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Non-Nuclear Peace
Beyond the Nuclear Ban Treaty
Edited by
Tom Sauer
Jorg Kustermans
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Rethinking Peace and Conflict Studies
ISBN 978-3-030-26687-5 ISBN 978-3-030-26688-2 (eBook)
https://doi.org/10.1007/978-3-030-26688-2

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

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CHAPTER 1

Introduction

Tom Sauer, Jorg Kustermans and Barbara Segaert

In a time of turbulence in world politics, more than one observer will question the usefulness of an edited book volume that starts with the assumption that a world without nuclear weapons is desirable, not just as a long-term ideal, but as a political—albeit ambitious—goal. On the other hand, the enhanced nuclear rhetoric by Russia and to a lesser extent the North Atlantic Treaty Organization (NATO), the uncertain future of the Iran deal and the end of the Intermediate Range Nuclear Forces (INF) Treaty, as well as the North Korean nuclear threat also show that nuclear inertia may be a recipe for disaster.

The nuclear era not only gave birth to extremely powerful atomic (and later on even more destructive H-) bombs, but also marks the start

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_1

of an ongoing discussion about the morality of the use—and threat of use—of these weapons. Nuclear pacifists categorically reject nuclear weapons on ethical grounds, or believe that the dangers that go along with these weapons outweigh their potential stabilizing effects. This volume aims to prolong the ideas behind this particular tradition of thought that we would like to brandish as non-nuclear peace. During the 'Long Peace' after the Second World War (Gaddis 1989), the world came close to nuclear disaster, in particular during the Cuban missile crisis and also later on in the beginning of the 1980s. The main objective of non-nuclear peace is preventing nuclear war. Just as negative peace means the absence of war, non-nuclear peace corresponds to the absence of the fear of nuclear war, something which can in all likelihood only be realized by eliminating nuclear weapons. We therefore define *non-nuclear peace* as a concept of peace that takes issue with the logic of nuclear deterrence and that envisions a peace order attuned to the exigencies of a post-nuclear world.

Throughout the nuclear era skeptics have come to believe that a world without nuclear weapons is a pipe dream (Payne 1998; Quinlan 2007–2008; Tertrais 2010; Waltz 1981). According to them, a nuclear weapons-free world is not only not feasible, it is also not desirable. They base their perspective on the idea that a strong deterrent is very useful (or even necessary) in an anarchic world in which the state units have to ensure their own survival, since no world government exists that might be relied upon in times of danger. Skeptics further point to the practice of international politics since the beginning of the Cold War, which seems to prove the effectiveness of nuclear deterrence. No major war—let alone a world war—has been started since the end of the Second World War, which not by chance (the advocates of nuclear weapons argue) corresponds with the birth of the nuclear era. Nuclear hawks admit that a world without nuclear weapons would be ideal, but that it would be irresponsible to even try to make that happen. A non-nuclear peace, according to them, would be unstable and therefore dangerous. Certainly today, when US hegemony is being questioned due to the upcoming power of China, the growing assertiveness of Russia, and the worldwide rise of nationalism and populism, they argue that the international order should not be further destabilized by eradicating one of the main pillars of stability, namely nuclear weapons.

1 Changing Context, New Debate

That said, we believe that there is nevertheless reason to try to give a new impulse to the intellectual debate because of *other* changed international circumstances. This time not for the bad, but for the good (in the eyes of the nuclear pacifists), more in particular the negotiation and conclusion of the Treaty on the Prohibition of Nuclear Weapons ('Ban Treaty') in 2017. While the latter, including the International Campaign to Abolish Nuclear Weapons (ICAN's) Nobel Peace Prize in 2017, did not receive much attention from mainstream media, the Ban Treaty can be regarded as revolutionary insofar as it for the first time forbids the development, production, stockpiling, transfer, testing, use and threat of use of nuclear weapons. Once the Ban Treaty enters into force, which will probably occur in 2021 at the latest, the existence of nuclear weapons will not only be regarded as inhumane, and therefore immoral and illegitimate, but also illegal, not only by those who are already convinced, but in all likelihood also by more and more people and states that belong to the 'silent majority', even inside the nuclear armed states and their allies. Or that is at least the hope of the advocates of the Treaty (Sauer and Reveraert 2018).

The fact is that due to the aforementioned turbulence in world politics, numerous 'classic' nuclear arms control treaties have not yet entered into force (the Comprehensive Test Ban Treaty) (CTBT) or have been entirely unilaterally abandoned by the US (the Anti-Ballistic missile Treaty, the Iran deal, INF). Since the future of New Strategic Arms Reduction Talks Treaty (START) and the Nuclear Non-Proliferation Treaty (NPT) is also at stake, the possibility exists that the Ban Treaty will be the only nuclear disarmament treaty left (together with the regional nuclear weapon free zones treaties).

The Ban Treaty shows the impatience by the majority of states in the world with respect to the implementation of the legal promise of getting rid of nuclear weapons, made by the five formal nuclear weapon states in the NPT. The tables seem to be turning: for the first time ever, the non-nuclear weapon states are in the driving seat, while the nuclear armed states and their allies are a minority. This may result in them feeling stigmatized, but whether this situation will be sufficient to give a boost to nuclear disarmament remains to be seen. Advocates of nuclear weapons certainly do not like the Ban Treaty (Roberts 2018), but it is not always clear whether that is because they believe the Treaty

won't have any effect or whether it will (and therefore bring us closer to abolition).

Regardless of the exact impact of the Ban Treaty, it is useful to start thinking about the next phase, namely how to imagine non-nuclear peace in light of contemporary and future global political and cultural conditions. This is therefore not another edited volume in which proponents and opponents of nuclear elimination repeat their well-rehearsed arguments. The objective here is to leave the trenches and to make another constructive step forward in the thinking on how to reach and sustain a peaceful order without nuclear weapons.

2 Non-Nuclear Peace and Scholarly Responsibility

If there is one scholar without whom nuclear weapons would probably never have been invented, it is Albert Einstein. We refer of course to his scientific inventions that led to the splitting of the atom, but even more to the letter that he and his Hungarian colleague Leo Szilard wrote to US President Roosevelt in 1939. In their letter they warned that German scientists under Hitler were making progress in developing a superweapon. That letter helped convince Roosevelt to set up the gigantic and secret Manhattan Project that led to the development of the first atomic bombs ever produced by humankind, which in turn destroyed Hiroshima and Nagasaki within a few months. Einstein later admitted that writing that letter was his biggest mistake ever. Einstein was a pacifist right from the beginning. He publicly spoke out against a letter in which the German authorities minimalized the atrocities that happened in the first weeks of the First World War in Belgium. In the 1930s, he had to flee his country to reach the US by boat via Antwerp. After Hiroshima and Nagasaki, he became an outspoken critic of nuclear weapons. His last public action, right before he died in 1955, was the signing of the so-called Russell-Einstein manifesto, of which the best-known sentence is: 'Remember your humanity and forget the rest'. It was a warning against the nuclear arms race, signed by different scientists and intellectuals of that time. One of them was Bertrand Russell, the famous British philosopher, pacifist, and socialist. He had actively resisted the UK's participation in the First World War, for which he was jailed for six months. Russell was also an outspoken critic of atomic weapons: in 1959, he published the essay (in the form of a book) 'Common sense and nuclear warfare'. Later on, he founded the International War Crime

Tribunal on Vietnam. One of the other members of this Tribunal was the German philosopher Gunter Anders, born Gunther Stern, cousin of Walter Benjamin, and Ph.D. student of Edmund Husserl. Anders was shocked by what happened in Hiroshima and Nagasaki, and later became known in Germany as the 'Atom philosopher'. In his book *The Obsolescence of Humankind* in 1956, Anders warned of our inability to imagine the destruction that nuclear weapons could provoke. Gunther Anders was first married to Hannah Arendt, who already as a child had read Emmanuel Kant. Before becoming a famous philosopher and political scientist, Arendt studied under Heidegger, had a brief affair with him, and moved to the US because of Nazism, just like Einstein and Anders. Arendt criticized our reliance on nuclear weapons in her book *On violence*, published in 1972. Last but not least, there is Hans Morgenthau, one of the founding fathers of the study domain of International Relations and known as a quintessential Realist. Nevertheless, just like Anders and Russell, he was against the Vietnam War and against nuclear weapons, and for that reason, championed a world government.

What is remarkable is that these five scholars, who acted not as a group but as individual scholars, all lived through two world wars in the pre-nuclear era, and later on did *not* embrace nuclear deterrence as a panacea for world peace (see also the chapter by Sylvest in this volume). On the contrary, they strongly believed that the development of nuclear weapons would lead to their use, and in all likelihood, to the end of humankind. They acted as public intellectuals—or *norms entrepreneurs* as they would be called today (Finnemore and Sikkink 1998)—by writing and speaking out against nuclear weapons. Nowadays, one is surprisingly hard-pressed to find any so-called Realist who opposes nuclear weapons—with Campbell Craig as a notable exception, see also his chapter in this volume. Worse, it is hard to find any public intellectual with the stature of Hannah Arendt who speaks out against nuclear weapons. Is it because there are no intellectuals of that degree anymore? Or is it because current intellectuals have not experienced war themselves? Or because they never lived through a period when nuclear weapons have been used? Or is it because the world has become more dangerous to the extent that even Einstein, if he were alive today, would not have spoken out any longer against nuclear weapons? Or is it because fatalism is far more prevalent today?

In the context of the dearth of scholarly voices publicly speaking out against nuclear weapons, we—as scholars—made the explicit choice to

give voice to those experts who believe nuclear elimination is desirable, and that everything should be done to make it feasible. We are proud that some of the most innovative and independent thinkers on nuclear weapons—political scientists, historians, and natural scientists—were willing to contribute to this academic volume. We can only hope that their writings may inspire students of international politics to think harder about how to manage the nuclear weapons threat in the coming decades.

3 The Structure of the Book

The book will be organized around three central themes. The first part of the book—titled **Criticism of Nuclear Deterrence and Proliferation: Old and New**—sets the stage for the main part of the book by synthetizing the arguments with respect to the desirability of nuclear weapons. Casper Sylvest goes back to the first decades of the nuclear era to reveal different conceptions of the Bomb. He points out the largely forgotten point that public intellectuals like Anders, Russell and Morgenthau, but also Mumford and Herz were willing to question what he calls the normalization of the nuclear condition. In the second chapter, Patricia Lewis asks similar questions for the current period. She believes that the idea that the nature of these weapons prevent large-scale war is increasingly being challenged. As the belief in nuclear deterrence wanes and waxes, the risk calculations and the moral discourse about nuclear weapons are also changing. Katarzyna Kubiak concludes this first part with a critical analysis of the most under-researched type of nuclear proliferation, namely vertical proliferation: both the quantitative and qualitative build-up of nuclear arsenals *within* the existing nuclear weapons states. Obviously, she concludes, developing new nuclear weapons, prolonging the life of existing stockpiles and renewing the nuclear weapons complex are counterproductive to the goal of nuclear disarmament. Apart from some potential disarmament-inducing side-effects, like reducing the numbers and the yields, that approach would ultimately take us further away from a state of non-nuclear peace.

For the intellectual criticism of nuclear peace to lead to a world without nuclear weapons, the arguments need to be mobilized politically. Scholarly arguments need to be transposed to the public sphere and need to be introduced into political decision-making (Ish-Shalom 2006). The second part of the book titled, **On the Road to Non-Nuclear Peace: From Ridicule to Stigmatizing Via Prohibition**, describes some of

these processes. After the Cold War, as Rodger Payne points out in his chapter, one could witness such politicization of anti-nuclear arguments, when more and more practitioners—former diplomats and retired generals—changed their minds and started to criticize and ridicule nuclear weapons. The most recent and arguably the most promising wave of dissent, however, is the so-called Humanitarian Initiative (starting around 2007) that led to the Ban Treaty. How did the Treaty come about? And what will be the likely effect? For Tannenwald, the Ban Treaty certainly has the ability—despite its limitations—to further strengthen the nuclear taboo. Michal Onderco, in contrast, is more critical, afraid that the Ban Treaty may even undermine the future of the NPT.

The third and last part of the book grapples with the questions of feasibility of this long-term project: what are the steps beyond the Ban Treaty that would allow the creation of a moral-political climate and institutional context that favours the eradication of nuclear weapons? What are the necessary preconditions for creating a world without nuclear weapons? What additional instruments does the world need to create and to maintain peace in a world without nuclear weapons? Is a world government needed, as Campbell Craig argues in the final chapter? Or would it be sufficient to have a second look at the global collective security regime, as Harald Müller recommends? Answering these questions requires that one comes to terms with the particularities of a non-nuclear peace. A non-nuclear peace will be different from a nuclear peace, but will it also be different from a pre-nuclear peace? In other words, to what extent is a non-nuclear peace a post-nuclear peace? How will the memory of the pre-nuclear and nuclear era, but also the legacy of nuclear technology, inform the new—the newly to be imagined and newly to be organized—non-nuclear peace? That is what is addressed in the last part of the book, titled **Sustaining Non-Nuclear Peace: Government or Governance in the Longer Term**.

4 A Word of Thanks

Our thanks goes first of all to the University Centre Saint Ignatius Antwerp (UCSIA), which made it possible to organize a two-day workshop on the theme of non-nuclear peace from 23 to 25 May 2018 in Antwerp (Belgium). It was a second workshop in a series of three about War and Peace. We would also like to thank all paper presenters (including the chapter contributors) and participants of this successful event.

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PART I

Criticism of Nuclear Deterrence and Proliferation: Old and New

CHAPTER 2

Conceptions of the Bomb in the Early Nuclear Age

Casper Sylvest

From the time of their invention, nuclear weapons have been associated with a demand for new ideas and a new kind of politics. Trite as it may seem, this is a good starting point for tackling a subject as daunting as this. In fact, due to their deep imbrication in modern politics, science and society nuclear technologies constitute fertile ground for intellectual historians. In recent decades, intellectual history has become increasingly focused on the specific contexts in which ideas were advanced, challenged and defended. It has also extended its purview beyond elite discourse and culture, further underlining its interdisciplinary promise. These positive trends have also, however, highlighted the importance of perspective. It is far from simple to recover 'what people in the past meant by the things they said and what these things "meant" to them', as the late John Burrow defined the enterprise (in Cuttica 2014, p. 914). There are multiple histories, and the choices of the historian matter a great deal.

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_2

In studying conceptions of nuclear weapons from a historical perspective, the character of the technology also provides some guidance. The threat posed by these weapons and the fact that they, in time, challenged conventional categories of war and politics gave much intellectual discourse about nuclear weapons a grave, searching quality. Especially in the first decades after the development of the atomic bomb, the period I focus on here, conversations about nuclear weapons saw received wisdom mixed with innovation and improvisation, desperation even. Rapid technological development and new conditions of politics and social life in the West, some of which had been gestating for decades, only served to intensify this situation. Consequently, parts of this thinking now appear coherent and sensible, while other parts do not. Some ideas caught on, some did not. In this situation, we should resist the temptation to rely on theoretical scaffolding to make sense of what people in the past meant by what they said about nuclear weapons (and what these things meant to them and what it means *for* us). The noble aim of this book and the series of workshops from which it springs—to 'examine the problem of peace in light of contemporary global political and cultural conditions'—is clearly one to which history can contribute. History can help us understand how we got here and why. Yet, we must proceed in a manner attuned to the scale and complexity of the challenges introduced by nuclear weapons, and we must try to unpack the diversity of thinking about this new technology. In exploring conceptions of the bomb in the early nuclear age, I focus on key sites of intellectual activity and contestation. While this approach has limitations—the most obvious one being my focus on the US and Western Europe *c.* 1945–1965[1]—it captures a good deal of the range and complexity of thinking about these weapons. Crucially, it also highlights that the way key questions were tackled, resolved or evaded still matters.

Before turning to four central questions or sites of contestation, I introduce two historical developments that have some bearing on this subject and our approach to it. The purpose of these preliminary observations is two-fold: first, to highlight central features of the intellectual activity of reflecting on the nature and significance of nuclear weapons; second, to direct attention to the structures shaping this activity, which in turn brings out some of the methodological challenges involved in studying the historicity of meanings accorded to these weapons.

1 The Bomb and the Politics of Knowledge

The first historical development of importance for exploring nuclear weapons in intellectual history concerns a multifaceted and exceedingly fascinating theme: the mutual imbrication of nuclear weapons technology and our knowledge about the Earth. As historians of science, technology and the environment have recently detailed, nuclear weapons brought with them a host of questions and a massive expansion of knowledge about the workings of the planet. The questions primarily concerned the effects of nuclear weapons or ways of delivering them. Funding from military sources became instrumental in the renaissance of physical and field-based earth sciences—including disciplines like oceanography and meteorology and data-gathering techniques such as ice sheet coring—during the early part of the Cold War. While military patronage shaped the concerns of this research and its publication, since its focus was predominantly the control of nature and results were often classified, over time knowledge about earth systems became central for the rise of a scientifically informed notion of global security that stressed the delicacy and fragility of nature (Masco 2010; also Doel 2003; Edwards 2010; Hamblin 2013; Munster and Sylvest 2016a). These paradoxical entanglements continue to this day, for example at the intersection of climate science and nuclear weapons research (Edwards 2012).

Such complex histories of knowledge production have a place in our understanding of nuclear weapons in intellectual history. They remind us of the sheer scale and reach of nuclear technologies,[2] but also embody a warning and a challenge. The association between nuclear weapons and global security is longstanding, but we should guard against the anachronism invited by the knowledge we now possess. When observers cast the atomic bomb and later the H-bomb as apocalyptic, it was often based less on scientific knowledge about the earth than on recent experience of human slaughter and fearful projections of the unknown. The situation today is radically different.[3] And yet, the bomb was mired in Janus-faced qualities from the beginning of the atomic age. The bomb was widely perceived to have ended the Second World War, and the underlying technology held vast promises of civilian applications. Indeed, there is a case to be made that nuclear technologies became a vessel for the apprehensions and promises of modernity. In the atomic age, utopianism and dystopianism coexisted. This ambivalence in nuclear culture, which cultural historians have studied to great effect (Boyer 1985a; Hogg 2016;

Weart 2012), encompasses an elusive, mysterious quality surrounding nuclear weapons in a period of radical technological change: material but highly abstract, removed from sight but never (completely) out of mind, the most costly, complex and destructive machines ever built but with powers relying, increasingly, on their non-use (also Kinsella 2005). However challenging, it is a worthy ambition of intellectual history to account for this predicament.

The second historical development that deserves attention is the highly dynamic relationship between nuclear technologies and political and scientific knowledge during the first post-war decades. In the months and years following the destruction of the Japanese cities of Hiroshima and Nagasaki in August 1945, prominent scientists in the Manhattan Project were involved in the campaign to bring atomic energy under international control. Harold Urey, J. Robert Oppenheimer, Niels Bohr and many others became associated with the slogan 'One World or None' at a time when world government was seriously promoted (Masters and Way 1946; see also Craig in this volume). When international control of atomic energy faltered in the late 1940s, however, it also spelled the end of more ambitious visions of global governance (Wooley 1988). Routinely referring to the perils of atomic warfare, the world government movement initially redoubled its efforts, but it eventually disintegrated because it solicited little support in a new, apprehensive security climate.

The stakes involved in the ideological confrontation of the Cold War became evident when the Soviet Union exploded its first atomic device in 1949. Among its by-products was a new relationship between science and politics. This was particularly marked in the US (Dennis 2015) at a time when a political culture fuelled by fears of disloyalty and Communist infiltration was given credence by revelations of atomic espionage. Senate hearings in the House Un-American Activities Committee and loyalty orders played a role in changing the nature of intellectual debate about nuclear weapons. J. Robert Oppenheimer, scientific leader of the Manhattan project, argued against the decision to develop the hydrogen bomb. For him, the cocktail of Cold War culture, former relations with Communists and personal grievances of colleagues (predominantly Edward Teller), spelled defeat (Bird and Sherwin 2005; also Borgwardt 2008). Oppenheimer eventually lost his security clearance. The Personnel Security Board that dealt with the case stressed that national security left no room for emotional apprehension (AEC 1954).

This was not a one-way street, however. Herman Kahn, a young physicist who had worked with Edward Teller and Hans Bethe, had his security clearance suspended due to suspicious relations in the early 1950s. That steered him away from weapons work, but not further than nuclear strategy (Ghamari-Tabrizi 2005, pp. 66–68).

Still, the increased focus on the loyalty of scientists and the risks of engaging in political debates about weapons in the public sphere silenced some. Nuclear weapons irrevocably politicized science, but this occurred at a time when the ideal of free, apolitical scientific enquiry was becoming instrumental in the ideological battle of the Cold War (Wolfe 2018). Policymakers demanded loyalty and truth—not searching, indefinite philosophizing. The politicization of science served to nationalize and depoliticize the scientist, because 'traditional universalistic forms of intellectual discourse' were increasingly discredited (Thorpe 2004, p. 67; also Hamblin 2007; Rubinson 2011). The intimate connection between modern science and violence may initially have increased the public standing of scientists and allowed them to pass judgment on vexing political and moral questions. Yet with the rise of the national security state, the dominant figure tended toward the expert or technocrat rather than the sage. Debates about the human condition in the age of science persisted and it was clearly possible to speak out at crucial junctures (many did), but as two observers put it in 1953, 'the majority of scientists, particularly of the younger generation, tend to seek refuge in apolitical professionalism' (Meier and Rabinowitch 1953, p. 118).

The technical character of knowledge about nuclear weapons and the secrecy with which it was guarded also had consequences for other kinds of scientific knowledge, above all in the US. The rise of the Cold War university (Engerman 2003) occurred at a time when the social sciences initiated a well-intentioned turn away from the normative vocabulary of *reason* and towards more formal and sequential models of *rationality* (Ericksson et al. 2013). In the early post-war years, the ambition of social science was to catch up with human understanding of the natural world (Boyer 1985b; van Munster and Sylvest 2016b). Gradually, ambitions were scaled down and the social sciences eventually partook in the production of 'closed world ontologies' that in various incarnations turned the unknowable into actionable anticipation (Edwards 1996; Mirowski 2012). The Cold War shaped some branches of the social (or human) sciences more than others (Isaac 2007; Engerman 2010), and some of the qualities lodged in our stubborn ideal-type of Cold War

social science clearly had deeper roots. Nevertheless, the parts of social science research that lay close to the 'politically radioactive center', and therefore mutated, often had links to national security and its core currency, nuclear weapons (Gilman 2016, p. 514). A key concern became juggling risk, primarily through improving efficiency and decision-making. The civilian nuclear strategist constitutes a prime example. There is little doubt that Cold War rationality brought intellectuals closer to (funding and) core concerns of policy, but it offered no guarantee of political influence or of theory not being harnessed for other purposes.

At the risk of simplification, it became characteristic of debates about nuclear weapons that those who had access to information or funding took part less in debates not demarcated by remit, discipline or security clearances, whereas those who were primarily engaged in public debate typically had less access to information and tended to assume a questioning, moralizing or critical posture. Hence, if we want to recover a wide spectrum of ideas about nuclear weapons, if only in outline, we must pay respect to several *loci* of intellectual activity.

2 Battlefields

With an analytical perspective attuned to the place and purpose of historical agents in distinct but overlapping debates, I now turn to four sites where the nature and significance of nuclear weapons was debated. They constitute centres of gravity in conversations among and between intellectuals, experts and practitioners. It was at these key sites—the question of the bomb's (im)morality, the question of (military) use, the question of stability, and the nature of the bomb as technology—that conceptions of nuclear weapons were formed. To be clear: Few thinkers or even groups of thinkers accorded attention to all four sites, and while these sites were related intellectually, they were not so mechanically. Still, they are central in the early intellectual encounter with nuclear weapons and in various ways they all have contemporary resonance or ramifications.

2.1 The Moral Question

Facing brutal warfare in a conflict that left virtually no room for moral ambiguity, many in the West welcomed the military technology that was perceived to have brought an end to war and saved the lives of American soldiers. As the news of the destruction of Hiroshima was announced by

President Truman, the horror experienced by visitors to the city lay in the future. Strategic bombing of German and Japanese cities was part of allied military strategy, and the scale of atomic destruction was not in itself extraordinary. Indeed, the reception of the bomb in the US and the allied West saw shock accompanied by triumph and relief. According to Truman, the US had won 'the greatest scientific gamble in history', and he thanked Providence that 'the basic powers of the universe' had not been harnessed by the Germans. A US poll within days of the atomic bombings recorded 85% approval (Moore 2005). Dread of human consequences did emerge, but it was soon turned inwards, namely to the prospect of US cities becoming targets of atomic bombing. In my native country, Denmark, the bomb entered the public sphere not only through photos of the mushroom cloud and predictions of horror in future wars but also through promises of civilian atomic energy and a barely concealed national pride over the contribution to the bomb made by the nation's chief scientist, Niels Bohr. From its inception, the atomic age was invested with an incoherent myriad of fears and hope that was vital in shaping moral evaluations of the bomb.

While Protestants and Catholics deplored warfare in the abstract, there was no uniform Christian voice on the morality of atomic bombs in the ensuing decades. Christian religion offered a central framework for moral argument, and debate was lively as worldly and religious concerns became increasingly difficult to separate. Protestant and Catholic statements in the US had initially denounced the bombings of Hiroshima and Nagasaki in moral terms (Boyer 2012), but especially among American Protestants the atomic age and the Cold War caused strife and fragmentation (Inboden 2008; Shaffer 2017). Significantly, the realist theologian Reinhold Niebuhr was among the central figures behind an early Protestant (if sometimes begrudging) defence of the bomb. In the UK, the Anglican Church was also divided, with the leadership adopting a quietist position on the bomb that, despite vocal dissent, continued well into the 1950s (Kirby 1995). Meanwhile, criticism of the bomb inspired by religious pacifists persisted. It fell to intellectuals, however, to pen the most thoroughgoing moral indictments. In 1946, the public intellectual and historian of technology Lewis Mumford denounced the bomb as 'the visible insanity of a civilization that has ceased to worship life and obey the laws of life' (Mumford 1946, p. 6). Mumford had supported US entry into World War II and saw the allied turn to strategic bombing as a deep, moral failure. That informed his stark critique of the bomb

as another 'scientific form of genocide' (Mumford 1948, p. 63). Similar views had been expressed by the leftist social critic Dwight MacDonald already in September of 1945 (MacDonald 1945). These critiques notwithstanding, the more common response among US intellectuals was an 'instrumentalist one' of acceptance and avoidance of moral absolutism (Boyer 1986, p. 296).

In the 1950s, political and cultural pressure in the US and its NATO allies for a new response to the 'godless' Soviet enemy raised new moral questions. Outright opposition was still difficult, if not more so. Religious opinion split into pacifism, nuclear pacifism and non-pacifism (Boyer 2012), and during the thermonuclear revolution, moral arguments against nuclear weapons did gradually make headway. Both Pope Pius XII and The World Council of Churches veered in the direction of disarmament and a prohibition of nuclear weapons on moral grounds, foreshadowing the greater moral and religious fervour that came to accompany public debates about the effects of the hydrogen bomb and nuclear testing. Cold War politics continued to flavour religion, however, as efforts to reconcile the new weapons technology (and the doctrine of deterrence) with the dominant Christian framework of the just war coexisted with a growing religious conviction that thermonuclear weapons were *sui generis* immoral. While the direction of travel was clear, religious opposition to the bomb was eclipsed by new, forceful forms of activism that spoke in several registers.[4]

The question of morality routinely reached beyond the bomb itself. Already within weeks of Hiroshima and Nagasaki, the editor of *The Saturday Review of Literature* Norman Cousins had found in the bomb a gap between 'intellect and conscience' (Cousins 1945, p. 6). This line of moral reasoning, essentially a discussion of the nature and shortcomings of science, was a constant theme that reached new heights in the late 1950s. With the bomb looming in the background, critics portrayed scientific rationality as deficient on its own or, worse, as involving an abandonment of moral responsibility. Culturally, this was expressed in a revival of tropes of the dangerous scientist that was either mad or too clever for the collective good (Smith 2012; Weart 2012, pp. 131–133). Science was unable to confront deeper questions—it could not 'show us the way out of doom' as the existentialist philosopher Karl Jaspers (1958, p. 201) argued, though it had undoubtedly played a role in bringing the world to its precipice. This strictly bounded nature of a purportedly narrow scientific rationality—contrasted to reason and common

sense—became a core component of anti-nuclear arguments in the late 1950s (Mills 1958; Mumford 1958; Russell 1959). Poised against this view was, above all, that of Teller who thought that 'it would be a mistake for us to accept the position that nuclear weapons are, on a moral plane, of a different nature from conventional weapons' (Teller 1957, p. 162). A similar though more sophisticated position was that of Herman Kahn. He refused to accept that it was immoral to think rationally about the unthinkable—the conduct of nuclear war. Raymond Aron, the French Cold War liberal intellectual, concurred, although he was critical of too abstract an approach to the problem.[5] The defiantly cool analyses in Kahn's books (Kahn 1960, 1962) were infused with the belief that '[d]esperate conditions demand desperate living. We did not choose this world; we just live in it' (Kahn in Ghamari-Tabrizi 2005, p. 7). These moral (or non-moral) evaluations of the bomb and their associated mindsets were related to another dynamic question: if and how the bomb was (still) militarily useful.

2.2 The Question of Use

In one sense the question about the military usefulness of the atomic bomb was settled by the bombings of Hiroshima and Nagasaki, targets that had been deliberately spared in the military campaign against Japan. It was crucial for military conceptions of the bomb that it entered the US arsenal in these circumstances. The conceptual maps on to which the bomb was placed were dominated by strategic bombing, air power and total war (Freedman 2003). When the bomb entered US post-war military planning in 1948, it reflected both experiments in atomic diplomacy and the experience of the last war. Its targets were cities, its purpose to break civilian morale. The civilian strategist, Bernard Brodie, was the first to acknowledge that war with atomic weapons required an entirely new framework focused not on winning but on averting wars (Brodie 1946, p. 78). To this end, Brodie called for a new approach to strategy inspired by the 'analytical method' in economics (Brodie 1949). This reflected, in part, a belief that the military could not be expected to develop a strategy of how *not* to wage war. Brodie subsequently sought to bolster the developing notion of deterrence, although he sometimes fell back on the very conception of war that he sought to alter (Kuklick 2006, p. 58).

In the early stages of the Cold War, US policy and planning was out of sync, mainly because of limited stockpile, poor intelligence about the

Soviet Union and President Truman's ambivalence about the bomb and strategic policy (Boyer 1998; Rosenberg 1983). The East-West conflict accelerated in the first months of 1950 following the Soviet test of an atomic bomb, the US decision to pursue the hydrogen bomb and the formulation of NSC-68 that recommended a significant increase in defence spending. In the ensuing process, air-atomic thinking was dominant. The Strategic Air Command (SAC) increasingly controlled target selection and clung to traditional maxims, the thermonuclear revolution notwithstanding. From the mid-1950s, some voices in the military began to gravitate towards a view of nuclear weapons as unusable. This was implicit, for example, in the Navy concept of finite deterrence (Rosenberg 1983). In such debates about strategy, however, there was more at play. Organizational interests and bureaucratic politics played a central role (see also Miller 1984). In the end, air-atomic thinking persisted, and it continued to entertain the notion of victory in a war with nuclear weapons. Indeed, 'the last stage in traditional strategic airpower and the first stage of the nuclear age were one and the same' (Kaplan 2015, pp. 3, 7, 217).

A constant dread of a surprise Soviet first strike ensured that nuclear weapons remained central to US strategy. In addition, the cost-conscious approach behind President Eisenhower's doctrine of massive retaliation, rapid technological development, a relentless intelligence-driven expansion of targets, conservative estimates of target destruction and continued inter-service rivalry conspired to produce the overkill of SIOP-62, the war plan that Eisenhower left for the Kennedy administration in 1961 (Burr 2004; Rosenberg 1983). When the total megatonnage of the US nuclear weapon stockpile crept to its peak just above 20 gigatons and after a massive increase of the US weapons stockpile (from less than 300 in 1950 to more than 22,000 in 1961), the inflexible and near-automated nature of SIOP-62 envisaged a spasm of destruction (Ellsberg 2017; Sagan 1987). Although civilian leaders in the US and Soviet Union had come to understand that nuclear war was unacceptable in 'some profound, if ill-defined way' (Holloway 2010, p. 384), war plans apparently had a life of their own. In debates about the rationale of Eisenhower's policy and his on-and-off insistence that nuclear weapons were to be treated like other weapons, the mixture of deterrence and war-winning strategies under his watch is central (e.g. Craig 1998). Among military planners, it is safe to say, the bomb continued to be treated as a military weapon. At the same time, however, the emphasis

on tactical nuclear weapons in a European theatre and the vogue for limited nuclear war in the late 1950s was partly an attempt to retain the option of use—to return war to a political activity.

At the dawn of the atomic age, most intellectuals had not questioned the status of the atomic bomb as a militarily weapon, but the thermonuclear revolution changed that. Proponents of 'the Super'—including Edward Teller who was to support virtually all efforts towards bigger weapons—emphasized the security costs of inaction. Initially, these arguments held sway while Oppenheimer's view of the hydrogen bomb as extra-military and genocidal lost out (Bird and Sherwin 2005, Chapter 30; Rosenberg 1979). Following the Castle Bravo test in 1954, however, public worries about the H-bomb directed attention to Oppenheimer's line of argument, and the notion that thermonuclear war was unwinnable, and the H-bomb 'useless', began to circulate. The high risk of escalation also gradually undermined the notion of limited nuclear war. The increasing hold of the spectre of thermonuclear war was soon reflected in popular culture. Novelists, film-makers and artists began to focus on the risk and nature of nuclear war. The hubristic, omnicidal quality of ever more destructive weapons was tersely captured by singer-songwriter Tom Lehrer in 'We will all go together when we go' (1959). In their own language, some strategists made similar points. To Brodie (1955) the H-bomb was a 'city-buster' that upended target selection and pointed to nihilistic conclusions. Public intellectuals less concerned with the fate of strategy itself used such arguments in the late 1950s to reflect on the absurdity of the thermonuclear predicament (Jaspers 1958; Mills 1958; Russell 1959). The anti-nuclear philosopher Günther Anders put it most succinctly, arguing that atomic and especially H-bombs were 'clumsy'. They were simply too big to have military value, since apart from destroying a target they also destroyed the purpose. Hence, nuclear weapons should not to be considered a means (Anders 1956a, b, 1962).

It deserves mention that when the military role of nuclear weapons was placed in doubt—during the period when the nuclear taboo began to take hold in the US (Tannenwald 2007)—concepts of non- or extra-military use also appeared. First, the notion of peaceful nuclear explosions (PNE) emerged in the aftermath of Eisenhower's Atoms for Peace program and its associated propaganda. With Teller's backing, *Project Plowshare* promoted the earth-moving capacities of PNEs within a modernizing vision of infrastructure construction (Kaufmann 2013).

Second, in anti-nuclear discourse, 'use' acquired extra-military dimensions: on the one hand, the very existence of nuclear weapons involved unacceptable political coercion and presaged military use; on the other hand, nuclear testing amounted to 'use' because it turned the whole world into a laboratory (Anders 1956a, pp. 256–257).

