



ANALYSIS

GOLD, GUNS, AND WHALE OIL: THREE IMPEDIMENTS TO GLOBAL NUCLEAR ZERO

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Introduction

In the current popular and academic press, one cannot escape discussions about the circumstances, if any, under which Ukraine’s nuclear-armed invader might resort to the employment of nuclear weapons—and if it did, what that might portend for the world going forward. These are not insignificant questions, and the fact that questions of this kind are being asked in earnest is hardly surprising—even if the most thoughtful observers, or even the invader itself, does not know their precise answer. Some especially astute observers might find themselves asking still more foundational questions, such as why it seems to be so hard to rid the world of nuclear weapons in the first instance. This is, of course, a question that has been present since the dawn of the nuclear age itself.¹ It was given especially prominent attention in 2007 by four luminaries of nuclear nonproliferation (former secretaries of State Henry Kissinger and George Shultz, former Secretary of Defense William Perry and former Senator Sam Nunn²)—the so-called “four horsemen of the nuclear apocalypse,”³ and more recently in the United Nations’ 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW), which, in accordance with its internal, self-adjudicating mechanism, entered into force in 2021.⁴

Unfortunately, facile prescriptions like those in the “four horsemen’s” 2007 commentary and the United Nations’ 2017 treaty belie the complexity of the task to which they point. While—thankfully—the grim 1960 prediction by presidential candidate John F. Kennedy that “10, 15, or 20 nations will have a nuclear capacity . . . by the end of the Presidential office in 1964”⁵ has yet to be realized more than half a century later, there likewise exists no reason to believe that nuclear weapons will cease to exist any time in the foreseeable future. Why is this root problem, of which the problem of nuclear weapon employment in Ukraine is but a symptom, apparently so intractable?

¹ Declaration on Atomic Bomb by President Truman and Prime Ministers Attlee and King, Washington, November 15, 1945, <https://carnegieendowment.org/2005/11/01/nonproliferation-turns-60-pub-17664>, accessed November 10, 2022.

² See the famous Op-Ed by these four authors, “A World Free of Nuclear Weapons,” *The Wall Street Journal*, January 4, 2007, <https://www.wsj.com/articles/SB116787515251566636>, accessed November 9, 2022.

³ Eben Harrell, “The Four Horsemen of the Nuclear Apocalypse,” *Time*, March 10, 2011, <https://science.time.com/2011/03/10/the-four-horsemen-of-the-nuclear-apocalypse/>, accessed November 9, 2022.

⁴ Treaty on the Prohibition of Nuclear Weapons, <https://www.un.org/disarmament/wmd/nuclear/tpnw/>, accessed 10 November 2022.

⁵ John F. Kennedy, from the Third Nixon-Kennedy Presidential Debate, October 13, 1960, in “JFK on Nuclear Weapons and Non-Proliferation” Carnegie Endowment for International Peace, <https://carnegieendowment.org/2003/11/17/jfk-on-nuclear-weapons-and-non-proliferation-pub-14652>, accessed November 9, 2022.



Understanding the issues that underlie the question is aided by an appreciation of the complex Cold War circumstances that first gave rise and then unavoidable prominence to nuclear weapons in the first instance. Although first-hand, societal acquaintance with these circumstances is now receding into increasingly distant memory, nuclear weapons remain—and the arsenals which they constitute are modernizing and, in some cases, growing. Moreover, some states that formerly anathematized nuclear weapons are now considering whether present and predicted geopolitical conditions might not warrant (or require) them to become nuclear weapons possessors themselves.

While much uncertainty attends the trajectory of the nuclear future, this much seems clear: Nuclear weapons are not going away for the foreseeable future, all protestations to the contrary notwithstanding. “Why,” some nuclear abolitionists wonder, “can all involved simply not agree to give them up?” Would that the matter was anywhere nearly so simple. Nuclear weapons did not simply flare into existence in a vacuum. They came into being because (1) those seeking them considered that their possession would be valuable to them, or (2) because the security environment seemed to demand them, or (3) because no adequate substitute could be found for them—or for some combination of these reasons. Excising the world of nuclear weapons requires exactly the reverse conditions: Those now in possession of them must conclude that their possession is no longer valuable, that the security environment no longer demands them, and that some better means can be found for accomplishing the purposes for which nuclear weapon presently exist. To produce those conditions is a tall order indeed, and perhaps the following three vignettes may aid in explaining, by analogy, why this is so.

