine did not take the oath to Ukraine until February 1994. I am not quite sure what to make of these divergent accounts.

Budjeryn describes the differences in views between Ukraine's executive branch and the Verkhovna Rada, differences that were readily apparent to U.S. diplomats. She notes that, in a February 1993 memorandum, the Foreign Ministry argued that Ukraine should give up the nuclear warheads and delivery systems, a view largely shared in the Ministry of Defense and presidential administration—an understandable position given that Ukraine lacked key elements of the infrastructure needed to support an independent nuclear weapons capability. However, deputies in the Verkhovna Rada feared that the executive branch was not pressing Ukrainian interests strongly enough. Views on ownership of nuclear weapons, for example, were expressed much more

robustly in the Verkhovna Rada than by Ukrainian diplomats to their U.S. counterparts.

Some Verkhovna Rada deputies argued for stretching out the period during which Ukraine possessed nuclear weapons and, despite Ukraine's commitment in 1992 to eliminate all strategic delivery systems, proposed that the Ukrainian military hold on to the more modern SS-24 ICBMs, which had been built in Ukraine, and arm them with conventional warheads. In November 1993, when consenting to ratification of START I and the Lisbon Protocol, the Verkhovna Rada attached so many conditions that Washington and Moscow both rejected it as a valid ratification act.

The apparent differences between the executive and legislative branches give rise to a question: was there tacit coordination between the two, with the Presidential Administration and Foreign Ministry playing "good cop" to the Verkhovna Rada's "bad cop?" This would not have been an illogical tactic for Kyiv to pursue in its effort to extract maximum return for its decision to give up nuclear arms. I tried to elicit the answer from a former senior Ukrainian executive branch official in a 2019 discussion, but he deftly avoided giving one.

In early 2014, Russian troops illegally seized Crimea, and Russian security and military forces instigated fighting in Donbas in Ukraine's east. In February 2022, the Russian military launched an all-out invasion of Ukraine. Those Russian actions grossly violated commitments that Moscow had made in the Budapest Memorandum and in the 1997 Russia–Ukraine Treaty on Friendship, Cooperation, and Partnership, as well as in the UN Charter and the 1975 Helsinki Final Act. That understandably has given rise to questioning in Ukraine about whether the decision to give up nuclear arms in the 1990s was misguided.

As Budjeryn correctly observes, "If Ukraine had refused to join the NPT and kept a part of its nuclear [weapons] inheritance, it would not be the same country it is today but with nuclear weapons." Indeed, a bid to keep nuclear arms would have blocked a host of developments in the 1990s that benefited Ukraine: a strategic partnership with the United States, a distinctive partnership with the North Atlantic Treaty Organization (NATO), strong bilateral ties with key European countries, large-scale U.S. and European assistance efforts, and U.S. and European support for low-interest credits to Ukraine from the International Monetary Fund, World Bank, and European Bank for Reconstruction and Development. Moreover, Ukraine lacked the infrastructure to sustain a nuclear deterrent and would have needed Russian cooperation — extremely unlikely — or would have had to make substantial investments, such as in a nuclear fuel cycle, to acquire the ability to sustain

an independent nuclear deterrent. All at a time when Ukraine's economy had entered what turned into a severe years-long contraction.

U.S. and Ukrainian officials failed in 1993–1994 to foresee what Russia would do in 2014 and 2022. Budjeryn notes the unease in Kyiv about how to deal with its larger eastern neighbor, but her interviews and research did not reveal any widespread worry in the early 1990s that Russia would launch a major war against Ukraine. Indeed, the most outspoken advocate for keeping nuclear weapons seemed more intent on deterring the United States than Russia. Suffice it to say that, had there been a serious belief in Kyiv that Russia might one day invade, the process of Ukraine's denuclearization could well have turned out differently.

Commentary by Polina Sinovets

Mariana Budjeryn's book sheds valuable light on how the newly Ukrainian state inherited nuclear weapons from the defunct Soviet Union in 1991 and then gave up possession of them. The Ukrainian government's decision to yield its nuclear arsenal stemmed from a combination of internal anti-nuclear sentiment (connected with the Chornobyl accident of 1986), external pressure (especially from the United States and Russia), and the legacy of the Nuclear Nonproliferation Treaty regime.

Budjeryn tried to answer the question that has often arisen over the past decade: could Ukraine have retained ex-Soviet nuclear weapons deployed on its territory after the collapse of the USSR? This issue has been examined in several other books and many articles, particularly a collection of essays I edited in 2022, *Ukraine's Nuclear History: a Non-Proliferation Perspective* (Springer). Budjeryn's *Inheriting the Bomb* presents the most comprehensive and detailed assessment of Ukraine's motivations, capabilities, and internal political games projected on its ambition to become a fully recognized member of the international community.