2.3 The Question of Stability

Nuclear deterrence can be cast as 'the great equalizer of nations and the great stabilizer of the international system' (Bartelson 2017, p. 14). This view constitutes a challenge to a non-nuclear peace if a world without nuclear weapons increases the likelihood of great power war. During the first decades of the Cold War, a slow-burning debate took place about the stabilizing or de-stabilizing effects of nuclear weapons. If it was resolved in any meaningful sense, it was not to the satisfaction of pessimists. Although it is still contested, and increasingly so, the belief that deterrence provides stability has survived, not least in the received wisdom of nuclear weapons states and their allies. In embryonic forms, the doctrine was formulated in the early 1950s—with much clarity, for example, in UK defence policy (Baylis and Stoddart 2015). It was originally conceived as a temporary solution (Deudney 2007, p. 247), and several critics acknowledged its short-term success in preventing war. Yet, deterrence took on a character of permanence and was invested with some solidity not only because nuclear war did not occur (despite several crises) but also because its boundless complexity was theorized in a new, soon-to-be prominent field of intellectual activity. In the 'golden' decade of security studies from 1955 (Baldwin 1995), the status of civilian nuclear strategy was derived in part from its 'special "must-not-fail" urgency' (Brodie 1959, p. 393). It was in this context that 'wizards of Armageddon', primarily residing in the 'Cold War think tank complex', shored up deterrence by turning out 'ever more rococo' doctrines (Boyer 2012, p. 167; Kaplan 1983; Mirowski 2012, p. 68).

The intellectual development of these doctrines has been studied in much detail. In hindsight, however, they appear unsatisfactory, too abstract and removed from politics (Trachtenberg 1989). Already by the late 1950s, however, non-specialist scepticism was rife. Christians debated the morality of deterrence: was threatening nuclear war acceptable if the alternative was Godless communism? Prominent public intellectuals raised other types of questions. For Karl Jaspers, deterrence was

existentially untenable because fear was 'not enough to rely on in the long run' (Jaspers 1958, p. 14). Philip Noel-Baker, prominent intellectual in the British Labour Party and recipient of the 1959 Nobel Peace Prize, provided the liberal case for disarmament alongside a by-now classic view of arms racing (and by implication deterrence) as a slow-cooking independent source of war (Noel-Baker 1958). Still others focused on the enormous risks of a prolonged thermonuclear superpower standoff. In an early prognosis, Oppenheimer (1953, p. 529) likened it to keeping 'two scorpions in a bottle', and the ageing Bertrand Russell famously conceptualized deterrence as a reckless game of chicken (Russell 1959, pp. 30–31). The implication here was that in the thermonuclear age, deterrence was a momentous, one-off bet and hence the subject of perilous guesswork and not rational control.

Those who saw no other alternative at a time of nuclear parity and uncertain second-strike capabilities redoubled their efforts to underwrite deterrence by modelling endless options in the new parlour of social science. Given the high stakes and the complicated gamble at the centre of this doctrine—that the *deterrer* appears unwavering and produces in the *deterree* an acceptance of fear and perhaps loss (of face, prestige, lives etc.) without resorting to the use of nuclear force—credibility and resolve became decisive. One of the most ingenious solutions to this problem and one that has arguably been central for the durability of 'deterrence-as-stability' was provided by Thomas Schelling who turned the problem of deterrence into its strongest asset by theorizing the 'threat that leaves something to chance'.[6] Uncertainty remained, however. Preoccupation with societal vulnerability and civil defence measures preparing infrastructures, communities, families and citizens for nuclear war not only bolstered credibility and normalized the threat—it also constituted an admission of the ever-present risk of deterrence failure.

Among thinkers that took relations between states in an anarchical world as their province, a central question became whether nuclear weapons were compatible with traditional international politics. For self-professed political realists, this issue had initially been resolved in the affirmative. The theologian Reinhold Niebuhr and the political theorist Hans Morgenthau, figures who occupied different positions in the post-war intellectual landscape, supported robust American opposition to the Soviet Union and the development of the hydrogen bomb. As Craig (2003) has demonstrated, however, both Niebuhr and Morgenthau eventually changed their thinking, following a similar trajectory. Initially,

they questioned the increasingly common argument that military force had become impossible by referring to the notion of limited nuclear war. As the scale of tactical nuclear weapons and the stubborn problem of escalation that continued to haunt the idea of limited nuclear war dawned on Niebuhr and Morgenthau, they accepted that conventional realism and its *ultima ratio* of great power war had become untenable (Craig 2003, p. 101). Indeed, the scale of the transformation did not stop there. As Morgenthau argued in 1961, reason dictated otherwise but 'we continue to think and act as though the possibility of nuclear death portended only a quantitative extension of the mass destruction of the past and not a qualitative transformation of the meaning of our existence' (Morgenthau 1961, p. 8).

John H. Herz, an émigré scholar like Morgenthau, had reached similar conclusions in his early efforts to study the *absolute novum* of thermonuclear weapons from a realist perspective. He emphasized the instability these weapons produced in a bipolar balance of power system where territoriality was compromised (Herz 1957, 1959, 1960). Realist arguments were accompanied by calls for stabilizing the balance and by tragic admonitions that the social bases for necessary, new political solutions needed further cultivation. The favoured approach was moral reform—a widening of allegiances based on the human capacity to imagine (Herz 1959, Chapter 12; Morgenthau 1961). These realist reflections on nuclear weapons can be seen as part of a longer history of 'uneasy and sustained realist encounters with the apocalypse' (McQueen 2017, p. 8). With thermonuclear weapons, scientism and naivety in politics made way for a new danger: a system of deterrence that was too dangerous, logically defective and spiritually and philosophically unsatisfying.[7] Other factors exacerbated this basic problem: the speed of nuclear diplomacy and the complexity and imbalance that would accompany the inevitable spread of nuclear weapons. The end result was a substantial revision of realism. Survival and self-preservation had taken on a new (global) character that invalidated conventional maxims.[8] In short, world government or some kind of supra-national governance was as necessary as it was unlikely (see also Part III of this volume). Significantly, this *volte face* took place at a time of recurrent Cold War crises and growing anti-nuclear activism.

2.4 The Nature of the Question

By the early 1960s, Morgenthau's view that the bomb was more than a big weapon was widely shared, and it played into several lines of thinking. Some were fuelled by democratic and proto-environmentalist concerns, others by the increasingly salient consequences of technological expansion. All, however, were infused by an amorphous sense of crisis. Such arguments did not by any means constitute a creed, but collectively they made up a part of the fissionable material in the chain reaction of the 'the sixties' (also Jamison and Eyerman 1994).

The compatibility of nuclear weapons with democracy was a concern during the first years of the Cold War when civilian control of nuclear technology in the US was handed to the Atomic Energy Commission (AEC). When the national security state expanded in the ensuing years, the spectre of a garrison state loomed large inside the Truman administration (Hogan 1998; Lasswell 1941). Publicly, the political theorist Robert Dahl approached the subject of 'Atomic Energy and the Democratic Process' in 1953 by focusing on increased secrecy. Its corollary was elite rule, and Dahl dispassionately argued that 'atomic energy seems to present choices that defy wide popular understanding and control' (Dahl 1953, p. 6). As secrecy was widely debated (e.g. Shils 1956), such concerns became more pressing. Combined with new technocratic elites and a sprawling US nuclear weapons complex, a distinct democratic challenge appeared. When President Eisenhower, having presided over a massive expansion of nuclear forces, used his farewell address to warn against the military-industrial complex and the risk that policy became 'the captive of a scientific-technological elite', he voiced a longstanding concern (Ledbetter 2011). But he also formulated a critique that had been fomenting among intellectuals critical of his presidency and deeply concerned about the usurpation of democratic politics by unaccountable elites (e.g. Mumford 1959; also Mills 1956). They questioned the integrity of government agencies—for example in debates over fallout from nuclear testing—and voiced frustration over the destiny of mankind being placed in the hands of an invisible establishment.

These democratic concerns were related to a jumble of fears about the consequences of affluence and technology in modern societies. The US experience was central here. Consumerism, conformism, estrangement, cultural decline and apathy were cast as interconnected ills closely related to the expansion of technology (Brick 2000; van Munster and Sylvest

2016b). This strand of thinking reached its most popular expression in Marcuse's *One-Dimensional Man* (1964), a central text of the student movement that was book-ended with concerns about nuclear weapons. Already in 1954, however, the political theorist Hannah Arendt argued that notions of soullessness, monotony and uniformity in Europe governed views of the beacon of modernity across the Atlantic. The bomb was decisive in this context: 'Rightly or wrongly, when Europeans think of technology, they see, not a television set in every home, but the mushroom-cloud over Hiroshima' (Arendt 1954, pp. 419–420). Indeed, for many nuclear weapons became *the* symbol of the technological age, in which consumption, dwelling, work and entertainment—indeed, the meaning of human existence—was radically transformed. Anders, the former husband of Arendt, argued that the expansion of technology involved forms of alienation that made unthinking public acquiescence of a monstrous technology possible (Anders 1962). Thus, nuclear weapons were cast in a double role. On the one hand, their very existence became a shorthand for technological ills; on the other, they constituted the site where resistance could begin the recovery of common sense and human purpose.

A major challenge in this respect concerned the production and existence of Cold War reality as 'a privileged way of knowing' (Belletto 2012, p. 77). The crucible of this world-making was nuclear weapons and a discourse producing characters and policies that were portrayed as tough and realist(ic). Here we encounter one likely source of the murky association between realism and nuclear strategy forged in the early decades of the Cold War. For several public intellectuals, it became a priority to expose and dismantle such claims. In the writings of the maverick sociologist C. W. Mills, it took the form of ridicule (see also Payne in this volume). He placed realistic, common-sense thinking in opposition to the real utopianism of 'crackpot realists', a group that Mills linked to the cheerful robot and the technological idiot (Mills 1958). Lewis Mumford simply castigated the equation of nuclear strategy with hard-headed realism as self-deception (Mumford 1958). Still others, like the social scientists David Riesman and Michael Maccoby, complained that 'realism' was often 'no more than the opposite of idealism, reasonableness, or morality', and they were deeply concerned with how political manipulation, a spineless technocratic elite and a gendered fear of appearing soft ruled out alternatives in the Cold War nuclear standoff (Riesman and Maccoby 1960, p. 464; also Cohn 1987). The most sophisticated

cultural expression of these ideas was Kubrick's satirical masterpiece, *Dr. Strangelove* (1964). The message here was simple: Nuclear weapons lay at the heart of an entire system that wielded power through concealed yet far-reaching tentacles.

The intellectual quest to expose these tentacles and demonstrate their hold spoke to activists. A vigorous nuclear disarmament movement now marched and campaigned to restore sanity and common sense. In part, these efforts were invigorated by concerns raised in appeals organized and signed by a vocal minority of scientists that included the likes of Schweitzer, Einstein, Pauling and Born. In the US, The National Committee for a Sane Nuclear Policy (SANE) was led by Norman Cousins. In Britain, the Campaign for Nuclear Disarmament (CND) was dominated, for a time at least, by Bertrand Russell, author of *Common Sense and Nuclear Warfare* (1959). Less interested in heroic civil defence efforts that sought to nurture sturdy citizens displaying virtue and resilience in a post-war world, these movements campaigned for more information about nuclear testing and for a halt to the arms race. Their activities appealed to the public imagination, politically and visually, by confronting citizens with the consequences of nuclear war and the (uncertain) health effects of fallout from nuclear testing (Wittner 1997, 2009, Chapters 4–5; also Higuchi 2010). The latter theme metamorphosed into intergenerational and proto-environmental concerns. Among the diverse group of thinkers that came to see the bomb as more than a weapon in the late 1950s and the early 1960s, appealing to the imagination was a common trait. It was through this faculty that the realities and eventual horror of the nuclear age could be confronted. Anders (1962, p. 498) aptly termed it 'the courage to fear'. Here lay a potential for mobilization, but beyond that there was little agreement. Political programs, if that's what they were, spanned a spectrum from easement in superpower relations to universal disarmament and social revolution.

3 Conclusion

The four sites of contestation I have discussed demonstrate some of the meanings accorded to nuclear weapons in the early post-war decades. It is striking how central the thermonuclear revolution of the mid- to late 1950s was for a renewed engagement with these artefacts of destruction. Nuclear weapons, essentially, were deeply imbricated in

reshaping notions of rationality, globality and human-Earth relations. While several arguments ring familiar, they are not equally prominent today. Intellectual stalemate was reached in a period when, paradoxically, the dynamic of the Cold War shifted, and the arms race continued. The Cuban missile crisis, the conclusion of the Limited Test Ban Treaty (1963) and the rise of arms control and non-proliferation priorities conspired to produce this state of affairs. The understanding that nuclear war was unwinnable and morally unacceptable gained further ground as public attention receded. By 1967, the journalist Stewart Alsop could even point out that '[i]n recent years there has been something like a conspiracy of silence about the threat of nuclear holocaust' (quoted in Boyer 1986, p. 302). The debates I have highlighted were settled, to the extent that they were settled at all, more by history than by argument, which in turn shifted the parameters of discourse about nuclear weapons. Henceforth, the keyword of nuclear politics became management. Above all, management of non-proliferation and arms control. This produced a complicated picture and one that effectively institutionalized a logic of pragmatism and small-steps. Although vigorous debate about nuclear weapons returned in the early 1980s (e.g. Schell 1982) only to die out again, and although knowledge about environmental and security risks has accumulated in the last half-century, management has implied a normalization of the nuclear condition.

Normalization has been buttressed by arguments that nuclear weapons, dangerous as they are, have secured great power peace but also by the now near-permanent sense that disarmament is utopian and that efforts in this direction must take a back seat. The elusive, mysterious character of nuclear weapons may still play a role here, though not (primarily) as a target of exposure, a trick to be unmasked. This quality appears, rather, to have become part and parcel of the operation of nuclear discourse. Nuclear weapons technology is the province of high politics and long-running diplomacy, replete with technical detail mastered by a limited group of experts and NGOs. As machines of destruction and objects of reflection, nuclear weapons are overwhelming, yet their very existence is often treated as oddly theoretical. Retired statesmen and NGOs have made considerable progress in pressing for disarmament and, most recently, a treaty banning nuclear weapons. In the current landscape of nuclear politics there is no guarantee that these efforts will make inroads where it really matters (Sauer and Reveraert 2018). In the short term, it is likely that the gulf between the haves

and the alliance of have-nots, will-nots and disarmament advocates will widen. The quest to delegitimize nuclear weapons may, then, appear precarious. Kicking the can down the road, however, is not an appealing alternative, nor is it less risky.

Intellectual history is no travel guide to a non-nuclear peace, but one of its merits is that it invites us to reflect on both the familiar and the less familiar in past thinking. Dominant themes in contemporary arguments for nuclear disarmament—including the logical shortcomings of deterrence, the risks and humanitarian effects associated with the existence and potential (advertent or inadvertent) use of nuclear weapons and, increasingly, the morally unacceptable nature of the weapons themselves—have a history stretching back to the early nuclear age. History also shows us, however, that attempts to demystify nuclear weapons and place them in a wider social and political context were once more prominent than is currently the case. While neither faultless nor seamless, the latter strand of thinking may speak to our predicament, because it directs attention to what nuclear weapons and the complexes in which they are embedded continue to extract from human beings, political societies and the planet on which we reside. This goes beyond the exorbitant financial costs associated with developing, maintaining and modernizing nuclear weapons.[9] Nuclear weapons also involve 'intangible costs', among which are a kerbing of public debate over nuclear policy (Burr et al. 1998, p. 434).

Indeed, this technology binds us to views and practices that appear deeply corrosive. Contemporary scholarship is attentive to these logics, but so far these arguments have made little headway in policy circles (see also Part II of this volume). To take just a few examples: While the concentration of political power over nuclear weapons also has benefits, recent events have highlighted the agony it entails to invest powers of megadeath in single fallible individuals (e.g. Scarry 2014). Moreover, nuclear weapons have historically had (unevenly distributed) environmental effects on a global scale, and the complexes in which they are embedded may be nominally national, but their daily operation, infrastructure and resource demands occur in 'entangled geographies' where the meaning of 'nuclearity' varies a great deal (Hecht 2011, 2012). The current system of nuclear weapons management—while it can be cast as rational in the face of danger and reasonably successful (Walker 2007)—embodies deep inequalities sustained by stubborn cultural constructions. Postcolonial scholarship has highlighted just how problematic

and politically unsustainable the current ideology of management is in its distribution of in/security and un/trustworthiness among nuclear and non-nuclear weapons states (Biswas 2014; Gusterson 1999).

Nick Ritchie (2018) refers to most of these lines of argument in his excellent and commendable effort to bolster the intellectual foundations of current anti-nuclear thinking. If the vision of a non-nuclear peace is to make further headway on the political agenda, I suggest that a necessary focus on the financial costs and security risks associated with nuclear weapons must be complemented with more explicit attention to the intangible costs of these weapons and how they are embedded in the social and political structures of modernity. Neither the truism that we cannot uninvent nuclear weapons nor the intuitively appealing case for their abolition should obscure that a viable notion of peace must now go beyond the absence of nuclear war. A non-nuclear peace clearly involves a host of intricate technical and institutional challenges, but we will not get to these until the effort to deprive nuclear weapons of their legitimacy is accompanied by a quest to both demystify and denaturalize these machines. Advancing the cause of nuclear disarmament requires sustained public interest not only in the intrinsic dangers of nuclear weapons, something which has occurred only in two or three relatively brief interludes of the nuclear age, but also in what nuclear weapons complexes demand and extract from their human and natural surroundings.

Acknowledgements I would like to thank Jens Bartelson, Rosanna Farbøl, Rens van Munster, Kirstine Sinclair, Vibeke Schou Tjalve, the participants at the UCSIA International Workshop on Non-Nuclear Peace (University of Antwerp, 23–25 May 2018) and the editors for helpful comments and suggestions. All the usual disclaimers apply.

Notes

1. This geographical focus is partly a result of my own scholarly limitations, but it also reflects the disproportionate impact that American and, to a lesser extent, European ideas have had and continue to have in structuring thinking about the nuclear condition.
2. Another topic that deserves mention in this context is the role of nuclear weapons in the history of computing and digitalization. See Edwards (1996).
3. Today, scientific knowledge and detailed projections about fallout and the phenomenon of nuclear winter play a role in specifying the humanitarian

consequences of nuclear weapons and in the wider quest for nuclear disarmament.

4. See e.g. Ramsey (1961), Wittner (1997, pp. 259, 297) and Gorry (2013, Chapter 5). Catholics turned decisively towards disarmament in the early to mid-1960s, signaled above all by Pope John XXIII's *Pacem in Terris*, 1963. Protestants remained divided, e.g. in the US and West Germany.
5. Aron (1954, 1962). Lewis Strauss, the controversial chairman of the US Atomic Energy Commission, took a similar line, arguing in 1955 that '[t]he atom is amoral' and that '[t]he only thing that makes it immoral is man' (quoted in Divine 1978, p. 11).
6. Schelling (1960). I am indebted to Benoit Pelopidas for this point. See his essay (2016). There is the further possibility that the persistence of deterrence is related to a quasi-religious function: parading and rehearsing the prospect of Doomsday. Although I cannot pursue this theme here, I thank Jens Bartelson for raising it.
7. E.g. Morgenthau (1964). Niebuhr came to see deterrence as philosophically and spiritually unacceptable, because it entailed a fatalist acceptance of impermanence and impending disaster (Craig 2003, p. 91).
8. After realists had reached this stalemate, a new structural variety of realism, spearheaded by Kenneth Waltz, eventually returned to the enigma of nuclear weapons and arrived at very different conclusions. The journey, however, demonstrates just how difficult it is to reconcile nuclear weapons with realism. For a penetrating critique, see Craig (2003).
9. See also Harrington et al. (2017). In one estimate, the US investment in nuclear weapons in the period from 1940 to 1996 was app. $5.5 trillion (Burr et al. 1998). The costs of ongoing modernization efforts in nuclear weapons states are hard to estimate with precision, but their sheer scale is staggering given other public spending demands.

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CHAPTER 3

Nuclear Weapons: Peaceful, Dangerous, or Irrelevant?

Patricia M. Lewis

1 The Persistence of the Nuclear Weapons Paradigm

Are nuclear weapons, including their current modernization and new developments, stabilizing—as the classic paradigm of nuclear deterrence would have us believe? Or are the costs and risks—such as possible use, proliferation, nuclear terrorism, accidents, budgetary costs, fear etc.—greater than their perceived benefits, as critics maintain? Realism, a mainstream theory in International Relations, is often associated with nuclear deterrence. As discussed by Casper Sylvest, classic realists such as John Herz and Hans Morgenthau were healthily skeptical of nuclear weapons doctrines and indeed also addressed the influence of technology on society in general.

Nuclear weapons were product of the Second World War, and, largely due to the myths that surrounded the destruction of Hiroshima and Nagasaki (Wilson 2013), went on to become instruments of power and power projection throughout the Cold War. Doctrines and strategies for their use were developed in the context of the bipolar Cold War and,

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_3

nearly thirty years later, since the end of the East-West stand-off, those doctrines and strategies have hardly changed in their underlying structure and still provide the foundation for thinking about nuclear weapons. Such thinking is a major barrier to moving forward in arms control and nuclear disarmament and is thus fundamental to understanding the role nuclear weapons play today. The belief that nuclear weapons deter aggression and therefore prevent war is being seriously challenged by the disruption in the global world order in the twenty-first century. For the first time in decades, the possibility of the use of nuclear weapons—inadvertent or deliberate—is being discussed, and veiled threats are being made by some nuclear arms states in an attempt to compel other countries to respond. President Donald Trump has frequently referred to the use of nuclear weapons, and in running for president, asked why—if the US had nuclear weapons—couldn't they be used (Belvedere 2016). The UK prime minister, Theresa May, has stated her resolve to use nuclear weapons (Mason et al. 2016). President Vladimir Putin has made clear that Russia is prepared to use them and is predicting a new nuclear arms race between the US and Russia (Isachenkov 2018). In 2019, the US announced its suspension of obligations and likely withdrawal from the INF Treaty (INF 1987) and Russia has followed suit. Both Russia and the US have embarked on new nuclear weapons programmes despite their being no ideological or existential conflict between them. It is becoming clear that the belief that the declaration made jointly by President Reagan and Gorbachev in 1987 that 'nuclear war cannot be won and must never be fought' (Reagan and Gorbachev 1987) urgently has to be revisited.

2 Nuclear Weapons: Different but the Same

Nuclear weapons are by far the most explosive weapons yet invented. Their explosive power is due to the breaking of nuclear bonds—the forces that bind nuclear particles together at the heart of the atom. The energy released in breaking the strong nuclear force is millions of times greater than the energy released in breaking atomic and molecular forces—which are the types of energy release we see in other explosive weapons such as barrel bombs, mortar fire, cluster munitions and landmines (The Atomic Archive 2019).

As humanity has seen both in the use of nuclear weapons in Hiroshima and Nagasaki and in nuclear weapons tests, the explosive

power of nuclear weapons results in the immediate destruction of everything directly under it through enormous overpressures, which, together with the instantaneous heat of the energy release, results in destructive winds and fires over vast distances depending on the conditions of detonation, the environment and the landscape (Ruff 2013). Thanks to new mathematical modelling capabilities, we have also discovered that the use of approximately one hundred nuclear weapons in urban areas would likely lead to long-term catastrophic climate effects—the so-called nuclear winter—which would impact vegetation growth and food production inter-hemispherically, leading to a famine estimated to last about a decade and lead to some 2 billion human deaths (Helfand 2013; Toon et al. 2007).

In addition to these effects caused by the enormous kinetic and thermal energy released by nuclear weapons, radiation energy is also released in two forms—first the prompt radiation that occurs upon detonation and then the radioactive debris that is formed as a result of the upsweep of irradiated particles from the bomb material and its vaporized surroundings—the nuclear fallout. Exposure to the prompt radiation causes severe radiation sickness and usually death in those who were close to the bomb but not immediately killed. The radioactive debris falls from the sky over a period of days to months depending on weather conditions—and possibly quite far from the ground zero of impact.

Nuclear weapons differ from other weapons in two main respects. The first is the immediate scale of destruction whereby a single nuclear weapon that is in today's arsenals and is considered of 'moderate' size and effect has the potential to kill instantaneously hundreds of thousands of people in an urban setting. The second is that this immediate destructive power is supplemented by a long-term lingering destructive capability in which people die from radiation poisoning either within weeks or over years due to radiation-induced cancer. From over seventy years of data collection from Hiroshima, Nagasaki and nuclear weapons tests, we now know that the radiation affects women twice as badly as men, children more than adults and girls more than boys (Borrie et al. 2016; Olson 2015). We also have increasing evidence that the radiation causes genetic damage and would thus impact subsequent generations—although that conclusion is disputed (Ozasa et al. 2012) and more time is required to accumulate sufficient data to settle the debates.

But in other respects, nuclear weapons share much in common with other weapons. They are explosive and destroy primarily by blast and

heat. Because they cause massive destruction, they are part of a separate class of weapons—weapons of mass destruction (WMD)—and join chemical and biological weapons in that class. Along with chemical and biological weapons and the large scale use of conventional weapons such as landmines and cluster munitions, nuclear weapons cause unnecessary suffering in the ways that they kill, and hence are included as regards the efforts to control and eliminate weapons that '… violate the "dictates of the public conscience"' (Ticehurst 1997), which under international humanitarian law (IHL) may be prohibited on grounds such as proportionality, indiscriminate effects, civilian and military non-distinction, area bombardment, environmental damage, and superfluous injury or unnecessary suffering (Maresca and Mitchell 2016).

3 The Temporal Contexts of Nuclear Weapons and Their Doctrines

Nuclear weapons should be viewed in the context of their era. Invented at the end of the Second World War and proliferated throughout the Cold War, they were adopted into the political-military cultures of the countries that possessed them and—to a lesser extent—by their allies.

Nuclear weapons doctrines—such as nuclear deterrence, no-first-use, extended nuclear deterrence and strategic stability—were strategic approaches adopted by some nuclear weapons possessors and not others. The political and ethical frameworks for thinking about nuclear weapons have been based on belief systems that were only partially shared across possessor states and within alliances. Within those belief systems two convictions evolved in the West over the decades of the Cold War: (1) that the overwhelming destructive power of nuclear weapons would deter conflict between the United States and Russia (USSR at the time), and (2) that nuclear weapons represented a type of power that only certain countries were allowed to enjoy.

The ways in which different countries, militaries, policy-makers, religious leaders and civil society experts and activists thought about nuclear weapons have always differed widely—and continue to do so. At first, invented by an international group of scientists located in the United States, the atomic bomb was a weapon of power for just one country, originally intended as a weapon to be used against Nazi Germany in the belief that the Hitler regime was developing the same capability. Initially, the

race was on to use the atomic bomb before Germany did, however, with the war in Europe ending before the Manhattan Project (Atomic Heritage Foundation 2017) had completed its task, the US turned its sights on Japan and detonated two nuclear fission bombs (one made from uranium and the other made from plutonium) on Hiroshima and Nagasaki.

Although at the beginning of the Cold War the US was the only nuclear weapons possessor, Russia soon reached that status in 1949, followed by the UK (1952), France (1960) and China (1964) (Kristensen and Norris 2019). Each country developed nuclear weapons for different reasons (Sagan 1996) and each developed strategic thinking and military doctrines in different ways and for different purposes. Likewise, within each country there were many different views on the matter (Walsh 2006).

There were those who saw nuclear weapons as fundamental for defence and protection—and a last resort capability. Then there were those who saw nuclear weapons as just one tool in a set of military tools—be those for national last resort use or for deterrence purposes. There were those that put status and independence high on their list of reasons for developing nuclear weapons. Within every country that possessed them there were people who thought that nuclear weapons were useless or immoral or too costly and that either the national capability should be unilaterally dismantled or negotiated away through a multilateral or bilateral process.

However, over time, the idea of nuclear weapons as fundamental to defence and security began to take hold in many countries—not just in those that possessed them or were in extended deterrence relationships but also in countries that were in unstable regions—India, Iraq, Iran, Israel, North Korea and Pakistan, for example—and felt under threat. The belief system that nuclear weapons deter and prevent conflict was widely shared throughout the Cold War (Brodie 1946). For some countries, the attraction of nuclear weapons as a way to signify status or threaten their neighbours was powerful and these countries developed nuclear weapons. It should be noted, however, that these notions have been challenged over the years by many governments (particularly by those that eschewed nuclear weapons), by academia and by civil society actors (Berry et al. 2010).

Whatever the complexity and priorities of the reasons for acquiring nuclear weapons, the concept of nuclear deterrence to prevent nuclear attack—along with the belief that nuclear weapons deter non-nuclear aggression and prevent war—has been used to explain and justify their

development and retention. However, it is important to note that different nuclear weapons doctrines—such as nuclear deterrence, no-first use, extended nuclear deterrence and strategic stability—were adopted by some nuclear weapons possessors and not others.

Although all possessor governments and militaries now frame nuclear weapons as a deterrent capability, each nuclear weapon possessor has had a different frame for their deterrence postures—different ways of thinking about nuclear weapons, different ways of communicating and messaging about their significance, completely different integration into other force structures, different chains of command and control, different safety and security measures, different views on extending their effects for allies' protection, different thresholds and mechanisms for use, different ways of thinking about missile defence and so on. For example, China and India have maintained a no-first-use doctrine and force posture (Pan 2018; Sundaram and Ramana 2018), and for several years, the US held that the primary purpose of American nuclear weapons was to deter a nuclear attack, not to deter all conflict. Throughout the Cold War, the USSR integrated short-range nuclear missiles into conventional weaponry and developed decision making to the battlefield operational level. Nuclear weapons in the US were under separate command structures and their use is at the behest of the US president. The US and the UK cooperate in an extended deterrence posture to provide nuclear weapons in defence of all NATO allies, whereas France, a member of NATO, does not. France thinks of its nuclear weapons as a defence against an existential threat to France and for no other purpose. The US also extends its nuclear capabilities to other allies such as Japan and South Korea. These are all quite distinct ways of thinking about nuclear weapons, how they may deter and how they should be framed in military doctrines. Each country, however, also seems to be of the view that their way of thinking about nuclear weapons is (a) the obvious way, and (b) is understood by all the others and their allies. This is certainly not true.

One of the problems in communicating the nuances of nuclear policies and doctrines is that much of the literature is in English and the US characterization of nuclear weapons and nuclear deterrence, including extended deterrence, dominates the discourse. As a result, most experts—there are of course notable exceptions—tend to miss the cultural nuances of nuclear deterrence thinking in the full range of countries—and the nuclear cultural nuances are rarely understood or communicated at the policy-making and decision-making levels.

Deterrence rests ultimately on the understanding of the minds of others. For those wishing to deter, understanding what will deter potential actions by others is vital to success in preventing dangerous escalation. Communicating in a manner so that it is clear that the deterrer has the capabilities and the resolve to carry out a range of responses to malicious actions is vital to deterrence, as is the credibility of that resolve and capability. One of the problems in using nuclear weapons as part of a deterrence strategy is that the likelihood of nuclear weapons use is often discounted. For example, Argentina discounted the probability of nuclear weapons use by the UK in response to the invasion of the Falklands/Malvinas in 1982 on the assumption that such an act would not elicit such a response. Similarly, in 1991, Saddam Hussein discounted the nuclear threat from the US in response to setting fire to the Kuwaiti oil fields, despite that being clearly laid out as a potential cause for nuclear retaliation in a letter from George H. W. Bush. It is possible, however—although disputed due to competing historical evidence—that the same letter effectively communicated the likelihood of a nuclear response should Iraq use chemical or biological weapons (Bush 2000).

The fact that these nuances are barely understood by most academics and policy makers during peacetime is a real worry, considering that crisis situations often require split-second decisions. We now know of several instances nuclear weapons were very nearly used; thanks to good luck (Pélopidas 2017) and a few individuals' good judgement, humanity got through the dangers of the Cold War without the detonation of nuclear weapons in conflict (Lewis et al. 2014).

4 The Non-proliferation and Disarmament Paradigm

From the beginning of the UN—the very first General Assembly resolution (UN 1946)—states grappled with how to eliminate weapons adaptable for mass destruction—and in particular nuclear weapons. The limiting of possession took root in the 1960s as a result of thinking about how to curb the proliferation of nuclear weapons and the associated increased risks of use should large numbers of countries acquire nuclear weapons. In 1961, Ireland's General Assembly resolution was adopted unanimously and this, with its subsequent iterations, led to the 1968 Nuclear Non-Proliferation Treaty (National Security Archive 2018).

The Treaty was a grand bargain in which the states that did not possess nuclear weapons promised never to develop or acquire them, to only

develop peaceful forms of nuclear energy and to subject themselves to safeguarding inspections by the International Atomic Energy Agency (IAEA). In return, the possessors of nuclear weapons promised to negotiate nuclear disarmament in good faith, along with other weapons categories, and not to transfer or assist with nuclear weapons technologies. All states parties to the NPT can then share in safeguarded nuclear technologies for peaceful uses.

Only three countries have remained outside the NPT. Israel does so without acknowledging its nuclear weapons capability but relies on the NPT to hold other countries such as Iran to account and prevent proliferation in the Middle East. India and Pakistan have different perspectives. India specifically spurned the NPT on the grounds that is was discriminatory—it established that five states—and only five—could possess nuclear weapons, although they are each supposed to be eliminating them. This to India discriminates in favour of the nuclear weapon states and against all others outside the military alliances with either the US or Russia. Pakistan will not join the NPT while India remains outside. Both countries have developed nuclear weapons in the 1970s–1980s and openly tested them in 1998.

Some countries gave up their nuclear weapons programmes to join the NPT—in the early days, Sweden, Australia, Switzerland and Italy did so. Following the end of the Cold War and the collapse of the apartheid regime, South Africa dismantled its fully-fledged weapons programme. Others—such as Iraq in the 1980s, DPRK in the 1990s and (most likely) Iran in the 1990s up until 2003—have used the NPT as cover to develop a capability but each was exposed, and each case has led to increased awareness of ways to deceive and clues to spot and have resulted in new measures for verification and safeguards.

The problem in the non-proliferation paradigm is that despite all statements about the commitment to nuclear disarmament, the possessors of nuclear weapons clearly do not want to fulfil those promises and negotiate them away—they clearly intend to keep them for the foreseeable future and even increase their capabilities.

5 The Rise of Arms Control

Towards the end of the Cold War, there was a sudden and ground-breaking flourishing of bilateral US-Russian negotiations and multilateral nuclear, chemical and conventional disarmament.

The Chemical Weapons Convention (CWC 1993)—long in the making—was finalized in the early 1990s following the successful conventional weapons agreements of the Stockholm Accord, the CFE Treaty and the establishment of the OSCE. US-led negotiations on the Comprehensive nuclear Test Ban Treaty (CTBT 1997) soon followed during what is now seen as the halcyon days of the Conference on Disarmament in Geneva. In the belief that the nuclear weapon states were set on a pathway to nuclear disarmament, the NPT was extended indefinitely in 1995 (NPT 1995) and the CTBT was concluded in 1996 but has yet to enter into force.

