

AIR WAR COLLEGE

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IS THERE FUTURE UTILITY IN NUCLEAR WEAPONS?

NUCLEAR WEAPONS SAVE LIVES

by

Robert A. Hoskins, Lt Col, USAF

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Advisor: Colonel Charles W. Patnaude

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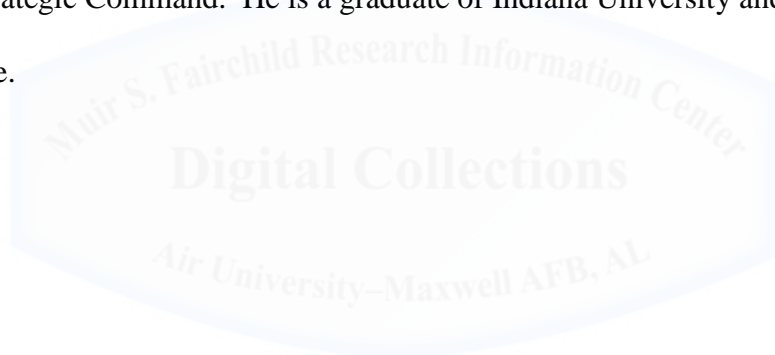
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Biography

Lt Col Bob Hoskins is assigned to the Air War College, Air University, Maxwell AFB, AL. Lt Col Hoskins is a career personnel officer. He has experience in promotions at HQ Air Force Personnel Center, and at all levels of flight and squadron personnel duties, including command. Lt Col Hoskins worked in rated management at HQ Air Combat Command, and was the Wing Executive Officer in the 100th Air Refueling Wing at RAF Mildenhall, UK. He was the Military Personnel Flight Commander at Wright-Patterson AFB, Ohio, and commanded the 82d Mission Support and 82d Force Support Squadron, Sheppard AFB, from 2007-2010. Lt Col Hoskins completed his joint tour requirements as the Chief, Senior Leader Management at HQ United States Strategic Command. He is a graduate of Indiana University and the Air Command and Staff College.



Abstract

The debate over the future of nuclear weapons has become more prominent each year since the end of the Cold War. The United States leadership is faced with a decision regarding the future of the nuclear weapons program in the face of worldwide proliferation concerns and threats. There are many cogent arguments for disarmament of the nuclear arsenal, specifically focused on cost, international instability and proliferation concerns, the potential for nuclear terrorism, and the credibility of the American deterrent. Those concerns, however, do not overmatch the future requirement of a nuclear deterrent. Nuclear weapons are a cost effective wedge against existential threats facing the United States from Russia and China, as well as a proven deterrent against large-scale great power war, which has been avoided worldwide since the Atomic Age began. The United States must continue to resource the nuclear deterrent and communicate a posture that ensures allies and deters potential adversaries. The threat remains, and the United States must maintain its leadership position to ensure international stability.

Introduction

Nuclear weapons serve the purpose of dissuading man's most violent tendencies. However, the political utility of nuclear weapons has come under increased scrutiny since the end of the Cold War. With the Soviet Union and the United States no longer at an alert standoff, some believe nuclear weapons no longer serve any purpose relative to national security. This is not the case. Those who believe in nuclear disarmament are discounting the historical reality that the world has been safe from great power war since nuclear weapons have become part of the military arsenal. Not only have nuclear weapons deterred nuclear war, but they have and will continue to deter large-scale conventional war in a dangerous world. This paper will examine the political utility of nuclear weapons in three sections.

In the first section, there will be an examination of current arguments in support of nuclear disarmament. There are myriad voices, authors and think tanks pushing an agenda of a global nuclear "zero." Consideration will be given to those who believe nuclear weapons no longer serve a purpose, and who believe the United States should lead the world into nuclear disarmament. Their prevailing arguments will be outlined and analyzed. There are those who argue that nuclear weapons only deter nuclear war. This is the idea that in a world without a nuclear threat, there is no utility for anyone to have nuclear weapons, and the United States should be the world's leader toward disarmament. There are also those who believe nuclear weapons are a cost prohibitive portion of the military arsenal, and that United States' treasure should be spent elsewhere. Third, some believe nuclear weapons create instability in the world, and that nuclear proliferation, particularly among rogue states and/or violent non-state actors, is the greatest threat to US national security in the current day. Effectively, this is the idea that nuclear weapons make the world a more dangerous place. Last, and potentially most important,

there are those that support the idea that the American people could never stomach the use of nuclear weapons. It is a credibility argument. Why should the United States have nuclear weapons if it will not use them? With the arguments in support of nuclear disarmament established, an examination in response to each will be offered.