Devaluing the Valuable

States possess nuclear weapons because they consider their possession to be valuable. If they were somehow bereft of perceived value, then, so the logic goes, the desirability of their possession would similarly disappear. However, this experiment has been tried before, at least as a mind experiment. In 1518, Sir Thomas More published *Utopia*, one of the canonical works of Western social and political philosophy. In the society that More describes, every effort is made to devalue gold and silver so that no right-thinking person would want them. For the Utopians, gold and silver lack desirability because they lack utility: “Anyone can see that iron is far superior to either [gold or silver]; men could not live without iron, by heaven, any more than without fire or water. But gold and silver have, by nature, no function that we cannot easily dispense with.”⁶ Conceding that this assessment occurs centuries before the advent of transistors, microchips, and the like, for which gold and silver clearly have demonstrable utility, the experience of the Utopians is still instructive for the present, for it represents a case in which a society sought to take a commodity to which a high value had been assigned and to reduce the value of the commodity to zero. The Utopians sought to

⁶ Sir Thomas More, *Utopia*, 2nd ed., trans. Robert M. Adams (New York: W. W. Norton and Company, 1992), p. 46.

accomplish this devaluation by using gold, not as an adornment or as a medium of exchange, but rather for such objects as children's toys, which the children discarded as they grew up and realized that mature persons have no use for toys. "Their parents don't have to say anything, they simply put these trifles away out of a shamefaced sense that they're no longer suitable" for adults.⁷ Likewise, the Utopians reserved gold for identification of criminals—"golden rings on their ears, golden bands on their fingers, golden chains around their necks, and even golden crowns on their heads,"⁸ as well as for the "fetters of slaves."⁹ They even used it to fashion the most ordinary objects such as chamber pots and stools.¹⁰ "As a result, when they ha[d] to part with these metals, which other nations give up with as much agony as if they were being disemboweled, the Utopians fe[lt] it no more than the loss of a penny."¹¹ Moreover, the Utopians could readily demonstrate to any non-Utopian that gold was something of no value and not in the least to be desired. For example, when visiting ambassadors to Utopia, unaware of local mores, processed through the streets as part of a state visit, they drew the laughter of children and the scorn of adults, who mistook the principals of the entourage—all of whom were ostentatiously adorned with gold—for the lowest, most menial servants accompanying the official delegation. Others among the Utopians were left to wonder why diplomats from a foreign royal court would array themselves as if they were criminals and slaves! Thus, by More's account, the Utopians succeeded in standing the valuation of gold completely on its head such that it held no appeal whatsoever for the citizens of Utopia.

The question may be fairly asked, "What prevents modern, nuclear weapons-possessing states from doing the same thing to nuclear weapons that Utopia did with gold, such that nuclear weapons lose all their appeal?" Unfortunately, even if a nuclear weapon state were, for itself, able to succeed in devalue nuclear weapons, just as the Utopians devalued gold, that does not imply that other nuclear weapons states would follow suit. Indeed, as evidenced by the visit of the foreign ambassadors to Utopia, other states continued to place a very high premium on gold even if the Utopians did not. In point of fact, the Utopians did not, all protestations to the contrary notwithstanding, consider gold to be valueless to *everyone*; they only considered it valueless in their own domestic political context. When it came to international politics, the story was quite different. The Utopians amassed vast reserves of gold, which they kept in store—not for use by their own people, but for the express purpose of obtaining leverage in the international sphere where they knew that gold continued to be held in high value. In this sphere, they Utopians spent gold with whatever profligacy they deemed necessary to achieve their political aims: "When they [the Utopians] promise their resources to help in a war, they send money very freely. . . . Since they keep