It cannot be overstated what an important milestone the indefinite extension of the NPT is with respect to nuclear disarmament and non-proliferation efforts. In adopting the decision to extend the Treaty indefinitely, the states' participation in the NPT exchanged the temporary nature of the NPT—and some would say they also exchanged leverage and power—for long-term certainty as well as (1) a set of principles and objectives for nuclear disarmament; (2) an enhanced approach to the NPT review process; and (3) a resolution to work towards a zone free from WMD in the Middle East.

However, enthusiasm gave way to regional conflicts and domestic politics; the hopes for steady progress via a step-by-step verified pathway to complete nuclear disarmament turned out to be overly optimistic.

India and Pakistan carried out a number of nuclear weapons tests in 1998[1] and the US senate failed to ratify the CTBT in 1999 (ACT 1999). The other nuclear weapons states had been persuaded by the US to negotiate the CTBT and Russia, the UK and France had already ratified it before 1999. These events set off a spiral of mistrust and trend-reversal, and even US allies began to cast the US as an unsafe negotiating partner—the view was that, despite good intentions, the US administration could not persuade the Senate to ratify. Since that time, over 23 years later, the Conference on Disarmament has failed to negotiate another treaty. Progress began to reverse following the election of US President George W. Bush: in 2001 and the US halted the six-party talks on North Korea nuclear weapons, pulled out of negotiations to strengthen the BioWeapons Convention (BWC) destruction and withdrew from the ABM Treaty in 2002.

Multilateral agreements on key conventional forces, however, withstood US and Russian opposition. The 1997 Mine Ban Convention (AP Mine Ban Convention 1997) and the 2008 Convention on Cluster

Munitions (CCM 2008) were successfully negotiated—via a humanitarian approach—without the support of either large military power. The 2001 UN Programme of Action to prevent the illicit trafficking of small arms and light weapons (UN POA 2001) and the Arms Trade Treaty were also based on international human rights law and IHL but was negotiated in the UN General Assembly with the acceptance (although without much enthusiasm) of the US and Russia (ATT 2014).

Progress in collective approaches to international security suffered a severe blow in 2001 with the 9/11 terror attacks on the US that led to the global 'war on terror'. Violent conflict in Afghanistan continues seventeen years later and related instabilities remain in several countries throughout the world including in Asia, Africa, the US and Europe. The turbulence in the Middle East was exacerbated by the 2003 US-led war on Iraq in the mistaken belief that Iraq still maintained a significant WMD programme (Thakur and Sidhu 2006). Further unrest has been caused by the 2008 economic crash in the US and parts of Europe.

There have been several attempts to re-ignite the bilateral and multilateral nuclear arms control and disarmament process since 2009 (Obama 2009) when President Obama gave a rousing speech in Prague in which he said:

> 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. And no matter where it happens, there is no end to what the consequences might be – for our global safety, our security, our society, our economy, to our ultimate survival.

The speech led to the New Strategic Arms Reduction Treaty (New START) and the Nuclear Security Summits—and on the multilateral level provided inspiration for the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) and for which President Obama received the Nobel Peace Prize. But from 2009 to 2016 the relationship between the US and Russia continued to deteriorate under the watch of President Putin. Arms control and disarmament took another hit when President Trump was elected in 2016 and, in 2018, amid accusations of non-compliance on either side, announced the unilateral withdrawal from the Iran nuclear deal—Joint Comprehensive Plan of Action (JCPOA 2015)—and his intention to withdraw from the 1987 Intermediate-range Nuclear Forces Treaty (INF 1987).

6 Nuclear Weapons Risks

The risks associated with nuclear weapons are always high. Risks are generally defined as the probability of an event occurring multiplied by the impact of that event. So even though the probability of nuclear weapons use may seem to be low (although that is not always true), the consequences and the impacts of use are extraordinarily high. This means that the risks that nuclear weapons pose are always high. Throughout the Cold War, the risks associated with nuclear weapons were very real and there were several instances where nuclear weapons were very nearly used again—inadvertently or purposefully (Lewis et al. 2014). What is argued about are the risks and the risk-benefit calculations. For many countries the risks of the use of nuclear weapons outweighed the benefit that might be derived from the belief that nuclear weapons can prevent violent conflict. For others—mainly the nuclear weapons possessors and their allies—the reverse holds true and nuclear weapons have come to be seen as vital for security and defence.

Risk perceptions change as our understanding of both the consequences and probabilities change—risk is not a static picture—and risks should always be assessed and reassessed in the context of the security environment of today—not the environment of the past. Understandings of both probabilities and consequences change all the time—and are usually highly uncertain—and those changes must be fed into the discussions about nuclear weapons risks. Risk perceptions change as our knowledge and understanding change. Our knowledge and understanding changes with new information on probabilities, on consequences, changing priorities and new technologies and new policies or doctrines.

The recent shifts in nuclear doctrines in the US and Russia and new nuclear weapons developments in both countries demonstrate that the salience of nuclear weapons is once again on the rise in the US and Russia; thus, however unusable they are, they remain relevant for their possessors and people who may get caught up in the crossfire.

The risks associated with North Korea's nuclear weapons programme five years ago were very different from how we would perceive them today. In 2018, the possible use of nuclear weapons became all too real, with threats from both DPRK Leader Kim Jong Un and US President Trump. Missile alert drills have been re-installed in Hawaii and a 'real' alert was mistakenly broadcast in January, leading to 40 minutes of panic and uncertainty. The mistake was readily believed because of the

increasing hostile rhetoric between the leaders of the US and DPRK at the time. Since then the relationship between the DPRK and the Republic of Korea has improved considerably. The US and DPRK are meeting regularly, including at the head of state level, and such an interpretation is thus less likely in 2019 than it was in early 2018, reflecting the ever-shifting calculations of risk. With social and broadcast media, nuclear risks are also changing due to communications decisions—nuclear war may be only one tiny tantrum and one small tweet away (Fihn 2017).

The dangers of nuclear weapons—the destructive physical power and the range of devastating humanitarian impacts—are undisputed but the belief that the nature of nuclear weapons prevents large-scale war is increasingly being challenged. As the belief in nuclear deterrence is continually shifting, waxing and waning, the risk calculations and the moral discourse about nuclear weapons are also changing. Nuclear weapons are, however, not being reduced in salience and their irrelevancy is not yet on the cards.

We have new information today that feeds into the probability side of the risk equation, information from historical documents casts new light on the risks of the political atmosphere at the time and the likelihood of misinterpretation, miscalculation and misunderstanding. The release of documents and the meetings of participants in the Cuban Missile Crisis revealed previously untold or misunderstood instances of near-nuclear use (Mozgovoi 2002; Savranskaya 2005). The release of documents from the Cold War such as the discussions and concerns around the 1983 Abel Archer NATO exercise and the near inadvertent/miscalculated use prevented by Col Stanislav Petrov is another example (Lewis et al. 2014). Humanity's understanding about the theoretical framework of risk has also changed so that we are now more aware of the uncertainties in the calculation of probabilities and what used to be framed as 'improbable' high consequence events. Risks have also changed in terms of the numbers of possessors of nuclear weapons, whether they are located in regions of high tension and violent conflict and risks of the possible spread to non-state armed groups. New technologies such as cyber technologies and artificial intelligence have also changed the risk picture (Unal and Lewis 2018) as has the changing—and deteriorating—international relationships in recent years, along with much harsher military doctrines with lower thresholds and preparedness for use.

There is also new information on the consequences of nuclear weapons such as the long-term (seventy) years analysis of the data on the effects of nuclear weapons used in Hiroshima and Nagasaki (Atomic Bomb Disease Institute) and from nuclear weapons tests in the atmosphere, showing differentiated impacts on population groups (women, men, elderly and young). In addition, changing population patterns have resulted in larger numbers of people in target cities, increasing the impact component of the risk equation. The consequences of nuclear weapons with regard to climate change are far higher than previously calculated (Toon et al. 2007). There have been new studies of humanitarian and medical responses to nuclear weapons use showing that the impacts could be far greater than previously understood (ICRC 2019) and there are new international priorities, for example preserving cultural heritage in conflict, and issues such as human security and democracy, all of which change the risk calculations (Lewis et al. 2017).

What is becoming increasingly clear is that the public discourse on nuclear weapons is out of date; many senior decision makers are unaware of the changing risk picture regarding the potential use of nuclear weapons, and the debate over the acceptability of the full range of risks has been excluded from the public discourse in many of the states that possess or are in other ways responsible for nuclear weapons (Borrie et al. 2017).

As the risk calculations and the moral discourse about nuclear weapons are changing, so is also the belief in nuclear deterrence shifting, waxing and waning. Nuclear deterrence depends entirely on the belief in the ability of nuclear weapons to deter, and in the case of extended nuclear deterrence it also rests on the belief that the country that possesses the nuclear weapons would use them to protect another country. The belief that the nature of nuclear weapons prevents large-scale war is increasingly being challenged, in particular by the current North Korea situation. Even if that situation does get resolved through US-DPRK summit process, the uncertainties that have been revealed in the process and the use of the so-called madman theory of nuclear deterrence have shaken many countries—not only in Northeast Asia but also in Europe.

With the fast-changing global security order and the rules-based system under challenge, with new nuclear systems being developed, nuclear weapons are increasingly seen as destabilizing rather than stabilizing, as in the past under the classic paradigm of nuclear deterrence. The cost-benefit equations of nuclear weapons are beginning to change.

7 New Risks, New Responses

Given the changing risk picture and the inability of the step-by-step process to make any progress, new approaches to nuclear weapons such as the Nuclear Ban Treaty—or indeed the overt threat of nuclear use—are now being sought, and a more extensive discussion of these approaches comprises Part II of this volume.

The Humanitarian Impacts of Nuclear Weapons conferences (HINW 2013–2014), the Open-Ended Working Groups (OEWG 2016) and the (TPNW—also called the Nuclear Ban Treaty) (TPNW 2017) began due to a number of factors. First among these is the increasing sense of urgency over nuclear weapons, with renewed interest from established nuclear weapons possessors looking to develop new capabilities coupled with decreasing activity and progress in nuclear arms control and disarmament. New understandings about the risks and about the history of near-deterrence-failures have increased this sense of urgency. Many states have also been developing consistent moral and ethical frameworks at national and international levels for sustainable development, human rights, conflict prevention, and climate change, and wish to be consistent throughout their foreign and security policies, integrating all of their policies on nuclear and other types of weapons.

Several countries, led by a very pro-NPT group including Ireland, Austria, New Zealand, Mexico, South Africa, saw progress in the humanitarian approach for conventional and chemical weapons and asked why, when few issues are more urgent than nuclear weapons as regards humanitarian concern and IHL, was an a humanitarian approach not being applied in the way that it was to chemical, biological, landmines, small arms, the arms trade and cluster munitions? This is an excellent question. And the more it was asked and the more academics and practitioners began to respond to it, the clearer it was that just like chemical weapons, biological weapons, landmines, cluster munitions and so forth, nuclear weapons—both their development and potential use (including nuclear weapons testing)—constitute one of the most important humanitarian issues of our time.

In addition, the work that was being carried out to develop the SDGs and other similar issues was not taking into account the impact of nuclear weapons—for example mitigating climate change or preventing the destruction of cultural heritage in conflict or preventing sexual violence and so on—all of which have made great progress in the UN over recent

years. Ireland began a series of research programmes studying the interaction of all these issues with nuclear weapons policies. They and other governments commissioned studies on the potential for humanitarian response to nuclear weapons attacks, modelling the impacts, the long-term climate impacts, long term health impacts, risk calculations, gendered impacts and legal issues. Papers covering all these topics were presented at a set of international conferences addressing the humanitarian impacts of nuclear weapons in Oslo, Nayarit and Vienna, at two UN OEWG, at NPT meetings, at the Ban Treaty negotiations, in cities around the world, and online. It is a significant body of work and it laid the basis for the negotiation of the TPNW (Oslo 2013; Nayarit 2014; Vienna 2014).

The matter is urgent, and much work is being done, but the burning question remains: will we find a way to eliminate nuclear weapons before or after their next use? Or as Beatrice Fihn put it at the Nobel Peace Prize ceremony (Fihn 2017)—will we get rid of nuclear weapons before they get rid of us?

Note

1. Note India had tested a nuclear explosive device in 1974—insisting at the time that it was a 'peaceful nuclear explosion'.

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CHAPTER 4

Vertical Proliferation in Light of the Disarmament Commitment

Katarzyna Kubiak

Nuclear-weapon states (NWS) renew their nuclear arsenals: they design and produce new weapon systems or modernize, refurbish or replace old ones, an activity called *vertical proliferation*. They see themselves as needing to maintain safe and secure nuclear deterrents in order to guarantee their utility against opponents who are also presumably continually improving their arsenal.

Vertical proliferation, however, is controversial in light of the Nuclear Non-Proliferation Treaty (NPT), the cornerstone of the nuclear non-proliferation regime. In 2014, the Marshall Islands filed a lawsuit against India, UK and Pakistan, accusing them of not fulfilling their obligations related to the cessation of the nuclear arms race, referring above all to their nuclear modernization efforts (ICJ 2018). In preparation for the 2020 NPT Review Conference, a gathering held every five years

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_4

for the purpose of assessing the operation of the treaty, 120 developing states of the Non-Aligned Movement accused NWS of 'improvements in existing nuclear weapons and the development of new types of nuclear weapons' (Auswärtiges Amt 2014, p. 12; Statement 1 2017, par. 10). In their eyes, this 'violates their legal obligations on nuclear disarmament'. The New Agenda Coalition, a group of six middle power states, also expressed concern that the ongoing modernization undermines the commitment 'to accelerate concrete progress on the steps leading to nuclear disarmament' (Statement 2 2017).

Simultaneously, the pace of reductions and NWS rather moderate engagement in getting the disarmament ball rolling increasingly frustrate the international community (Dunn 2009; Fields and Enia 2009; UN GA 2016, point 21). Although Washington and Moscow considerably reduced their Cold War nuclear arsenals—mainly in response to strategic and economic requirements as well as improvements in conventional weaponry—progress remains reversible, lacks universality, often lacks verification and does not provide credible proof to third states. Although the Obama administration tried, it ultimately failed to come up with a format to modernize without introducing new weapons or military capabilities in order to adhere to the NPT and its own arms control goals. In consequence, further refurbishment programs might deepen the rift between nuclear 'haves' and 'have-nots'.

What is more surprising is that scholars pay only marginal attention to vertical proliferation (Gartzke 2010). Despite its immense policy importance, it is the horizontal proliferation—when countries that are not officially recognized as possessing nuclear weapons acquire them either by transfer or domestic production—that preoccupies academic attention. As regards vertical proliferation, the academic debate mainly revolves around its links to the horizontal proliferation of nuclear weapons (Bustillo 1992, p. 174; Goldansky 1988), potential consequences that vertical proliferation might have on strategic stability, nuclear deterrence doctrines, escalation risks and credibility of defence commitments (Chase et al. 2009; Christensen 2012; Korb 2017; Kroenig 2015; Lewis 2009; Lu 2015; Miasnikov 2015; Mount 2017). It only occasionally touches on its implications on prospects for arms control (Cimbala and Lowther 2016; Lunn 1982). The debate leads to the question of responsibility and accountability of NWS (Walker 2010), especially in the disarmament circles (Ingram 2015; cf. Saran 2005; Sasikumar 2007).

The omnipresent colloquial semantic reduction of the term 'non-proliferation' to mean 'horizontal proliferation' exacerbates the distorted focus within the non-proliferation debate.

The purpose of this chapter is to explore the conceptual, legal and practical link between nuclear vertical proliferation and disarmament, and utilizes US modernization and arms control efforts to illustrate this linkage. This choice was pragmatic, as US administrations are particularly vocal regarding their commitment to (US Department of Defense 2010b, p. 7) or at least acknowledgment of (Statement 3 2018) disarmament as the ultimate goal of the NPT. Washington fosters a lively public debate about its nuclear and disarmament policies, providing an above-average degree of transparency. Yet US renewal and modernization plans are not necessarily representative for all states possessing nuclear weapons. This is because on the one hand, they differ in the scope of their renewal plans. While Washington mainly improves safety and security and pursues only a few new systems such as a low-yield warhead and sea-launched cruise missile, Moscow and Beijing have already developed new types of weapons. On the other hand, some of the 'nuclear haves' remain outside of the NPT and are not bound by its disarmament obligation (India, Israel, North Korea and Pakistan). Overall, however, the point of the chapter is not that the United States is more active than the other nuclear-armed states, but to use its case to visualize important aspects of vertical proliferation and its relation to disarmament.

The chapter proceeds as follows: the first section introduces basic terms and demonstrates how vertical proliferation conceptually competes with disarmament. At the same time, it shows that the link between these two is neither unequivocal nor unidirectional. The second part provides a textual and contextual analysis of the legal aspect of vertical proliferation. It points out the indirect mentioning of vertical proliferation in the letter of the NPT, the unsuccessful struggle for a more direct reference during the NPT negotiations, its subsequent interpretation within the NPT review process and the related opinion of the International Court of Justice (ICJ) on the threat of use of nuclear weapons. The final section explores the relation between vertical proliferation and disarmament in current US practices.

1 Conceptualizing the Relation Between Vertical Proliferation and Disarmament

The term *vertical proliferation* is subject to a wide variety of definitions. As a very generic concept, it refers to the 'growth of existing arsenals' (UN GA 1978). Former United Nations High Representative for Disarmament Affairs Sergio Duarte framed it as 'the qualitative improvement or expansion of existing nuclear arsenals' (Duarte 2010, p. 1; cf. Bustillo 1992, p. 174; Goldansky 1988, p. 21; NGO Presentations 2004, p. 6).

This chapter understands vertical nuclear proliferation as the quantitative growth of arsenals, the qualitative sophistication of existing weapon systems, and the improvements and upgrades in the nuclear complex and related infrastructure held by states, which already possess such capabilities (Robinson 2015). Quantitative growth includes the development of new weapons, an increase in the number of weapons, an expansion of their nuclear explosive capacity etc. Qualitative improvements include a variety of modernization efforts aimed at but not limited to the increase in operational and combat utility, improvements to safety and security as well as the increase in weapons longevity.

Conceptually, vertical proliferation competes with disarmament. This is because it extends the life of such weapons far into the future and/or increases the stockpile size. Disarmament, however, aims at gradually reducing, and eventually eliminating, the arsenals.

Yet while manufacturing more weapons using old blueprints, improving existing designs and developing new ones to replace old weapon systems clearly counts as proliferation, qualitative improvements are a more nuanced problem. The fact that the term *modernization* is colloquially used to mean both improving existing weapons as well as increasing the types or numbers of weapons introduces additional confusion. Modernization refers to a broad scope of weapon related measures, including alterations, modifications and life-extension programs (US Department of Energy 2017, pp. 1–5). In general, they aim at ensuring that weapons are safe, secure and effective. That existing weapons need to be safe and reliable is unquestionable, yet there are no criteria to judge at which point incremental upgrades, extensive refurbishment or modifications go beyond necessary maintenance and begin to constitute new military capabilities. The overall secrecy surrounding nuclear weapons additionally complicates an assessment of the scope of these modernization efforts. As such, certifying the 'health of the

nuclear weapons stockpile' (US Department of Energy 2017, pp. 1–5) can include uncontroversial measures like assessing warhead performance, its safety and reliability to more contested ones 'that change the operational capabilities of weapons' (US Department of Energy 2017, pp. 1–5). Examples for the latter include so-called *modifications* that affect a weapons delivery mechanism, its fuzing or ballistic properties, and related logistics (US Department of Energy 2017, pp. 2–19). Thus while some modernization measures 'return the weapons to their original level of reliability' (Cook 2016), some certainly go beyond. At the same time, however, modernization can lead to a reduced overall yield of the stockpile, lower number of weapons needed for a particular mission due to increased operational capabilities, etc.

Disarmament efforts might also yield reverse effects. States usually downsize deployed weapon systems through unilateral initiative or arms control agreements that regulate their availability. However, to box arms control agreements through the legislative branch, the executive sometimes offers concessions on either modernization, renewal or the like. This is because successful ratification of arms control agreements is an outcome of an internal bargaining process that requires proper alignment of a wide set of political factors, actors and interests. And sometimes, internal critics need 'to be paid for their public support' to a treaty (Miller 1984, p. 82).

And while states can downsize through non-proliferation, which aims at curbing manufacturing and testing capacities, most of these milestones are stuck in the negotiation or ratification process (The Fissile Material Production Cut-Off Treaty, FMCT and the Comprehensive Test Ban Treaty, CTBT, respectively).

2 Legal Perspective on Nuclear Vertical Proliferation

How does the widespread accusation of vertical proliferation being at odds with disarmament look from the legal perspective? This sub-section starts with a textual analysis of the NPT—the primary international legal regulation of nuclear weapons. Resorting to the Vienna Convention on the Law of Treaties for recommendations on how to interpret legal agreements, it then inspects the drafting history and subsequent state practice for further clarifications. Specifically, documents accompanying the NPT negotiations (1965–1968), the 1997 advisory opinion of the ICJ on the threat of use of nuclear weapons, and the cyclical NPT review conferences provide contextual background.

2.1 *Implicit Mentions in the NPT*

The NPT itself neither mentions renewal and modernization of nuclear weapons nor makes a clear distinction between horizontal and vertical proliferation, yet its preamble together with article six give some indirect hints on how to assess refurbishment, modernization and the renewal of nuclear weapons.

In the preamble, member states consider the '*need to make every effort to avert the danger of such a [nuclear] war*' [emphasis added]. Prolonging the existence of nuclear weapons by developing new ones or modernizing old arsenals clearly does not avert the danger of nuclear war; rather, it extends the statistical probability of such a war breaking out (Hellman 1985). However, programs that make stockpiles safe and secure, and thereby prevent accidents or a war caused by technological failure, may not fall under this provision. At the same time, although nuclear weapons proponents argue that nuclear weapons have a peace-inducing, stabilizing effect (Waltz 1981), the NPT preamble is clear that, 'the *proliferation* of nuclear weapons *would seriously enhance the danger of nuclear war*' [emphasis added].

Member states also declare 'their intention to achieve *at the earliest possible date* the *cessation of the nuclear arms race*' [emphasis added]. This raises the question whether modernization and the renewal of arsenals, especially when nuclear weapon states explicitly justify their own modernization by referring to modernization in other nuclear-armed states, are in line with the intention to cease nuclear arms competition. An arms race can be defined as

> competitive and cumulative proliferation or accretion of weapons (or increase in their destructive powers) or buildup of armed forces, based upon conviction on the part of two or more adversaries that only by staying ahead in military power can they insure their national security or supremacy. (Schwarz and Hadik 1966, p. 45 in Shaker 1980, p. 583)

Using this definition, modernization or the development of new weapons is an element of an arms race depending on the political motivation backing such actions. If modernization is part of a power game between two or more actors that aim at maintaining a competitive edge above other parties, these actors might be considered as participating in an arms race.

The preamble also raises the question whether the prolongation of the existence of nuclear weapons conflicts with the phrase 'earliest possible date'—that is with the connotation of urgency to achieve the cessation of the nuclear arms race. However, there are different ways to interpret the 'earliest possible date'. Next to an independent/strategic/economic decision to disarm, disarmament by technological retirement seems to be the *earliest possible occasion* to reduce ageing arsenals, somehow 'by default' or as nuclear weapon supporters prefer to say: 'by neglect' (Payne 2015, p. 63). Refurbishing old weapon systems and developing new ones extends this timeframe.

Simultaneously, however, the 'earliest possible date' does not necessarily have to refer to an *explicit time limit*, but could instead mean specific *conditions*. In other words, it can refer to the state of international affairs, the availability of verification measures etc. If that is the case, the disarmament prerequisite of 'creating the right conditions for a world without nuclear weapons' (Statement 4 2012) promoted by NWS could be acceptable as well.

While the preamble sets the *ratio legis* for the treaty's obligations, an ongoing dispute leaves the question unsolved whether it has a normative or declarative character (Mbengue 2015).

Next to the preamble, one can find further indications of handling proliferation in the body of the treaty. The text puts no explicit restrictions on vertical proliferation (Shaker 1980, p. 926). However, article six calls member states to 'pursue negotiations in good faith on effective measures relating to *cessation of the nuclear arms race at an early date*' [emphasis added]. As a declarative statement, article six sets a clear obligation upon member states. Although it does not indicate any specific measures, it suggests an order of action. According to ambassador Mohamed Shaker, who authored an authoritative study on the NPT negotiation process, the treaty attaches urgency exclusively 'to effective measures relating to the cessation of the nuclear arms race' (Shaker 1980, p. 578). In the chain of order proclaimed by the NPT, the cessation of the nuclear arms race shall pave the way for the two further activities (disarmament and a treaty). Also, the phrase 'in good faith'—although ambiguous—is not meaningless (Koplov 1992, p. 378). It includes a 'duty to make all reasonable efforts' (Matheson 1997, p. 434) to pursue negotiations and achieve nuclear disarmament. Thus, by modernizing and renewing nuclear weapon stockpiles without even

negotiating whether this activity could be limited, NWS act against the spirit of the treaty (Howlett and Simpson 1999, p. 201).

Yet article six is susceptible to a broad range of often-controversial interpretations too (Ford 2007; Graham 2012; Joyner 2011; Kahn 1999; Koplov 1992, 1993; Matheson 1997; Simon 2004–2005).

Among all interpretations, the opinion of the ICJ on the threat of use of nuclear weapons stands out as an authoritative source. According to the court, the obligation involved in article six is 'to achieve a precise result—nuclear disarmament *in all its aspects*—by adopting a particular course of conduct, namely, the pursuit of negotiations on the matter in good faith' [emphasis added] (ICJ 1996, p. 264). This interpretation does not limit the scope of nuclear disarmament negotiations to any specific issue. Rather, it points to the variety of aspects ('in all its aspects'), vertical non-proliferation included.

Newer legal interpretations of article six also identify *partial* disarmament as a satisfying step towards *complete* disarmament (Kiernan 2013). Measures required by article six have merely to 'relate to' the cessation of the nuclear arms race. As such, one needs to assess whether measures taken by NWS to renew their nuclear weapon stockpiles bring us closer to the final goal of complete disarmament.

2.2 The Struggle for an Explicit Mention in the NPT

When the term 'proliferation' appeared around 1965, it covered both horizontal and vertical aspects (Goldschmidt 1980, p. 73). Yet including this distinction into the NPT text turned out to be problematic. Initial drafts proposed by the main drafters (Washington and Moscow) did not refer to vertical proliferation at all, with later ones merely mentioning 'effective agreements to halt the nuclear arms race' (Shaker 1980, p. 572). Unsatisfied with this approach, non-aligned states won the unanimous support of the international community to base further negotiations upon five principles. One of these premises read: 'the treaty should be void of any loop-holes which might permit nuclear or non-nuclear powers to proliferate, directly or indirectly, nuclear weapons in any form' (UN GA 1965). With this, the UN General Assembly intended a comprehensive interpretation of the non-proliferation term, including vertical proliferation. The Eighteen Nation Disarmament Committee, co-chaired by Washington and Moscow, went through some battles on this issue. In the width and depth of the debate, however, the question

of vertical proliferation occupied only a relatively marginal space. In the forefront of prohibiting further nuclear weapons manufacturing by possessor states was India (Remarks 1 1967, p. 205), Brazil (US ACDA 1969, p. 282), Nigeria (US ACDA 1969, p. 302), Mexico (Shaker 1980, p. 573) and to a lesser extent Sweden (Shaker 1980, p. 576), Romania (Shaker 1980, p. 574) and Cyprus (Shaker 1980, p. 577).

Other than those looking for a comprehensive treaty, some states were striving for a pragmatic conclusion of a treaty at all. Pakistan, while fond of an absolute prohibition, feared that pursuing it would put negotiations in a deadlock (US ACDA 1969, p. 318). Ethiopia supported a comprehensive treaty as desirable, but pointed to 'prevailing absence of political will and courage on the part of the nuclear-weapon Powers, coupled with the difficulties and complications that would ensue from any attempt to lump together other measures of nuclear disarmament' (US ACDA 1969, p. 289), as compelling the parties to taking 'a partial and practical course, short of the ideal goal' (ibid.).

Although several delegations submitted proposals to include vertical proliferation in the text, Washington and Moscow kept leaving it out. They also rejected including the five principles in the treaty's preamble (ENDC 1968, p. 88). Even though UN General Assembly resolutions also distinguished between 'an increase in the number of nuclear-weapon Powers' and 'an increase of nuclear arsenals' (UN GA 1966), vertical proliferation did not make it into the final text. Eventually, the treaty's conveners played on the impatience, uncertainty and desperate longing for a successful conclusion of a treaty text. Yet, many NPT member states claim that the accord was 'originally designed to combat equally' both forms of proliferation (Koplov 1993, p. 313). The negotiating parties therefore entered the process expecting that NWS would rush into disarmament right after the treaty's conclusion. They did not at all anticipate the opposite.

2.3 Vertical Proliferation in the NPT Review Process and Beyond

After the NPT was opened to signatures, the co-chairman of the Eighteen Nation Disarmament Committee suggested a disarmament agenda. Among others, it included the termination of testing, of weapons manufacture, and of production of fissionable materials for weapons use (Shaker 1980, p. 579). At a follow-up conference, the non-nuclear weapon member states (NNWS) called for 'the prevention of the further

development and improvement of nuclear weapons and their delivery vehicles' (Shaker 1980, p. 579).

While the treaty does not contain explicit provisions constraining vertical proliferation, some of its member states have been reluctant to accept the modernization of nuclear arsenals. Qualitative improvements and the quantitative increase in nuclear arsenals are a constant issue at NPT review conferences. Since the first review in 1975, a handful of states that varied from conference to conference mentioned either 'vertical proliferation' or 'modernization' in statements or in the general debate [ca. 22 in 1985, ca. sixteen in 2000 and ca. five in 2010]. In general, there are four types of references. One exposes (1) the interrelation between vertical and horizontal proliferation, especially the NPT's inherent balance between these two types of proliferation (See: Draft Resolution 1975; Final Document 1975, pp. 80, 164, 182; Final Document 1985, pp. 27, 77, 131, 225; Final Document 2010a, p. 217). Other citings that occur frequently include (2) a distinction between horizontal and vertical proliferation (See: Final Document 1975, pp. 3, 47; Final Document 1985, p. 58; Final Document 2000a, pp. 15, 45, 88; Final Document 2010a, p. 73), (3) a call for particular measures to stop vertical proliferation (See: Final Document 1975, p. 73; Final Document 1985, pp. 81, 96, 177; Final Document 2000a, pp. 22, 70, 88, 174, 175), and (4) a statement of frustration portraying vertical proliferation as a problem (See: Final Document 1975, pp. 69, 113, 144, 173; Final Document 2000a, p. 102). They have one thing in common, namely the belief that vertical proliferation is an integral part of the NPT deal.

In 1995, all member states pledged to complete a CTBT imposing an indefinite ban on all types of physical nuclear testing and to commence negotiations for a treaty to stop the production of fissile materials (FMCT) (Final Document 1995). Since then, calls for both treaties are widely shared among all continents. The 2000 review conference concluded with thirteen 'practical steps', which again foresaw halting the production of nuclear weapons and reversing their production capability. The plan included 'the principle of irreversibility to apply to nuclear disarmament, nuclear and other related arms control and reduction measures' (Final Document 2000b, point 15[5]). In 2010, member states reaffirmed that 'by constraining the development and qualitative improvement of nuclear weapons and ending the development of advanced new types of nuclear weapons, the Treaty combats both horizontal and vertical proliferation' (Final Document 2010b, point 83).

Negotiations on the CTBT and the FMCT only reinforce the fact that stopping vertical proliferation is an agreed upon, accepted disarmament goal. With 183 signatures and 166 ratifications, most states recognize the CTBT as a measure substantially inhibiting both horizontal and vertical nuclear proliferation. Out of nine states that possess or are assumed to possess nuclear weapons, three signed and ratified the treaty (France, UK, Russia), three signed without ratification (China, Israel, United States) and only three did not sign the treaty (DPRK, India, Pakistan). Similarly, in 1993, UN member states unanimously agreed that a verifiable treaty banning the production of highly enriched uranium and plutonium, both integral components of nuclear weapons, would be a significant contribution to nuclear non-proliferation in all its aspects (UN GA 1993).

3 Practice: US Nuclear Weapons Modernization and Stockpile Renewal

After the NPT took effect in 1970, NWSs kept designing, testing and fielding new nuclear weapon systems. Since then, the United States conducted 419 weapons-related nuclear explosions aimed at testing design concepts, physics and engineering details (US Department of Energy 2015). It also developed and manufactured weapon systems that are part of its nuclear arsenal today, including ballistic missile warheads, nuclear air-launched cruise missiles, and dual-use fighters (F-15E and F-16).

According to a US statement,

> the NPT does not prohibit NWS from modernizing their nuclear forces. All of the NWS have continued to modernize their nuclear weapons stockpiles during the period in which the NPT has been in effect. Given this history, it would be a novel and unfounded interpretation of the NPT to argue that such modernization is problematic under the NPT. (US Department of State 2005)

As such, Washington sees current developments as a continuation of an accepted trend, rather than a distortion. At the same time, however, it was the same United States, which stated in 1985: ‘Article VI complements the obligations with respect to horizontal proliferation assumed by the parties under articles I and II by addressing the problem of vertical proliferation’ (Information 1985, p. 24).

Washington currently plans modernization of its nuclear triad for an estimated US$1.2 trillion over 30 years (Congressional Budget Office 2017, p. 1). The motivation for this effort ranges from preserving a credible nuclear deterrent, ensuring that diplomacy speaks from a position of strength, ensuring the delivery of nuclear weapons at the needed rate, and as a response to Russian and Chinese modernizing their nuclear weapons as part of a new 'Great Power Competition' (Office of the Secretary of Defense 2018, p. 50).

3.1 Routine Check-Up or New Capabilities?

Most nuclear warheads in the US arsenal undergo a *life extension program* (LEP). They are examined to evaluate options to refurbish, reuse, or replace components within existing weapon designs while adding improvements to their safety and security features (US Department of Energy 2017, pp. 2–19). Yet LEPs differ in scope, and sometimes go beyond a mere increase in safety and security. For instance, the B61 LEP replaces four B61 strategic and non-strategic weapon designs and includes refurbishments of its nuclear and non-nuclear components (US Department of Energy 2017, pp. 1–13). The new B61-12 will have an increased accuracy and standoff capability due to a new guided tail kit (NNSA 2018). Although the 2018 Nuclear Posture Review (NPR) assures that the guidance tail kit intends to 'sustain the military capability of existing B61 variants' (Office of the Secretary of Defense 2018, p. 50), some experts evaluate that the B61-12 will be a 'new nuclear bomb type that is not currently in the nuclear stockpile' (Kristensen 2013).