The second section of this paper will provide counter arguments to the “views of others” outlined in section one, in turn. First, an analysis of history will examine what the effect of nuclear weapons has been. By reviewing the history of war in the twentieth century, an assessment of the utility of nuclear weapons will be made. Who has nuclear weapons? What has been the effect? Next, there will be a review of the cost of continuing to maintain a nuclear arsenal in relation to large-scale conventional conflict and other American spending. This comparison will shed light on the country’s perceived priorities. Third, the idea that nuclear weapons make the world unstable and/or unsafe, leading to greater potential for conflict will be reviewed. There will be a review of historical case studies, potential for future threats and the insinuated effect of nuclear weapons. Last, the argument that the United States will never use nuclear weapons is important. Should they remain an option for the national command authority? Following this section in support of the political utility of nuclear weapons, this paper will move on to the last section dealing with policy recommendations.

What is the purpose of this argument without policy recommendations? This paper will conclude with a section discussing whether or not to maintain a nuclear arsenal, the ramifications of doing so, and policy changes needed to go forward. Policy recommendations will start with the idea that the United States must maintain a safe, secure and effective nuclear deterrent in the future. This paper will recommend that the United States keep up with modernizing, and dedicating national treasure to the nuclear arsenal as perhaps the most cost-effective deterrent to

large-scale war and nuclear war. Furthermore, there will be a contention that the United States has control over instability in the world, and that the ability to assure allies and attribute nuclear weapons to their source is a critical component to maintaining stability and burden sharing security around the world. Last, the recommendation will be made that the debate over the nuclear arsenal needs to be opened up to a greater audience by the Department of Defense and the President. A deliberate effort to require a national discussion is required. The United States' nuclear posture and its policy statements need to send a message to the world that clearly establishes credibility, is backed by the American people, and clearly communicates to the rest of the world.

Views of Others

Some believe nuclear weapons exist for the sole purpose of deterring nuclear war. They believe nuclear weapons possess no political utility beyond that function, and as a logical follow on, that in a world without nuclear weapons, no one would require them for security. They argue that the existence of nuclear weapons is destabilizing the world over, and makes international security more challenging, and small-scale military adventurism more likely. Robert Jervis describes the situation as follows: "To the extent that the military balance is stable at the level of all-out nuclear war, it will become less stable at lower levels of violence."¹ The idea is that states will not be deterred from lower levels of war, and will operate with relative impunity short of large-scale conflict. Some point to a nuclear India and Pakistan as an example of instability concern. In 1997, South Asia observer Neil Joeck argued that "India and Pakistan's nuclear capabilities have not created strategic stability (and) do not reduce or eliminate factors that contributed to past conflicts...Far from creating stability, these basic nuclear capabilities have led to an incomplete sense of where security lies. Nuclear weapons may make decision-makers

in New Delhi and Islamabad more cautious, but sources of conflict immune to the nuclear threat remain. Limited nuclear capabilities increase the potential costs of conflict, but do little to reduce the risk of it breaking out.”² Effectively, the argument is that nuclear weapons do not stop war. This is correct. A historical review from the inception of the Atomic Age until the present is replete with examples of states, both nuclear and non-nuclear, engaging in conflict. Finally, there are those who believe the existence of nuclear weapons not only works at odds with stability, but that nuclear weapons make nuclear war more likely. George Perkovich of the Carnegie Endowment states, “If major powers of the twenty-first century are to avoid the destructiveness of the twentieth century, leaders will have to concentrate actively and assiduously on removing the temptation to initiate use of nuclear weapons.”³ The temptation Perkovich refers to is the existence of nuclear weapons.