⁷ Ibid., p. 47.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

their gold and silver for the purpose of war alone, they spend it without hesitation.”¹² And why not? After all the Utopians, who place no value on gold for themselves, “will continue to live just as well even if they waste the whole sum”¹³ as bargaining currency in the international security sphere. Indeed, the Utopians are willing to purchase virtually any outcome that suits their security needs in that sphere: “Besides the wealth they have at home, they have a vast treasure abroad since many nations owe them money. So they hire mercenary soldiers from all sides.”¹⁴ “Because the Utopians are willing to give higher pay” in gold and silver “than anyone else,” mercenaries “are ready to serve them against any enemy whatever.”¹⁵ Moreover, the Utopians have no scruples against hiring “the worst possible men” for “improper uses,”¹⁶ i.e., the dirty jobs of international conflict that the Utopians consider either beneath their dignity or outside the scope of moral bounds to perform—but which, since Utopia exists as only one polity in the larger, anarchic international sphere—and the Utopians know it, they are willing to underwrite warfare by non-Utopians as they perceive the occasion to demand. In short, an ostensibly ideal society that convinces its domestic audience to abhor a thing that it has successfully devalued to practically nothing still understands that its own abhorrence of the thing does not mean that others external to it feel the same way. It is hardly the case, therefore, that the Utopians have really devalued gold at all! They might disdain its use among themselves, and they may scorn its use by others; but at the same time, they have hardly eliminated—and *understand that they cannot eliminate*—this thing that they claim to despise.

Nuclear weapons are far more like Utopian gold than the “four horsemen” or advocates of the TPNW may wish to admit: contemporary disarmament advocates might hate the thought that nuclear weapons were ever conceived, and might wish to devalue them to zero, but none can deny the reality that gold, in the case of the Utopians, and nuclear weapons, in the case of modern nuclear weapon states, continue to affect the political calculi of others external to themselves. It is comparatively easy, in theory, to foreswear or even eschew the prospect of nuclear weapon employment, even to the point of eliminating an entire stockpile; but that act of self-denial in no way implies that external actors will follow suit—with attendant risk for the self-denier. Nor does it imply that the self-denier can interact with the rest of the world as though the rest of the world shared the self-denier’s mores and thus could be expected to follow suite. (In a similar, more general vein, it is equally interesting to note that even the Utopians do not resolve the problem of interstate conflict. “They despise war as an activity fit only for beasts, yet practiced more by man than any other creature.”¹⁷ Nevertheless, when avoidance of war—which the Utopians are keen to do—is not possible,

¹² Ibid., p. 68.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid., p. 69.

¹⁶ Ibid., p. 69.

¹⁷ Ibid., p. 66.

they wage it with such ferocity and vigor that one might at least wonder whether, *in extremis*, they might be willing to resort to nuclear weapons, if they had them.)

In sum, it is little wonder that Thomas More coined for his fictitious account a new word: “utopia”—a modern Latin form from the Greek *ou*, “not” + *topos*, “place,” literally “no-place.” So, even if the vision of a world without avaricious desire for either gold or nuclear weapons might be highly desirable, it is also “utopian.” Hence, until the *Weltanschauung* of no-place becomes the *Weltanschauung* of every place, one need not expect much that devaluing nuclear weapons in the eyes of any domestic audience will produce global nuclear zero.

Fundamentally Changing the Security Environment

States possess nuclear weapons because they perceive that the security environment requires it. Hence, if the security environment no longer required it, the perceived necessity of nuclear weapons would, in theory, disappear. However, a case study of this very claim is possible, by analogy, with another kind of weapon: privately owned firearms.

The United States is not the only country in the world to claim a special affinity for guns, but it certainly is one of them. (It shares that distinction with, for example, Mexico and Guatemala—the only other nations in the world with a constitutionally enshrined right to bear arms¹⁸). According to one international study:

- There were approximately 857 million civilian-held firearms in the world at the end of 2017.
- Roughly 100 million civilian firearms were reported as registered, accounting for some 12 per cent of the global total.
- National ownership rates vary from about 120.5 firearms for every 100 residents in the United States to less than 1 firearm for every 100 residents in countries like Indonesia, Japan, Malawi, and several Pacific Island states.¹⁹

Given the extraordinarily high emotion that attends the U.S. domestic gun debate, no study and no set of data is without its energetic critics. However, regardless of how one views the issue of gun possession, it is still possible to ask, “What would it take to persuade all American civilians to surrender their weapons so that no one would have them?”