Other elements of the US nuclear triad undergo *modifications*. These include a modified Trident II D5 Ohio submarine-launched ballistic missile (SLBM) and a new interoperable air and sea launched warhead. The Trident II D5LE version will have a new guidance system with improved accuracy (Kile and Kristensen 2017), and one of its warheads (W76-1) has an improved fuze that increases its capability to destroy targets (Kristensen et al. 2017). The United States also wants to modify a small number of existing SLBM warheads to a low-yield option. It also plans to combine existing warheads deployed on ballistic missiles (W78 and W87 on ICBMs, and W76 and W88 on SLBMs) into 'interoperable' warheads (IW-1-3) compatible with both ICBMs and SLBMs. It is not clear how much modification and how much novelty the new warhead will entail. Another example is the B-2 bomber, which will

emerge from its modernization with upgraded radar, communication and defensive systems (Lichterman 2012, p. 92).

Moreover, Washington plans the *development of new systems*, mainly delivery platforms. For example, it wants to construct at least twelve new nuclear submarines (Columbia-class) to replace the existing fourteen Ohio class submarines (Office of the Secretary of Defense 2018, p. X). It also aims at producing approximately 100 new nuclear–capable B-21 strategic bombers to replace existing B-1B and B-2 bombers (Kile and Kristensen 2017). The 400 Minuteman III ICBMs will be replaced by a new missile known as the Ground Base Strategic Deterrent (US Department of State 2018). Additionally, the Air Force is developing a new long-range air-launched cruise missile for delivery by two strategic bombers (B-21 and B52H).

On top of the refurbished and new weapon systems, the United States intends to *invest in its nuclear-weapons complex*. A new pit-production facility at the Los Alamos National Laboratory plans to meet a congressionally mandated Department of Defense request for producing at least 80 plutonium pits annually by 2030 (Office of the Secretary of Defense 2018, p. 62). This will greatly exceed the current production capacity of ten to twenty pits a year (Doyle 2017, p. 26). A new Uranium-Processing Facility at Oak Ridge National Laboratory will provide enriched uranium capabilities 'well into the future' (Y-12 National Security Complex 2018). Next to this, the whole nuclear weapons complex is due for a recapitalization that will ensure its 'capability to design, produce, assess, and maintain these weapons for as long as they are required' (Office of the Secretary of Defense 2018, p. II). The complex has to 'hedge against future risks' (Office of the Secretary of Defense 2018, p. 63), while future strategies must 'reduce the time required to design, develop, and initially produce a warhead, from a decision to enter full-scale development'.

3.2 Disarmament-Supporting Modernization

The relation between modernizing nuclear weapons and the nuclear complex on the one hand, and disarmament efforts on the other hand, does not necessarily need to be negative in all its aspects. While the current US modernization plans extend the life of stockpiles and the nuclear-weapons infrastructure, they entail some disarmament-related *potential*. In particular: to decrease the overall destructive power of the

stockpile (yield) and the size of the inventory. Modernization also entails the opportunity to build in additional monitoring and verification mechanisms to serve as transparency and confidence-building measures in the next nuclear disarmament steps.

Modifications resulting in improved accuracy and/or changes in the delivery method allow a *reduction in the nuclear weapons yield*. As an example, since the B61-11 400-kiloton earth penetrator bomb placed targets previously covered by the B53 nine-megaton bomb at risk, the United States dismantled the latter in 2011 (Cook 2016). Similarly, with a yield varying between 0.3–50 Kt TNT-equivalent but increased accuracy, the B61-12 might be able to supersede the unguided B61-11 earth-penetrator. Whether this happens depends on the B61-12 performance, yet until the military gains 'sufficient confidence' in the new gravity bomb, the B61-11 will remain in the stockpile (Office of the Secretary of Defense 2018, p. 47). The B61-12 could potentially also substitute the B83-1—being the last megaton weapon in the US stockpile—but the 2018 NPR mentions two conditions for the retirement of the B83-1 which render it unclear when that could take place: (1) 'until a suitable replacement is identified' (Office of the Secretary of Defense 2018, p. 61), and (2) 'at least until there is sufficient confidence in the B61-12' (Office of the Secretary of Defense 2018, p. 47).

Simultaneously, modernization will *decrease the overall number of warhead types* from twelve existing in 2015 to five in 2040 (Doyle 2017, p. 26). Instead of using several different warhead types for each individual delivery platform, there will be a limited number of types interchangeably mounted on different delivery platforms. According to current planning, in 2040, the US stockpile will contain B61-12 bombs, W80-4 warheads mounted on a new long-range air-launched cruise missile, and three types of interoperable warheads for use on SLBMs and ICBMs.

Consolidation of several B61 types into the B61-12 will *reduce the total inventory of gravity bombs* by 53 per cent and the total amount of nuclear material used by air-delivered gravity weapons by 87 per cent (NNSA 2018; RT 2017). As of 2014, experts were predicting that the United States will retain around 500 B61-12 out of 825 B61 bombs (Kristensen 2014b, p. 10). Similarly, now that production of the W76-1 is complete, the Navy is expected to retire all remaining W76-0 warheads, or about 50 per cent of the total W76 inventory (Performance.gov 2017).

At the same time, modernization serves as an opportunity to *introduce new verification measures* as part of a disarmament verification

architecture. Because disarmament is most likely to progress unilaterally rather than due to multilateral treaties accompanied by intrusive verification mechanisms, verification standards could prevent cheating and inspire trust among other NWS and the world community at large. The 1990s US and Soviet/Russian unilateral reciprocal disarmament commitments under the Presidential Nuclear Initiatives present an example of why such measures are necessary (ACA 2018): because disarmament without transparency is prone to mistrust.

By that token, Adam Mount from the Federation of American Scientists recommends to implement 'expected inspection standards' (Mount 2014) into the design of new or renovated facilities. These could include building laboratories for prospective inspectors, designing inspection points including for unattended measuring and measures to verify the purpose and intent of warheads, components and facilities.

3.3 Relation Between Arms Control Agreements and Modernization

Since 1967, despite ongoing modernization programs, the United States reduced its nuclear arsenals by 'approximately 85 per cent' (Kristensen 2014a), and within its first year, the Trump administration continued to reduce the number of warheads in the stockpile (Kristensen 2018). Yet for political reasons, arms control attempts in the past two decades have been directly intertwined with efforts to sustain the nuclear stockpile. The CTBT and New START Treaty cases support this assertion. Still today, decision makers see modernization as a precondition for further arms control. In his preface to the 2018 NPR, Defense Secretary Jim Mattis stated that only a strong nuclear deterrent provides 'the best opportunity for convincing other nuclear powers to engage in meaningful arms control initiatives' (Office of the Secretary of Defense 2018, p. 3).

3.3.1 CTBT

The United States coupled its CTBT signature with an obligation to modernize nuclear weapons. In order to appease the GOP Senators, President Clinton predicated US CTBT adherence upon six 'presidential safeguards' (Pena 1997, pp. 12–15). These included stockpile stewardship, maintaining modern nuclear laboratories and a capability to resume nuclear test activities if required (US Congress 1997, pp. 12–13), for which he agreed to spend $4.5 billion in 1999 (Reis 1997).

The JASON Group, an established collective of experts, recognized the necessity to make explicit that these measures dealt with existing stockpiles, did not increase the number of systems or add technical capabilities. They wrote in a report that the Stockpile Stewardship Programs'

> implementation must avoid the appearance that, while the U.S. is giving up nuclear testing, it is as compensation introducing so many improvements in instrument and calculational ability that the net effect will be an enhancement of our advanced weapons design capabilities. (JASON 1994, p. 17)
> While the potential for future developments cannot be excluded, the SBSS [Science Based Stockpile Stewardship] activities should not be interpretable as laying the basis for the development of newer generations of nuclear weapons of advanced performance for new missions. (JASON 1994, p. 19)

The Department of Energy acknowledged this problem in theory, stating that stockpile stewardship should go hand in hand with arms control and non-proliferation policy (US Department of Energy 1995). Simultaneously, however, it believes that the stockpile stewardship program should allow for upgrading weapon systems to meet 'new military requirements' (US Department of Energy 1995). In 1999, the department claimed that LEP include activities 'necessary to modernize and extend the life of the weapons for an additional 30 years' (US Department of Energy 1999, pp. 5–1).

It is worth mentioning that today's SBSS is far more advanced and capable than the original architects of the program could possibly have predicted back then. Indeed, the significant design modifications needed for the interoperable warheads would not have been possible without the extraordinary 'virtual proliferation' in simulation and quality control capabilities that has happened since the 1990s.

3.3.2 New START

The New START Treaty aimed at cutting some 30 per cent of deployed strategic weapons in the United States and Russian arsenals over a period of seven years. It was the first major treaty of President Obama's presidency and key to his election program, yet winning the approval of the Senate Republicans turned out to be a challenging bargaining game.

Since the beginning of his presidency, President Obama embraced the necessity and committed to invest in the underfunded nuclear complex

he inherited (Brookings Institution 2019). In May 2010, in the course of the New START ratification process and under GOP pressure for a greater manifestation of that commitment, the Obama administration promised $80 billion over a period of ten years to modernize the US nuclear weapons complex (Baker 2010). When this did not secure enough Republican votes, in November 2010, President Obama added $4.1 billion (US Department of Defense 2010a; White House 2010). The ratification was sealed under the condition that the treaty will not impose any restrictions on the United States to modernize and replace its strategic offensive arms and would continue a robust stockpile stewardship program to maintain nuclear weapons production capacities (US Congress 2010).

4 An Unexploited Spectrum

The connection between vertical proliferation and disarmament is nuanced and not necessarily a one-way street. One should look at it as a spectrum rather than in mutually exclusive terms.

Obviously, developing new weapons, prolonging the life of existing stockpiles and renewing the nuclear weapons complex are counterproductive to the goal of disarmament. While there is no explicit legal prohibition of nuclear vertical proliferation, its abovementioned aspects contradict the spirit of the NPT. Its negotiations, succeeding review process, and the CTBT and FMCT efforts additionally indicate that stopping nuclear vertical proliferation constitutes a broadly acknowledged goal.

At the same time, modernization efforts can have some disarmament-inducing *side effects.* These can include reduction of the stockpile size, number of systems, and total yield, and the introduction of new tools or solutions necessary for future disarmament verification.

Don Cook, who previously managed the stockpile stewardship management program for the National Nuclear Security Administration, argues that minimizing the size of the stockpile 'comes as a direct result of the LEPs, not instead of them' (Cook 2016). How much LEPs constitute a decisive factor in nuclear reductions is worth exploring further. At this point, however, it is important to keep in mind that in general, modernization and renewal are not primarily aimed at disarmament, but rather the opposite: keeping nuclear weapons intact for as long as technically possible and politically necessary. Simultaneously, modernization of the production complex is in part intended to allow for rapid warhead

production in case of a new nuclear arms race. In practice, high-level politicians condition disarmament or arms control measures with pledges to renew or modernize nuclear weapon stockpiles.

NWS possess the necessary military-industrial capability to develop, test, and produce weapons and only very seldom need to fall back on support from NNWS (Buzan and Herring 1998, pp. 64–65). Therefore, the international community has few material instruments to discourage NWS from proliferation. These are limited to normative (dis)incentives as well as technical and conceptual solutions, offered voluntarily. Such measures can include e.g. creating political pressure by opposing renewal and modernization plans, and designing solutions for disarmament verification processes.

Currently, however, NNWS concerned with vertical proliferation do not pose a critical mass; certainly nothing big enough to put sufficient pressure on NWS. Disregarding the participation of several NNWS in several multilateral initiatives on verification of disarmament in all its aspects, it is at the discretion of NWS to build verification measures into their weapon systems maintenance procedures and infrastructure.

Yet it also is in the NWS' interest to remain at the heart of disarmament efforts and in order to be better able to shape the evolving international nuclear non-proliferation process. They can, for example, increase the transparency of their modernization programs. By clearly separating improvements in safety and security from those aimed at operational upgrades, and by precisely describing the nature of the latter, they could eliminate misperceptions on where these efforts head. Another opportunity is modernizing in a way that considers future disarmament verification requirements.

For non-nuclear NATO member states that support the United States in its nuclear mission, e.g. by introducing and certifying completely new dual capable aircrafts, a conundrum comparable to that of NWS arise: is it justifiable to prolong nuclear capabilities against the spirit of the NPT?

In more general terms, the question for the future will be whether NPT state parties can adapt the regime to the challenge posed by vertical nuclear proliferation.

Acknowledgements The author is grateful for commentary on earlier drafts of this essay by Magnus Petersson, Michael Meyer, Hans M. Kristensen as well as participants at the UCSIA International Workshop 'Non-nuclear peace' at the University of Antwerp on May 23–25, 2018.

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PART II

On the Road to Non-Nuclear Peace: From Ridicule to Stigmatizing via Prohibition

CHAPTER 5

Stigmatization by Ridicule: From *Dr. Strangelove* to Donald Trump

Rodger A. Payne

1 Introduction

In the last decade, the nuclear disarmament movement has been spurred by the so-called humanitarian initiative, which emphasizes the unique catastrophic consequences of nuclear use. The global campaign has clearly achieved unprecedented success. Most prominently, the United Nations adopted a Nuclear Weapon Ban Treaty on 7 July 2017, with

Portions of this chapter were previously presented at the Annual Meeting of the International Security Studies Section of the International Studies Association (ISA) and the International Security and Arms Control Section of the American Political Science Association, Chapel Hill, NC, October 4–6, 2012; and the Annual Meeting of the ISA, New Orleans, LA, February 17–20, 2010. The author is grateful for feedback from Robert Art, Chris Demchak, Peter Dombrowski, Roger Handberg, Anne Harrington, Maria Rost Rublee, Meredith Reid Sarkees, Martin Senn, and various participants in the May 2018 Antwerp Workshop on Non-Nuclear Peace.

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_5

122 states voting in favour versus only one state opposing it. As of late April 2019, 70 states have signed the agreement and twenty-two of those have ratified it, with 50 accessions needed for the treaty to enter into force. Internal political processes in additional states are moving towards ratification and expert observers suggest that the requisite number of states will ratify the treaty in 2019. At that time, 'the decades-old doctrine of nuclear deterrence will become illegal for the signatory states and in the eyes of hundreds of millions of citizens around the world who support the treaty' (Meyer and Sauer 2018, p. 62).

However, despite these achievements, the world's wealthiest and most powerful states oppose this nuclear disarmament treaty and cling to the doctrine of nuclear deterrence. None of the nuclear weapons states voted to adopt the treaty and none have signed it. All nuclear-armed states and members of NATO, apart from the Netherlands, abstained from the UN vote on the treaty and have declined to become signatories. Indeed, these same states boycotted the conference that negotiated the agreement and the Netherlands cast the sole negative vote against the treaty. Obviously, the greatest challenge for supporters of the Nuclear Weapon Ban Treaty is to convince nuclear-armed states and their major allies to ratify the agreement, reject nuclear deterrence doctrine, and eliminate their nuclear arsenals. In the words of Tom Sauer (2016), 'as long as some nuclear-weapon states object to the principles and timelines outlined in the NWC [Nuclear Weapons Convention], a world without nuclear weapons will remain a pipe dream'.

Historically, efforts to promote nuclear disarmament have been said to flounder 'on the hard realities of world politics', which is determined by 'strategic logic and state interests' (Joffe and Davis 2011, p. 7). Former United States Secretary of Defense Harold Brown, writing with former Director of Central Intelligence John Deutch (Brown and Deutch 2007, p. A19), offered what might be seen as the conventional wisdom, claiming that 'there is no realistic path to a world free of nuclear weapons'. Such critical reactions to nuclear disarmament are standard and should not surprise close observers of security politics. Indeed, as Sylvest explains in this volume, failed disarmament plans date to the very beginning of the nuclear age, even though advocates have offered seemingly reasonable economic, humanistic, and moral arguments against not only the use of nuclear weapons, but also against even their possession. Over the decades, however, the ideas and arguments of the anti-nuclear

activists and their allies have not emerged victorious, neither in political nor in policy debates.

Worse, the anti-nuclear positions have been repeatedly mocked and dismissed by ruling politicians as well as by civilian and military deterrence theorists. Margaret Thatcher (UPI Archives 1986), who served as British Prime Minister through the 1980s, ridiculed American and Soviet nuclear disarmament proposals from that era as 'pie in the sky' dreams. 'I cannot see a world without nuclear weapons', she said. 'I do not believe it is going to come about.' Likewise, 25 years later, former U.S. Defense Secretary James Schlesinger (2010) dismissed the contemporary anti-nuclear campaign with not-so-subtle ridicule: 'Are we actually going to see a world without nuclear weapons?' he asked rhetorically. 'This is the vision of many people, and I remind you that the dividing line between vision and hallucination is never very clear.' The high-profile Brown and Deutch op-ed in the *Wall Street Journal* quoted earlier was entitled 'The Nuclear Disarmament Fantasy'. Military analyst Thomas P. M. Barnett (2009) and former U.S. Assistant Secretary of Defense Keith B. Payne (2012) both view the prospect of a nuclear ban as a naïve and utopian example of wishful thinking—or worse. Barnett (2009) wrote that 'Nuclear weapons are the single best thing that has ever happened in mankind's long history of war'. According to him, a nuclear ban would put 'World War III back on the table'. These are standard arguments offered by supporters of nuclear deterrence.

This chapter considers the prospect of turning the tables on disarmament sceptics and employing ridicule as a discursive strategy aimed at undermining the legitimacy of nuclear deterrence in the nation-states that continue to embrace it. Toward that end, the chapter is divided into three parts. The first section explains the political importance of undermining the legitimacy of nuclear deterrence and explores the potential role of ridicule as a discursive strategy aimed at stigmatizing nuclear deterrence. This section also briefly reviews the limited prior scholarship examining the political uses of ridicule in provoking international normative change. The second section of the chapter examines a portion of the scholarly critique of nuclear deterrence strategy in search of fodder for ridicule. Various academic theorists have argued that nuclear deterrence is an illogical, contradictory, and thus irrational strategy. Section two considers whether the academic attack on the logic of nuclear deterrence can serve as the basis for ridicule. Conceivably, academic critique

might merely attempt to fix nuclear deterrence. However, the recognition of deep contradictions and paradoxes in an idea like rational deterrence strategy could make it vulnerable to mocking criticism that could destroy its credibility as a strategic policy and serve as the basis for transformative change. The third section examines the overt efforts of former political and military officials to criticize nuclear deterrence strategy and weapons deployment schemes. As will be demonstrated, an impressive set of prominent former public servants and military officers have advocated for the abandonment of nuclear weapons and deterrence. At least some of these officials have employed mocking ridicule in their discursive arsenal and thereby attempted to dismiss altogether the legitimacy of nuclear deterrence. This section considers whether these efforts can serve as contemporary model for public ridicule. Finally, the conclusion briefly summarizes the findings and applies them to the current political setting. Various political opponents, leaders of other nation-states, and assorted other critics have mocked many of Donald Trump's statements about nuclear weapons and deterrence. Could these efforts—propelled by the uncensored and provocative pronouncements of the current American President—undermine the legitimacy of nuclear weapons once and for all?

2 Banning Nuclear Weapons: The Importance of Ridicule

The nuclear powers and their allies, states that have uniformly chosen not to sign the Nuclear Weapon Ban Treaty, remain committed to 'the discourse of deterrence', a set of ideas reasonably viewed by opponents as 'the major competitor for the humanitarian paradigm' (Sauer and Pretorius 2014, p. 238). Despite the efforts of the humanitarian campaign, nuclear deterrence is still taken for granted as a normal policy option by a very large number of security policymakers and scholars, as well as citizens of nuclear-armed states. Again and again, supporters find new life in nuclear deterrence theory and strategy (Knopf 2010; Paul et al. 2009) in spite of various changes in global circumstances—the end of the Cold War, the gradual horizontal proliferation of nuclear weapons, the development of missile defence technologies, etc. Given that nuclear deterrence is the primary justification for the retention of nuclear arsenals, a successful anti-nuclear movement would seem to require that the strategy be stigmatized and rendered illegitimate as a policy.

To attain that goal, Matthew Evangelista calls for political leaders to address the fundamental contradiction apparent in great power discourse about nuclear weapons. Namely, these states frequently advocate nuclear disarmament, but they also retain the threat of nuclear annihilation for deterrence purposes. As Evangelista (2011, p. 312; see also Ray 1989) emphasizes, everyone condemns slavery in an unqualified manner: 'No one would argue that one should balance such condemnation against the economic or psychological benefits that accrue to slave-holders. Why should nuclear weapons be treated any differently?' Evangelista advocates for creative and bold solutions, including 'deliberate and forthright condemnation of nuclear weapons by the leaders of the nuclear-armed states' to assure that these weapons and the justifications for their potential use are universally stigmatized.

Like many other scholars, Evangelista explicitly draws upon the influential work of Nina Tannenwald, author of the chapter following this one, who demonstrates that there is already a robust taboo against nuclear use. However, Tannenwald (2007, p. 371) recognizes that the taboo has actually 'helped to stabilize mutual deterrence' as nuclear weapons use is seen as virtually unthinkable for all purposes except the so-called 'last resort' scenario. Again, leaders and many citizens of nuclear-armed states and their allies believe that these weapons help deter nuclear attack and thus contribute to their nations' security. Nonetheless, Tannenwald (2007, p. 369) speculates in her concluding chapter about the socio-political conditions necessary for disarmament: 'If nuclear weapons were fully delegitimized and their use unthinkable in absolutely all circumstances, we would expect nations to cease preparing for nuclear war and to get rid of their nuclear arsenals'. The requisite 'general opprobrium' needed to achieve that ideal 'is far from universal or complete' and thus nuclear weapons are not yet able to join slavery, duelling, and cannibalism as ideas that have been completely delegitimized (Tannenwald 2007, p. 387). Could ridicule play a role in stigmatizing nuclear deterrence?

Ridicule

In the classic *Rules for Radicals*, a primer for activists pursuing political change, Saul Alinsky (1971, p. 128) wrote that 'ridicule is man's most potent weapon. It is almost impossible to counterattack ridicule'. In his book *Laughter and Ridicule*, Michael Billig (2005, p. 207) also notes this 'rebellious' function of ridicule, which 'outwardly mocks the rules'.

These writers imagine ridicule as 'a kind of instrumental humor…used in order to inform an attending audience of the absurdity of an opinion' (Van Laar 2008, p. 304).

According to scholars, ridicule is an effective discursive weapon in large part because it plays on an audience's emotions. To demonstrate this point, Quentin Skinner (2008, pp. 143–144) recently argued that ridicule can expose 'opponents as laughable', which can then 'bring them into scorn and contempt'. This is exactly the sort of attitude anti-nuclear activists are trying to achieve. In Skinner's review of the 'advice put forward by the rhetorical theorists', a 'war of words' is won by enlisting 'the deepest emotions' of an audience. 'One of the best ways of inducing this effect is to cause your adversaries to appear laughable and absurd…. the best way to obtain this result is to make use of the full panoply of the mocking figures and tropes.' He singled out ridicule, hyperbole and irony. Similarly, International Communications Professor J. Michael Waller contends that ridicule is powerful because of the way it manipulates emotions, destroying opponents faster than they can rebuild their credibility. Specifically, Waller (2006, pp. 1–2) claims that 'directed properly… ridicule can be a fate worse than death'. He suggested, for instance, that 'ridicule is an under-appreciated weapon…against weapons proliferators'.

It must be acknowledged, however, that the literature is not completely united behind the idea that ridicule plays a rebellious role in political and social life. Many scholars contend that quite the opposite is true, as ridicule often functions to encourage compliant behaviour with traditional and established norms. Billig (2005, pp. 201–202) claims that

> everyday codes of behavior are protected by the practice of embarrassment…. the prospect of ridicule and embarrassment protect the codes of daily behavior, ensuring much routine conformity with social order… Therefore, ridicule has a universal role in the maintenance of order.

The logic behind this claim is powerful and explains an important social role for ridicule. By mocking transgressions of customs, actors employ the seemingly unruly practice of ridicule to protect current norms and discourage genuine deviance from the status quo. Carried to a logical extreme by Billig, ridicule often has a quite conservative function. In the context of this chapter, those who have defended nuclear deterrence, such as former Prime Minister Thatcher and ex-Defense Secretary Schlesinger, have long employed ridicule to mock proponents of disarmament.

International relations theorist Kenneth Waltz (1979, p. 76) similarly noted that 'ridicule may bring deviants into line or cause them to leave the group'. Though he was writing this passage about the uniform clothing choices made by teenagers, it is favourably referenced in a frequently cited article by Martha Finnemore and Kathryn Sikkink. Their piece is primarily concerned with the political processes undergirding international normative change. Finnemore and Sikkink (1998, p. 902) discuss ridicule as a socialization mechanism to promote new 'norm cascades'. Specifically, states, international organizations, and norm entrepreneurs (including NGOs) employ various processes 'to induce norm breakers to become norm followers'. A key question concerns the 'tipping point' at which new normative ideas have gained enough support to achieve taken-for-granted status.

In the case of nuclear disarmament versus nuclear deterrence, the public framing of the discursive context could make all the difference (Borrie 2014). From the point of view of those who support nuclear deterrence, any appeal for disarmament is outside the long-established norm and potentially subject to ridicule to assure maintenance of the status quo. Again, it has long been standard practice to depict disarmament advocates as naïve utopians pursuing a fantasy. However, in a new political landscape that features an emerging Nuclear Weapon Ban Treaty, the possession of nuclear weapons for deterrent purposes could conceivably be viewed as the deviant behaviour subject to ridicule as part of a socialization process. This is how disarmament advocates want people to view nuclear weapons and clarifies why they have devoted so much effort to reframing the issue area. As Elizabeth Minor (2015, p. 722) explains, the purpose of the humanitarian initiative rests on 'reframing a problem in order to make an unproductive policy environment more promising, through shifting thinking'. She continued, a humanitarian framing 'fundamentally challenges[s] nuclear-armed States and their beliefs about nuclear weapons…by creating a tension between the practice of nuclear deterrence' and 'the catastrophic humanitarian impacts of nuclear weapons'.

Some prominent research about normative change finds ridicule to be the key mechanism for bolstering new norms that challenge an entrenched status quo. For example, Ebenezer Obadare (2009, p. 245) finds support for the rebellious function of ridicule, especially if the target of such mockery is made to seem absurd or bizarre—an important distinction, since the idea of nuclear retaliation is often described in

precisely those terms, as shall be demonstrated in the following sections. A team of researchers (Goodall et al. 2012, p. 70) working on measures to deflate the kind of extremist narratives offered by terrorists and others found that ridicule can be viewed as a 'strategic communication device', used to 'counter taken-for-granted truths', or norms. Perhaps the most notable international relations scholar to embrace this rebellious aspect of ridicule is John E. Mueller. In a much-discussed 1989 book, Mueller argues that various influential ideas that were once taken-for-granted eventually fell out of favour thanks to public ridicule. The act of duelling, for instance, was traditionally a viable means for men to defend their honour. However, due largely to public ridicule, the very idea of duelling came to be viewed as unthinkable. Mueller (1989, p. 10) references a study (Baldick 1965, p. 199) finding that the 'most effective weapon' against duelling 'has undoubtedly been ridicule'. Additionally, Mueller (1989, p. 253) argues that ridicule was critical in ending the international slave trade, as Brazil abandoned the practice 'in 1888 through the force of embarrassment and ridicule'.

Even more prominently, Mueller argues that war has long been viewed as an 'essentially absurd' means for addressing conflict among developed nations and is well on its way towards becoming a ridiculous and thus obsolete policy option among that group of nations. Mueller (1989, pp. 240, 242) writes that 'war in the developed world seems now to be rejected not so much because it's a bad idea, but because it never comes up as a coherent alternative–avoided not because it's stupid, but because' like foot binding, bearbaiting, lynching, and the Spanish Inquisition 'it's absurd, ridiculously incongruous'. Put differently, war among developed countries 'fails to percolate into one's consciousness as a conceivable option'. Clearly, based on his empirical research, Mueller grants ridicule and mockery a powerful position in the discursive toolbox available to advocates.

Employing ridicule is not an entirely new tactic to be deployed against nuclear deterrence, of course. In January 1964, for instance, film maker Stanley Kubrick released his comic masterpiece, *Dr. Strangelove*, which utilized sharp satire (Payne 2019) to mock Cold War competition, military and political leaders on both sides of that conflict, and the nuclear deterrence strategy both the U.S. and Soviet Union embraced to achieve peace. Kubrick's film seminally grappled with the threat and fear of nuclear war made all-too-real by the Cuban Missile Crisis of October 1962. In fact, Kubrick told interviewers (quoted in Stillman 2008,

p. 488) that he initially intended to make a serious movie—to produce a story of nuclear war as it 'would really happen'. However,

> ideas kept coming to me which I would discard because they were so ludicrous. I kept saying to myself, 'I can't do that – people will laugh'. But after a month or so I began to realize that all the things I was throwing out were the things which were most truthful.

The next section explores some of the same 'arcane literature of nuclear strategy' (Boyer 2004, p. 47) that Kubrick examined to reveal how it offers source material for a broader strategy of ridicule against nuclear deterrence.

3 Is Nuclear Deterrence Ridiculous? Academic Groundwork

An extensive body of academic literature describes fundamental logical flaws in nuclear deterrence theory. Critics of nuclear strategy reveal and explain the many contradictory and even hypocritical ideas embedded in deterrence theorizing and practice. Many analysts have sought to correct and perfect, and thereby reinforce, the fundamental logic of nuclear deterrence. However, this section is primarily concerned with potentially transformational critique and not efforts to fix deterrence. Detractors potentially help delegitimize and stigmatize deterrence altogether through mocking ridicule.

By the early 1960s, when Kubrick was preparing for *Dr. Strangelove*, scholarly critics were mounting serious challenges to the fundamental logic of deterrence. Many of these detractors targeted head-on the ideas of the classic deterrence theorists like Herman Kahn, an analyst Kubrick reportedly befriended. Several key concerns dominate the critical works. Most fundamentally, scholarly critics have long identified a clear disconnect between the risk and reality of overkill, caused by the revolutionary destructive nature of nuclear weapons (see Lewis in this volume), as well as the unavoidable possibility of escalation, and the adoption or advocacy of strategies promoting limited nuclear options and the potential pursuit of political objectives.

For example, in 1961 political scientist J. David Singer published a quite negative review of Kahn's *On Thermonuclear War*. As one scholar (Green 1966, p. 16) put it, 'the importance' of Kahn's seminal treatise

'cannot be overestimated'. Despite its significance, however, Singer (1961, p. 204) explained that the text is 'laden with inconsistency and is lacking in strategic coherence'. For instance, Kahn views invulnerable second-strike capabilities as a viable means to achieve deterrence, and thus security, but notes that their use would result in self-destruction. More importantly, Kahn supported weapons that essentially provided first-strike counterforce capabilities—useful, he claimed, to demonstrate American resolve to fight and thus to cope with crises. However, the author admitted that the trade-off was heightened risk of crisis instability, as these weapons would elevate the chances of pre-emptive strikes (and thus deterrence failure). Singer's attack (1961, p. 201) is especially powerful on this point:

> Kahn is proposing a highly asymmetrical set of operational codes. He wants us to engage in the sort of behavior which is supposed to deter the U.S.S.R., but which, if employed by them, would almost certainly compel us to opt for a pre-emptive strike.

It is no wonder that in his introduction to a translation of Clausewitz's classic *On War*, mathematician and game theorist Anatol Rapoport (1967, p. 80) counted Kahn among the 'bizarre' Neo-Clausewitzian strategists whose rational theorizing on the potential uses of nuclear weapons promoted 'not a tragedy but a ghastly farce'.

In that same era, Hans Morgenthau (1964, p. 23) likewise published an important article describing some basic 'contradictions between our modes of thought and action'. Specifically, the essay considered what Morgenthau called four paradoxes of nuclear strategy. The first should perhaps be the most worrisome for deterrence theorists—'the commitment to the use of force, nuclear or otherwise, paralyzed by the fear of having to use it'. Because states both rely upon nuclear weapons and fear them, they will be tempted to pursue foreign and security policies that would invite crises. This is the so-called 'stability/instability paradox'. In Morgenthau's words (1964, p. 24), as states come to recognize the 'emptiness' of the threat of nuclear retaliation for various contexts, the nuclear threat itself will have 'ever-diminishing plausibility' and the states will therefore face 'ever bolder challenges to make good on it'.

In this same period, government professor Philip Green penned a more polemical book-length critique of rational deterrence theory, which condemned what he called the 'pseudo-science' methods of game

theory and systems analysis so often employed by nuclear strategists. In *Deadly Logic*, Green (1966, p. 204) warned that 'absolutely contradictory courses of action are equally "rational"' under nuclear deterrence theory as explained by the strategists. To be more specific, like Singer, Green (1966, p. 169) pointed out that the concept commonly dubbed 'escalation dominance' by strategists presumes asymmetrical rules of behaviour for the U.S. and its foes. Green (1966, p. 237) also argues, as many deterrence critics have (including Singer and Morgenthau), that deterrence is generally self-defeating. 'It is, after all, simply impossible to imagine circumstances in which an annihilatory counterstrike makes any sense at all, by any standard of "rationality" that is not equivalent to sheer vengefulness.'

Looking back at the debates in this period, historian Marc Trachtenberg (1989, p. 332) argues that the 'most basic intellectual tensions' outlined above persisted from the mid-1960s throughout the end of the Cold War and 'could not be resolved'. For Trachtenberg, this stalemate ultimately led to stagnation in the field—deterrence strategists 'hit a dead end' after about 1966. In the 1970s, for example, Paul Nitze (1976–1977), members of the Committee on the Present Danger, and the so-called 'Team B' group of intelligence analysts battled with proponents of MAD (Mutual Assured Destruction) about the meaning of Soviet military doctrine, the potential vulnerability of American land-based missiles, and the need for the U.S. to adopt a counterforce strategy and deploy the MX missile. Echoing two of Morgenthau's four paradoxes, doves like Herbert Scoville, Jr. and Paul Warnke fretted that Nitze's hawkish recommendations would increase the U.S.-Soviet arms race or invite crisis instability.

Nearly twenty years after the alleged intellectual dead end, political scientist Robert Jervis (1984, p. 1) notably began his influential book on *The Illogic of American Nuclear Strategy* with the sweeping declaration that 'a rational strategy for the employment of nuclear weapons is a contradiction in terms'. His book is a direct attack on 1980s-era countervailing strategy, which Jervis (1984, p. 147) argues suffers 'many inconsistencies, incoherencies, and contradictions because it seeks to repeal the nuclear revolution rather than coming to grips with the inevitable vulnerability of American society or utilizing the inevitable Soviet vulnerability'. Jervis criticized supporters of countervailing strategy (such as Nitze) because they both recognized the reality of assured destruction and yet advocated a nuclear doctrine that sought to gain military

advantage and deny such advantage to an adversary—the Soviet Union, at the time. By the end of his book, however, Jervis (1984, p. 170) mounts a narrow defence of deterrence. He does note that

> there is something horribly irrational about a strategy which turns on the inherently uncertain possibility of unleashing the destruction that everyone wants above all to avoid…nuclear weapons have so changed our world that much of the truth does not make sense.