In the early part of the book, Budjeryn lucidly recounts the final months of the Soviet Union and the repercussions from the failed August 1991 coup launched by the so-called State Committee on the State of Emergency (GKChP) against Mikhail Gorbachev. During the three days of the abortive coup, control over the Soviet nuclear arsenal was ambiguous (p. 42). Budjeryn points out that the failure of the coup greatly weakened the Soviet state and accelerated the demise of the USSR. Soviet strategic nuclear weapons were deployed on the territory of several of the newly independent states that emerged.

As the site of the giant factories that produced long-range missiles to carry Soviet nuclear warheads, Ukraine had been a key part of the Soviet nuclear weapons infrastructure (p. 36). In this regard, there was an obvious evolution in Ukrainian public sentiment toward nuclear weapons in the 1990s. Initially, many in Ukraine linked "anti-nuclear with anti-Soviet" (p. 109), the consequences of the Chornobyl nuclear accident, which aided the pro-independence movement in Ukraine. Pragmatic considerations also played a role. Politicians in Ukraine understood that the republic's standing in the international system would depend on the adoption of "nuclear-free sovereignty" (p. 118), which many saw as the only feasible means of leaving the USSR (p. 127).

In the meantime, according to the Vienna Convention on Succession of States in Respect of Treaties from 1978, Ukraine was a legal successor state of the Soviet Union with due rights to the Soviet heritage—a right strongly rejected by Moscow (p. 200). The U.S. government endorsed Russia's position on this matter, denying the chance of the "new nuclear weapons state emerging as the result of the transformation of the USSR" (p. 50). In effect, U.S. officials "did not deem it necessary to . . . depend on 'legal theories' of state succession" when dealing with nuclear weapons issues (p. 72).

Unlike Belarus and Kazakhstan, Ukraine initially refrained from giving up its Soviet nuclear inheritance. Among the reasons for this hesitation was an awareness of the high value of nuclear weapons as a deterrent of foreign aggression. Even though Ukraine lacked operational control of the nuclear warheads, the republic's status as the producer of the largest missiles for the warheads was a source of leverage (p. 36).

Tactical nuclear weapons deployed in Ukraine were of particular concern for Russia (and foreign governments) because of allegations that any field commander could use them. Although these allegations were never confirmed, concern that the weapons could potentially be used by Ukraine against Russia demanded urgent action. Budjeryn suggests the existence of permissive action links (PALs) overseen by the Russian Defense Ministry's 12th Main Directorate, but it is not entirely clear that tactical arms stationed in Ukraine had been equipped with PALs before the Soviet Union broke apart. According to General Evgenii Maslin, the head of the Russian Defense Ministry's 12th Main Directorate from 1992 to 1997, Russian nuclear forces were not fully equipped with PALs until 1993. Although Maslin was not responsible for tactical forces stationed in Ukraine at that time, the strong implication is that they probably did not actually have PALs. Or even if they did have PALs, Russian military officials could not be certain about that, which explains why they were so anxious to relocate tactical weapons from Ukraine to Russian

territory. When the Ukrainian government briefly suspended the transfers, Russian officials threatened that "weapons [remaining on Ukrainian territory] may be destroyed at their current locations."[1]

Budjeryn's discussion of this episode is illuminating. Under the accords signed at Belavezhskaya Pushcha and Almaty in December 1991, Ukraine had agreed to transfer all tactical nuclear arms to Russia by May 1992. However, in February 1992, Ukrainian President Leonid Kravchuk ordered the transfers to be suspended. Budjeryn argues that this move was spurred by the growing tensions between Russia and Ukraine over the Black Sea Fleet and over Russia's aspirations to lay claim to Crimea as its own territory (p. 145). Although it is true that these tensions played a key role, other factors may also have been involved. For example, Kravchuk was apparently interested in exploring the possibility of creating Ukraine's own nuclear deterrent.[2] His attempts to receive U.S. funding for the construction of a nuclear warhead dismantlement facility on Ukrainian territory could have provided a possible way to rebuild the weapons if exigent circumstances arose.[3]

In addition, U.S. Central Intelligence Agency reports indicate that Kravchuk was indignant in January 1992 when Russian President Boris Yeltsin unilaterally reaffirmed Mikhail Gorbachev's pledges under the Presidential Nuclear Initiatives (PNIs) announced in September 1991. Yeltsin failed to consult the Ukrainian authorities before taking this action, and thus he was trying to give Russia exclusive say over what would happen with the tactical nuclear weapons based in Ukraine.[4]

Budjeryn rightly points out that Kravchuk and the Ukrainian Verkhovna Rada (parliament) lacked control over the tactical weapons. Hence, the Ukrainian Ministry of Defense, which at that time was heavily under Russia's influence, was able to resume transferring the weapons to Russia without Ukrainian civilian leaders' consent (p. 149).