In a time of economic austerity, some have voiced concern that nuclear weapons are a cost prohibitive component of national defense. It is logical that military professionals, if left to their own devices and unfettered by budgets, want every advantage available. But with a current budget crisis and a spiraling national debt, is not the national treasure better spent elsewhere? Maintenance of the nuclear weapons complex costs approximately \$25 billion per year, and it is estimated to cost \$179 billion between 2010 and 2018, and then balloon to \$500 billion over the next 20 years.⁴ While these numbers are debatable, they are in the neighborhood of the general consensus. Clearly, nuclear weapons are not budget dust. Maintenance costs can be dubious and ambiguous when one considers there is more involved in the cost of these weapons. Delivery systems, including high-ticket items like nuclear submarines, installation infrastructure, personnel costs, and other requirements drive the price tag for the nuclear enterprise. Considering the fact that the United States has not launched a nuclear attack since 1945, it is not

surprising some argue that the cost of nuclear weapons is prohibitive. The Nuclear Weapons Inheritance Project states “The costs of nuclear weapons programs is enormous and for every dollar invested in advanced weapon systems a dollar less is invested in health, education, social welfare and development.”⁵ With a fixed budget, it is clear that funding nuclear weapons is a tradeoff with other spending. They further point to more far-reaching financial tradeoffs, and argue that “... the price of global elimination of starvation, provision of health care, provision of shelter and clean water, elimination of illiteracy, provision of sustainable energy, debt relief for developing countries, clearance of landmines and more has been estimated to be about \$260 billion annually for 10 years.”⁶ Clearly, the maintenance of the nuclear arsenal is a tradeoff. In fact, the nuclear arsenal costs more annually than the individual gross domestic product of the world’s bottom 90 nations.⁷ Do Americans need a nuclear arsenal that costs billions of dollars per year, and is projected to cost even more going forward, when we could redirect that money to healthcare, worldwide development, clean technology, and other priorities? Perhaps the taxpayers could do better.

In his May 6, 2009 Prague speech, the President of the United States said, “we must ensure that terrorists never acquire a nuclear weapon. This is the most immediate and extreme threat to global security.” He further stated, “The existence of thousands of nuclear weapons is the most dangerous legacy of the Cold War.”⁸ The emergence of international, violent non-state actors has presented a challenge. Rogue states are also a concern. Iran is pursuing a nuclear weapons capability, and has established relationships with terrorist groups like Hezbollah. The rationality of North Korea’s leadership, and their compulsion to avoid becoming a responsible member of the international community, is problematic. In his book, *On Nuclear Terrorism*, Michael Levi asserts, “Theft is not the only way to acquire nuclear weapons or materials—states

or their senior officials might deliberately transfer nuclear weapons or materials to terrorist groups.”⁹ Failed states or potentially failed states could also be a target of opportunity for terrorists to acquire nuclear weapons. A nuclear-armed Pakistan, faced with internal instability, could lapse its nuclear security to the point that terrorists from the region could acquire weapons or material. These are considerable concerns, and warrant examination. President Obama was not overreaching when he claimed “One nuclear weapon exploded in one city -- be it New York or Moscow, Islamabad or Mumbai, Tokyo or Tel Aviv, Paris or Prague -- could kill hundreds of thousands of people.”¹⁰ Assuming a yield consistent with modern-day nuclear weapons, a nuclear detonation in a major city would be the most horrific act of instantaneous violence in the history of mankind.

Last, there is the argument that the United States will never again use nuclear weapons. They no longer provide a credible deterrent. In the 2010 Nuclear Posture Review Report, the United States announced “negative security assurance by declaring that the United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations.” The report goes on to state, “any state eligible for the assurance that uses chemical or biological weapons against the United States or its allies and partners would face the prospect of a devastating conventional military response – and that any individuals responsible for the attack, whether national leaders or military commanders, would be held fully accountable.” And finally, the report allows the possibility that for “states that possess nuclear weapons and states not in compliance with their nuclear non-proliferation obligations – there remains a narrow range of contingencies in which US nuclear weapons may still play a role in deterring a conventional or CBW (chemical, biological weapons) attack against the United States or its allies and partners.”¹¹ While the