Jervis, of course, was not the only Reagan-era critic to view the practices associated with nuclear strategy as nonsensical. In fact, some analysts writing in this period started openly mocking and ridiculing U.S. and Soviet nuclear planning, finding the imagined nuclear scenarios to be almost comical. Not long after the peak of the nuclear freeze movement, which was propelled by public fear of nuclear war, political psychologist Steven Kull (1985, p. 36) wrote in *Foreign Policy* of the 'farcical quality' of the superpower military rivalry. Kull compared the nuclear standoff to a 'charade' in a 'drawing-room comedy'. Accordingly,

> All of the key characters know a certain secret—that strategic asymmetries are militarily irrelevant in an age of overkill—but because they think that others do not know the secret they act as if they do not know the secret either.

As shall be explained below, American and Soviet leaders were soon sitting together in a room challenging the 'theatrical' (Gaddis 1997, p. 258) pretence of the nuclear arms competition by considering various disarmament proposals.

In his survey of deterrence thinking, Trachtenberg (1989, pp. 301–302) also recognized the farcical quality of the 'basic tension' in the 'set of ideas' pertaining to nuclear strategy. Because the U.S. and Soviet Union had by the late 1960s 'obtained survivable and deliverable strategic forces, all-out war between these two powers would become an absurdity'. Essentially, this was the quite accurate point Kubrick made in *Dr. Strangelove*. As Dan Lindley (2001, p. 663) wrote, the film

> makes fun of the sad, perverse, and absurd reality that the U.S. and the Soviet Union could destroy each other within 30 minutes.… Ironically, MAD makes nuclear weapons so illogical that deterrence may actually suffer unless the credibility of suicide (or further damage) can be restored.

During the latter days of the Cold War, Kenneth Waltz (1990, pp. 735–736) also stressed that much of the vast literature on nuclear strategy seemed preposterous. In particular, he lampooned the hawks like Nitze who imagined credible Soviet attack scenarios.

> The assumptions made in the effort to make a Soviet first strike appear possible are ridiculous…. just as deterrence logic is abstract and deductive, so too are the weaknesses attributed to it. Scenarios showing how deterrence might fail are not only abstract but are also far-fetched.

While Waltz made this argument to defend the robustness and stability of nuclear deterrence, it seems equally apparent that rational deterrence theorists were quite openly willing to doubt the plausibility of the 'last resort' scenarios, especially as the superpower rivalry was about to end.

Though many scholars over the decades have explained the logical shortcomings of nuclear deterrence theorizing, others have attempted to keep it alive even as the Cold War waned. For example, strategist Ed Rhodes (1989, pp. 155, 229) expressly called for the U.S. to signal 'contingently irrational behaviour', blatantly inviting a comparison to *Dr. Strangelove* by discussing the need to acknowledge the existing de facto 'Doomsday Machine' and to redesign it 'to make it easier to live with'. Less colourfully, rational choice theorists Frank Zagare and Marc Kilgour (2000) attempt to 'fix' nuclear deterrence theory's logical flaws by offering a strategy that they call 'perfect deterrence'. Employing standard rational choice thinking, they find that deterrence succeeds best when the status quo is highly valued; the increased cost of conflict often has no bearing on the chance of war. Stephen Walt (1999, p. 123) argues that their findings are unremarkable, simply reflecting long-established ideas bolstered by game-theoretic models. More sweepingly, John Mueller (2010, pp. 68–69) condemns the world's continuing 'atomic obsession', considering it 'farcical' and absurd.

Obviously, this section does not address every important academic work on nuclear deterrence strategy, nor does it present the recommendations of a various strategists who have over the years called for war-fighting options. It also ignores the writings of contemporary analysts who claim that the U.S. has perhaps achieved 'nuclear primacy'—'splendid first strike' capability made possible because of American technological developments and the lack of advancement by great power rivals (Lieber and Press 2006). The section has simply demonstrated

that numerous academics have convincingly outlined some serious contradictions in nuclear deterrence logic. Many express their firm belief that these inconsistencies reveal elements and/or assumptions of nuclear strategy that are absurd, fantastic, ridiculous, and far-fetched. Even some solutions are farcical. While it would certainly seem arbitrary and unfair to credit these scholars with victory in debates that often continue to rage, this one-sided rendering nonetheless serves my purpose. This section establishes the academic backing for activists or political leaders to ridicule nuclear deterrence strategy in order to stigmatize and delegitimize it.

4 Ridiculing the Bomb? Model Examples

Prominent critics of nuclear weapons, including many former diplomats, military leaders, and policymakers, have long questioned the morality of these weapons and the strategies states have embraced that threaten retaliatory mass killing of civilian populations. Many of these high-profile opponents have also made economic, humanistic, and ideological arguments against nuclear arms. However, this section does not focus on these critiques of nuclear deterrence strategy. Rather, this section gives priority attention to those who have mocked the strategic logic and deterrent purpose of nuclear weapons, referring to strategies and deployments as absurd, crazy, insane, bizarre, ludicrous, ridiculous, or preposterous.

Over the past few decades, many eminent former political and military officials have echoed the academic critics and offered very serious challenges to the deterrent rationale for nuclear arsenals. One good place to begin is with a basic observation offered in 1982 by a set of well-known U.S. foreign policy hands. Ex-public servants McGeorge Bundy, George Kennan, Robert McNamara and Gerard Smith (1982, p. 768) argued decades ago 'that in the age of massive thermonuclear overkill it no longer makes sense—if it ever did—to hold these [nuclear] weapons for any other purpose than the prevention of their use'. Former Secretary of Defense McNamara (1983, p. 79) offered a blunt and seemingly authoritative view: 'nuclear weapons serve no military purpose whatsoever. They are totally useless – except only to deter one's opponent from using them'. McNamara (1983, p. 79) claimed that he recommended to Presidents John F. Kennedy and Lyndon Johnson 'without qualification, that they never initiate, under any circumstances, the use of nuclear

weapons'. McNamara said that he believed that the leaders he served accepted his recommendation. Years later, McNamara (in Rhodes 2008, p. 99) told an interviewer that nuclear decisions were worthy of ridicule: 'Each individual decision along the way seemed rational at the time…but the result was insane'.

The Canberra Commission on the Elimination of Nuclear Weapons (1996, pp. 32–33), whose report is discussed below, documents a series of statements by various former public officials questioning the rationality of nuclear deterrence during what could be called the Reagan-Thatcher period. For instance, Admiral Noel Gayler, former commander in chief of U.S. air, ground and sea forces in the Pacific, remarked in 1981 that 'There is no sensible military use of any of our nuclear forces'. British Field Marshal Lord Carver, Chief of the Defence Staff from 1973 to 1976, stated in a newspaper editorial in 1982 that initiating the use of nuclear weapons in response to a Soviet attack of Europe would have been 'criminally irresponsible'. Richard Nixon's Defense Secretary, Melvin Laird reportedly said in 1982 that nuclear weapons were 'useless for military purposes' and that the U.S. should thus pursue a 'worldwide zero nuclear option'. Former West German Chancellor Helmut Schmidt told the BBC in 1987 that NATO's flexible response doctrine 'is nonsense. Not out of date, but nonsense'. Long-serving American nuclear strategist and defence analyst William Kaufmann (quoted in Kaplan 2010) declared more recently, 'it was easy to get caught up in the whole nuclear business', however, 'that's a crazy world'. The Canberra Commission *Report* includes other similar (and longer) statements that are not highlighted here.

To the surprise of his critics who viewed him as an unrepentant Cold Warrior, many of these anti-nuclear views were shared even by Ronald Reagan (quoted by Shultz et al. 2007), who reportedly considered nuclear weapons to be 'totally irrational, totally inhumane, good for nothing but killing, possibly destructive of life on earth and civilization'. In a State of the Union Address, Reagan (1984) offered a more sweeping and bold observation:

> People of the Soviet Union, there is only one sane policy, for your country and mine, to preserve our civilization in this modern age: A nuclear war cannot be won and must never be fought. The only value in our two nations possessing nuclear weapons is to make sure they will never be used. But then would it not be better to do away with them entirely?

In October 1986, Reagan and Soviet counterpart Mikhail Gorbachev met in Reykjavik, Iceland, and seriously discussed the abolition of nuclear weapons (National Security Archive 2006; Shultz et al. 2007).

The Reagan-Gorbachev summit was certainly controversial in defence policy circles. As former Secretary of Defense William Perry (2011) has stated, 'Most security specialists at the time were incredulous that the two presidents would even discuss such an idea'. However, the summit and the Cold War-ending events that soon followed arguably opened the transnational public sphere to real dialogue about the possibility for nuclear disarmament. Herman Kahn may have believed he was 'thinking about the unthinkable' in the 1960s, but by the early 1990s, the political context had dramatically shifted, and various policymakers were openly speculating about a course of action that had arguably been even less thinkable than the prospect of strategic nuclear war. Disarmament, long ridiculed as naïve and utopian, was now on the agenda and nuclear strategy was under serious fire. The weapons that were supposedly a key element of 'the long peace' were increasingly viewed as unnecessary and dangerous to international security.

In 1996, for instance, 60 retired military officers from 17 countries signed a Statement on Nuclear Weapons by International Generals and Admirals (1996) proclaiming that 'long-term international nuclear policy must be based on the declared principle of continuous, complete and irrevocable elimination of nuclear weapons'. Nuclear weapons, they wrote, 'represent a clear and present danger to the very existence of humanity'. Existing nuclear arsenals, along with the prospect of further proliferation, 'constitute a peril to global peace and security and to the safety and survival of the people we are dedicated to protect'. Most of the military leaders who signed on to that statement were American or Russian, though the list also included a small number from other nuclear powers at the time, namely France and the United Kingdom, as well as some from India and Pakistan. The statement was relatively brief and stopped short of offering a detailed nuclear disarmament plan. The statement includes only a few sentences outlining the need for improved inspections, assistance programs, and possibly the development of plans to intervene. 'The exact circumstances and conditions that will make it possible to proceed, finally, to abolition cannot now be foreseen or prescribed.'

In contrast, the Canberra Commission offered not only a critique of nuclear weapons, but also a far more detailed plan towards the

elimination of those weapons. The Canberra Commission *Report* (1996, p. 22) opens with very clear reference to the kind of arguments offered by the academic analysts, noting the 'inherent contradiction of nuclear deterrence'. The Commission, sponsored by the Australian government, included as members Australia's Richard Butler, McNamara, Oxford Professor Robert O'Neill, Nobel Laureate Joseph Rotblat and a dozen other prominent international officials. Their distaste for nuclear deterrence seemed comprehensive, but also familiar to anyone who had read the academic criticisms (Canberra Commission 1996, p. 28): 'The risks of retaining nuclear arsenals in perpetuity far outweigh any possible benefit imputed to deterrence'.

Not long after the Canberra Commission published its statement, one member started employing ridicule in his public remarks. Remarkably, the final commander of the U.S. Strategic Air Command, General Lee Butler, delivered a set of important speeches that overtly mocked nuclear deterrent logic and called for the elimination of nuclear weapons 'with all deliberate speed'. In Washington, DC, at the National Press Club, for example, Butler (1996) offered a sweeping critique of nuclear armament that echoed the standard academic criticisms of deterrence even as it took on the major arguments long levied against disarmament advocates. Butler claimed, 'that nuclear weapons are inherently dangerous, hugely expensive, and militarily inefficient' and that any nuclear weapons use would 'defy reason'. Indeed, from his perspective, nuclear disarmament was not some sort of far-fetched 'Utopian dream'. Rather, 'the Utopian dream was ending the Cold War. Standing down nuclear arsenals requires only a fraction of the ingenuity and resources as were devoted to their creation'. In this address, Butler claimed that it was 'imperative' for himself and others

> to forge a global consensus on the propositions that nuclear weapons have no defensible role; that the broader consequences of their employment transcend any asserted military utility; and that as true weapons of mass destruction, the case for their elimination is a thousand-fold stronger and more urgent than for deadly chemicals and viruses already widely declared immoral, illegitimate, subject to destruction and prohibited from any future productions.

Two months prior to this address, Butler gave an even more colourful anti-nuclear speech to the State of the World Forum in San Francisco.

By his own admission, after retiring from military service, General Butler (2006, p. 764) 'came to a set of deeply unsettling judgements' about the 'bizarre' (p. 766) and 'fatally flawed' (p. 767) strategy of nuclear deterrence, which he said was 'premised on a litany of unwarranted assumptions, unprovable assertions and logical contradictions' (p. 766). For all these reasons, Butler (2006, p. 769) dismissed the prospect of even a retaliatory U.S. attack, calling such a response 'inconceivable'. Much of Butler's (2006, p. 768) critique was built on a moral argument, as he declared that deterrence 'serves the ends of evil'.

However, Butler (2006, p. 764) also openly ridiculed U.S. nuclear war-planning, which he claimed had long been replete with 'maddening contradictions, alien constructs and insane risks'. Butler (2006, p. 769) acknowledged that throughout the nuclear age, war 'planning was increasingly distanced and ultimately disconnected from any sense of scientific or military reality', creating weapons systems and processes 'that defied control or comprehension'. Worse, Butler (2006, p. 768) explained that he had personally

> participated in the elaboration of basing schemes that bordered on the comical and force levels that in retrospect defied reason. I was responsible for war plans with over 12,000 targets, many struck with repeated nuclear blows, some to the point of complete absurdity.

Somewhat similar thoughts were expressed by former military officials interviewed for the Public Broadcasting Service *Frontline* television program in 1999. Addressing the 'launch under attack' (LUA) nuclear posture, General William Odom (Interview of Odom 1999) said that

> I've never been a big enthusiast for our whole approach of being able to launch on warning or launch in a very short amount of time. Firing off 1000 or 500 or 2000 nuclear warheads on a few minutes' consideration has always struck me as an absurd way to go to war.[1]

Admiral Stansfield Turner (Interview of Turner 1999) similarly remarked, 'I think that one of the first things we should do is take every U.S. weapon off of high alert. We have an absolutely insane policy in this country. Had it now for 30 or 40 years.' More recently, former Pentagon official Jeffrey Lewis (2016) called LUA 'crazy'.

Years later, Butler (General Butler Reflects 2008) referred to the U.S. nuclear strategy as 'the most grotesque and irresponsible war plan that had ever been devised by man', mirrored by 'its counterpart in the Soviet Union'. The 'madness' of 'creeping re-rationalization of nuclear weapons' for use against 'rogue nations' and others ultimately 'radicalized' General Butler in the 1990s to work towards the elimination of nuclear weapons.

Obviously, despite the prominence of many of the officials serving on the Canberra Commission, the strident nature of the critique, and the relatively detailed pathway it offered towards the elimination of nuclear weapons, their *Report* did not lead to its intended consequences. Scholars have subsequently noted that the *Report* was issued at the end of a productive period in arms control, was not supported by a new Australian government, and fell victim to proliferation failure in Pakistan and India (Hanson and Ungerer 1999). The Canberra *Report*, however, was certainly not the last word on the topic. In January 2007, George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn published a highly influential op-ed in the *Wall Street Journal* arguing for 'a world free of nuclear weapons'. Generally, the argument they advance is couched cautiously—and does not include mocking ridicule of nuclear weapons or deterrence. In this much-discussed piece (see Senn and Elhardt 2014), the authors embraced both the anti-nuclear criticisms levied by other public officials in the 1980s and 1990s and the fears about the potential ineffectiveness of deterrence in a more proliferated world of states with shadowy connections to transnational terrorist organizations. One year later, in another op-ed piece in the same outlet, the four statesmen (Shultz et al. 2008) listed an impressive array of former public officials who supported their project. The follow-up piece also mentioned a concrete series of steps that could be taken towards nuclear disarmament. The statesmen did not employ ridicule.

Inspired by the four U.S. statesmen, an International Commission on Nuclear Non-proliferation and Disarmament (2009) was convened in 2008 by Japan and Australia, with an impressive membership of global commissioners. The group issued a report on *Eliminating Nuclear Threats* in December 2009. To the extent that the ICNND effort influenced the events of the next decade, culminating in the Nuclear Weapon Ban Treaty, the work of Gareth Evans (co-chair), Gro Harlem Brundtland, François Heisbourg, William Perry, and colleagues may well have an enduring legacy. The group also specifically credited the progress

that the Canberra Commission achieved. In any case, their 2009 report (ICNND 2009, p. 61) includes a section on 'Delegitimizing Nuclear Weapons', which discusses the immorality of nuclear use and the lack of utility of nuclear weapons. However, as the document acknowledges, their recommendations are relatively 'cautious…but realistic' and 'pragmatic'. The tone seems to stop well short of open ridicule, though the authors do call launch-on-warning the 'ultimate absurdity of nuclear deterrence' (ICNND 2009, p. 27).

In sum, the contemporary anti-nuclear movement has been bolstered if not propelled by former political leaders offering either rational criticism demonstrating the undesirability of nuclear weapons and/or ethical arguments about their immorality. Generally, the most recent exemplars have not emulated the kind of mocking ridicule employed by General Lee Butler and some other officials in prior years. However, the discursive potential for ridicule is clearly in the repertoire of arguments available to these officials.

5 Conclusion

The vision of a nuclear-free world imagined by Presidents Ronald Reagan and Barack Obama, as well as numerous other former public officials and military leaders around the world, may not be realistic until the nuclear deterrence strategy used to justify possession of those weapons has been thoroughly stigmatized. As explained in the first section, critics seeking to challenge nuclear deterrence strategy may be served best by openly mocking these ideas and practices. Most prominently, John Mueller demonstrated that duelling, slavery, and even major power war were ridiculed and then ultimately rejected as legitimate policy practices. Again, prior research about international normative change finds ridicule to be a key mechanism for bolstering new norms that challenge an entrenched status quo, especially if the target of such mockery is made to seem absurd, bizarre, or deviant.

As demonstrated, nuclear deterrence strategy and the force postures that support it can be revealed as absurd and ridiculous. From the 1960s through the 1980s, academic critics developed a thorough and sharp critique of 'rational' nuclear deterrence strategy and practice. Many scholars state bluntly that nuclear deterrence strategy and its potential implementation is absurd, fantastic, ridiculous, and far-fetched. Moreover, the critical academic assessments likely informed the often-impassioned

positions taken by a transnational cadre of political and military figures who have spoken out against nuclear strategy and armaments from the early 1980s to the present. Most notably, in his denunciations against American nuclear planning, ex-SAC Commander General Lee Butler explicitly used the same kind of mocking language as academic critics have employed for decades, calling nuclear postures comical, absurd, and bizarre. Many other public officials, including most of those embracing the humanitarian initiative, simply label deterrence nonsensical and dangerous, embracing relatively more cautious language and a more pragmatic approach. They generally do not employ mockery and ridicule in their language.

That silence does not mean, however, that ridicule has been abandoned in contemporary global discussions of nuclear policy. In 2017 (Powell 2017), anti-nuclear weapons activists in Britain installed posters at bus stops across London that were meant to look like genuine personnel recruiting posters for the Royal Navy's Trident nuclear submarine program. The message on the poster sarcastically urged recruits to 'Become a Suicide Bomber'. While the social media reaction to those posters was reportedly mixed, the outlandish nuclear-related rhetoric of U.S. President Donald Trump—often tweeted directly to his 59 million followers—has invited critics to ridicule his ideas quite openly in the public sphere. In fact, since Trump entered politics in June 2015, a plethora of comedians, politicians, scholars, policy analysts, and even foreign leaders have ridiculed his bellicose words. Consider two prominent examples. On 8 August 2017, Trump declared that North Korean leader Kim Jong Un 'has been very threatening beyond a normal state, and as I said, they will be met with fire, fury and frankly power, the likes of which this world has never seen before' (quoted in Bierman 2017). Late night talk television hosts in the U.S. found comedy gold in the 'fire and fury' phrasing. Stephen Colbert (quoted in Bowden 2017) played a video of a reporter questioning Trump on what the President meant when he said that 'Maybe it wasn't tough enough'. Then, 'Colbert mocked Trump's response'. After the President was shown saying '"We'll see?" Colbert shot back. "I know we'll see, but it might be the last thing we see!"' The comedian also speculated comically about what would be tougher, "Lava and rage? A paper cut and a lemon?"

Perhaps the most scathing ridicule of Trump's (2018) words came in reaction to a 3 January 2018 tweet with a message again aimed at North Korea's leader Kim Jong-un: 'I too have a Nuclear Button, but it is a

much bigger & more powerful one than his, and my Button works!' Critics derisively noted that this exchange sounded like a childish game. In scholar Carol Cohn's words, expressed on the editorial page of the *New York Times*, this 'nuclear saber-rattling…sounded a lot like, well, penis-measuring' (Cohn 2018). British columnist Sarah Ditum (2018) pointed out that Trump's 'button' was 'not the most impressive penis euphemism ever' and speculated about photoshopping Trump's face on *Dr. Strangelove*'s Major Kong straddling a nuclear missile and riding it toward the film's apocalyptic conclusion. As it turns out, a Google image search reveals that Trump's face has been placed on this image multiple times by critics lampooning the President. Given his sophomoric and prolific tweeting, the President will likely continue to be the target of mockery. Anti-nuclear activists might be well-served in extending such ridicule more broadly to challenge the legitimacy of nuclear deterrence. Like the dialogue uttered by the title character Dr. Strangelove in the classic film, Trump's words are often merely exaggerated versions of ideas that are inherent in deterrence strategy. 'Fundamentally', argues film critic Justine Smith (2018),

> Trump is the perfect articulation of the power-hungry warmonger that Kubrick is satirizing. He poses with jet fighters and threatens war as a means of expressing his power, while Kubrick exposes that impulse as the reason Nuclear deterrence strategies are inherently flawed.

Trump's crude expressions about nuclear weapons and war seemingly create a prime opportunity for stigmatizing nuclear deterrence via ridicule.

Note

1. In the interview, Odom expressed support for large offensive and defensive arsenals.

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CHAPTER 6

The Humanitarian Initiative: A Critical Appreciation

Nina Tannenwald

On July 7, 2017, the United Nations adopted the first-ever treaty imposing a total ban on nuclear weapons, over the objections of the nuclear-armed states. This Nuclear Prohibition Treaty (or 'ban treaty') outlaws all aspects of nuclear weapons, including their use and threat of use, testing, development, possession, sharing and stationing in a different country. It provides a pathway for countries with nuclear weapons to join and destroy their nuclear arsenals. One hundred twenty-two nations—all non-nuclear—voted to adopt the treaty. Only the Netherlands voted against, and Singapore abstained. On September 20, 2017 the treaty opened for signature at the United Nations. As of this writing, 70 nations have signed. The treaty will enter into force when 50 states ratify. So far 26 states have done so.

The ban treaty has emerged in what is otherwise quite a distressing time for nuclear weapons politics. The nuclear normative order is fraying. For the first time since the tensest days of the Cold War, the prospect that an American president might actually contemplate using nuclear

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_6

weapons against an adversary has become thinkable. Increasing regional tensions and new technological arms races are once again increasing the salience of nuclear weapons in states' security policies. All nine nuclear-armed states are modernizing their nuclear arsenals, while Russia, Pakistan, North Korea, and the United States appear to be lowering the threshold for nuclear use in their plans and policies (Kubiak, this volume). Moreover, U.S. President Donald Trump has repudiated the 2015 Iran agreement and the1987 Intermediate Range Nuclear Forces Agreement.

Into this dismal picture comes the Nuclear Prohibition Treaty. In this chapter I offer a critical evaluation of the humanitarian campaign and the ban treaty, highlighting the main accomplishments but also some limitations and shortcomings of the treaty. I want to make three main points about the ban treaty. First, the treaty is a major accomplishment. Second, it pursues a normative strategy of disarmament, but normative strategies are only a beginning. The treaty may be a route to strengthening the nuclear taboo (which is good) but the ultimate challenge is to undermine nuclear weapons as a currency of power. This is a harder task and a long term one.

The achievement of the ban treaty raises real questions. Given the opposition of the nuclear-armed states, what impact will the ban treaty have? Will it actually strengthen the normative opprobrium surrounding nuclear weapons or will it deepen already-existing fissures in the international community over who should bear the burden of the obligations of disarmament and non-proliferation? There is a real risk that the ban treaty could increase polarization and contestation in the Nuclear Non-Proliferation Treaty (NPT). The non-nuclear states that supported the ban treaty have a responsibility to make sure that advocacy of the ban treaty does not 'crowd out'—or preclude support for—concrete steps toward disarmament. The nuclear-armed states have an obligation to take those concrete steps and also to engage the ban treaty.

In the end, the ban treaty is not itself a disarmament treaty. It is a vehicle for stigmatization politics (Sauer and Reveraert 2018). If we keep that more limited goal in mind, then it will serve a useful purpose. If we try to make the ban treaty carry too much of the burden, we may create unrealistic expectations and even damage the NPT.

1 Two Views of the Morality of Nuclear Weapons

By way of background, I'd like to begin by framing the moral debate around nuclear weapons. There have long been two competing moral arguments about nuclear weapons that have shaped the debate over their morality from the beginning of the nuclear era.[1] The first is the view that *nuclear weapons themselves are inherently immoral.* This is the view of the anti-nuclear movement going back to the 1950s and of President Ronald Reagan in the 1980s, namely, that nuclear war could never be won. Today it is the view of the humanitarian impact campaign at the United Nations that produced the nuclear ban treaty, as well as of the Global Zero movement and the Vatican. It is also the sentiment behind the nuclear taboo, a normative inhibition on any first use of nuclear weapons.

In this view, nuclear weapons, even 'small' ones, are taboo. The risk of escalation is ever-present and use would open a Pandora's Box of more use. As President John F. Kennedy stated in a meeting on NATO policy in December 1962, 'once one resorts to nuclear weapons one moves into a whole new world. There is no way to prevent escalation once the decision is made to employ nuclear weapons'.[2] Thus *any* use of nuclear weapons, no matter how small, would be morally unacceptable. In this view, there is no such thing as an ethical nuclear bomb. As the Vatican now argues, even deterrence itself is also immoral, because relying on a policy that threatens to kill millions of innocent people is fundamentally wrong, while the risk of accidental or intended use can never be eliminated.

The nuclear ban treaty sharpens this moral critique. The treaty codifies the ethical critique of nuclear weapons into a legal ban. It represents an effort to codify into international law the view that nuclear weapons are immoral weapons.

The second ethical stance on nuclear weapons is the view is that *technology itself is value neutral*; it depends on how you use it. This is the view of U.S. military planners, who have argued repeatedly, going back to the 1950s, that weapons technology itself is neither good nor bad. Rather, it depends on how it is used. For the U.S. military, use is (in principle) shaped by just war principles of proportionality and discrimination, that is, the laws of war. Such principles have informed the evolution of U.S. nuclear weapons toward smaller, more discriminating weapons, in the explicit belief that weapons that cause less collateral

damage are more ethical. Such concerns drove Secretary of Defense James Schlesinger's efforts in the 1970s to move toward smaller nuclear weapons, and motivated arguments in the wake of the 1991 Gulf War in favour of mini-nukes (Dowler and Howard 1991; Freedman 1989, p. 361). More recently, similar concerns informed the Obama administration's modernization plans. The B61-12 warhead currently under development by the Pentagon will have variable yields and more precise targeting. Former undersecretary of defense for policy James N. Miller, who helped develop the modernization plan before leaving his post in 2014, emphasized the ethical advantages of these upgrades. As he stated in an interview, 'Minimizing civilian casualties if deterrence fails is both a more credible and a more ethical approach' (Broad and Sanger 2016).

These two approaches to the morality of nuclear weapons continue to be reflected today in the debate between ban supporters and their critics.

2 Assessing the Ban Treaty

Let me now turn to some key points about the ban treaty. First, the achievement of the ban treaty, over the objections of the nuclear powers, represents an effort to create a new legal norm banning possession and use of nuclear weapons in the face of powerful opposition. The humanitarian campaign was largely led by middle powers, such as Brazil, South Africa, Austria, Mexico, and Norway. The fact that they were able to mobilize support for this despite intense opposition from the nuclear–armed states is a remarkable achievement. Clearly, a key to achieving the ban treaty was to require the nuclear powers to do nothing, and, in fact, to stay out of the way. It was also necessary to take the decision in a majority-vote forum and not in the Conference on Disarmament where consensus decision-making rules apply.

This new treaty exemplifies three trends. First is *the democratization of disarmament politics.* The nuclear powers are losing control of the nuclear disarmament agenda. The ban campaign took its playbook from past successful efforts to ban landmines and cluster bombs. In those earlier efforts, key countries, through simple majority votes, took the debate outside traditional consensus-based UN negotiating forums over the objections of recalcitrant nations. Now, as then, advocates worked to mobilize widespread support against a class of weapons.

The effort continued the historical pattern of anti-nuclear advocacy in which non-nuclear states and activists, often aided by the UN,

push forward the nuclear taboo.[3] The humanitarian campaign built on the humanitarian concerns of the grassroots anti-nuclear movements of the 1950s but made a more explicit effort to link anti-nuclear activism to the framework of international humanitarian law. It focused on highlighting the devastating humanitarian consequences of any use of nuclear weapons. Eventually, the more radical elements moved the focus of the campaign to a prohibition treaty. At conferences in Oslo in 2013, Mexico and Vienna in 2014, and through the Open-Ended Working Group (OEWG) at the UN in 2016, the campaign successfully mobilized support among a majority of states for a legal ban on nuclear weapons.

Second is *the key role of civil society groups*. The International Campaign to Abolish Nuclear Weapons (ICAN) united about 450 non-governmental organizations around the world to work on this effort. As in the cluster bomb and landmines campaigns, these groups have reframed disarmament as a humanitarian, not simply a security, issue. NGO campaigners disseminated these arguments through the U.N., proposed treaty language, critiqued drafts, and lobbied member countries to adopt their preferred positions, often successfully. In October 2017, to the surprise and consternation of the nuclear-armed states and their hawkish supporters, the Norwegian Nobel Committee awarded ICAN the Nobel Peace Prize for its work. The Committee cited the group 'for its work to draw attention to the catastrophic humanitarian consequences of any use of nuclear weapons and for its groundbreaking efforts to achieve a treaty-based prohibition of such weapons'. The treaty—and the Prize—will encourage more citizen activism.

Third is the focus on a *normative strategy of disarmament*. A normative strategy of disarmament focuses on changes in norms, attitude, ideas, principles and discourse, rather than the physical dismantling of weapons. Changes in ideas are essential precursors to reducing numbers of nuclear weapons. This approach to disarmament starts by changing the meaning of nuclear weapons, forcing leaders and societies to think about and value them differently.

Disarmament advocates have sought a legal prohibition on nuclear weapons for more than 70 years but this was never politically feasible. The U.S. government and nuclear powers have consistently resisted any efforts to legally ban the use of nuclear weapons. A prohibition treaty became possible only when advocates dropped the idea that it would be a highly detailed nuclear weapons convention and just went for the 'thin' declaration of illegality.

For advocates, the ban negotiations constitute an explicitly normative strategy of disarmament. The goal of the ban treaty is to declare nuclear weapons illegal, just as chemical and biological weapons are, and thereby strengthen the international norms against use and possession of nuclear weapons. 'Weapons that are outlawed are increasingly seen as illegitimate, losing their political status and, along with it, the resources for their production, modernization, and retention', the ICAN has claimed. The participation of the nuclear powers was not needed for this; indeed, the strategy was explicitly to leave them out, so that they could not hold up any action, as, for example, on the ratification of the CTBT, which has yet to come into force. The nuclear-armed states are certainly needed in order to physically eliminate nuclear weapons, and to negotiate a detailed nuclear weapons convention that might follow, but they are not needed in order to take the initial step of declaring nuclear weapons illegal. As one advocate put it, '[Y]ou cannot wait for the smokers to institute a smoking ban' (Hoffmann-Axthelm 2016).

The ban campaign shifted the focus 'away from trying to change the policies of the nuclear armed states and towards changing the normative international environment in which nuclear weapons and nuclear-armed states are embedded' (Ritchie 2016, p. 7). For advocates, the ban campaign is an explicit effort 'to codify under international law the "nuclear taboo" or moral imperative not to use nuclear weapons' and to eliminate the legal asymmetry of the NPT (Vadillo 2016, p. 3). If nuclear weapons are declared illegal, they 'become a collective international liability rather than an individual national asset' (Ritchie 2016, p. 7). The hope is that this will foster a domestic political debate about nuclear weapons, especially in the democratic nuclear weapons states.

One interesting aspect of the ban campaign is that it had very significant intellectual underpinnings. The rationale for the normative strategy was developed and articulated in many papers over several years by individuals such as John Borrie of the United Nations Institute for Disarmament Research, Nick Ritchie of the University of York, Ray Acheson of Reaching Critical Will, and others (Acheson 2012; Borrie and Coughley 2013; Borrie 2014; Ritchie 2014). The case of the ban treaty nicely illustrates the influence of ideas on policy.

3 Criticisms and Shortcomings

Let us consider some of the criticisms of the ban treaty. Many nuclear experts are concerned about the treaty's shortcomings, especially the fact that the treaty lacks any provisions for inspections and verification, but also about the choice made by many signatories to put negotiation of the treaty above more pressing, and, they would argue, more effective approaches to advancing disarmament. Criticism so far has taken three forms: criticizing the specific content of the treaty, criticizing the goal of a ban treaty (as opposed to some alternative approach to disarmament); and contesting the competence of the disarmament advocacy community for advocating the treaty. The Obama administration argued that a treaty would undermine deterrence on which alliance relationships depend, polarize the international community further and undermine the ability to achieve consensus at NPT meetings, and that it would lack verification mechanisms. Finally, it would not achieve disarmament because the United States did not intend to participate.[4] The Trump administration has sharpened these criticisms, arguing that the ban treaty 'discredits' the disarmament community by showing that it is 'fundamentally *unserious*' about the real threats facing international peace and security (Ford 2017). I focus first on criticisms that I think can be dismissed, and then on criticisms that I think need to be taken seriously.

The first set of criticisms involves a critique of the content of the treaty as a legal document. Here, the argument is that the treaty is poorly written and legally flawed, especially in its lack of verification provisions. In an article in *Survival*, Newell Highsmith and Mallory Stewart, former U.S. State Department legal advisers, pick apart the legal details of the treaty and argue that the ban treaty is 'not a viable legal vehicle for disarmament and does not establish international legal norms' (Highsmith and Stewart 2018).

They are correct in some respects. These limitations of the treaty are well-known. The treaty is not a detailed nuclear weapons convention, and thus lacks many details about enforcement, verification, disarmament itself, trade in nuclear materials, and many other specifics that would be necessary for a full institutional framework. The treaty therefore cannot bear the weight some supporters attribute to it as the vehicle that is itself going to move disarmament forward.

I do think the failure to include the Additional Protocol as the standard of verification was a mistake that unnecessarily weakened the ban

treaty. It was a concession to Mexico and Brazil, who argued that they had not accepted the Additional Protocol before, therefore why should they do it now? Nevertheless, if one of the problems of the NPT is the lack of universally-applied norms and standards, and the goal of the ban treaty was to fix that, then it should have included the Additional Protocol as a universal standard.