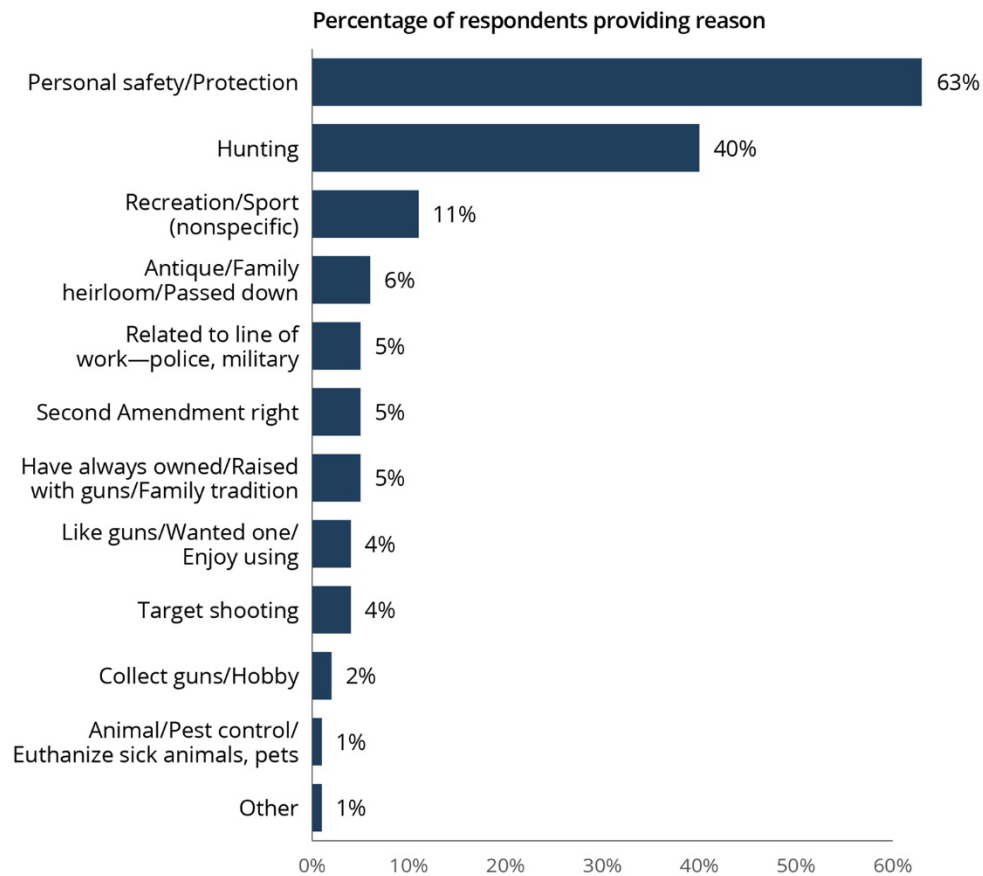
A 2019 Gallup survey posed the following open-ended question to gun owners in the United States: “There are many reasons why some people choose to own guns and others do

¹⁸ Brennan Weiss, James Pasley, and Azmi Haroun, “Only 3 countries in the world protect the right to bear arms in their constitutions: the US, Mexico, and Guatemala”, <https://www.businessinsider.com/2nd-amendment-countries-constitutional-right-bear-arms-2017-10#:~:text=Only%20three%20countries%20in%20the,ve%20since%20repealed%20those%20laws>, accessed December 7, 2022.

¹⁹ Aaron Karp, “Estimating Global Civilian-Held Firearms Numbers, Australian Government Department of Foreign Affairs and Trade, June 2018, p. 3, <https://www.smallarmssurvey.org/database/global-firearms-holdings>, accessed November 10, 2022.

not. What are some of the reasons why you own a gun?” Their responses were summarized as follows:

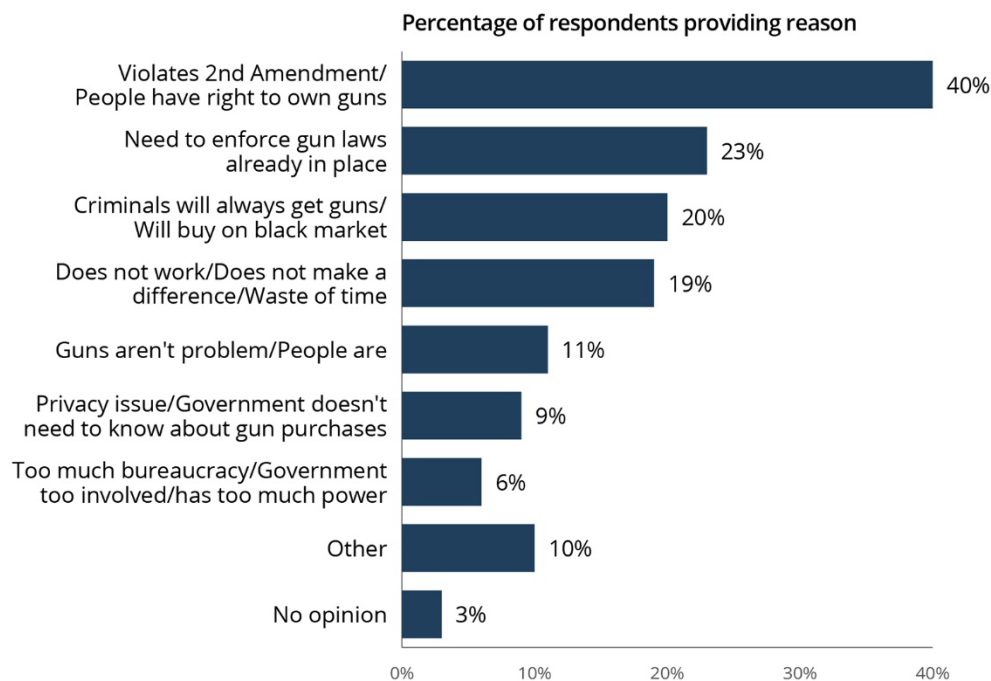
Poll: Reasons for owning guns



Source: Gallup, “Guns,” August 15–30, 2019, <https://news.gallup.com/poll/1645/guns.aspx>

The same Gallup report, citing a 2013 survey, of persons who did not want the U.S. Senate to pass a bill to expand background checks, responded thus to the open-ended question, “What are some of the reasons you did not want the Senate to pass expanded background checks for gun purchases?”

Poll: Reasons for opposing expanded background checks for gun purchases



Source: Gallup, "Guns," August 15–30, 2019, <https://news.gallup.com/poll/1645/guns.aspx>

Even with the acknowledged margin of error, these results serve to highlight the relevant question: What would it take for gun owners no longer to desire to own guns? For present purposes, one can discount all substantive reasons with less than a 10 percent response rate and observe the following regarding the debate over firearms possession in the United States—each proposition having an important analog with the global nuclear zero debate:

- *Gun owners would have to feel that their personal safety was no longer threatened in a way that made them feel gun ownership to be imperative.* Similarly, nuclear weapon states would have to be persuaded that their security needs could, in fact, be met without nuclear weapon possession and the deterrent threat that their possession implies.
- *The activities for other than personal protection (such as hunting or other recreational or sporting uses) would have to lose their appeal.* Similarly, nuclear weapon states would have to come to regard as unappealing the multiple reasons for why they might possess nuclear weapon for reasons other than maintaining security, to wit: to demonstrate power and influence as a regional or global political leader; to enhance

national prestige by being a member of the “nuclear club”; to demonstrate scientific and technical prowess; to lower conventional defense budgets; etc.