preceding is a litany of “what if” statements, it indicates a prevailing reluctance to employ nuclear weapons. In fact, it strategically communicates a very narrow aperture in which the United States would consider using nuclear weapons. For an adversary, it is a roadmap to American red lines. Considering the range of military options available to worldwide state and non-state actors alike, this posture effectively confirms that short of nuclear attack, use of CBW, or large scale conventional attack by a near peer, the United States’ nuclear arsenal will stand down. Considering the likelihood of such an attack, why maintain such an arsenal? The United States’ own nuclear posture and policy nearly dictates that the country’s leadership is moving further and further away from the nuclear option under any circumstances. The stated policy of the US government implies that nuclear weapons may be a sunset capability. As such, the credibility of the nuclear deterrent has been overtaken by the pursuit of conventional superiority. The United States will not use nuclear weapons under nearly any circumstances, so why maintain the capability?

Counter Arguments

The passion on both sides of the nuclear weapons debate is considerable and should be addressed. The views of others outlined above, including statements made by the government of the United States, are powerful and resonate in leadership circles around the world. There is an alternative view that demands attention in a dangerous world. Nuclear weapons have saved lives and will continue to save lives in the future. They will continue to exert political utility if managed, maintained, postured and communicated correctly, and they are vital to US national security.

Prior to discussing views in support of the nuclear arsenal, it is important to establish historical background salient to the issue. Who has nuclear weapons, when did they acquire them, and what do they have? The following is a short outline of worldwide nuclear powers.

Country	First Detonation	Warheads
United States	1945	1654 deployed*
USSR	1949	1480 deployed*
UK	1952	225
France	1960	300
China	1964	240
India	1998	Approx. 100
Pakistan	1998	Approx. 100
North Korea	2006	Approx. 5
Israel	1979?***	75-200

* The United States and Russia maintain weapons in “deployed” status, as well as reserves.

** Israel is known to have nuclear weapons, but does not have a confirmed test. There is conjecture that Israel participated in a joint test with South Africa in 1979. ¹²

This background is important as these arguments move through the opposing viewpoints, as it can be instructive as to state behavior, stability, and security concerns. The first argument to address is that nuclear weapons only deter nuclear war. Many opponents of nuclear weapons misperceive the utility of them. Nuclear weapons do not exist to stop all war, just as a shotgun is not meant for killing spiders in one’s home. Historically, nuclear weapons have accomplished two things: deterred nuclear war and de-escalated or averted great-power war. This is historically supported by a review of 20th Century deaths resulting from war. Prior to the culmination of World War II, the world went through the first part of the twentieth century with

tens of millions of war casualties as a result of great-power war. Following World War II, there has been a drastic decline in worldwide war deaths, and only one factor has changed, the advent of nuclear weapons. During World War I and World War II exclusively, war dead numbered over 25 million military members. Adding in civilians to the total for World War II brings the total count to nearly 70 million.¹³ In the period following World War II to the present, war dead worldwide in all manner of conflict has been about 3.7 million.¹⁴ This presents a significant contrast. There remain great powers with great militaries and opposing national interests. There remains evil in the world. The change has been that the cost of war has risen among the great powers to the point it is potentially unwinnable, due to the nuclear option. Evidence from the Korean War¹⁵ and the Vietnam War¹⁶ supports that the potential for nuclear power escalation played a role in the decision makers' calculus on both sides. In both cases, great-power war was averted, and while major powers supported opposing sides of these conflicts, they avoided large scale war with one another. Further, and more recently, India and Pakistan's relationship has proven that nuclear weapons are de-escalatory. As is often the case in the nuclear debate, parties can view the same circumstances through an entirely different lens. J.N. Dixit, the national security advisor to Prime Minister Manmohan Singh writes, "A certain parity in nuclear weapons and missile capabilities will put in place structured and mutual deterrents. These could persuade the Governments of India and Pakistan to discuss bilateral disputes in a more rational manner." Further, India's Army Chief, K. Sundarji, predicts "the only salvation is for both countries to follow policies of cooperation and not confrontation...A mutual minimum nuclear deterrent will act as a stabilizing factor."¹⁷ Clearly, nuclear weapons possess utility beyond deterring nuclear war.