Even if some of the legal observations of Highsmith and Stewart are correct, their legalistic analysis totally misses the point. What is important for strengthening the norms of non-use and non-possession is not simply the formal legal ban on use, but rather the treaty *as a mechanism or tool for further stigmatization politics*. The treaty is not really about providing a framework for disarmament but rather about providing a focal point for stigmatization politics.

A second line of criticism is that the ban treaty diverts attention from more meaningful steps to reduce nuclear dangers. Jon Wolfsthal, a special adviser to President Obama, argued that 'Those who negotiated the ban took on no new obligations or responsibilities for themselves in this global endeavor' (Wolfsthal 2017, p. 2). If states really want to eliminate nuclear weapons, Wolfsthal argues, there are actual concrete steps they could take, including cutting off trade and diplomatic ties with North Korea, banning financial transactions with Russian defense and presidential officials, funding the IAEA for its work in Iran, pressuring Pakistan to stop blocking the work of the Conference on Disarmament, and signing the IAEA's Additional Protocol (Wolfsthal 2017). These are all good suggestions and should be pursued. But nothing about them precludes pursuing them simultaneously with the ban treaty.

A sharper version of this critique is that the ban campaign 'missed opportunities' to actually do something constructive to reduce nuclear dangers. Political scientists Scott Sagan and Benjamin Valentino criticize the humanitarian campaign for getting diverted from the issues that were originally 'front and center' of the campaign, such as the negative environmental impact of nuclear weapons productions facilities or the risk of accidental nuclear use (Sagan and Valentino 2017). These issues got pushed aside in favour of a focus on a ban treaty, they say.

They also argue that the 'the ethical and legal foundation for the treaty's stigmatization of nuclear weapons is fundamentally flawed' (Sagan and Valentino 2017). It is not true, they argue, that *any* use of nuclear weapons would be contrary to the rules of armed conflict (here they are bringing up the alternative ethical perspective on nuclear weapons).

The humanitarian impact movement could have focused on pressuring nuclear-armed states to adopt more ethical restrictions on targeting policies, they argued, but if possession itself is outlawed, discussions regarding the ethics and legality of nuclear use doctrine are no longer possible. Finally, they argue that states and activists need to do more to educate the public about the dangers of nuclear weapons. In short, in their view, the campaign missed opportunities to focus on a specific set of practical measures and instead pursued the pie-in-the sky ban treaty that will do little to achieve actual disarmament.

Most of the specific measures Sagan and Valentino describe as missed opportunities are good ones and, again, do not seem mutually exclusive with the ban treaty. In principle they can still be pursued along with the treaty. The issue of 'ethical targeting' does present a contradiction with the assumptions of the ban, which is based on the strong belief that there is no such thing as an ethical nuclear weapon. Whether there is such a thing as 'ethical nuclear targeting', or whether there can be an ethical use of a nuclear weapon, would certainly be an important issue for the supporters of deterrence to work through. General Robert Kehler, former head of U.S. Strategic Command, testified before the U.S. Congress in November 2017 that U.S. nuclear targeting policy seeks to meet 'the highest moral and legal standards' and is consistent with international law (Kehler 2017). This seems unpersuasive to many people, but the U.S. nuclear command sincerely believes it. It does provide an opening for those, such as think tanks, who might seek to build bridges between the ban supporters and the nuclear powers to engage in a study of targeting issues. Working through the issues might be a useful way of showing that an ethical nuclear war would likely be impossible to carry out.

The larger goal of the Sagan-Valentino critique—to hold the humanitarian campaign primarily responsible for 'opportunities lost' (as the article is titled)—is off base, in my view. Surely the United States and other nuclear powers win the award for missed opportunities in reducing nuclear dangers, not the anti-nuclear movement. Among many other 'opportunities', the Comprehensive Test Ban Treaty remains unratified, while the Unites States and Russia have failed to negotiate further deep cuts in their nuclear arsenals. With respect to the humanitarian campaign, the major missed opportunity was the decision of the United States and other P5 to (mostly) not participate in the relevant conferences and working groups. They thereby missed the opportunity to steer the campaign away from a legal ban toward other measures for reducing

nuclear dangers that they would have found more palatable (India joined the other nuclear powers in skipping the nuclear ban negotiations while insisting that it supports a verifiable disarmament convention negotiated in the consensus-based Conference on Disarmament. *Hindustan Times* 2017). Why didn't these governments participate and do this?

In the context of the tremendous asymmetry in power between the nuclear haves and have-nots, it seems to me that precisely the opposite is true: the anti-nuclear movement (both states and civil society) created an opportunity to highlight the dangers of nuclear weapons, a discussion that the nuclear-weapons states prefer to avoid. The various meetings of the campaign in Oslo, Mexico, and Vienna involved numerous expert presentations on nuclear famine, nuclear winter, and so on. These were quite educational, especially for some of the non-nuclear states who do not generally pay much attention to nuclear issues (admittedly, this 'education' mostly did not reach the American public, because U.S. newspapers largely do not cover the issue). Were any of these presentations sponsored by nuclear-armed governments?

One can legitimately be skeptical about the value of the new nuclear ban, as realists such as Sagan and Valentino are. But there is a whiff of blaming the victims here—i.e. blaming the non-nuclear states and NGOs for the numerous documented failures of nuclear-armed governments to reduce nuclear dangers.

4 Risks of the Ban Treaty

The ban treaty does pose two serious risks. First, it could provoke the nuclear-armed states to articulate more zealously why they continue to need nuclear weapons. That is, instead of drawing them into the discourse of stigmatization and taboo, it will provoke a greater discourse about the value of nuclear weapons. At the NPT preparatory committee meeting in May 2018, the United Kingdom made a sharp statement about why nuclear weapons are essential for its security. As the nuclear powers feel the need to continually rebut support for the ban treaty in NPT forums, they will be engaging in a discourse that re-values deterrence. Unfortunately, given the increasing geopolitical and nuclear tensions in the world right now, the discourse of deterrence has a lot of salience.

Second, the ban treaty does have the potential to be extremely polarizing. There will be very contested politics in the future, and there is

a real risk to the NPT. The fact that the nonnuclear states pursued the humanitarian campaign in the first place is a result of the decline of the normative authority of the NPT as a disarmament mechanism (Thakur 2018). The NPT has become a status quo regime rather than a transformation regime. It maintains the status quo in the interests of the nuclear weapons states. It effectively legitimizes deterrence. As nuclear analyst Jeffrey Lewis observed, while the nuclear-armed states opposed the ban treaty, 'they got what they deserved' for undermining the NPT as a disarmament mechanism (Lewis 2017).

Nevertheless, the non-proliferation regime broadly conceived, including the NPT, the IAEA, the export control regimes and so on, remains the most widely supported institutional framework for pursuing non-proliferation and disarmament and reducing nuclear dangers. We should not want to weaken it.

One can argue that there is no inherent reason why the ban treaty should damage the NPT. Whether it competes with the NPT or supports it, as, for example, nuclear weapons-free zones do, will depend primarily on how states respond. Nevertheless, some non-nuclear states appear to have plans for heightened contestation at future NPT review conferences. For the nuclear powers, a strategy of seeking to discredit the ban treaty could do more harm than good to NPT politics.

5 Impact of the Ban Treaty

What will be the impact of the ban treaty? It is difficult to say. The United States and other nuclear powers immediately announced that they are not bound by any treaty they did not join; therefore, by retaining nuclear weapons, they are not outside the law (*Hindustan Times* 2017). Even so, a legal ban introduces new political challenges for the U.S. and other nuclear-armed nations. One of its main effects will be to provide a focal point for future antinuclear activism. The treaty's prohibition on threats of nuclear weapons use directly challenges deterrence policies. It will likely complicate policy options for U.S. allies under the U.S. nuclear 'umbrella', who are accountable to their parliaments and civil societies. It may also have implications for where the United States can base its overseas nuclear weapons, and where its nuclear-armed ships and submarines can navigate. Once the treaty is actually in force and has, say, 100 signatories, it will carry some serious moral weight as an expression of the international community. Admittedly, it is less clear what effect

the ban treaty will have on Russia and China. Notably, no members of Russian or Chinese civil society attended the ban negotiations.

One case that makes for an instructive comparison is the Comprehensive Test Ban Treaty (CTBT), which was adopted in 1996 but has yet to come into force. Even without becoming binding law, the 21-year-old treaty has helped to foster a powerful global norm against nuclear explosive testing. The force of the norm is broader than the law, since today even states that are not parties to the treaty, such as North Korea, are widely condemned for testing. Although it enjoys wide support, the CTBT remains unratified by key states, including the United States, China, Israel, Egypt and Iran, and so is not formally in force.[5] The ban thus takes the form of a voluntary moratorium on explosive testing.

There are some key differences with the nuclear prohibition treaty, however. The United States and the other great powers have actively observed and promoted the testing moratorium and the anti-testing norm even while preventing the treaty from entering into force. In contrast, in the case of the nuclear ban treaty, the United States may be unable to block it from entry into force (because it will eventually get 50 ratifications) but it could engage actively in contesting the norm through counter-normative politics and pressure on its allies to oppose the treaty.

The United States and the other nuclear powers will certainly seek to block any 'spillover' effect of the norm by contesting it. Their first priority is to make sure that there is no possibility that the treaty can establish customary law. As a Trump administration official stated,

> the 'ban' treaty would not impose any new legal obligation upon non-participating nuclear weapons possessors or their allies. Moreover, the 'ban' would have no impact upon customary international law. If anything, in fact, rather than creating or solidifying such a norm, the treaty process itself makes clear that there is no customary international legal norm against nuclear weapons possession. (Ford 2017)

Indian officials echoed a similar sentiment.

Thus we can expect significant contestation over how much normative spillover effect the rules of the new treaty will have. Doing nothing does not seem a feasible strategy for the nuclear powers going forward because the treaty will now become a talking point in various non-proliferation and disarmament forums—just what the nuclear powers worry about.

6 Conclusion

The nuclear ban treaty is an important, if controversial, accomplishment in international politics. It is the most significant step to date in the more than 70-year effort by non-nuclear states and civil society groups to rid the world of nuclear weapons. Nevertheless, it is best viewed as a stigmatization rather than a disarmament treaty. Its most immediate effect will be to serve as a focal point for future antinuclear activism. It also provides the non-nuclear states with a way to exert agency, rather than merely being the object of great-power policies. There is an important element of symbolic politics to it. The ban treaty may not result in the physical destruction of nuclear weapons any time soon, but it forces a renewed discourse of non-use and non-possession and puts the nuclear powers on the defensive about the humanitarian consequences of their weapons. It will likely have political effects internationally and domestically over the coming years, even in nuclear-armed states that did not, and will not, sign. Perhaps in retrospect the nuclear powers may wish that they had not boycotted the meetings of the humanitarian campaign, where they might have steered efforts in a different direction.

The key challenge for the ban treaty is to change the view that nuclear weapons are the currency of power. This is going to be very difficult. It will involve a much broader project than simply the ban treaty. One of the challenges for doing this is that there is no widespread grassroots anti-nuclear movement the way there was during the 1950s in response to atmospheric nuclear testing or during the 1980s with the nuclear freeze movement. Despite the central involvement of civil society groups in the humanitarian campaign, the campaign itself was largely an elite and interest group phenomenon. Millions of citizens are not out rallying in the street to reduce nuclear dangers. Most Americans do not know about the ban treaty. Instead, thanks to Putin, Kim Jong Un and Trump, nuclear weapons are being re-valorized as symbols of national power.

Nuclear-armed states have an obligation to engage the ban treaty in some constructive way; non-nuclear states have an obligation to engage ‘concrete steps’ toward disarmament. The ban campaigners also need to broaden their focus out beyond the United States and the other democratic nuclear powers and engage seriously Russia, China, India, Pakistan, Israel and even North Korea.

Notes

1. The discussion in this section draws on Tannenwald (2018).
2. Memorandum of Conversation, 'NATO and Nuclear Matters', President John F. Kennedy with the Foreign Minister of Denmark, U.S. Department of Stated, December 4, 1962. Thanks to William Burr for this document.
3. 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, Final Document, Volume I, Conclusions and recommendations for follow-on actions, NPT/CONF.2010/50 (Vol. I).
4. Robert Wood, Remarks at the 71st Session of the General Assembly First Committee, October 14, 2016.
5. Eight states still need to ratify the CTBT for it to come into effect, including the United States, China, Israel, Egypt, and Iran. India, Pakistan and North Korea have not signed it. The United States has abided by the treaty but the Senate has never ratified it. It is expected that once the United States ratifies it several other holdouts will quickly follow suit.

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CHAPTER 7

Nuclear Ban Treaty: Sand or Grease for the NPT?

Michal Onderco

1 Introduction

In July 2017, 122 countries concluded negotiations on the Treaty Prohibiting Nuclear Weapons (TPNW). The conclusion of the TPNW was the pinnacle of the decades-long struggle for nuclear disarmament, of which the latest iteration began with the Conferences on the Humanitarian Impact of Nuclear Weapons. The TPNW is touted by its proponents as a major step towards the abolition of nuclear weapons and nuclear disarmament (Fihn 2017; Fihn and Thurlow 2017; Sauer 2016). Dissatisfaction with the pace of nuclear disarmament by the NPT-recognized nuclear weapons states (NWS) was an important motivation for the conclusion of the TPNW. Immediately after the conclusion of the Treaty, discussions started regarding what consequences the new treaty will bring for the NPT. Some observers even suggested that TPNW parties may (or should) withdraw *en masse* from the NPT to show their displeasure with the NPT review process (Doyle 2017; Joyner 2016).

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_7

Against this background, and two preparatory committee meetings later, we may pose a serious question regarding the likely impact of the TPNW on the NPT review process. Proponents of the nuclear ban argued that it had the potential to bring new life to the NPT review process (Acheson and Fihn 2013). Opponents, especially the NWS, warned against the TPNW's potential to disrupt the NPT Review Conferences (RevCons). As the recent review of the discourse surrounding the TPNW showed, those two groups tend to talk past each other (Williams 2018).

A recent collection of essays has provided a useful collection of national positions on the TPNW (Shetty and Raynova 2017). Instead of repeating these positions, this chapter attempts to look at the TPNW through the lens of the NPT and its review process. The chapter aims to do so in three steps: firstly by looking at the membership of the Nuclear Ban Treaty and its potential to bridge existing divides within the NPT. By doing so, the chapter will be able to look more closely at the proponents' argument that the Ban Treaty has potential to bridge the divide within the NPT. Secondly, the chapter looks at how the Ban Treaty played out in the Preparatory Committees for the 2020 NPT Review Conference. Finally, the chapter will look at the likely short-term future scenarios for the Ban Treaty, and the likelihood and impact of its entry into force. The chapter will compare the (admittedly short) record of the Ban Treaty's ratification and see how it fares compared to other similar disarmament instruments.

Because academic papers are not crime stories, the answers may be already sketched here. The chapter will show that the potential for bridge-building is very limited. It will also show that thus far, the TPNW has been inconspicuously present during the Preparatory Committees (PrepComs), which reflects both the unwillingness of all parties to make it more prominent, and a balancing act of the Chairs to keep conflict under wraps. Last but not least, the chapter will show that if past experience is of any useful guidance (which the chapter will argue it is), the TPNW will enter into force around the time of the 2020 NPT RevCon, which may give it more prominence in the conference itself.

2 Building Bridges

The negotiations leading to the TPNW originated in the Open-Ended Working Group (OEWG) to take forward multilateral nuclear disarmament negotiations. In August 2016, the OEWG recommended convening

a conference in 2017 to negotiate a legally binding instrument to ban nuclear weapons. That outcome was a result of a long history, which ideationally draws on debates from the era of negotiating the NPT, but draws even more concretely on a process which started in the early 2000s. As Davis Gibbons (2018) shows in her masterful account, the original supporters had a much more complex instrument in mind that would favour a 'building block' approach towards a nuclear weapon convention. Only after the 2010 NPT RevCon did the focus among the proponents shift from the nuclear weapon convention to a 'simple ban treaty',[1] and the focus shifted towards delegitimization on humanitarian grounds. The OEWG decision in 2016 followed three conferences on the humanitarian impact of nuclear weapons (organized in Oslo, Nayarit, and Vienna). Except for participation in Vienna by the United Kingdom and the United States, the NWS did not take part in the process. They also did not take part in the OEWG.

The final report of the OEWG was adopted by vote, where 68 participating countries voted in favour, 22 against, and 13 abstained. Those who voted against and abstained were mainly NATO countries, countries wanting to join NATO, and Japan (ICAN 2016).

When the final negotiation on the TPNW started in New York in spring 2017, 122 countries took part. If TPNW is to bring 'new life' and grease the wheels of the NPT review process, we would expect the process to bring together actors that would not otherwise cooperate within the NPT. In other words, we can expect the TPNW to bring new life into the NPT but only if it does not replicate the old ways.

We should therefore look at whether the TPNW transcends the old patterns of contestation and old caucuses within the NPT setting. Since there is no voting in the NPT setting, we need to look for alternatives to see existing cooperation within the NPT. An alternative way to measure cooperation within different settings has been by studying co-sponsorship. Within legislative settings, co-sponsorship of bills has been widely understood to be a reliable measure of collaboration between actors (Fowler 2006; Kirkland and Gross 2014). In other settings, scholars have adopted a similar approach to the study, for example, amicus briefs to the Supreme Court (Box-Steffensmeier and Christenson 2014; Box-Steffensmeier et al. 2013). This approach is also useful for our case: within the RevCons, states try to advance their agenda through working papers and proposals,[2] which can be sponsored by one or multiple countries (Müller et al. 1994). Since such Working Papers and

Proposals often advance the agenda in a single issue area, the resulting pattern of co-sponsorship is overlapping and resembles a network structure (for application of network analysis for international relations, see Hafner-Burton et al. 2009; Mérand et al. 2011).

In this chapter, I mapped co-sponsorship networks in the 2015 NPT Review Conference. This conference was the last before the adoption of the TPNW, and therefore might help us to capture the existing patterns of contestation. Whilst this conference took part before the conclusion of the TPNW, the TPNW's predecessor—the Humanitarian Initiative—was already a part of the NPT discourse. Looking at the co-sponsorship during this conference helps us to understand whether the participation within the TPNW negotiations transcends the existing divides. Figure 7.1 above shows the network structure based on co-sponsorship of proposals and working papers during the 2015 NPT Review Conference, overlaid with information about participation in the TPNW negotiations. Each circle represents one country, each line connects two countries that co-sponsored at least one agenda item. Countries not connected to any other country did not submit/co-sponsor any proposal, but still took part in the TPNW negotiation. Countries marked in black took part in the TPNW negotiation.

Looking at Fig. 7.1, we see two patterns. The first is that the NPT, regardless of participation in the TPNW negotiations, is divided into two large camps—one group composed of the non-aligned countries (the large cluster of countries to the bottom left), and another group composed of the friends and allies of the United States and other nuclear weapons states (enjoying the *de facto* nuclear umbrella). There are also other countries outside these groups, but they are few and not very strongly connected with each other and/or with any of the other groups. In general within the NPT context, there is very little contact 'across the bench'. Given that the vast majority of NATO allies and other friendly countries (the large, dense chunk to the right) did not take part in the negotiation, 'reaching across the aisle' is very limited. Figure 7.1 testifies to this. We see very little collaboration *across* the established groups, but also not *exactly* copying the old lines of conflict. On balance, however, the treaty's potential to reinvigorate the NPT process is very limited.

Other scholars have reached a similar conclusion (Harries 2017; Williams 2018). The limited participation in the TPNW negotiations also reflects the unwillingness of the countries pushing for the Treaty to accept compromises and look for accommodation with countries that

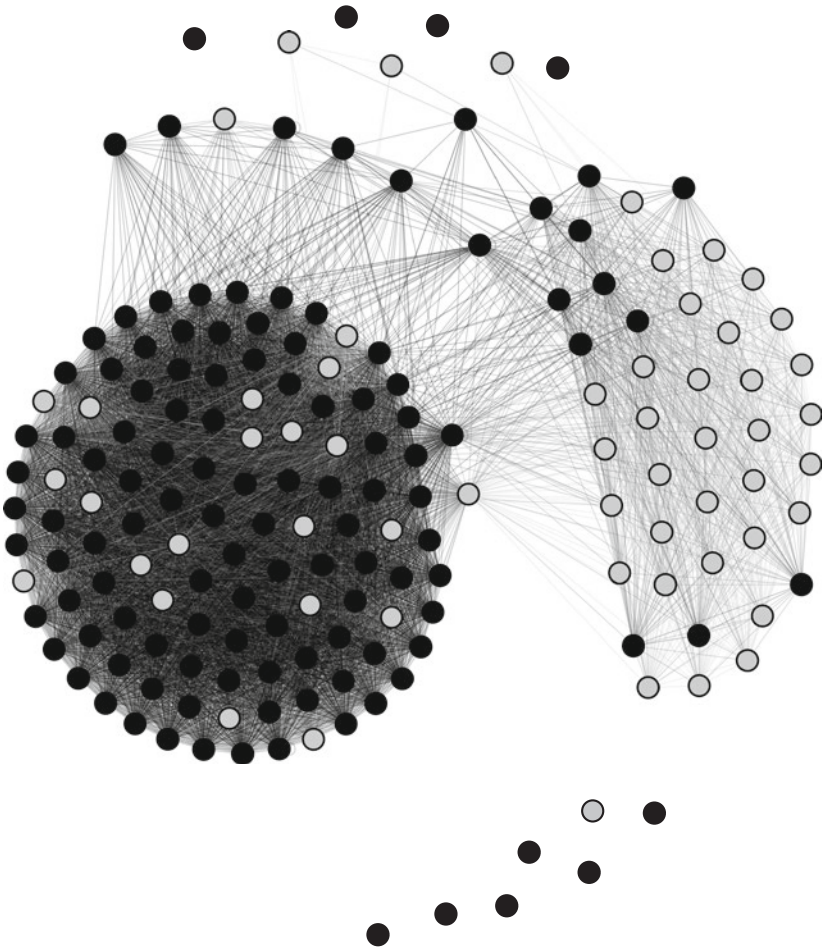

Fig. 7.1 Topology of NPT network *Data Source* United Nations (2015)

might in principle be willing to support new steps towards multilateral nuclear disarmament but find major flaws in the TPNW (Williams 2018).

More worrisome, however, is that in light of the existing concerns amongst the NATO countries about the TPNW, it is unlikely that

TPNW membership among the cluster of countries on the right would increase sharply. On the contrary, given the current status of signatures and ratifications (more on that in the third section of this chapter), it appears that if participation in the Treaty continues at all, it will be among the non-aligned countries and other non-Western parties. Traditional disarmament advocates such as Austria, Ireland, or New Zealand are likely to be the only exception to this rule.

3 TPNW at the NPT PrepComs Thus Far

Seen superficially, the ways in which the proponents and the opponents see the role of the TPNW in the NPT review process is irreconcilable. The supporters of the Treaty—which includes both countries and the disarmament NGO community—would like to see the TPNW recognized as a more important development in the NPT Review process. They do, however, differ in opinion regarding what role the ban treaty should fulfil—whether the TPNW should be used as a yardstick for success, or as an expression of will towards nuclear disarmament.[3] The staunchest opponents of the TPNW (such as France) would like the NPT Review Process to ignore the conclusion of the TPNW, its opening for signature, and ratification almost two dozen countries. Some observers suggest that for the strong supporters of the TPNW, the insistence on strong recognition of the TPNW is a starting bargaining position from which they are ready to back down in the course of negotiations in exchange for other concessions.[4] Positively, however, many countries—whether supporters or sceptics—have found ways to use the energy created by the TPNW to push through a new agenda related to nuclear disarmament and reduction of nuclear risks. The reinvigoration of platforms such as the Non-Proliferation and Disarmament Initiative or activation of various 'groups of eminent persons' speaks to this interest (Shetty and Raynova 2017). Importantly, many NATO allies are part of this effort and therefore even if the TPNW does not help build bridges, some states on the opposing sides are actively looking for ways to overcome the divide. At the same time, the TPNW gives these countries good reason to encourage further partial steps towards nuclear disarmament with the NWS within the alliance.

Within the conferences themselves, the existing conflicts resulted in very carefully calibrated language in the final documents. The chairs of both PrepComs have spent abundant time travelling to various parts

of the world, trying to work out acceptable language. In the case of the First Preparatory Committee (PrepCom), the Chair, Ambassador Henk Cor van der Kwast of the Netherlands chose to use very cautious language in the Chairman's factual summary in which he basically acknowledged both the existence of the attempts to bring to the world a legally-binding instrument towards prohibiting nuclear weapons, and that there were two divergent views on this (United Nations 2017). A similar path was adopted by Ambassador Adam Bugajski of Poland, the Chair of the Second PrepCom, who noted both the adoption of the TPNW and opposition to it by some other NPT members (United Nations 2018a). While this approach managed to keep the open conflict between the supporters and sceptics under wraps, it did not please the NGO community who were strongly advocating for more prominent recognition of the TPNW (Pytlak 2018).

The chairs of the first two PrepComs adopted an approach that strikes a balance between numerical power (which lies on the side of the proponents of the TPNW) and military power and the actual possession of nuclear weapons (which lies on the side of the opponents of the TPNW).[5] Both the proponents and the opponents of the TPNW were critical of both reports after their respective presentations (France 2017; South Africa 2017). However, debates were dominated by other topics, and neither proponents nor opponents of the TPNW are keen to make the treaty the centrepiece of NPT RevCon discussions. Even the NWS, who are critical of the TPNW, recognize and acknowledge the presence of the TPNW (if only to criticize it).

Whatever their views on the TPNW, states recognize that weakening the NPT would not be advantageous for them at present.[6] The case for the NPT is clear for the NWS, and states under their nuclear umbrella. However, the proponents of the TPNW recognize that they are unlikely to receive more concessions or advance the disarmament agenda outside the NPT, where their leverage on NWS is likely to be even lower (Horovitz 2015).[7]

4 TPNW's Entry into Force

One of the factors that could propel the TPNW into more prominence in the NPT review process is its entry into force. Entry into force would create stronger normative pressure, and parties to the TPNW could start engaging in what constructivist scholars call 'consistent

constructivism'—a recognition that a clash of interests may inevitably lead to preference of one norm over another (Mills and Bloomfield 2018). The TPNW will enter into force when ratified by 50 countries (Article 15 of TPNW, see United Nations 2018b). At the time of writing of this chapter (slightly more than one year after the conclusion of the negotiations on the TPNW), the TPNW has been ratified by nineteen countries (current as of 27 December 2018). The question remains—is this encouraging, or is it a disappointing result?

To find this out, let us compare the TPNW with other disarmament treaties deposited with the United Nations Secretary General. International relations scholarship has shown that countries tend to sign treaties on the basis of their past practice (Fuhrmann and Lupu 2016; Lupu 2013). Many countries tend to show their good international citizenship by negotiating, signing, and ratifying international treaties. Such countries find international treaties useful for structuring their foreign relations. The more treaties countries have signed in the past, the more they are likely to sign new agreements. In the present case, it does not make sense to look at all possible treaties; instead, given the specificities of the field, I look at disarmament treaties. The UN Treaty Collection contains information about treaty ratifications or accessions. In total, there are nine disarmament treaties deposited with the UN SG, one of which is regional.[8]

Figure 7.2 shows the development in the membership of these eight treaties (Kinshasa Convention is not taken into account due to its regional nature). As can be seen, in most of the treaties, the number of ratifying parties has increased only slowly. Table 7.1 shows the same data in a slightly different way.

From Table 7.1, it is clear that TPNW is a moderately successful treaty. The only two treaties that attracted more signatures in the first year of signature were the Arms Trade Treaty and the Ottawa Treaty, which attracted 13 and 40 ratifications respectively; and TPNW already bypassed the first one. The success of the treaties, however, might be born out of different circumstances related to their origins. Both treaties were negotiated in significantly bigger conferences with *much* larger and broader participation (Bolton and Nash 2010; Price 2004). This speaks in favour of the TPNW, making it more successful, relatively speaking, but also less widely accepted, given the limited participation in the TPNW negotiations.

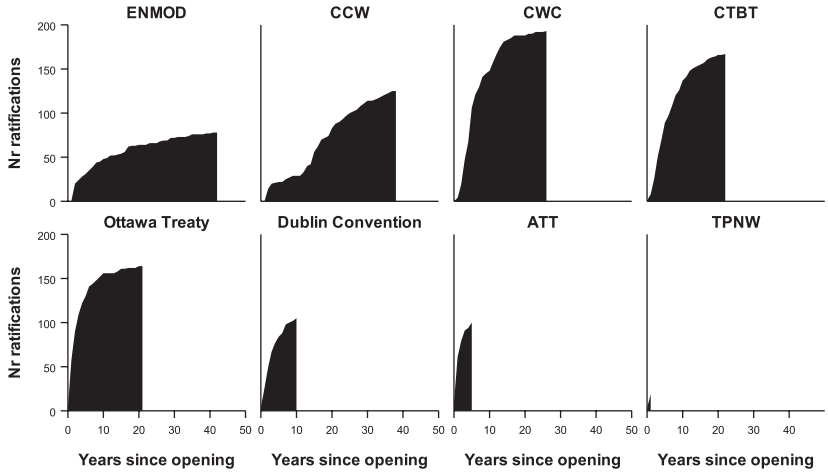

Fig. 7.2 Ratification of multilateral disarmament treaties

Table 7.1 Ratification of multilateral disarmament treaties

Years[a]	*ENMOD*	*CCW*	*CWC*	*CTBT*	*Ottawa*	*Dublin*	*ATT*	*TPNW*
1	1	0	4	6	40	7	13	11
2	19	13	14	20	86	36	65	19[b]
3	24	20	35	44	107	57	82	
4	28	21	61	62	120	71	92	
5	31	22	98	79	126	83	100	
10	48	29	145	135	155	105		
20	64	82	188	167	162			

Data source UN Treaty Collection, Chapter XXVI (Disarmament), available at https://treaties.un.org/pages/Treaties.aspx?id=26&subid=A

[a]Years since conclusion. Explanation of abbreviations can be found in footnote 8. Data is taken from the UN Treaty Collection. Since the UN Treaty Collection does not always distinguish between opening for signature and conclusion, the conclusion date was taken here. In case of the TPNW, that date is 7 July 2017

[b]As of 27 December 2018

The supporters of the TPNW often look for inspiration in the Ottawa Treaty (Berry et al. 2010) or the Dublin Convention (Borrie 2014), partially because these two treaties managed to reframe security debates in humanitarian frames. The TPNW supporters aim at achieving the same.[9]

However, compared to the latter, the TPNW in its first year has been more successful, and has attracted more signatures.

Expecting an even higher success rate from the TPNW would be unreasonable. There are only three countries which, on average, sign and ratify disarmament treaties in less than one year—Fiji, Mexico, and Yemen. Of these three, only Mexico has already signed and ratified the TPNW; and Fiji signed the treaty. If we look only at the Ottawa Treaty and the Dublin Convention, we find that 42 countries have signed and ratified either of the two treaties within one year; but many of the early state parties to either of these treaties are NATO member states, who are unlikely to sign the TPNW anytime soon. Of the remaining countries, many have already signed, but not ratified the TPNW.[10]

If the experience of Ottawa Treaty and Dublin Convention are at all exemplary, we might expect the TPNW to reach 50 signatures between its third and fourth year after the opening for signature. That would make the TPNW come into power just before the 2020 NPT RevCon. In fact, over 120 countries have signed either of the two treaties before its third anniversary of opening for signature. Even if we deduct the NATO countries and NWS, fifty ratifications seem like a reasonable goal. Moreover, some states that are generally *not* early ratifiers (Cuba, Guyana, Palau, Palestine, and Viet Nam) have signed the TPNW. This might be an expression of these countries' interest to further burnish their disarmament credentials. Many of the early ratifiers of the TPNW are non-aligned countries which have historically strongly advanced the disarmament agenda (Potter and Mukhatzhanova 2012), and therefore it is not surprising that they were amongst the first to ratify the TPNW.

At the same time, it should not be surprising if major powers—especially the NWS—try to flex their power and lobby against ratifications among the Non-Aligned countries. From past experience, we know that the NWS are fairly vocal and vociferous in pursuit of their preferences within the field of non-proliferation policy. For example, prior to the 1995 NPT Review and Extension Conference, the NWS mounted a huge diplomatic lobbying effort, labelled by some of the participants as the largest one in living memory (Dhanapala and Rydell 2005; Graham 2002; Rauf and Johnson 1995). This effort included lobbying in capitals by all NWS, demarches sent by the European Union to its candidate countries and developing countries (for more detail on these, see Grand 2010; Onderco 2017), but also more direct pressure. The main goal of these lobbying actions was to secure sufficient support for the

indefinite extension of the Treaty, however, the effort also included lobbying in favour of joining the Treaty (many countries joined the Treaty between the 1990 NPT RevCon and 1995), and participation in the conference.[11] It is not unthinkable that similar pressure could now be used to prevent ratification of the TPNW, although mounting such pressure would require coordination and focus beyond what the NWS are currently capable of.

Therefore, by looking purely at the experience of other similar disarmament treaties, it is not unreasonable to expect that TPNW might come into force around the time of the upcoming RevCon in 2020. If that happens, the debate amongst the proponents and opponents may turn to the effect of the TPNW on the obligations under the NPT. Observers have highlighted that such debates have been divisive even amongst the supporters of the TPNW (Caughley and Mukhatzhanova 2017; Williams 2018). Especially given that the NPT works on the basis of consensus, even a single country can block the progress and success of the conference (see Einhorn 2016 for both description of the problem and a potential cure).

5 Conclusion

This chapter aimed at looking at the recently adopted TPNW through the lens of the NPT review process to determine whether the TPNW acts as grease or sand for the NPT process. Rather than restating the positions of proponents and opponents, this chapter had three precise questions to answer: is TPNW able to bridge the existing divides within the NPT; how has TPNW played out so far in the NPT review process; and whether it is likely for the TPNW to come into force anytime soon. The concise answers to these questions are: unlikely; low-profile; and yes.

In the second section of this chapter, on the basis of the network analysis of the existing divides within the NPT, I have shown that the TPNW is not bridging them. The participation in the TPNW negotiations was already telling—many of the countries otherwise sympathetic to the cause of multilateral nuclear disarmament did not take part because the staunch proponents were not willing to accommodate them (Williams 2018). This is then reflected in the fact that participants in the conference come predominantly from the caucus of the Non-Aligned and other countries from the Global South. This suggests that the TPNW and the process leading to its adoption is unlikely to bridge the divides.

However, although limited, the existing participation by a few Northern countries assures that the TPNW will also not completely break down the cooperation within the NPT setting.

In the third section of the chapter, I discussed how the TPNW has played out thus far in the NPT RevCon setting. So far, the chairs of the two existing Preparatory Committees have been careful to acknowledge the TPNW's existence but also to not give it any major role. This approach has angered the TPNW's supporters, but appears to have prevented the NPT from being overtaken by the TPNW politics. Even if the TPNW continues to play a small role in the NPT, it may become an unacknowledged spark for new steps towards nuclear disarmament, as some NATO allies hope. For example, the Netherlands and Germany have led recent efforts to reinvigorate the work of the Non-Proliferation and Disarmament Initiative.