With regard to the Soviet strategic nuclear weapons deployed on Ukrainian territory, there was no doubt that operational control remained solely in Moscow. However, some Ukrainian officials and legislators

1. U.S. National Security Archive, Folder 111, Nuclear Control Institute Collection, Nunn-Lugar documents, "Defense Intelligence Report ODB 27–92, Ukraine-Nuclear Withdrawal Suspension, March 1992," p. 122: quoted in Polina Sinovets, ed., *Ukraine's Nuclear History: A Non-Proliferation Perspective* (Cham, Switzerland: Springer, 2022), p. 126.

2. Interview of Leonid Kravchuk by Polina Sinovets, in Kyiv, 2 April 2016.

3. U.S. National Security Archive, Folder 111, Nuclear Control Institute Collection, Nunn-Lugar documents, "A Trip Report: A Visit to the Commonwealth of Independent States by Senator Sam Nunn, Senator Richard Lugar, Senator John Warner, and Senator Jeff Bighaman, March 6–10, 1992," p. 112: quoted in Sinovets, ed., *Ukraine's Nuclear History*, p. 126.

4. Sinovets, *Ukraine's Nuclear History*, p. 126.

considered these weapons valuable for several reasons. Yurii Kostenko, the leader of the pro-nuclear lobby in the Rada, believed that strategic nuclear weapons based in Ukraine, though non-operational, provided the state's territory with greater security than it could expect without them (p. 166). Russian officials at the time were stressing their desire to gain control of Crimea and were also exerting strong pressure over the Black Sea Fleet. Hence, Ukrainian leaders decided that if they relinquished their nuclear arsenal, they would do so only in return for meaningful security guarantees from all key international players. Another factor cited by Kostenko was Ukraine's strategic missile industry, which was the most significant in the world. The Pivdenne construction bureau and the Pivdenmash plant, which together with the other infrastructure (such as the Pavlograd machine-building plant, the Khartron enterprise) produced 70 percent of Soviet land-based strategic nuclear missiles, including those equipped with multiple independently targetable reentry vehicles (MIRVs) that could carry up to ten nuclear warheads. Very few Ukrainians were in favor of doing away with the missile factories, which had ample orders to fulfill under the first Strategic Arms Reduction Treaty (START), signed in July 1991. But START-2, the follow-on to the 1991 treaty, was used by the Russian government to try to undermine the Ukrainian missile industry, thus eliminating Russia's dependence on Ukraine. Moscow's aims in this regard became clear in 1992 when drafts of the new treaty were being discussed and revised. In the end, START-2, signed in January 1993, codified Russia's shift away from MIRVed missiles (p. 189). This outcome dealt a blow to Ukrainian missile producers and eliminated the rationale for Ukraine to keep nuclear weapons (together with the missiles that delivered the nuclear warheads). The Ukrainian government had to resort to an alternative strategy to ensure the survival of Ukraine's missile industry, joining the Missile Technology Control Regime (MTCR) to facilitate conversion of missiles to space launch vehicles (p. 215).

As Budjeryn shows, vigorous pressure exerted by the United States and Russia played a crucial role in Kyiv's decision to relinquish the nuclear missiles. U.S. officials wanted to have only one nuclear successor state to the USSR and supported Moscow as the natural claimant to this role after the multiple U.S.-Soviet interactions during the Cold War. As part of this process, Russian retained operational control over the former Soviet nuclear arsenal after the dissolution of the USSR (p. 232). The legacy of the NPT regime also "provided the framework for nuclear possession and outlined criteria for legitimizing it" (p. 233). The NPT did not permit Ukraine to retain "ownership" of nuclear weapons and instead allowed only temporary "possession" of the arms.