Having discussed the utility of nuclear weapons, are they cost prohibitive? The answer to this question is a matter of perspective. Considering the fact that \$25 billion a year is roughly two percent of US annual military defense spending, nuclear weapons are a bargain. However, considering potential tradeoff spending, this is a question of priorities and perspective. The American people supported World War II without an internal revolution to the tune of what would be trillions of modern-day dollars. It is arguable whether or not the Axis powers presented an existential threat to the United States, but the threat to the country and its allies was considerable. Russian and Chinese nuclear weapons present an existential threat to the United States on a daily basis. They each have enough weapons to destroy the American way of life within minutes. There is no arguing that \$25 billion is a significant national expenditure, but it is far less expensive than great-power war or large-scale conventional war. The Iraqi and Afghanistan wars have cost the country in excess of a trillion dollars, and counting, and they do not present an existential threat. The question for the American people is: are they comfortable abandoning nuclear weapons due to cost in the face of other countries with the capability of destroying the United States? It is worthwhile to bring American expenditures into this discussion. As discussed, the United States spends \$25 billion dollars per year on maintaining the nuclear arsenal. Correspondingly, American citizens spend \$40 billion on lawn care, \$34 billion on gambling, \$25 billion on professional sports, \$17 billion on video games, \$16 billion on Easter, and \$10 billion on romance novels annually.¹⁸ It is more a question of priorities, not cost. The United States can afford its nuclear weapons program, which serves to keep the country safe from malicious intent combined with capability.

The potential for nuclear terrorism sponsored by rogue states or as a result of a nuclear security failure also requires attention. President Obama declared a nuclear weapon in the hands

of terrorists the greatest threat facing America. Although this situation would wreak havoc on the American psyche, it is not an existential threat. However, Chinese and Russian nuclear weapons are an existential threat, and are therefore greater threats to American security.¹⁹ The United States has the ability to cooperate with other nuclear states, like Pakistan, to enhance their nuclear security. Security enhancements on the weapons themselves, as well as process improvements and communication protocols between nuclear adversaries work to that end. Additionally, nuclear forensics leading to attribution is critical and attainable. Levi describes nuclear forensics as the “science and art linking nuclear materials to their sources.”²⁰ The United States has the ability and can communicate the ability to attribute the origin of nuclear weapons or material to their source. By partnering with states on nuclear security, and by clearly communicating the ability to attribute the origin of nuclear materials, the United States can hold state actors at risk and deter proliferation to violent non-state actors. It is important to reiterate that violent non-state actors are not deterred by America’s nuclear arsenal, and should they obtain and detonate a device, it would be horrific. States are deterred by the nuclear arsenal, and states present existential threats, terrorists do not. The President also commented that the “existence of thousands of nuclear weapons is the most dangerous legacy of the Cold War.” This thought has prevailed now for over two decades, but are not thousands of secure nuclear weapons much safer than one unsecure weapon?²¹ The legacy of the Cold War is that nuclear deterrence works. Further, a safe and secure arsenal, large enough to deter potential adversaries and assure allies, mitigates proliferation. As allied countries hear America’s rhetoric about a desire to shrink the arsenal, as well as the highly-limiting circumstances when nuclear weapons would be employed, they are more likely to pursue their own nuclear weapons. If more weapons

are bad, too few weapons are worse. Security and attribution, combined with an arsenal capable of holding existential threats at risk is the answer.