In the fourth section of the chapter, I discussed the likelihood of the TPNW entering into force. Existing social scientific research shows us that countries that are already embedded in multilateral order are likely to take part in new treaties (Fuhrmann and Lupu 2016; Lupu 2013). Countries' past behaviour on treaty ratification is indicative of their future behaviour. On the basis of states' past ratification of disarmament treaties, we see that the TPNW is already fairly successful—it is the third most ratified treaty within the first year of its existence. On the basis of ratification behaviour on the Ottawa Treaty and the Dublin Convention, past experience indicates that the TPNW should reach the threshold of 50 ratifications (needed for the Treaty to enter into force) sometime between the third and fourth year from the opening for signature. However, given that the Treaty has already attracted a number of exceptionally early ratifications, entry into force could be even earlier.

This all indicates that at the 2020 NPT RevCon, the TPNW will appear on the agenda, although is highly unlikely to become a major sticking point. As long as the TPNW supporters are not willing to part ways with the NPT (either completely neglecting it,[12] or even withdrawing), the political costs of pushing the TPNW to the forefront might be too high even for its staunchest supporters. Acknowledging the TPNW's existence, however, might be a relatively low price to be paid. If that happens, the TPNW should give impetus to both sides of the debate—both proponents and opponents—to look for common ground. After all, there is nothing in the TPNW that is in conflict with the NPT (Rauf 2017). Thus far, policy wonks and eminent persons have been looking

for ways for sceptics and opponents to use the energy created by the TPNW (see e.g. recommendations stemming from Shetty and Raynova 2017). One of the main flaws of the TPNW has been that it has targeted the Western countries, and specifically NATO (Harries 2017; Wolfsthal 2017). However, building bridges also creates the necessity for the proponents of the nuclear ban to seek common ground, if only with the moderate sceptics among the NATO countries.

The issue of a WMD-free zone in the Middle East is widely seen as the main sticking point for the 2020 NPT RevCon, after being the chief cause of discord at the 2015 NPT Review Conference (Berger 2015; Smetana 2016), and having seen no progress in the process in the meantime. The doom scenarios predicted by TPNW opponents and the NWS are unlikely to materialize. At the 2020 NPT RevCon, the TPNW is likely to play only second fiddle. However, TPNW supporters and disarmament NGOs might find solace if new steps towards disarmament are committed to (akin to those agreed in the 2010 RevCon), even if the TPNW might not itself even be mentioned. The TPNW will likely continue in the footsteps of the Additional Protocol—a sticking point, but something unlikely to rattle large conferences.

Acknowledgements This chapter draws on remarks delivered at the UCSIA workshop 'Non-nuclear peace' in Antwerp, and at the European Initiative on Security Studies conference in Paris (2018). Some of the thoughts that underpin this chapter were presented in a policy brief written for Peace Research Center Prague (Onderco 2018). I am thankful to the editors, as well as to Målfrid Braut-Hegghammer, Rebecca Davis Gibbons, Harald Müller, and Michal Smetana for their thoughtful comments. I thankfully acknowledge funding by the Charles University Research Centre programme UNCE/HUM/028 (Peace Research Center Prague/Faculty of Social Sciences). Ashley-Richard Longman proofread the chapter with much care. All data is accurate as of December 2018.

Notes

1. For a distinction between the two, see Berry et al. (2010); Borrie et al. (2016).
2. There is no meaningful difference between the two.
3. This debate somewhat resembles the debate about what statute the Principles and Objectives, adopted at the 1995 NPT Review Conference, should have. The NWS and their allies were strongly opposed to recognizing them as a condition of any kind; and South African foreign minister Nzo referred to them as a 'lodestar' (Nzo 1995).

4. Interview of the author with diplomat A, May 2018.
5. This point was made by numerous diplomats interviewed by the author in spring 2018.
6. Notwithstanding academic articles advocating withdrawal from the NPT (Doyle 2017; Joyner 2016), or arguing that this is likely to happen over time (Meyer and Sauer 2018).
7. A similar point was reiterated in a recent collection of essays edited by Shetty and Raynova (2017).
8. Convention on the prohibition of military or any other hostile use of environmental modification techniques ('ENMOD' 1976), Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects (with its protocols, 'CCW' 1980), Chemical Weapons Convention ('CWC' 1992), Comprehensive Nuclear-Test-Ban Treaty ('CTBT' 1996), Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction ('Ottawa Treaty' 1997), Convention on Cluster Munitions ('Dublin Convention' 2008), Central African Convention for the Control of Small Arms and Light Weapons, their Ammunition and all Parts and Components that can be used for their Manufacture, Repair and Assembly ('Kinshasa Convention' 2010, the only regional treaty), Arms Trade Treaty ('ATT' 2013), and TPNW (2017).
9. Countries critical of the TPNW, such as Germany, point out that nuclear weapons differ from landmines by shaping the whole international system. See Williams (2018) for a more thorough treatment of this argument.
10. This is often for domestic reasons. For example Brazil has signed the Treaty, but due to domestic reasons, the ratification has yet to reach the Senate.
11. This was partially due to uncertainty related to the Rules of Procedure, and the need to have as many countries supporting the NPT's indefinite extension at the conference as possible. See Barlow (2018).
12. A good indicator of this might be the level of participation in the conference.

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PART III

Sustaining Non-Nuclear Peace: Government or Governance in the Longer Term

CHAPTER 8

What Are the Institutional Preconditions for a Stable Non-Nuclear Peace?

Harald Müller

1 Introduction: Nuclear Disarmament Needs Institutions

Notwithstanding the successful conclusion of the Treaty for the Prohibition of Nuclear Weapons Prohibition Treaty (TPNW or Ban Treaty), real world nuclear disarmament will be a complex and protracted process; this process will lead to the desired result only if it is embedded in a supporting institutional framework. The ambition is not just a world without nuclear weapons (=today's world, just without nuclear arms), but 'non-nuclear peace'; hence, the real, alleged or

This article is based on the author's decades-long deliberations on the conditions of a nuclear weapon free world which have been published in numerous articles. The present article summarizes my thinking on the subject and adds also some new ideas which emerge from recent work. This work has been supported by Charles University Research Centre program UNCE/HUM/28 (Peace Research Center Prague/Faculty of Social Sciences).

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_8

perceived war-prevention functions of nuclear deterrence must be taken over by other means, the conflict-driving side-effects of nuclear deterrence must be neutralized, and the conflicts that today motivate states to maintain or even procure new nuclear weapons must be contained, managed and resolved by non-nuclear means in order to stop the reproduction of these motivations. The TPNW, while importantly contributing to one of the institutional pillars needed—cultural institutions/norms for building a nuclear taboo—is insufficient as an institutional foundation for both the process towards and the maintenance of a peaceful world without nuclear weapons.

New institutions must be developed in the political field for mitigating competition among the nuclear powers and other powerful states, for verification, compliance and enforcement in a non-nuclear world (including, *in extremis*, military enforcement), and for guarding, watching and, if needed, pushing forward the disarmament process. Contrary to the prevailing (overly realist-rationalist) discourse in disarmament and arms control, cultural institutions that shape the perspectives and thoughts about nuclear weapons and non-nuclear opportunities, and mobilize emotions for refusing nuclear arms, are topping political, military and technical institutions in their relevance for the achievement of the final goal.

2 The Nuclear Weapons Prohibition Treaty: Necessary, but Insufficient

The TPNW is remarkable for several of its features. First, it has been brought into being by a coalition of mostly small and medium states (among the major or 'rising' powers, only Brazil, Indonesia, Mexico and South Africa were among the leaders of the Humanitarian Initiative). Second, it was pursued and completed against the explicit political will of the nuclear powers and their allies which together represent almost the total of the major powers in the world. The self-empowerment of actors lacking material power is quite impressive. Third, it has set a clear and unambiguous norm which is, no doubt, the needed normative basis of a nuclear weapon free world.

At the same time, it is *insufficient* as a comprehensive basis for 'non-nuclear peace'. First, the scope of proscribed behavior does not include nuclear weapons *research* and thus maintains a gap of the NPT that must be filled in a world of non-nuclear peace. Second, it is very

weak in regulating nuclear and nuclear weapons related *trade*, even weaker than the NPT and immensely weaker than existing selective rules like the Nuclear Suppliers Guidelines or the Joint Comprehensive Plan of Action agreed between the EU, China, France, Germany, Russia, the UK and the US with Iran. Third, its undertakings towards *verification* stop below the minimum requirement for stimulating trust in security without nuclear weapons, constraining the verification undertakings of its members to IAEA comprehensive safeguards. However, since the revelation of Iraq's nuclear weapons program, everybody knows that these safeguards are incapable of uncovering clandestine fissile material and weapons activities. Nothing in the Ban Treaty will force its parties to adopt more intrusive verification measures once the elimination of all nuclear weapons is achieved. Fourth, there is nothing in the Ban Treaty on *enforcement*. It contains a weak clarification procedure involving two parties, one of which has suspicions against the other. At best, the treaty community plays a mediating role between the suspecting and the suspected party or parties, and then only if all the parties involved in the dispute are in agreement to permit mediation.

Taken together, the lacunae on nuclear trade, verification and enforcement make the Ban Treaty, as it stands, completely unfit to grant the institutionalized security which would make non-nuclear peace stable. The uncertainties that would reign in a world where the Ban Treaty would be the only instrument regulating nuclear issues are a permanent incentive for countries to adopt a hedging policy, that is, moving or keeping as close to a weapons capacity as is possible and maintaining ready nuclear complexes to race to the bomb at the leadership's command. In addition, the procedure foreseen in the TPNW for the transition to a nuclear weapons free world is naively simplistic: the nuclear weapons states just disarm and accede, having signed a verification agreement with the IAEA, and a disarmament process with an unspecified 'authority', both of which must be accepted by the Conference of States Parties. Altogether, the ban promotors treat the problem of securing non-nuclear peace as if there was no risk of cheating and breakout by current non-nuclear weapon states (the cases of Iraq, Libya, Iran, Syria, North Korea should have sobered the mind of even the most faithful and naïve Ban supporters on this point!), and as if all the dangers emanated from the nuclear weapon states (and those allies with nuclear weapons on their territories).

In many ways, the vision of nuclear disarmament projected by the Ban Treaty is ironically similar to the caricature of nuclear disarmament given by deterrence pundits who look at the nuclear weapons free world as today's world minus nuclear weapons without further change (Müller 2013). Failing to see all that is necessary to maintain stable, non-nuclear peace, the Ban Treaty projects exactly the same distorted vision: the world as it is minus nuclear weapons, plus the Ban Treaty and everybody having joined it.

In this chapter, I try to draft a more complex picture of non-nuclear peace. Starting from the assumption that all nuclear weapons have been deleted, I sketch an institutional setting in which the incentives to re-race towards nuclear capacity are minimized because security is granted and deeply anchored by non-nuclear means. I find that normative-institutional precautions are needed for the nuclear sector proper, for the broader relationships among the great powers, and for the ideational structure in all states of the non-nuclear weapons world. In the conclusion, I touch for illustrative purposes on some steps that are discussed today and how they could be taken in a way that would lay the foundations of non-nuclear peace. I hope to identify steps that mark real progress towards a world without nuclear weapons rather than presenting placebos for comforting people who complain about the lack of true disarmament.

3 Institutions to Maintain Non-Nuclear Peace

I define 'non-nuclear peace' as a world in which stable peace is mirrored by the expectation of its inhabitants and their governments that war is a most unlikely prospect, in which this expectation is not sustained by means of nuclear deterrence, in which nuclear weapons are effectively and sustainably banned, and in which people and their governments expect this non-nuclear state of affairs to continue into the indefinite future. In other words: in non-nuclear peace, the denuclearization of world politics is to be reflected not just in physical/material facts, but solidly also in the mindsets of people. This stability of expectation corresponds to expectations found in a 'security community' as illustrated by Adler and Barnett (1998). Even though not all the institutional, transactional and mental preconditions for a security community can and will be achieved before the last nuclear weapon is dismantled, the model of 'security community' presents a useful idealized objective towards which policies have to move. We thus have to discuss institutions caring for the *physical-material world* as well as those caring for the *ideational world*.

3.1 Physical World Institutions

3.1.1 Minimizing the Possibility for Nuclear Rearmament

In order to create the mutual confidence necessary for stable non-nuclear peace, the time needed for restoring a nuclear weapons capability must be as long as possible (White et al. 1992). This requires the complete dismantlement of the nuclear weapons complexes in all former nuclear weapon states and all states that had nuclear weapons programs and have retained parts of the infrastructure, as appears to be the case in Iran. The survival of these complexes in a non-nuclear weapons world would present a permanent factor of instability. Since all states would know that these complexes existed in other states, they would suspect it to be part of a hedging policy with the intention to rush to nuclear weapons at the earliest possible moment. As a consequence, all these national complexes would organize themselves for rapid breakout. A more unstable constellation is hardly conceivable. For this reason, the concepts of 'virtual arsenals' and 'virtual nuclear deterrence' (Mazarr 1995; Schell 1998), in which all nuclear warheads would be dismantled but reconstitution capability would exist, constitute an untenable scenario unless it is merely a brief transition period of a few years between the present nuclear deterrent system and future non-nuclear peace. The continued physical presence of reconstitution capability would reinforce the ideational power of nuclear deterrence thinking, thereby preventing the institutionalization of non-nuclear peace not only in its physical, but also in its ideational aspects.

The expertise of the nuclear complex professionals, as long as they are around, should be refocused on disarmament and verification practices (Milne and Wilson 1998). They would be transformed from a national asset to a transnational body of experts mandated to assist the IAEA—or whatever international institution would be tasked with verification and compliance policy—in its demanding job. This mission would also help to turn them from national lobbies for nuclear deterrence into a positive factor interested in maintaining the disarmed world.

The nuclear industry and research sectors should of course be afforded some immunity from becoming abused for military nuclear activities. Beyond strict verification measures as indicated above, the organizational and management structures have to be de-nationalized; the old concept of the Baruch-Lilienthal Plan musts be revived in order to stabilize non-nuclear peace. Sensitive nuclear activities, but also nuclear energy companies, should be categorically made multinational

in terms of ownership, staff and management. The board of such companies should have representatives from the United Nations and the IAEA or successor organization. Likewise, nuclear research institutes in and outside of universities need to be internationally led and staffed. Research plans must be public, and all publications subjected to the open-access principle.

3.1.2 Discovering and Preventing Breakout

The Ban Treaty has no answer to the breakout problem. Such an answer, however, is needed to create the necessary confidence in the stability of non-nuclear peace (Hinderstein 2010). Verification technology is a rolling text, as new gadgets are continually being invented and developed. The IAEA (or successor) must have the authority to enhance verification capability without impediments and vetos. After the JCPoA, it is fair to say that even comprehensive safeguards plus the Additional Protocol (AP) is falling short of what is possible. Access rights and the scope of verification the IAEA was afforded by this agreement of 2015 are much more intrusive and effective than even under the 1997 AP. Particularly remarkable is Iran's obligation to subject the import of certain dual-use technologies which have specific roles in nuclear weaponization to import licensing and, if requested, to end-use inspection. In a zero nuclear weapons world this is a necessary complement to current verification practices since it is essential that these technologies not be abused for weapons purposes.

In case of a serious suspicion of cheating by a state, this state must face a highly probable response (Müller 2010). This means that the veto of the P5 (which are potential breakout candidates) must be made invalid in UN Security Council deliberations. This could be achieved by providing by treaty three changes in the status quo: First, the IAEA would be ascribed the role of sole authority for establishing a state's serious non-compliance, without the UNSC being able to overrule this finding. Second, the IAEA declaring a country to be in a state of serious non-compliance would empower everybody to act in self defence against the perpetrator under Art. 51 of the UN Charter. Third, the UN General Assembly would be convened under the Uniting for Peace Procedure to decide on ways and means of a collective response if and when the UNSC did not take a decision within a limited time span.

This legal procedure would confront any government considering cheating and breakout with a high probability of a forceful response.

The resulting expectation of high risk would probably neutralize any dreamed-of gain a state could draw from a breakout.

Similar procedures might be invoked to respond to nuclear use (in the unlikely case that breakout were successful and a state produced a few nuclear weapons and used them in an armed conflict) or the use of chemical and biological weapons (against which nuclear weapon states today still reserve the right to respond by nuclear means): in a non-nuclear world it must be legal to respond to the use of weapons of mass destruction under Art. 51 (self-defence) and via UNGA Uniting for Peace, empowering both a forceful national as well as collective response with conventional means. Even (collective) missile defence might be a part of this response (Krepon 2003; Sauer 2011).

3.1.3 Managing Security and Preventing War

Nuclear weapon states usually claim that nuclear disarmament is dependent on favourable political conditions which permit them to maintain security without nuclear deterrence. This is true on the surface, but the causal chain exposed by this argument is too short: 'political conditions' are treated as independent variable, disarmament as dependent variable. But once we look at political conditions as a dependent variable and ask for the independent variable causing these conditions, we quickly discover that it is the policies of the great powers in the first place that are responsible to a very high degree for the state of the world. 'Conditions' are no more than intervening variables leading from national security policy to the perceived need to maintain nuclear weapons. For this reason, it is up to the great powers, most of which possess nuclear weapons, to change the conditions to be more conducive to creating and maintaining non-nuclear peace.

Presently, relationships among the great powers are at a very low point. Russia and the US compete in Europe, the Caucasus, the Middle East, Central Asia, and most recently, Latin America. China and the US are rivals in East and Southeast Asia. India and China pursue direct territorial disputes against each other which lead intermittently to border skirmishes. The Indian-Pakistan relationship is ridden by conflict, exacerbated by a lasting territorial dispute and always prone to escalating. Unless rivalries are managed and territorial claims are regularly and permanently solved or submitted to neutral mediation and arbitration, states will continue to claim that they need nuclear weapons for their security.

The UNSC was created to fulfill this pacifying function, but it appears that this institution itself has become an arena for practicing rivalry. Possibly, the strict rules including the veto, the protocol and the nearly public negotiation style are not helpful in managing great power rivalry. It might be advantageous to install a more informal and also more inclusive consultation mechanism that helps the great powers find a viable balance between their interests and puts the focus on the joint interest to prevent dangerous crises that could lead to escalation. Such a body could be modeled after the classical Concert of Europe which worked on the common norms of mutual recognition as equals, acceptance for joint responsibility for peace, respect for each other's vital interests, non-intervention in internal affairs, refraining from the use of force, refraining from altering the territorial status quo, consultation on any conflict or dispute that could trigger serious crisis, and finally a common response to revisionist powers that try to upset international order (Schulz 2009). A twenty-first century 'concert' (Müller and Rauch 2018), conceived as an informal consultation mechanism based on these norms that could use the G20 format but would focus on security would be a useful complement to the formal-legal structure of the UN Security Council, not a substitute. It could help members of the UNSC to prepare formal decisions outside of the straitjacket of the Charter's protocol, and its more inclusive membership policy would trump the outdated composition of the P5.

Such an institution would be needed to deal with the framework necessary to maintain non-nuclear peace at the political plane. It could deliberate and act in a preventive way and react, in tandem with the UNSC, in situations where non-nuclear peace is endangered by serious conflict or even real cases of grave non-compliance with the norms of a nuclear weapon free world.

4 Ideational World Institutions

4.1 Creating a True Nuclear Weapons Taboo

Constructing a non-nuclear peace culture with its associated institutions is a long-term process (Müller 2017). It relies on the forces of culture as a network of more or less rational norms, rules, values and practices, which are mixed up with emotions that give them strength and longevity (Bleiker and Hutchison 2014; Lebow 2008; Mercer 2010; Singer 2007).

Nuclear deterrence culture is very much anchored in mutually reinforcing fear and distrust (Lebow and Stein 1994). The fear is focused on the horrors of nuclear war while the distrust is concentrated on actors that cling to the alleged advantages of nuclear deterrence compared to the security of non-nuclear peace. Non-nuclear peace culture would redirect that fear and distrust, cultivating in its place a culture of trust and security.

The key to cultivating such a culture is to overcome the limitations of what is metaphorically called the nuclear taboo, that is, the practice not to turn to nuclear weapons in crisis and in armed conflict and not even to acquire or possess them in the first place (Daase 2003; Tannenwald 2007). I call this use of the term metaphorical because it is a far cry from the classical Pacific islands taboo which was the origin of the academic use of the word.

Taboos are a subtype of the general type of prohibitive norms (Nadelmann 1990). Taboos are exceptional for their absolute character (Steiner 1956): they cannot be contested without the contester being condemned and severely sanctioned by the whole community. They are not relative to the constellation or situation in which somebody might consider breaching them. Rather, this consideration remains buried in the deep subconscious, perhaps not rising into awareness at all. This distinguishes taboos from ordinary strong norms (even more so from ordinary weak norms), for which contestation is a condition of existence (Wiener 2008, 2018). No taboo of this absolute kind exists in the realm of nuclear weapons—to the contrary, the nuclear complexes are powerful and well-endowed social units in the nuclear weapon states. Their official and—within the framework of a nuclear deterrence system—legitimate mission is to create and maintain the means of nuclear use and undertake the necessary deliberations to make nuclear use possible in certain situations.

The International Court of Justice, in its 1996 Advisory Opinion on the legality of the use of nuclear weapons has marked the difference between a taboo and a strong norm in unambiguous terms: nuclear use is illegal and illegitimate in all situations but those where state survival is at stake. This makes the so-called ‘nuclear taboo’ a very strong norm but still relative to certain conditions, i.e. not absolute. As a consequence, it is still possible in non-nuclear weapon states that have renounced the nuclear weapons through being a party to the NPT for politicians at the fringes (Germany) or even in the centre (Japan, Brazil) to

publicly consider their country going nuclear without suffering complete ostracism. They may not be taken seriously, but neither do they get contradicted, reprimanded, nor even removed from their positions for doing so. This mild treatment of taboo-breakers does not correspond to the deep seriousness of absolute prohibition.

The key change of ideational institutions will be thus to transform the nuclear taboo from a metaphor to a genuine description of the situation, from a very strong but still relative and contestable norm to an absolute and uncontestable prohibition that has been internalized by everybody, and where breaches of the taboo, unthinkable as they are, are punished with utmost seriousness, domestically as well as internationally.

4.2 Eliminating Deterrence Thinking

A world in non-nuclear peace is still one of nation states, even though transnational and supranational structures must be broader in scope and more in-depth than at present. Security is granted by a combination of cooperative policies, national defence based on conventional capabilities, and collective security. The illusion of absolute security by nuclear deterrence must be completely replaced through the convinced reliance on these three combined security tools.

The much heralded concept of 'virtual deterrence' (Mazarr 1995; Schell 1998) is thus totally incompatible with non-nuclear peace. In 'virtual deterrence', nuclear weapons are de-tabooized by the established legitimacy of maintaining reconstitution capability. This means little else than the indefinite survival of nuclear complexes with the mission to prepare for mass murder—only that the physical means to realize this lofty goal are not completed but need completion the moment they are ordered to be used. Ideationally, there is no single difference between today's thinking on nuclear deterrence and the virtual version. Minds are still poisoned by the notion of legitimate possession and use, again contingent on the emergence of certain conditions. The mere existence of this complex, ready at any moment to jump back in the full-scale nuclear deterrence mode, is an obvious contradiction to an anti-nuclear weapons taboo. Even if non-nuclearism moves towards greater strength, it will not be able to resist the pressures of the imagined situations of 'nuclear need' to turn around the mind of leaders, not to mention those of daily practitioners in the nuclear complexes.

The first step towards establishing a taboo is the determined continuation of the humanitarian campaign to expose the inhumane essence of nuclear war and, consequently, nuclear weapons (Kmentt 2015). The attempt to devalue these weapons by contesting their unique character and trivializing them (Wilson 2008) is fallacious. This approach plays into the hands of those deterrence pundits who emphasize the possibility of the 'conventional use' of these weapons (Tertrais 2011), thus refuting the proposition of their inhumane uniqueness. This 'normalizing' approach is obviously counterproductive for stabilizing the ideational framework for non-nuclear peace.

Religion and Law as Forces of the Taboo

Religious leaders can have tremendous influence in making nuclear weapons unacceptable. Human life is sacred insofar as it is a gift of God and the divine creation, and fundamental threats to it are a common concern in all religions (Hashmi and Lee 2004). Leading clerics and their institutions have spoken out against nuclear war and nuclear armament. This position should be emphasized and repeated time and again: religion continues to have a strong influence among the faithful and thus has an impact on political public opinion.

A taboo also needs legal underpinnings. All states would have to be obliged to prohibit nuclear weapons constitutionally and make all actions for acquiring them, assisting in their acquisition or promoting them a punishable crime (the Ban Treaty can be used as template, but the scope of prohibitions must be extended to include research and the transfer of knowledge, technology, equipment and materials for making nuclear weapons). The prohibition on 'promotion' is, of course, a constraint of free speech. As many democracies prohibit hate speech, this constraint should also be tolerable. The UN should establish a register of these laws, once enacted; their implementation should be regularly reported upon. The UN or a special international body should review these reports and alert the international community when governments do not comply with their related obligations. Whistleblowers reporting on illegal nuclear activities should be protected by a universal convention prohibiting any state from prosecuting them and obliging all parties to grant them asylum if prosecuted contrary to this agreement.

A direct and logical line can be traced from the banning of nuclear weapons through international law to the prohibition of related domestic activities. From the perspective of the taboo, the punishment of

participants in prohibited domestic activities by national courts is a derivate from the same legal principles that guide the punishment through collective security action of a state whose government has tried a breakout. This means, of course, that non-nuclear peace is not a completely benign and benevolent state of affairs—at least not for those with ambitions of possessing nuclear weapons.

Non-proliferation and Disarmament Education for a Nuclear Weapons Taboo

Since UNGA Res. 55/33 E (2000), education and training to foster disarmament and non-proliferation thinking activity has become a regular part of global disarmament policy. Of course, this field has an essential role to play in creating and maintaining the ideational institutions of non-nuclear peace.

Aversion against nuclear weapons in its rational and its emotional dimensions will be an important objective of training from kindergarten through high school. For the survival of all mankind, children of all ages must learn about the danger embedded in the immense destructive power of nuclear weapons. The Hiroshima experience, well documented with shattering and impressive pictures and movies, will continue to serve as a central template for what nuclear weapons can do. Pupils should also be made to understand the temptation emanating from the weapons' extreme power. The perversions of nuclear war-fighting strategies should be brought out in full. Animated movies for educational purposes may be made available in all major languages. Children should also develop empathy for those who have been working hard to put an end to the nuclear menace, to halt the nuclear arms race and move the engine of international politics towards nuclear disarmament. The heroes of disarmament must be made known to young people through vivid narrations of their motivations, labours and achievements.

This path of knowledge acquisition will be continued in university, notably in those disciplines involved in the strategies and technologies concerning nuclear weaponry such as nuclear physicists, chemists and engineers, political science/international relations and history, including military history. Students of sciences that could become involved in other weapons of mass destruction, such as biological and chemical weapons, which could serve as justifications for maintaining or acquiring new military nuclear capabilities, should equally be instructed in the ethics of renunciation of all weapons of mass destruction. When they take

their exam—at the latest—they should embrace a solemn pledge never to abuse their acquired professional knowledge for researching, developing, producing and using these forbidden weapons. This type of education will not only help to minimize the number of those tempted to engage in prohibited activities, but also bolster the likelihood that there will be a sufficient number of whistleblowers.

Military education must take an anti-nuclear approach as well: young soldiers and officers must learn the duty to defend their country with conventional means. Every military academy should lay heavy emphasis on humanitarian law and how it necessitates the renunciation of nuclear weapons because of their fundamental incompatibility with the principles of international law. The fallacies of nuclear strategy and tactics in the pre-non-nuclear peace era should be exposed in detail (the book by Stansfield Turner [1999] will deliver first rate texts for this purpose).

5 Conclusion

Working back from the duality of physical and ideational institutions into the process of disarmament, some insights emerge. For the physical institutions, the utility of a FMCT emerges immediately: the transparency and verification intrusiveness that a FMCT can create for the nuclear complexes in the nuclear weapon states would create a pillar on which a non-nuclear world would be founded (Schaper 2010). This also demonstrates, however, that the attempts of nuclear weapon states to limit FMCT verification to a meaningless minimum are unacceptable, as they would deprive such a treaty of its disarmament value. The essential role of moving de-alerting to a point where reconstitution of ready forces becomes a protracted process is likewise obvious: it is a necessary step towards debunking deterrence mindsets, though it should not stop at 'virtual arsenals', but rather progress further to 'real zero', as argued above. The French achievement of dismantling its test grounds and its fissile materials production facilities appears highly commendable and clearly at odds with the otherwise not overly helpful French disarmament policies of recent years. At any rate, it is a policy which the other nuclear weapon states should emulate.

The perpetual improvement of nuclear verification on both the military and the civilian sides remains a pivotal task of the international community, including the serious thinking about how the two verification tasks can be interlinked without compromising non-proliferation

by transferring weapons knowledge from the former to the latter. These improvements are part of a verification, compliance and enforcement system that will constitute the backbone of non-nuclear security (Hinderstein 2010). From this vantage point, the refusal of the Ban Treaty negotiators to improve nuclear verification beyond the narrow limits of comprehensive safeguards looks as regressive as the continued reluctance of the nuclear weapon states to report on their nuclear weapons, arms control and disarmament activities in a systematically comparable and transparent manner.

It should also be obvious that the argument of supporters of nuclear deterrence that the 'conditions' must be conducive to disarmament is not mistaken. At the same time, the argument turns immediately against these speakers as it is largely their own responsibility that the said conditions are not available. Hard work to improve the relationships among the great powers—politically, militarily and institutionally—is needed immediately and should accompany the disarmament process into the future of non-nuclear peace. The P5 should be obliged to report on these efforts to NPT Prepcoms and RevCons exactly like on nuclear disarmament activities.

On the ideational side, the importance of the humanitarian campaign cannot be overemphasized. It should continue, bearing in mind the responsibility not to take the easy route in focusing efforts on the democratic nuclear weapon states and their allies alone, where the constitutional right of free speech makes it low-risk and facile to pronounce anti-nuclear weapon arguments. All supporters of the Humanitarian Initiative have the obligation to do their very best to popularize their arguments in states like Russia, China, Pakistan, or even North Korea.

The humanitarian argument should be strongly advanced in the curricula of non-proliferation and disarmament education. In fact, it is hard to make a good non-proliferation argument for educational purposes without emphasizing the inhumane character of these weapons, and it is impossible to make a convincing non-proliferation argument on this basis without at the same time pointing to the inescapable need for complete nuclear disarmament.

The institutional propositions presented in this article are, of course, illustrative and not exhaustive. The world of non-nuclear peace is complex and its scope exceeds the limits of this chapter, but the author hopes that both the difficulty and the opportunity to go from here to there have at least been illuminated.

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CHAPTER 9

Can the Danger of Nuclear War Be Eliminated by Disarmament?

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Can the danger of nuclear war be eliminated by disarmament? The short answer to this question is 'yes': if all states and other actors disarm themselves of nuclear weapons completely and irretrievably, then a nuclear war cannot occur. The more interesting and important question is: is it possible that all states and all other actors will be able to disarm themselves completely and irretrievably? My answer to this question is 'no', and the core reason for this is precisely the same one that animates our interest in pursuing nuclear peace—the uniquely destructive nature of nuclear weapons. Because total and irreversible nuclear disarmament is, in my judgment, impossible, the sources of a permanent nuclear peace will have to be found in radical political change at the global level rather than the abolition of the bomb itself.

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_9

1 Why Total Nuclear Disarmament Is Impossible

Even the most idealistic advocates of nuclear abolition recognize that it is a formidable task. This can be seen most recently and evidently in the United Nations initiative to legally ban nuclear weapons, and the associated humanitarian rejection of nuclear possession, both of which have been undertaken not because anyone actually believes that a legal ban will quickly impel all nuclear states to disarm, but because it will serve to ostracize them. Advocates of the ban seek to shift political discourse so that disarmament becomes more thinkable and the possession of nuclear weapons more abhorrent over the long term, by establishing a moral environment in which the deployment of weaponry which can exterminate millions and possibly the human race is seen as unacceptable and outrageous. This move stipulates, correctly in my view, that a change in moral discourse can unleash important political change, while at the same time acknowledging that the proximate purpose of the ban is not to ban weapons at all but to alter our language and ethical conceptions.

The idea that a legal ban would lead by itself to genuine and complete disarmament without correspondent political change is not a serious one and I am unaware of anyone who thinks that could happen. In other words, I do not believe that anyone thinks that every existing nuclear state would disarm itself *only* because the United Nations had outlawed the bomb. Rather, the goal is a longer-term process, whereby over time, nuclear weapons become increasingly stigmatized and obsolete: in this view, nations will gradually divest themselves of the bomb as the continuing possession of them becomes antiquated, morally primitive, and finally, absurd (Ritchie 2013; Sauer and Reveraert 2018). The bombs will rust in their silos, as nations come to see how backward and obscene it is to hold onto them.

This vision of gradual disarmament, I contend, is based upon two necessary arguments. The first is one of *moral* obsolescence: that the deployment of nuclear weapons will, like the slave trade, evolve from a practice seen as acceptable and justifiable into one seen as barbaric. This Kantian position, expressed most notably by John Mueller, represents a larger political view of human moral development that goes well beyond the nuclear question (Mueller 1989).[1] The second is one of *practical* obsolescence: that the bomb will fall into disuse, and perhaps become 'uninvented', because nations and leaders will come to realize that it serves no useful function, and so allow the weapons themselves, and the

military and scientific facilities dedicated to maintaining them, to deteriorate. This argument is much more specific to the nuclear question per se and addresses historical and strategic debates about the utility of nuclear weaponry (Feiveson et al. 2014).

Though some disarmament advocates stress the former argument and others the latter, they are inextricably connected. The moral argument becomes far more powerful if it can be shown that nuclear weapons provide no practical goods; if they do serve some useful purpose then a moral claim can be made that it is better to keep them, as Kenneth Waltz, for example, has argued.[2] Conversely, the practical argument logically depends upon the presumption that nuclear weapons are not just devoid of utility but also *should* rust away. Otherwise, why worry about whether some of them remain? Abstract moral imperatives are tied to practical contingency, as they always are in politics.

Therefore, the possibility of eventual disarmament hinges upon one fundamental question: will the future leaders and citizenries of all nuclear states, and other actors who may desire nuclear acquisition, accept the argument that nuclear weapons are *both* immoral to possess and practically useless?