- *Gun owners would have to feel that their “right” to own a gun was not being infringed upon.* Similarly, nuclear weapon states would have to be persuaded that the “grand bargain” enshrined in the Nuclear Nonproliferation Treaty, which establishes a clear divide between the nuclear “haves” and “have nots” was not, in fact, an infringement on states’ rights.
- *Gun owners would have to feel that gun laws currently in place were both enforceable and were being enforced.* Similarly, nuclear weapon states would have to have growing, not waning, confidence in the nuclear non-proliferation regime—a tall order, as the regime arguably is currently under greater stress than at any time in the nuclear age.
- *Gun owners would have to believe that criminals would not have access to the very thing that they, as law-abiding citizens were willing to give up.* Similarly, nuclear weapon states would have to be brought to believe that giving up nuclear weapons would not simply leave lawless pariah states or non-state actors with free reign to wield nuclear threats. In a similar vein, they would have to be persuaded that the fates of states like Libya or Iraq, which lost their nuclear weapons programs—even if theirs was nothing more than the pretense of a program—would be visited upon them as well.
- *Gun owners would have to be persuaded that problems associated with the misuse of guns were essentially existential and not merely behavioral such that, if guns ceased to be available, the problems currently associated with guns would disappear.* (Recall the famous slogan: “Guns don’t kill people; people kill people.”) Similarly, nuclear weapon states would have to come to view nuclear weapons in the same way.

In short, just as U.S. civilian gun owners would have to be made to believe that they were at least as well off, if not better off, without owning guns, the same can be said, by analogy, of states possessing nuclear weapons with respect to their decision to give them up—and that can only happen if the security environment itself were to change so fundamentally as to yield the generally held conclusion that nuclear weapons had no meaningful place in that environment.

Finding a Suitable Replacement

In his third and final address to a joint session of Congress in 1952, Sir Winston Churchill famously warned, “[B]e careful above all things, therefore, not to let go of the atomic weapon until you are sure and more than sure that other means of preserving peace are in your hands.”²⁰ Churchill understood that, in the absence of nuclear weapons, something else must be found to accomplish the same purpose. Nothing is new on this account. The entire history

²⁰ “Text of the Address by Prime Minister Churchill to Congress”, *The New York Times*, January 18, 1952, p. 4.

of technology is the history of replacing things once deemed irreplaceable by something more adequate to the purpose. An excellent illustration of this point comes from the history of whale oil.

In 1622, William Bradford, Governor of Plymouth Plantation, enthusiastically reported, “Cape Cod was like to be a place of good fishing, for we saw daily great whales of the best kind for oil.”²¹ Indeed, he had observed, while still aboard the *Mayflower*, that

every day we saw whales playing hard by us, of which in that place, if we had instruments and means to take them, we might have made a very rich return, which to our great grief we wanted. Our master and his mate, and others experienced in fishing, professed we might have made three or four thousand pounds worth of oil; they preferred it before Greenland whale-fishing, and purpose the next winter to fish for whale here.²²

Thus, even at this early stage of the settlement of America, whale oil was prized such that its valuation outweighed the enormous risks associated with harvesting it.²³ Whale oil was, by all estimations, the preferred oil for light sources and, with the emergence of the Industrial Revolution, the preferred lubricant for machinery. Over the next two centuries, the whaling industry expanded such that

In the year 1835 commenced that period of whaling which might be termed its Golden Age, for during the next decade the whale-fishery assumed its greatest importance and reached the zenith of its commercial value. . . . From this period the fleet rapidly augmented in size to the year 1846, when there belonged to the various ports of the United States 678 ships and barks, 35 brigs, and 22 schooners, with an aggregate capacity of 233,189 tons, and valued at \$21,075,000²⁴

—or, adjusted for inflation, \$722,862,920 as of this writing.²⁵

Naturally, the relentless harvest of whales not only induced scarcity, requiring whaling fleets to sail farther and farther, but some species of whale were hunted almost to extinction. Viewed from the vantage point of the 21st century, one might naively conclude, therefore, that current notions like environmental consciousness or animal rights led to the demise of the whale industry. However, nothing could be further from the truth. The far more proximate cause was “the birth of the American petroleum industry in 1859 in Titusville,

²¹ Edward Winslow, et al., *A Relation or Journal of The Proceedings of the Plantation Settled at Plymouth in New England*, The Plymouth Colony Archive Project, <http://www.histarch.illinois.edu/plymouth/mourt1.html>, accessed December 6, 2022.

²² Edward Winslow, et al., *Mourt's Relation: A Journal of the Pilgrims at Plymouth, 1622, Part I*, The Plymouth Colony Archive Project, <http://www.histarch.illinois.edu/plymouth/mourt1.html>, accessed December 6, 2022.