Is there any veracity to the contention that the United States will never use nuclear weapons? The issue of credibility must be addressed. Once capability is established, credibility becomes more of an intentions discussion. The critical component to the credibility of the nuclear arsenal is not what the United States will actually do when challenged, but rather, what other states believe the United States will do. Credibility is a perception issue. Kamp and Yost in *NATO and 21st Century Deterrence* describe credibility as “the interplay of capability and resolve.”²² The United States maintains nuclear credibility in the eyes of potential adversaries. The United States is the only nation that has used nuclear weapons in war. Adversaries remember that. Further, the idea that America has not used nuclear weapons since 1945 is incorrect. Nuclear weapons have been used every day since 1945 to provide a strategic deterrent. Evidence of this is that the United States has not had to kinetically engage an existential threat since the bomb fell on Nagasaki. In fact, following America’s reaction to the attacks of September 11, 2001, the only plausible prevailing perception is that the United States is prepared to hold adversaries at great risk when presented with a threat to the homeland. If one expands this threat to the nuclear realm, there can be no doubt that the United States maintains credibility. Consider Israel, a nation surrounded by adversarial countries for its entire existence. Israel has thwarted conventional attacks from neighboring countries, but has never faced a battle for survival. If those countries did not believe Israel would resort to nuclear weapons in the face of a threat to national survival, Israel would already be gone. While Israel has never officially detonated a nuclear device, it maintains a credible deterrent due to the perception of nuclear

capability. Deterrence is in the eye of the beholder, and American's nuclear arsenal remains credible, and has history to back that up.

Policy Recommendations

Presently, the United States continues to maintain a nuclear arsenal. The future of that arsenal, and current debates surrounding it, demand a policy review. The US President's principle policy statement must be an overt commitment to maintaining a nuclear arsenal large enough to hold every nuclear state completely at risk, as well as large enough to provide extended deterrence to allies. If counter-proliferation is a national objective, providing extended deterrence is critical. The current combination of rhetoric pushing the argument toward disarmament, including that coming from the US government, while simultaneously attempting to convince countries they are safe under an extended deterrence umbrella is not sustainable. The exact figure is unknown, but at some point a reduced American arsenal will force partner states to abandon the extended deterrence umbrella and proceed with their own nuclear program. The United States cannot have it both ways. Further, it is critical that in official US communications, we exhibit a commitment to the nuclear deterrent for the future. This message will not be lost on potential adversaries. The message should be clear: the United States is posturing and resourcing itself based on the capability of other states and the potential threat, not in perceived intent. Intent can change. It would equate to military malpractice to recommend mitigation of the nuclear deterrent in the face of existential threats to the nation.

In addition to committing to maintenance of the nuclear arsenal, the United States should modernize its nuclear capability. The country cannot allow its sole deterrent against an existential threat to rust into retirement. Russia, China and France have modernized weapons, and the United States has remained politically constrained from pursuing new capability. To

illustrate this point, two current debates are underway regarding a new bomber program and a redesign of the tail kit for the bombs they could deliver. The B-52 fleet is nearly 60 years-old, and the B-61 bomb it delivers is over 50 years-old. Nuclear weapons remain the most cost effective military capability the nation possesses. Not only would modernization and increased investment assure capability and enhance credibility, but it would send a message to potential adversaries that the United States will continue to hold them at risk should their intent turn malicious. Nuclear weapons are a self-defense capability. There is no historical example for when a weaker United States made the world a safer place. If the country is committed to maintaining the American way of life, it will demand commitment to nuclear weapons.

The United States has a decision to make between the safety derived from leadership, or the hope of a more docile world. Absent leadership, proliferation may occur horizontally. Current non-nuclear states may pursue nuclear capability in response to US conventional superiority or in response to decreases in the US arsenal. The United States must be a leadership influence and ensure cooperation and discipline among nuclear nations. To a degree, proliferation among allies is within US control. Maintaining an effective, safe, and secure arsenal assures allies. Ensuring states understand the existence of nuclear forensics and attribution will also dictate behavior. America cannot be a shrinking power, communicating weakness and leaning toward disarmament in the world as it is now. Power balancing demands leadership, and the safest place from which to lead is from the position of power and influence. It is critical that the rhetoric and strategic communication coming out of US leaders remains ambiguous enough to continue to communicate the threat that while the country intends to lead the world toward peace, it can still hold bad actors entirely at risk.