Under the circumstances, it is not surprising that Ukraine ultimately relinquished the nuclear weapons on its territory, but the case does not bode well for supporters of nuclear nonproliferation. Budjeryn convincingly argues that Russia's war against Ukraine would have been very different or would probably not have begun at all if Russia did not have nuclear weapons, which provided it with a" nuclear shadow" as a tool of power projection in Ukraine. "Deterrence between Russia and [the West] would have worked much the same even without Putin's nuclear threats" (p. 239). Russian officials used nuclear bluster to try to keep other powers out of the war, and the broader nuclear context had induced the U.S. government to declare at the outset that it would not send U.S. troops to Ukraine. Russian deterrence of the West thus worked well in this regard. "The main reason is all-too justified fear of nuclear escalation" (p. 239). To some extent, the Biden administration's focus on avoiding nuclear war at all costs made the idea of speculating on nuclear escalation even more attractive for Russia. U.S. President Joe Biden's own words in 2023 perfectly illustrate this point:

> If we do not fully succeed in ejecting Russia from Ukraine, we will have let Putin kind of get away with something. If we do fully succeed in ejecting Russia from Ukraine, we face a very strong likelihood of nuclear use because Putin is not going to be routed out of Ukraine without breaking the seal of tactical nuclear weapons. So, we're stuck. Too much success is nukes, too little success is a kind of uncertain indefinite outcome.[5]

To conclude, Budjeryn's book is convincing and very well-written, making it recommended not only for experts in the field but also for a broader audience interested in understanding why and how Ukraine abandoned the nuclear weapons left on its territory after 1991.

Commentary by Robin E. Möser

Mariana Budjeryn's *Inheriting the Bomb* is a very timely contribution to the growing number of nuclear histories. The book is the first complete account of Ukraine's unique experience with nuclear weapons. When the Soviet Union disintegrated in the early 1990s, nearly 30,000 nuclear weapons remained situated in four newly sovereign states: Kazakhstan, Belarus, the Russian Federation, and Ukraine.

5. Cited in Bob Woodward, *War* (New York: Simo & Schuster, 2024), p. 189.

Budjeryn offers a balanced account showing why and how Ukrainian leaders chose to forgo Soviet-era nuclear weapons the country inherited on its soil at independence. In great detail, she recounts the decision-making leading up to Kyiv's adherence of non-proliferation norms, epitomized by accession to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The book shines light on a hitherto underexplored dimension and its impact on the global nuclear order and international arms control more generally.

Eight rich chapters engagingly detail Ukraine's nuclear history and deliver new and pertinent insights, framed by an incisive introduction and conclusion. Budjeryn, a well-known senior researcher in the project on "Managing the Atom," based at the Harvard Kennedy School's Belfer Center for Science and International Affairs, not only provides a great deal of fresh evidence from archives and memoirs but also offers keen insights and interpretations. The many oral history interviews she conducted with former key actors, and the illuminating photographs she includes here, add additional texture to her already vivid narrative.

Budjeryn has two main goals for her book: first, to contribute to the historical record of post-Soviet nuclear disarmament in the early 1990s and second, to garner insights into nuclear decision-making and international politics more broadly (pp. 12–13). She masterfully succeeds in achieving both goals.

In this deeply personal account, Budjeryn deals with two overarching focal points separating the volume in two different albeit connected parts: "Soviet Nuclear Collapse" (part 1) and "Ukraine: Negotiating a Nuclear Exception" (part 2). The book's first half examines the end of the Soviet Union, Ukrainian independence, and the "nuclear inheritance" bestowed on Kyiv (though it has to be emphasized that the Ukrainians never had operational control over the nuclear weapons, nor did they attempt to acquire it).

Unlike earlier accounts, Budjeryn is careful to point out that combining the three post-Soviet nuclear experiences of Belarus, Kazakhstan, and Ukraine into a single analysis risks obscuring their individual differences and characteristics. In a similar vein, she rightly laments that far too many scholars and policy analysts conflated "USSR" with "Russia," thereby undermining, for example, Ukrainian agency (p. 63). For the sake of understanding the Ukrainian case in its complete regional context, Budjeryn briefly discusses Belarus and Kazakhstan in chapter 4.

Inheriting the Bomb situates the reader at the crucial juncture marking the end of the Soviet Union coupled with the emergence of newly independent states in Ukraine, Belarus, Kazakhstan, and the Russian Federation. The first four chapters recount the disintegration of the Soviet Union and how newly

independent Ukraine inherited the world's third-largest nuclear weapons arsenal and critical nuclear infrastructure. In principle, this inheritance allowed it to enrich uranium and produce plutonium, not to mention the tons of sensitive nuclear material left behind by the departing Russian military. Budjeryn shows that, after gaining independence, Ukrainians had to decide what to do with the nuclear armaments left on their territory. As it turned out, this issue spawned debate and controversy at home and a good deal of friction with Russia and Western countries.