Many leaders, scholars, and populations at large do not currently accept this. For them, nuclear weapons provide a public good which is both morally defensible and clearly useful: deterrence. Whilst there is a fringe of political and strategic thinking in some countries (most notably, the US) which sees other and more aggressive benefits coming from nuclear weapons (Kroenig 2018), there is a widespread political consensus in the existing nuclear states (and some of their allies) that a secure nuclear arsenal dissuades other nuclear states from attacking them and their close allies, a condition that provides them with an easy security, makes for a general peace among the nuclear powers, and permits some of them to avoid spending massive sums on conventional forces (Martin 2013). The historical record supports this belief. During the Cold War, the two superpowers never came to blows despite numerous crises, their antithetical ideologies, and the violent history of great-power conflict in the first half of the twentieth century, a fact that most historians attribute to the fear of nuclear war over everything else.[3] Stalin merely reflected a widespread view at the end of the Second World War when he said that the major powers will recover for a few years, and then 'we'll have another go'. He was wrong, and the reason he was wrong is that later Cold War leaders like Eisenhower, Kennedy, and Khrushchev recognized

that a nuclear war would be a catastrophe and found ways to avoid 'having another go'. Since the end of the Cold War, 'medium' nuclear powers like China have chosen to rely upon a modest nuclear arsenal for their security rather than wielding expensive and modern conventional forces, while small ones like North Korea are able to protect themselves from attack by infinitely larger enemies, namely the US, simply by possessing a few nuclear weapons. At the same time, states which have given up nuclear projects, like Libya, Iraq, and the Ukraine, have been attacked by nuclear powers, a fate that may also await Iran.

The basic reality of nuclear deterrence—it has made even the most powerful states too afraid of nuclear retaliation to launch a major war[4] against other nuclear powers—is as close to a material fact as exists in the world of international politics, and the cause of anti-nuclear advocacy is not served by denying it.[5] Not only do such claims fly in the face of mountains of historical evidence and simple logic; it also contradicts the moral reasoning of the anti-nuclear cause. This cause is justly driven by the unique dangers of a nuclear war: namely the slaughter of millions or hundreds of millions at the touch of a button, its catastrophic environmental effects, and the possible extermination of the human race. But it is precisely these consequences which have dissuaded states from running the risk of nuclear conflict, even in showdowns, too numerous to mention, in which they would otherwise have almost certainly gone to war. One cannot reasonably insist that the revolutionary dangers of nuclear war demand radical action but at the same time deny that these dangers have an important effect on political practice. It may make us feel superior to believe that 'we' care about preventing nuclear apocalypse whilst political leaders ignorantly court it, but the historical record reveals otherwise.[6]

But if it is only deterrence that is at play, then why is disarmament impossible? If nuclear states are only interested in providing for their security and avoiding a nuclear exchange, then why would they not be able to agree to disarm together, thus eliminating the possibility of nuclear war? This might make the world 'safe' for conventional war, as Waltz has pointed out, but it would eliminate the unique risks of nuclear conflict. States have agreed to ban weaponry before, such as poison gas; moreover, a few states, including South Africa and the Ukraine, have voluntarily given up their nuclear weapons, showing that they were willing to forego the benefits of deterrence. Is not the deterrence utility argument, even if one accepts it, insufficient to rule out total disarmament?

The problem here lies in the revolutionary nature of the weapons themselves. Unlike poison gas or land mines, only a few thermonuclear missiles can wreak apocalyptic damage upon any state, and effectively destroy small ones. Unlike armoured divisions or battle fleets, moreover, these missiles are small and easy to hide, and can be delivered to any target on the globe in minutes. On top of all of this, states with advanced scientific and technological capabilities and access to the right materials can assemble, or reassemble, such missiles quickly.

All of this means that, in our current condition of interstate anarchy, a political process of disarmament will, at some point, reach an impasse. I believe that it is possible that some nuclear states could decide to disarm over the long-term future, particularly if the international order becomes calmer than it is now. But it is impossible, under anarchy, that *all* states will disarm. When the list of states gets down to three, or two, a new problem emerges.[7] Without the ability to be sure that another state has totally disarmed, *and* to prevent it from re-arming, one of these last nuclear powers will face the possibility that, if it disarms completely and irretrievably, it will leave itself, and the rest of the world, at the mercy of another which has not actually disarmed—or another state which had previously disarmed but possesses the means to rearm. A state which possesses a monopoly over modern thermonuclear weaponry, with every other state both disarmed and incapable of rearming, would be in a position to dominate the world. It might not actively seek such domination, but in any conflict with a rival all sides would know that in the event of war, one side could be struck by megatonne nuclear bombs and the other could not. The United States did not actively seek world domination during its four-year atomic monopoly after World War Two, but the Soviet Union was forced to back down repeatedly in the early Cold War, and this was when the US only possessed fission bombs which were delivered on aeroplanes. It is not difficult to imagine how the Cold War would have proceeded had the USSR never acquired a bomb, which was why so many spies worked to transfer secrets to Moscow during World War Two, and why Stalin subordinated everything to his atomic project afterwards (Craig and Radchenko 2008).

In the late stages of a disarmament process, therefore, the remaining nuclear powers, no matter how idealistic or committed to nuclear peace they may claim to be, will not accept this possibility. At best, they will maintain a secret arsenal, and the capabilities to rebuild a larger one. More likely, because everyone will recognize this problem in advance,

I do not believe that, if the number gets down to two or three, the remaining nuclear powers will even bother to take steps toward total disarmament. Cheating is far too easy and the stakes of misplaced trust are far too devastating to even pretend that it is possible.[8]

Indeed: in this hypothetical endgame, with only a few nuclear states remaining, what would Western disarmament advocates, even the most radical ones, actually support? Let us say that the two last nuclear states are the US under President Bernie Sanders and an autocratic Russia led by a neo-Stalinist with *revanchiste* designs in Europe. Would these advocates be comfortable with the US disarming, with no chance of rearmament, when Russia could easily cheat and emerge with a nuclear monopoly? I would ask the most determined disarmers to think about this scenario honestly and ask themselves what they would really prefer. If they are still unsure, replace Russia with Nazi Germany. It is precisely this danger which has led other activists to support the halfway measure of virtual or recessed arsenals, a proposal which has the merit of contending with the possibility of cheating but the defect of not providing a solution to the problem (Schelling 2009).

The unique dangers of nuclear conflict present us with a cruel irony. On one hand, they provide an overwhelming incentive to achieve total disarmament: it is the spectre of an omnicidal nuclear war that drives the disarmament cause. On the other hand, these *very same dangers* make total disarmament impossible, because this spectre makes deterrence so effective and so will cause states, in the endgame we have hypothesized, to refuse to place themselves at the mercy of a rival who can wreak nuclear war without fear of reprisal. Because nuclear weapons are relatively small, easy to hide, and can be built or rebuilt by many advanced states in a short period of time, there is no way, in an anarchical world, to be sure that every state on the planet has disarmed completely and irreversibly. And because only a few of them can effectively destroy any country, there is no way, given present and foreseeable technologies,[9] for any disarmed state to defend itself from or deter an attack by a nation that has surreptitiously kept them. These two material realities will halt a process of disarmament before it gets to zero. The ban treaty and other moves to stigmatize nuclear weapons may succeed at isolating nuclear states and could tempt some of them to consider ridding themselves of their existing arsenals. But it cannot achieve an abolition of nuclear weapons by itself.

2 Why the Quest for Disarmament Actually Damages the Cause of a Durable Non-Nuclear Peace

Advocates of nuclear abolition might concede that total and irreversible disarmament is unlikely or impossible for the reasons developed above, but that the multilateral campaign on its behalf can produce real benefits. By formally designating states who possess nuclear weaponry as immoral outlaws, and raising global awareness of the ongoing dangers of nuclear war and the fact that only a handful of nations are responsible for these dangers, the campaign could succeed in shifting discourse away from the tacit acceptance of nuclear deterrence and force those states who persist in keeping their weapons to pay real political and economic costs.

These are important objectives and I support them. However, their achievement does not outweigh two important costs that an attempt to achieve nuclear peace solely by means of disarmament would incur.

2.1 The Non-proliferation Game

A central strategy of the ban initiative and larger abolitionist projects is to focus on the Nuclear Non-proliferation Treaty (NPT) and the massive institutional regime it has spawned over the past five decades (Meyer and Sauer 2018). As disarmament advocates stress, the major nuclear powers have used this institution, which Jan Ruzicka and I have called the 'non-proliferation complex', to deny smaller states the bomb whilst persistently ignoring Article VI of the treaty, which calls upon existing nuclear states to disarm. They argue that a major component of the attempt to stigmatize the nuclear powers must be to zero in on this hypocrisy, and indeed to make future support for the NPT conditional upon tangible disarmament measures undertaken by the nuclear 'haves'. This move would put serious political pressure on the existing nuclear powers, who have an interest in keeping weaker states disarmed for purposes of coercion (as the example of North Korea reveals), though disarmament advocates are reluctant to acknowledge this particular objective, as it is based upon the implicit assumption that deterrence works (Ruzicka 2018).

The problem with relying upon the non-proliferation regime and the deployment of Article VI to advance the cause of disarmament lies in the very nature of the contemporary politics of non-proliferation. What has happened over the past few decades, and in particular since the end of the Cold War, is that the major supporters of the regime—the nuclear

states of the West, and mainstream non-proliferation institutions associated with and funded by them—have used the ideal of nuclear abolition as a carrot to obtain the support of anti-nuclear activists and states for their real objective, which is to use the institution to deny smaller states the bomb. Perhaps the most vivid example of this process at work was President Obama's famous 2009 speech in Prague calling for a world free of nuclear weapons, for which he almost immediately received the Nobel Peace Prize. This move tied the cause of nuclear abolition to a state which possesses the world's most advanced nuclear arsenal; what is more, not long after this speech Obama approved of a multi-billion dollar upgrade of the US nuclear arsenal. It was very interesting to see that this latter decision attracted the attention or criticism of very few non-proliferation institutions or experts (Craig and Ruzicka 2013).

Because a world free of nuclear weapons is a noble goal that is easy for idealists to support but obviously difficult to achieve, the 'nonproliferation complex' has been able to use it as a means of deflecting criticism of the nuclear states and especially their 50-year defiance of Article VI (Ritchie 2019). Abolition is employed as the dream that everyone supports and seeks one day to achieve, whilst recognizing that it is too difficult to happen right away. This allows the nuclear states to continue on with business as usual, dangling a carrot of disarmament in front of anti-nuclear forces which can never quite be grasped (Kmentt 2013). An anti-nuclear discourse that focuses exclusively upon disarmament, in other words, benefits the nuclear haves, because it costs them nothing to voice support for the goal in abstract terms, as did President Obama, in order to retain support for a regime that locks in the existing nuclear order.

2.2 The Marginalization of a More Effective Solution

A second, related problem with focusing exclusively upon disarmament is that it runs the risk of privileging an idealist solution that demands little sacrifice from its supporters (in the liberal West) in favour of a more hard-headed solution that would demand radical and convulsive political change. As authors like E. H. Carr have argued, idealistic policies that attract the attention and support of liberal polities to a solution that will not work can often do more harm than doing nothing, as they crowd out more difficult and controversial proposals that promise a more enduring solution to the problem (Carr 1946).

The disarmament project, as it currently stands, is a classic example of liberal idealism. By this I mean that it focuses upon the power of ideals to solve the problem of nuclear war rather than advocating radical change, and that it therefore does not call for measures that could threaten the extant liberal international order. Its identification of the *bomb* as the problem that must be gotten rid of, rather than the political condition in which bombs can be used, makes it relatively easy for liberal idealists to support the project: for who, apart from a few extreme academics and military officials, can really be *for* the bomb? Being against the existence of nuclear weapons is essentially a moral, not a political position, like being against torture or climate change—it does not necessarily demand the adoption of a radical political stand, if by that we mean, in the international sphere, a fundamental challenge to existing modes of power. It is possible, and indeed often specifically argued, to imagine a world without nuclear weapons which otherwise resembles our existing world: everything is the same except that a class of genocidal weaponry is gone.[10]

I have already noted that this ideal plays into the hands of the 'non-proliferation complex', which uses the dream of global zero to help perpetuate a regime that actually locks in a permanent nuclear order. The other problem, however, is that it communicates to the liberal Western elite that the spectre of nuclear war can be ended without any danger to its own position or risk of political convulsion. The humanitarian and ban initiatives threaten no one apart from the states that possess nuclear weapons, and this threat comprises only the demand that they divest themselves of their arsenals, not that they must undergo political or economic change.

If abolition can work—if complete and irreversible disarmament can occur, and in the reasonably near future, not 200 years from now—then it is a perfect solution to the problem of nuclear war, because we rid ourselves of the nuclear spectre without having to face the prospect of radical and dangerous political transformation. If it cannot work, however, then there is a real risk that disarmament may nevertheless remain as the dominant solution to the nuclear problem precisely *because* it does not pose any serious threats to the liberal nuclear states that purportedly support it.

There are a number of liberal international projects—on non-proliferation, climate change, economic development and aid in the third world, to name a few—which have become institutionalized over the past

several decades: rather than taking the serious political steps necessary to solve the problems in a straightforward manner, a series of well-funded international institutions emerge which purport to deal with them as long as they do not threaten the interests of the liberal states that support and fund these projects. Vast institutional regimes are the result, whose many thousands of well-paid officials in the West have an interest in not antagonizing the states that provide the money, and indeed in not really solving the problem they are working on, which would mean working themselves out of a job.[11]

In my view, the new disarmament initiatives run this risk. Because the idea of abolition does not threaten the powerful states as long as it never actually happens, disarmament could become institutionalized just like these other projects—it would become the only mainstream solution to the nuclear problem, gamed indefinitely by the world's most powerful states and the institutions that work for them. That would be a mortal blow to the cause of nuclear peace.

Thus the abolitionist cause hinges on the question of whether it can work. **Can the total and irretrievable disarmament of all present (and putative) nuclear states and all other potential actors happen in the foreseeable future, and without transformative political change that would threaten the interests of the world's most powerful nations?** If the answer to this question is 'no', then an exclusive focus upon disarmament harms the anti-nuclear cause, by rallying support for a project that cannot work and/or sidelining more radical proposals that powerful states would actively oppose but could really solve the nuclear problem. For the institutional reasons just outlined, the response that disarmament might not work at the moment but could change discourse sometime in the future is not good enough. Its advocates have to demonstrate now that it can achieve the goals it demands, which means persuasively refuting the arguments I (and many others) have put forward above.

3 The World State Alternative

In this chapter I have argued that both the greatest reason for, and the greatest obstacle to, nuclear disarmament lies in the unique capabilities of the weapons themselves. Abolition is necessary because these weapons can exterminate humanity and perhaps all life on the planet; it is impossible, in our existing international order, because these weapons are easy to

hide and strategically decisive. Because there is no international authority capable of assuring the entire world that every state has disarmed and cannot rearm, a process of disarmament will not proceed to zero. States will not accept a situation where only one of them might possess a secret arsenal and might ultimately benefit from this deception by dominating the world. As everyone will be acutely aware of that possibility, I believe that in our anarchical world this process would stall well before zero—we will never get even close.

The solution to our nuclear dilemma, then, cannot be found by concerning ourselves with the weapons themselves. The problem is not their existence per se but the fact that there is no authority capable of preventing states from maintaining or rebuilding their arsenals. In other words, the problem is anarchy.

As Albert Einstein, Hans Morgenthau, and more recently Alexander Wendt and myself have argued, the only means of solving the nuclear problem effectively and permanently is to create such an authority—a regime with the requisite power to verify that all states have completely and irreversibly disarmed, and, crucially, to prevent them from re-arming. As advocates of nuclear order in the days immediately following Hiroshima and Nagasaki quickly discovered, such an authority must possess the power to control the arms of every state in the world, even the most powerful ones, which means that—in classic Weberian terms—the authority must be a world government. Anything less would not do, because as long as one state is beyond the reach of this authority, at least some other states will refuse to disarm.[12]

The creation of an authentic world government with this kind of power is itself, of course, an obviously utopian goal. It would require a radical and convulsive transformation of our international order and perhaps invite, as Waltz has put it, a ‘global civil war’. It also, unlike the abolition project, raises the possibility of a tyrannical world state from which there could be no terrestrial escape. I and the few other advocates of a world government are well aware of these objections.

The question is not whether a world government raises these grave problems, because it does. Rather, the question is whether anything else could put an end to the possibility of an omnicidal nuclear war. If, as I have argued here and at length in many other writings, every other solution to the problem cannot work, then those who regard the permanent prevention of a nuclear war as the most important political task of our, or any, age must either accept that such a government is necessary

or come up with a new alternative. Many have attempted the latter; no one has yet succeeded.

A world government, if carefully constructed, would not only put an end to the nuclear dilemma; it could also deal with other global problems, such as climate change and acute economic inequality, which are also impossible to solve in our anarchical order. But perhaps most important for the purposes of this volume, a world government provides our only hope for a lasting 'non-nuclear peace'. Such a government might retain nuclear weapons for a time, or it might not. But it would not really matter, as long as it possessed the ability to prevent 'sub-states' from ever getting their hands on them, because such a government would not need nuclear weapons for the purposes of domestic law and order, just as a modern nation-state such as Great Britain does not need tanks and battleships to keep the peace at home. Nuclear disarmament in an anarchical world, even if it worked, which it cannot, would nevertheless leave open the possibility of conventional war among disarmed states. Under an effective world government, there might be violence and discord. But, by definition, there could not be war.

Notes

1. For a more extensive version of this argument, see Pinker (2011).
2. Originally in Waltz (1981); see also Craig (2003).
3. On this consensus among historians who disagree about almost everything else, see Craig and Logevall (2009), Gaddis (2006), Westad (2017).
4. Defined as a comprehensive war seeking the territorial conquest of a nation-state or, at least, the overthrow of its regime. Such wars have been all too common throughout history, of course, and still are routinely waged against non-nuclear states. A major war has never, not once, been launched against a state in possession of a nuclear arsenal.
5. For an example of this ahistoricism, see Mueller (2009), chapter four. Mueller allows that nuclear fear did play a role in avoiding war during the Cuban Missile Crisis, which rather gives the game away.
6. During the Cold War crisis period of 1958–1962, for example, the American presidents Eisenhower and Kennedy and the Soviet premier Khrushchev all became obsessed about averting a nuclear war. Indeed, the fact that they could be held responsible for a war that ended humankind made them *more* concerned about avoiding it than strategists and military officials whose fingers were not on the button.
7. On this point, see Waltz in Sagan and Waltz (2010).

8. See Waltz in Sagan and Waltz (2010).
9. The development of a revolutionary means of nuclear defence could solve this second problem: the advent of a perfect 'Star Wars' system could make retaliation useless and put an end to the deterrence logic discussed here, thus undermining my argument and now allowing any state deploying such a system to consider disarmament, as Reagan suggested in the 1980s. I am sceptical as to whether such a system could ever be built, particularly as even a minor lapse could mean the nuclear destruction of several cities, and also because it could probably be overcome by the much cheaper process of building more weapons. What is more, the kind of state that could build and deploy a 'perfect' nuclear defence system might not be the kind of state that would irreversibly disarm—as Gorbachev suggested in the 1980s.
10. See the original humanitarian initiative, which makes no mention of political change whatsoever: http://www.bmeia.gv.at/fileadmin/user_upload/Zentrale/Aussenpolitik/Abruestung/HINW14/HINW14vienna_Pledge_Document.pdf.
11. For a study of how this works with nonproliferation, see Craig and Ruzicka (forthcoming).
12. I make this case at greater length in Craig (2018).

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CHAPTER 10

Conclusion: Towards Non-Nuclear Peace

Tom Sauer, Jorg Kustermans and Barbara Segaert

Under the notion of 'non-nuclear peace', we editors understand 'a concept of peace that takes issue with the logic of nuclear deterrence and that envisions a peace order attuned to the exigencies of a post-nuclear world' (see intro). At first sight, the current world order does not even come close to that notion. Worse, nuclear weapons are back. While the Cold War was overshadowed by the nuclear revolution and the corresponding fear of the mushroom cloud, attention to the issue faded after the fall of the Berlin Wall. 'The end of history'—so it was argued (Fukuyama 1992)—did not correspond to nuclear Armageddon, but to the salient combination of democracy and capitalism.

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T. Sauer et al. (eds.), *Non-Nuclear Peace*,
Rethinking Peace and Conflict Studies,
https://doi.org/10.1007/978-3-030-26688-2_10

We now know better. The liberal world order is shaking. According to doomsayers, two new Cold Wars are arising on the horizon: a resurrection of the old one between Russia and the West, and a new one between the US and China. In this context, the mostly forgotten atomic bombs acquire new—or rather, 'old'—meaning. As the relationship between the US and Russia deteriorated since the mid-1990s and certainly since the beginning of the 2000s, arms control stalled (also elaborated upon by Patricia Lewis in her chapter): the Anti-Ballistic Missile (ABM) treaty was unilaterally abandoned by the Bush administration, the Strategic Arms Reduction Treaty (START) II never entered into force, and the Conventional Forces in Europe (CFE) Treaty was suspended by Russia. The Trump administration withdrew from the Intermediate Range Nuclear Forces (INF) treaty. The odds are that New START will not be extended, which means that from 2021 onwards there will be no strategic arms control treaty in force between both former superpowers, a situation that can only be compared with the situation before the late 1960s. That means that there will be no mutual verifications going on, which may be a recipe for unlimited nuclear build-up and an unrestrained quantitative and a new qualitative arms race, comparable to the first decades of the Cold War.

Multilateral arms control is in shatters as well. The UN Conference on Disarmament that was still able to conclude the Chemical Weapons Convention in the beginning of the 1990s has not even been able to agree on an agenda since then. The prospect that the Comprehensive Test Ban Treaty (CTBT) will enter into force any time soon is slim. Worst of all, the Nuclear Non-Proliferation Treaty (NPT)—the cornerstone of the nuclear non-proliferation and disarmament regime—is arguably on the brink of collapse (Meyer 2017; for a different view, see Horovitz 2015). The NPT Review Conference failed in 2015, and the odds are that the next one in 2020 will fail again: the first time ever that two conferences in a row fail.

At the same time, North Korea joined the nuclear club. The Middle East is moving more in the direction of a Weapons of Mass Destruction (WMD) zone than in the direction of a WMD-free zone. President Trump withdrew from the Joint Comprehensive Plan of Action (JCPOA), better known as the Iran deal. If Iran follows the US, a nuclear arms race between Iran and Saudi Arabia will be the likely outcome.

The overall result is that most arms control and non-proliferation experts believe that the future is grim. In her chapter Nina Tannenwald writes: 'For the first time since the tensest days of the Cold War, the prospect that an American president might actually contemplate using nuclear weapons against an adversary has become thinkable'.

As if they are living in two separate worlds, nuclear pacifists have a different take. For them, the reference point is the Treaty on the Prohibition of Nuclear Weapons. NGOs like the International Campaign to Abolish Nuclear Weapons (ICAN) not only expect a rather quick entry into force (which even sceptics, such as Michal Onderco in this volume, agree with), they also believe that the entry into force of the Treaty will have a positive effect on the prospect for nuclear disarmament.

In contrast, the non-proliferation—let alone arms control—expert community is very skeptical towards the Ban Treaty potential. They regard the Treaty as polarizing and as a threat to the NPT, as both Tannenwald and Onderco describe in their chapters in this volume. Sylvest calls these skeptics the managers who have contributed to—what he calls—'the normalization of the nuclear condition'.

Both expert communities—although living on the same planet—live in separate worlds (Dyson 1983). The aim of this book is to start closing the gap between both expert communities and corresponding narratives, and—as we stated in the introduction—'to leave the trenches and to set another constructive step forward in the thinking on how to reach and sustain a peaceful order *without* nuclear weapons'. We would like to call this reconciliation exercise the third (and hopefully last) nuclear debate.

1 Three Nuclear Debates

The history of the nuclear era—maybe it is good to remind ourselves that it is only 75 years old—can be chronologically divided into three debates: the first was the classic debate about the costs and benefits of nuclear weapons and nuclear deterrence, and the desirability of a nuclear weapons-free world. That discussion is still ongoing. The second debate, which got traction after the failed 2005 NPT Review Conference and the resulting Humanitarian Initiative (especially since 2012), is about the costs and benefits of a Nuclear Weapons Ban Treaty. This debate is also still raging. The newest debate has only started at the margins: it

revolves around the question which political and institutional conditions are needed to make a world without nuclear weapons feasible.

The first debate is well known. This is not the place to try to summarize the enormous amount of literature, in which the Waltz-Sagan debate is usually the academic reference point. Waltz argues that nuclear deterrence is stable, that the destructive power of nuclear weapons deters states from starting wars, and is therefore making the world more stable, secure and peaceful (Waltz 1995). Realists—like Craig in this volume—do not trust the nuclear armed states to eliminate all their nuclear weapons even if they promise to do so. As he warns: 'Cheating is far too easy and the stakes of misplaced trust are far too devastating to even pretend that [elimination] is possible'. Sagan, in contrast, points to problems for nuclear stability in new or aspiring nuclear armed states that are politically less stable. He also refers to the risk of technical and human mistakes, which may lead to the unauthorized use of nuclear weapons and nuclear war (Sagan 1995).

In fact, the Waltz-Sagan debate is too narrow, especially from the side of Sagan: there is a much wider series of arguments that can be made against Waltz's narrative (Gavin 2012). For instance, the same destructive elements that are needed to make deterrence work can ricochet back if the principle of deterrence fails and the weapons are used, resulting automatically in catastrophic humanitarian consequences. The latter is elaborated upon by Patricia Lewis in her chapter. Legitimate moral questions can be asked in this regard. Maybe to the surprise of the current generation of Realists, classic Realists like Hans Morgenthau and John Herz reviewed their stance on nuclear weapons because of these ethical concerns, a very useful but rather unknown story told by Casper Sylvest's chapter.

Another major question that Sagan (and Craig in this volume) does not touch upon, but that Patricia Lewis deals with in her chapter, is the fact that the existing nuclear world order is discriminatory: with a few haves and many have nots. This structural inequality is hardly sustainable over time, especially given the legal promise—in the form of Article 6 of the NPT—to disarm. The current plans for the massive modernization of the nuclear weapons arsenals in all nuclear armed states—as dealt with in Kubiak's chapter—trigger similar negative responses by the non-nuclear weapon states. At the same time, Kubiak mentions in her chapter that 'modernization can lead to reduced overall yield of the stockpile, lower

number of weapons needed for a particular mission due to increased operational capabilities etc'.

The problem is not that most non-nuclear weapon states themselves would like to acquire nuclear weapons. What the non-nuclear weapon states care about is whether political promises in the form of international legally binding treaties (like the NPT) are being kept. It is more about principles and feelings of injustice than about materialistic power (Tannenwald 2013).

In addition, it is about the security of the non-nuclear weapon states, as the consequences of the use of nuclear weapons will not be limited to the few nuclear armed states. This brings us to **the**—more recent—**second debate** that is dealt with in the second section of this volume, namely the usefulness of the Ban Treaty. The Humanitarian Initiative that gave rise to the Treaty builds on the frustration of the have nots, as described by Tannenwald. It was able to galvanize more support than probably thought, both in civil society organizations and non-nuclear weapon states (except those allied with nuclear armed states like the NATO member states). With the help of some 'middle powers' like Norway, Austria and Switzerland and New Agenda Coalition states like Ireland and Mexico, the Humanitarian Initiative succeeded in playing the bureaucratic procedural game in such a way that the power of the number (of states) prevailed over the usual indicators of power (like GNP, defense expenditures, and the size of the nuclear arsenal). A relatively small group of motivated 'middle powers', supporting and being supported by ICAN, which itself is a grouping of 400–500 worldwide NGOs, were able to convince the majority of states in the UN General Assembly to vote a resolution in the autumn of 2016 that called for the start of multilateral negotiations in 2017 for a Nuclear Weapons Ban. The nuclear armed states and their allies did not agree, but could not halt the process. For the first time ever, the steering wheel was in the hands of the non-nuclear weapon states. Feeling that the time was ripe, 122 states—in the absence of the nuclear armed states and their allies (except for The Netherlands)—succeeded in concluding the Treaty on the Prohibition of Nuclear Weapons (better known as the Ban Treaty) on 7th of July 2017. Müller contends that 'the self-empowerment of actors lacking material power [was] quite impressive'. Tannenwald calls this 'the democratization of disarmament politics'.

With the conclusion of the Treaty, the gap between opponents and proponents of nuclear weapons became more pronounced. The nuclear

armed states and their allies reacted very defensively to the Treaty, claiming they would never sign. That has to do with the belief in nuclear deterrence, as spelled out by Campbell Craig in his chapter:

> there is a widespread political consensus in the existing nuclear states (and some of their allies) that a secure nuclear arsenal dissuades other nuclear states from attacking them and their close allies, a condition that provides them with an easy security, makes for a general peace among the nuclear powers.

Craig also points to the (contestable; cf. Patricia Lewis in this volume) historical track record of nuclear deterrence as well as to the parochial interests of the nuclear military-industrial complex. The military and scientists in the nuclear weapons-related business put pressure on politicians to continue the nuclear ball-game, regardless of whether it is in the national interest.

This extreme position taken by the nuclear-armed states incited even more anger among the non-nuclear weapon states, convincing them to go their own way. Despite the vehement opposition to the Ban Treaty, the non-nuclear weapon states and related civil society groups hope that the anti-nuclear norm will be strengthened by the Treaty and that discursive strategies and processes like ridicule and stigmatization—as mentioned by Casper Sylvest (referring to C. W. Mills) and elaborated by Rodger Payne in his chapter—may do the trick in at least some of the nuclear armed states and allies. Ridicule plays on emotions and can therefore be influential, as was for instance the case in the abolition of slavery. Tannenwald calls this the 'normative strategy of disarmament', which she defines as a strategy that 'focuses on changes in norms, attitude, ideas, principles and discourse, rather than the physical dismantling of weapons'. Both Sylvest and Payne refer for instance to Stanley Kubrick's masterpiece *Dr. Strangelove* (1964). Popular culture can help raise awareness of intricate societal problems. Also the movie *The Day After* (1983) had a substantial influence on the public debate.

Intellectuals—whether they are scientists, philosophers, sociologists, artists, former diplomats or military, and Müller adds religious leaders to that list—can play a crucial role in this discursive exercise, as we pointed out in the introduction. Intellectuals can help steer the direction of the debate by pointing out and delegitimizing false arguments being made

by either side. Current Realist intellectuals that oppose nuclear weapons—like Campbell Craig in this volume, similar to Hans Morgenthau and John Herz in the past—should speak out. Rodger Payne gives the example of US General Lee Butler, former Chief in Command of the Strategic Air Command (CINCSAC), who, upon retiring, 'openly ridiculed U.S. nuclear war-planning, which he claimed had long been replete with "maddening contradictions, alien constructs and insane risks"'. Payne also refers to the famous four horsemen: George Schultz, William Perry, Henry Kissinger and Sam Nunn who wrote a widely read op-ed in January 2007, pointing out that nuclear elimination is in the US' national interest. That kind of public framing undermines the implicit link between nuclear deterrence and Realism, as well as between nuclear deterrence and (nuclear) peace.

In addition, Realists can in principle help making a distinction between defense policies guided by national interests on the one hand and parochial interests (more in particular those of the military-industrial-complex) on the other. Just as Stephen Walt and John Mearsheimer have warned against too much influence of the Israel lobby on US foreign policy (Walt and Mearsheimer 2007), one could make similar statements with respect to the nuclear priesthood that wants to protect the budget, personnel and prestige, regardless whether it contributes to the national interest (also referred to by Sylvest in his conclusion).

Idealist intellectuals may clarify that order cannot be maintained without a minimal degree of justice (and vice versa). In order to safeguard the non-proliferation regime, the promise of nuclear elimination should be taken seriously by the nuclear-armed states. Sylvest concludes his chapter by saying that there is a need for sustained public interest in these matters, and that public intellectuals can help 'to deprive nuclear weapons of their legitimacy by demystifying and denaturalizing these machines'.

The second debate (just like the first one) has not ended. Even for the Ban Treaty advocates, the Treaty is not an endpoint in itself. In anno 2020 the world stands at the crossroads with respect to nuclear weapons; three different future scenarios can be distinguished.

2 Three Scenarios for the Future

In the first scenario, polarization and the growing divide between the haves (and their allies) and have nots continues, resulting not only in the failure of the NPT Review Conference in 2020, but also in the withdrawal by the have nots from the NPT, first a few, later on potentially *en masse*. The result is nuclear anarchy, in the literal sense of the word: the spread of nuclear weapons to more states, including possibly to non-state actors; the continuation of vertical proliferation; and the increase in probability of nuclear weapons actually being used.

In the second scenario the worsening state of affairs—described in the first scenario—will open the eyes of more and more people *within* the nuclear armed states and their allies. As a result, the language vis-à-vis the Ban Treaty will soften, and some of the nuclear-armed states may start to think about signing the Ban Treaty. Others announce the need to start multilateral negotiations for a Nuclear Weapons Convention that will sketch out the road to Zero. This change of mind would ideally predate any large-scale use of nuclear weapons. Or as Beatrice Fihn (ICAN) wondered at the Nobel Peace Prize ceremony in 2017: 'Will we get rid of nuclear weapons before they get rid of us?' (as quoted by Lewis).

The third and last scenario succeeds in bringing both camps to the table *before* the NPT unravels. Both the second and third scenario, and we assess that one of them is the most likely outcome, start from the assumption that both camps—better sooner than later—will have to talk to each other again. We would like to call these talks **the third debate**, this time between nuclear armed states and their allies who in the meantime became convinced of the desirability of moving to Zero, and the non-nuclear armed states who know that they will only be successful in reaching Zero if the nuclear armed states are also on board.

One of the major issues that needs to be discussed under the heading of the third debate is whether a world government is needed to oversee global nuclear disarmament, as set forth by, for instance, Morgenthau. One of the main advocates of that idea within this volume is Campbell Craig, who makes his case in the last chapter: 'Because there is no international authority capable of assuring the entire world that every state has disarmed and cannot rearm, a process of disarmament will not proceed to zero'…'the only means of solving the nuclear problem effectively and permanently is to create such an authority'…'the authority must be a

world government'. But at the same time, he admits that that is utopian, something which might be interpreted as undermining his own proposal.

Most observers seem to be reluctant to call for a world government, as that may further complicate the road to Zero. That said, they have to come up with detailed institutional arrangements as an alternative to a world federation, which is what Harald Müller does in his chapter. He makes a distinction between physical and ideational world institutions. The former are needed to minimize the possibility for nuclear rearmament, to discover and prevent breakout, and to manage security and prevent war. Remarkably, Müller suggests setting up a concert system (like the Concert of Europe in the nineteenth century) amongst the great powers, on top of the UN Security Council.

> It could deliberate and act in a preventive way and react, in tandem with the UN Security Council, in situations where non-nuclear peace would be endangered by serious conflict or even real cases of grave non-compliance with the norms of a nuclear weapon-free world.

Under ideational institutions he understands, for instance, reinforcing the nuclear taboo norm, creating a whistleblower status, and emphasizing the role of disarmament education. As Müller point out: 'Aversion against nuclear weapons in its rational and its emotional dimensions will be an important objective of training from kindergarten to high school'. Those who are trained in this regard will be more open to the critical discursive language that Payne is recommending.

The third debate is just starting. This volume can help to set up a framework that helps students of international politics grasp the nuances of this crucial (and hopefully) last debate about the future of nuclear weapons.

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