There is no doubt the nuclear debate will continue; however, the debate requires expansion. This discussion is too important to be left among think tanks and policy professionals, as it potentially affects the lives of all Americans. The United States has public debate regarding health care, steroid use in baseball, and American Idol, but not about nuclear weapons. While it is not rational to pursue disarmament in the face of a world with nuclear weapons capability, this has to be a discussion opened by the Department of Defense and the President. During the Cold War, Americans understood deterrence. There were infomercials regarding what to do during an attack, children practiced nuclear drills at school, citizens and government buildings had shelters. This is not a recommendation to return to nuclear paranoia, but rather, to remind the American public why it is critical to maintain a nuclear arsenal for which they dedicate \$25 billion a year. The threat and the solution must be supported by the American people, and they have been left out of the discussion. Americans have seen news stories regarding nuclear weapon buffoonery. They have seen wars in recent years that, while costly in terms of life and treasure, did not impact their daily ability to attend ballet practice and space camp. They need to be reacquainted with the sobering reality that there is a threat requiring their attention, and a solution requiring their support.

Notes

- ¹ Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell University Press, 1984), 31.
- ² Neil Joeck, “Maintaining Nuclear Stability in South Asia,” *Adelphi Paper 312*, 1997, 12.
- ³ George Perkovich, *Do Unto Others* (Washington, D.C.: Carnegie Endowment for International Peace, 2013), 78.
- ⁴ Nuclear Threat Initiative, “Nuclear Weapons Budget Overview”, <http://www.nti.org/analysis/articles/us-nuclear-weapons-budget-overview/>, (Chicago, 17.237).
- ⁵ International Physicians for the Prevention of Nuclear War, <http://www.ippnw-students.org/NWIP/pdfs/costs.pdf>, (Chicago, 17.237).
- ⁶ International Physicians for the Prevention of Nuclear War, <http://www.ippnw-students.org/NWIP/pdfs/costs.pdf>, (Chicago, 17.237).
- ⁷ CIA World Fact Book 2003-2010, “List of Countries by GDP,” [http://en.wikipedia.org/wiki/List_of_countries_by_GDP_\(nominal\)](http://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal)), (Chicago, 17.237).
- ⁸ Barack H. Obama, President of the United States, (address, Prague, Czechoslovakia, 5 Apr 2009).
- ⁹ Michael Levi, *On Nuclear Terrorism* (Cambridge, MA: Harvard University Press, Cambridge, 2007), 127.
- ¹⁰ Barack H. Obama, President of the United States, (address, Prague, Czechoslovakia, 5 Apr 2009).
- ¹¹ Department of Defense, *Nuclear Posture Review Report* (Washington, D.C.: Government Printing Office, 2010), vii.
- ¹² Arms Control Association, “Nuclear Weapons, Who Has What At A Glance,” <http://www.armscontrol.org>, (Chicago, 17.237).
- ¹³ Antony Beevor, “The Second World War,” *The Economist*, 9 Jun 2012, <http://www.economist.com/node/21556542>, (Chicago, 17.237).
- ¹⁴ The Correlates of War, “Data Sets of Inter-state Wars,” <http://www.correlatesofwar.org>, (Chicago, 17.237).
- ¹⁵ General Omar N. Bradley, Chairman, Joint Chiefs of Staff, to Secretary of Defense,

memorandum, 10 July, 1950, 2. Document is now declassified.

¹⁶ George W. Ball, Undersecretary of State, to Chairman, Joint Chiefs of Staff and Secretary of State, 1964, 23, 33. Document is now declassified.

¹⁷ Michael Krepon, "The Stability-Instability Paradox," *Prospects for Peace in South Asia* (Palo Alto, CA: Stanford University Press, 2004), 4.

¹⁸ Deseret News, "34 Things Americans Spend Billions On," <http://www.deseretnews.com/top/1289/5/Child-care-34-things-Americans-spend-billions-or-millions-of-dollars-on.html>, (Chicago, 17.237).

¹⁹ Adam Lowther, PhD, *Challenging Nuclear Abolition* (Montgomery, AL: Air Force Research Institute Papers, 2009), 19.

²⁰ Michael Levi, *On Nuclear Terrorism* (Cambridge, MA: Harvard University Press, Cambridge, 2007), 127.

²¹ Adam Lowther, PhD, *Challenging Nuclear Abolition* (Montgomery, AL: Air Force Research Institute Papers, 2009), 16.

²² Karl Heinz-Kamp and David S. Yost, eds. *NATO and 21st Century Deterrence* (Rome, Italy: NATO Defense College Paper 8, 2009), 161.

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