Budjeryn considers the legal status of the nuclear weapons on Ukrainian soil — to whom did these weapons rightfully belong? She ponders the options of non-Russian Soviet successor states. What could they claim in relation to the Soviet nuclear legacy, to which they contributed during the Cold War (p. 63)? She delivers satisfying answers and abundant context to these points throughout the volume, especially in its second part.

Another crucial thread the narrative touches on repeatedly is the Strategic Arms Reduction Treaty (START) and its ratification. This matter lay at the heart of the Soviet succession conundrum, at least for Western countries. If the three states other than Russia — Kazakhstan, Ukraine, and Belarus — had joined START, it would have put them on equal footing with Russia as legal successors of the USSR. A related question concerned quantity: how much of their respective arsenals would be dismantled — the numbers stipulated in START or total nuclear elimination? Russia and the United States were in full agreement on the guiding principle that the three post-Soviet states should not become nuclear successors, not even for the time disarmament would take (pp. 74–75).

But the political vacuum caused by the transition in which Ukrainians found themselves gave rise to U.S. concerns that these capabilities might end up in the wrong hands. The international community anxiously watched to see what newly independent Ukrainian leaders would do with the nuclear arsenal left on their territory. Would they try to retain these weapons and contribute to a "Yugoslavia-like scenario, only with nukes" (p. 9, 46–47)? A scenario most dreaded by the international community, especially by the administration of George H. W. Bush in Washington, but also rhetorically invoked by reform-minded Ukrainians themselves in order to seek support against domestic revisionist forces (p. 201). Moreover, the disarmament negotiations involving Ukraine were set against the international arms control architecture's cornerstone, the NPT, which was slated to come under review in 1995. Budjeryn shows how delay in post-Soviet independent states threatened to hinder the upcoming NPT's indefinite extension — again, an outcome the United States, then under President Bill Clinton, wanted to avoid.

Most interesting is how Budjeryn invites readers to zoom out of the story. The exercise's point is to demonstrate that Ukraine's stance shifted — within less than 12 months — from outright renunciation to conditional nuclear disarmament (p. 152). In fact, the position of its leaders fluctuated only briefly. Ukrainian officials were still committed to eventual disarmament, but when the regional context shifted gradually, disarmament became profoundly qualified by demands for far-reaching security assurances and Ukraine's diplomatic recognition. Moreover, the question of timing assumed crucial importance in the unfolding diplomatic encounters between delegates from Kyiv, Washington, and Moscow (pp. 133, 159). This led straight away to issues intractably linked to questions such as nuclear ownership and rightful inheritance — claimed by Kyiv but unacknowledged by Moscow and, to a lesser degree, by Washington.

Complicating diplomatic encounters, Kyiv's reach for nuclear ownership emerged by early 1993 as the "most controversial, and perhaps least understood, element of Ukraine's nuclear stance" (p. 164). Ukraine was the de facto and de jure successor of the USSR and had immensely contributed during the Cold War to the Soviet nuclear program, but Moscow and Washington vehemently ruled out any ideas in this direction. Yet, "ownership" meant different things for domestic actors, which in turn translated into decisive interpretations of how to operationalize nuclear ownership in a way that would gain ironclad security assurances in return for disarmament. The basic idea was that nuclear ownership constituted a rightful entitlement to compensation, a political hedge, and a valuable means of deterrence (pp. 164–176).

Yet, despite all this diplomatic tussle, the "whether" in relation to Ukrainian nuclear disarmament was never in question. Only over time did the question of "how" become more controversial, with the timing assuming crucial importance, most of all the question of when Ukraine should accede to the NPT as a non-nuclear weapons state.

Thankfully, Ukrainian leaders did not treat the nuclear option as live in their strategic decision-making and instead adhered to the NPT in 1994. After intense negotiations among Ukrainian, U.S., and Russian leaders, Kyiv finally relinquished the nuclear arsenal and a sizable amount of weapons-grade uranium. Thanks to Budjeryn's no-nonsense approach, we know a great deal more about *why* this newly independent state found itself in its unique position, and we also gain a much better understanding of the connected but oftentimes varying interpretations of its nuclear inheritance.