²³ See, for example, United States Commission of Fish and Fisheries, Part IV, *Report of the Commissioner for 1875–1876* (Washington: Government Printing Office, 1878), pp. 114, 131 ff., available at <http://whalesite.org/anthology/starbuck.htm>, accessed December 6, 2022.

²⁴ *Ibid.*, p. 98.

²⁵ CPI Inflation Calculator, <https://www.officialdata.org/us/inflation/1835?amount=21075000>, accessed April 14, 2023.

[Pennsylvania],” which “allowed kerosene to supplant whale oil before the electric light replaced both of them.”²⁶ Indeed, by 1882, Thomas Edison began providing electric lighting commercially to New York City—a world-changing event so underappreciated at the time that, the following day, *The New York Times* acknowledged what had occurred merely by including an unnamed reporter’s eyewitness account of the inauguration of this technology in the inauspicious “Miscellaneous City News” section.²⁷ This inauspicious beginning of a technological revolution notwithstanding, no one today could reasonably pine away with nostalgic feelings for the grand era of illumination by whale oil. A combination of the gradually widening price differential between whale oil and kerosene and later electricity, the relative ease with which each was produced, and the uncontested contrast between the efficiency of the former and the latter meant that kerosene and, as soon as it could become widely available, electricity, was bound to supplant whale oil. In short, something that performed the function better rendered the former means obsolete.

As for whale oil, so for nuclear weapons. Harkening again to Churchill’s 1952 address to Congress, he called nuclear weapons the “supreme deterrents against a third world war and the most effective guarantee of victory in it.” He regarded this “guarantee”—perhaps wishfully—as an essential stop-gap until “strong enough forces can be assembled in Europe under united command” and “our security can be seen to reside in valiant, resolute, and well-armed manhood, rather than in the awful secrets which science has wrestled from nature.”²⁸ In other words, large, standing armies that could achieve the same purpose were necessary before any serious thought could be given to relinquishing nuclear weapons. In truth, whether the most suitable substitution was large, standing armies or something else, may be left as an open question. The fundamental point remains the same: A capability regarded as adequate—whether whale oil, or nuclear weapons, or anything else perceived to perform an essential purpose—cannot reasonably be, *and will not be*, relinquished willingly until something else at least as adequate, if not more, is available to replace it.

Conclusion

Indeed, one can only look with great concern upon the possibility of nuclear weapon employment in Ukraine and with grave concern upon the possibility of escalation to a more general war with nuclear dimensions. That concern gives renewed and understandable rise to the call to abolish nuclear weapons altogether—as if nuclear abolition as such would simultaneously abolish the conditions that gave rise to them in the first instance. However, as this essay has sought to illustrate by analogy, unless (1) those seeking nuclear weapons first consider their possession to be no longer valuable to them, or (2) that the security

²⁶ Peter Appelbome, “They Used to Say Whale Oil Was Indispensable, Too”, *The New York Times*, August 3, 2008, <https://www.nytimes.com/2008/08/03/nyregion/03towns.html>, accessed December 7, 2022.

²⁷ Carl Sulzberger, “Thomas Edison’s 1882 Pearl Street Generating Station”, Engineering and Technology History Wiki, https://ethw.org/Milestones:Pearl_Street_Station,_1882, accessed December 7, 2022.

²⁸ “Text of the Address by Prime Minister Churchill to Congress,” *The New York Times*, January 18, 1952, p. 4.

environment which gave rise to nuclear weapons has fundamentally changed such that they are no longer necessary, or (3) that an adequate substitute can be found for nuclear weapons, or some combination of these states of affairs obtains, no rational basis exists for expecting that nuclear weapons will be eliminated from the world for the foreseeable future. That does not mean that nuclear weapons represent a moral good or that they are not morally or otherwise problematic. It merely means that nuclear weapons, like gold or guns or whale oil, exist, not in a vacuum, but in a geo-political context that first must change. With respect to a replacement technology, a caution is in order: One should consider that change merely for change's sake cannot be guaranteed to produce a better state of affairs. For, even if changing circumstances were to enable the disappearance of nuclear weapons today, there is also no rational basis for assuming that their replacement would be any less dreadful than the status quo, and, perhaps, would be more so.

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