Given the complexity of the topic, the book's major achievement is a meticulous analysis and subsequent elegant reconstruction of the newly independent Ukrainian government's attempt at exploiting U.S. proliferation fears

to advance its own agenda. This included stabs at obtaining far-reaching security guarantees from Washington. It is not irrelevant that Ukraine throughout these negotiations was preoccupied with a severe domestic financial crisis and was seeking to attract foreign direct investment to rekindle its local economy. Ukrainian leaders were fully aware that by clinging to the nuclear weapons they inherited from the Soviet Union, they risked falling into the nuclear pariah category — much like Iran, apartheid-era South Africa, and North Korea.

If any criticism is warranted, it is that Budjeryn's presentation of key findings could have been given a more prominent placement, made more readily visible. This is true, for example, regarding the Ukrainian government's different motivations to disarm, which Budjeryn lists, including disengagement with Russia by severing connections to the Commonwealth of Independent States; financial constraints; and the fear of becoming internationally isolated. If Budjeryn had placed these considerations at center stage, it would have enabled her to broaden the ongoing global nuclear disarmament debate. This underscores the potential for the book to facilitate comparative analyses.

In addition, somewhat stashed away in the middle of the book is what I see as a crucial aspect, namely, that Kazakh, Belarusian, and Ukrainian governments' willingness to give up and not lay claim to the nuclear weapons on their territories depended a great deal "on the quality of their relationship with Russia" (p. 83). It is therefore no surprise that, given Ukraine's heightened insecurity vis-à-vis Russia starting in 1992, Kyiv displayed the most assertive nuclear stance of the three states. This holds useful lessons for approaching states such as Iran and North Korea today.

These two minor issues aside, what emerges is a truly engaging and insightful work that sheds much-needed light on a crucial episode of the immediate post–Cold War period. It is a dense but fascinating book that holds pertinent lessons both for historians (pp. 231–234) and, one hopes, for policymakers who deal with nuclear non-proliferation on a global scale.

Readers learn a great deal about Ukrainian independence, detailing the USSR/Russia-Ukrainian mistrust against which START, the Lisbon Protocol, and the Budapest Memorandum were negotiated. Clearly, the seeds of what happened in 2014, culminating with a full-scale Russian invasion in February 2022, were sown back at the end of the USSR. Convincingly, Budjeryn details that the Budapest Memorandum's security obligations pledged by the United States, the United Kingdom, and Russia stopped well short of specifying the consequences of a possible breach of these pledges (p. 236).

After cumbersome negotiations between U.S. interlocutors alongside their Russian counterparts, the little that was achieved proved, from a

Ukrainian security perspective, to be a hollow victory. Russia's military occupation and annexation of Crimea in 2014 and the full-scale Russian invasion of Ukraine in February 2022 finally exposed for all to see that security commitments under the NPT as incorporated in the Budapest Memorandum did not hold up in reality. Thus, rather than becoming a durable part of the post–Cold War European security architecture, the Budapest Memorandum turned out to be a profoundly useless document that later ignited revisionist pro-nuclear sentiment, as recent domestic polls in Ukraine suggest. *Inheriting the Bomb* engages more deeply with Ukraine's nuclear history than any other publication I know of, including, of course, article-length contributions by Budjeryn herself. The book cover's lily-white appearance somewhat conceals its explosive yield, most of all for furthering the global nuclear disarmament and nonproliferation scholarship.

The book offers an authoritative account of interlocked local and global encounters that had a bearing on decisions adopted by Ukrainian leaders in the early 1990s. Budjeryn deftly navigates sundry aspects of Ukraine's diplomatic and political history—with more acumen than any other publications to date on the subject. It will be a companion to scholars focusing on the Cold War and related nuclear histories, foreign policy, U.S. nonproliferation efforts, and nuclear diplomacy in general.

Yet, Budjeryn is careful to discern possible revisionist voices that pronounce a what-if counterfactual narrative, in which Kyiv would be better off today if it had kept the nuclear weapons. Budjeryn acknowledges that her job of persuading Ukrainians that the answer to its security predicament cannot be nuclear weapons and rearmament "has just gotten much, much harder" (p. 5). Indeed, the book's final production stretch was overtaken by events in Russian-Ukrainian relations (as a second preface testifies).

Arguably, the most negative consequence of the whole episode is the fact that ultimately, Ukraine's disarmament occurred in return for what later proved to be hollow security assurances. This reflects badly on the NPT, which is still the most widely embraced international arms control treaty.

In the end, as Budjeryn explains, Ukrainians' contemplation of keeping the nuclear weapons stationed on their territory ran counter to what Washington and Moscow wanted and against global nonproliferation norms. As things stand today, however, the parlous state of international arms control and nonproliferation efforts suggest a bleak future. The normative power the NPT once had when its advocates lured Kazakhstan, Ukraine, and Belarus into the NPT regime has badly frayed.

Reply by Mariana Budjeryn

The commentaries on my book *Inheriting the Bomb* by Steven Pifer, Polina Sinovets, and Robin E. Möser reveal a close and incisive engagement with my work, for which I am deeply grateful. The reviewers are favorable in their assessments of the book and its contribution to the historiography of Ukraine and its nuclear decision-making after the Soviet collapse and to nuclear studies more broadly. They also offer points of constructive criticism and succeed in finding errors, for which I am also grateful.

One difficult and still not fully understood area, where some omissions and errors are uncovered, is the command and control of strategic nuclear forces in the Soviet Union (and current-day Russia) and how it transformed during and immediately after the disintegration of the USSR. Another, related area is the physical custody of nuclear warheads Ukraine was able to establish after its independence in 1991 and before they were transferred to Russia in mid-1996. Pifer, who in 1993–1994 worked with the ambassador-at-large for Russia and the Newly Independent States at the U.S. Department of State on Ukraine issues and later wrote an account of nuclear negotiations with Ukraine, argues that my analysis differs from the understanding gained by U.S. officials in later years on two points.[6]

The first point concerns the launch authorization procedure. Beyond the hotline that connected the heads of states of Ukraine, Russia, Belarus, and Kazakhstan to consult about a launch decision, Ukraine's president Leonid Kravchuk insisted on having the ability to block the launch of a nuclear missile from Ukraine's territory. I claim that Kravchuk had only a procedural veto over the launch order transmitted from Moscow that relied primarily on the loyalty of the commander of the 43rd Rocket Army (p. 150). Pifer recalls Ukrainian officials describing command-and-control procedure in a way he deems different from mine: in addition to a launch order transmitted from Moscow, Kravchuk reportedly had to give an affirmative launch order, without which intercontinental ballistic missiles (ICBMs) based in Ukraine could not be launched.

In fact, the two accounts seem entirely consistent. As I write on page 150: "[President Leonid Kravchuk] and the commander of the 43rd Rocket Army Colonel General Volodymyr Mikhtyuk shared a special orally transmitted code without which the latter could not carry out any launch commands

6. Steven Pifer, *The Trilateral Process: The United States, Ukraine, Russia and Nuclear Weapons*, Arms Control Series (Washington, DC: Brookings Institution, May 2011).

issued by Moscow." This orally transmitted code seems to constitute the same affirmative launch order of which Pifer writes. An orally transmitted order by the Ukrainian president would still constitute a procedural, not operational, means of control because Kravchuk did not have access to the launch authorization unit, the so-called nuclear briefcase, which required the commander-in-chief to use a physical key in a unique six-digit code to unlock and activate the centralized launch authorization system. Only the Russian president was in possession of the briefcase and the authorization code, and only he had the operational means to launch a nuclear strike from Ukraine's territory. The effectiveness of Kravchuk's oral launch authorization codes relied entirely the on the loyalty of General Mikhtyuk, who commanded the 43rd Missile Army in Ukraine, and his refusal to carry out a Russian launch order without the Ukrainian president's acquiescence. As Pifer notes, however, there was no reason to doubt that the procedural involvement of Ukraine's president was insufficient to prevent a launch, although it (luckily) was never put to the test in a real crisis.

The second point of divergence is the physical custody of nuclear warheads in Ukraine after 1991. In the book, I argued that base-level nuclear storage facilities were indeed in Ukrainian custody, but the three central storage facilities, objects "S" at Marakiv, Tsybulevo, and Nadvirna, remained under the purview of Moscow (p. 194). Pifer, however, recalls hearing from Ukrainian officials in autumn 1993 that central nuclear storage facilities were under Ukrainian control.

Indeed, on this point, Pifer is correct. In the recently published book *The Lost Missile-Nuclear Shield of Ukraine* (to which I obtained access only after my book went to print), General Mykola Filatov, former commander of the 46th Strategic Rocket Division at Pervomaisk, one of two sites of ICBM deployments in Ukraine, writes that object "S" facilities were transferred to Ukraine's jurisdiction in 1992: "All military detachments, the so-called objects 'S,' were earlier always under the central subordination to the Twelfth Main Directorate of the Ministry of Defense [GUMO], first of the USSR . . . then — the Russian Federation. But from 1992, operational objects 'S' situated on the territory of Ukraine were incorporated into the Armed Forces of Ukraine: first, two facilities were subordinated to the 43rd Missile Army, then for a certain period — to the newly established Center for Administrative Control of the Strategic Nuclear Forces in Ukraine and then again transferred under the direct command of the 43rd Missile Army."[7]

7. Nikolai Filatov, *Utrachenyi Raketno-Iadernyi Shchit Ukrainy* (Kyiv: Politekhnica, 2020), p. 76. Translation from Russian is my own.

I am grateful to Pifer for catching this factual mistake, which will be corrected in future editions of *Inheriting the Bomb*. The fact that Ukraine had physical custody of the nuclear warheads serves to strengthen one of the core arguments of the book — that Ukraine had far more agency in deciding nuclear matters than has been acknowledged heretofore. At the same time, the fact of physical custody did not significantly alter the strategic, political, and economic calculus that drove Ukrainian leaders toward nuclear renunciation.

Sinovets, who has edited a volume that includes an account of Ukraine's nuclear disarmament, notes another possible discrepancy in my book.[8] I claim that all tactical nuclear weapons (TNW) in the USSR and the United States were equipped with permissive action links (PALs), code-based security devices to prevent unauthorized use. Sinovets points to a book by General Evgenii Maslin, former chief of the Twelfth GUMO, who maintains that PALs were not fully installed on Russian-based TNWs until 1993. This leaves open the question whether all TNWs deployed in Ukraine were equipped with PALs, with implications for Ukraine's capacity to seize and use them for deterrence.

As with physical custody of strategic warheads, however, the absence of PALs on Ukrainian TNWs, if indeed this was the case, would have likely made little difference for the Ukrainian decision of whether to keep nuclear weapons. Moreover, the decision to seize and keep the nuclear weapons on Ukraine's territory would have had to be accompanied by the ability to maintain them domestically and ultimately replace them after the end of their service life. A full nuclear fuel cycle, which Ukraine did not possess, would have been key to this task.

Regarding this point, Möser in his commentary writes that, "in principle," Ukraine's nuclear inheritance "allowed it to enrich uranium and produce plutonium." It is not entirely clear what he has in mind, but it is important to stress that Ukraine did not then — and does not now — possess uranium enrichment and plutonium reprocessing capabilities, as I clearly explain in the book. In fact, beyond uranium mining and milling, Ukraine lacked essential stages of the full nuclear fuel cycle, as well as the budgetary funds — although not the know-how — to build them. This was one of the core limitations pertaining to the so-called supply side — having all the technological and industrial components for a nuclear weapons program to convert Ukraine's nuclear inheritance into a full-fledged and sustainable deterrent force. Ukraine's endeavors in this direction did not go past a feasibility study for constructing a uranium enrichment facility (p. 179).

8. Sinovets, ed., *Ukraine's Nuclear History*.

Möser goes on to offer a point of criticism that is justified: the main findings of the book and the broader relevance of Ukraine's nuclear disarmament for "the global disarmament debate" are not given sufficient prominence. True, the book is written as a historical narrative, rather than a political science analysis, and the summary discussion of the significance of Ukraine's story is relegated to the conclusion and a few other places throughout the book. It is also true that generalizing from a single case is difficult. In this regard, the cases of Belarus and Kazakhstan, while instructive in their own right, also provide points of reference for similarities and divergences with Ukraine's nuclear story and thus offer a modest opportunity for a broader analysis of drivers of nuclear decision-making. But there is also the case of South Africa's nuclear disarmament about which Möser just published an excellent monograph *Disarming the Apartheid*, which is mentioned in my book in only a cursory manner. It would have been interesting to learn in Möser's commentary his thoughts about points of comparison and divergence between the cases of Ukraine and South Africa.[9]

All three commentators remark that the book is perhaps the most comprehensive account of Ukraine's nuclear disarmament to date, covering Ukraine's nuclear deliberations in great detail. Although that might be true today, the exchanges here reveal that my account of Ukraine's nuclear disarmament is far from exhaustive. Technological and military aspects of Ukraine's nuclear inheritance and interactions between Ukrainian and Russian militaries in those early post-Soviet days are especially interesting and in need of fuller investigation. Access to documents of Ukraine's Ministry of Defense, which I was unable to obtain, would be greatly helpful in this task. Indeed, my hope for the book—along with the unfortunate international political circumstances under which it became "timely"—was to generate interest in Ukraine's nuclear and military history and encourage further research by other scholars.

9. Robin E. Möser, *Disarming Apartheid: The End of South Africa's Nuclear Weapons Programme and Accession to the Treaty on the Non-Proliferation of Nuclear Weapons, 1968–1991* (Cambridge, UK: Cambridge University Press, 2024), p. 70.