

## 2 Psychological and Societal Sources of Nuclear Peace

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At of this writing, more than 77 years have passed since the United States dropped atomic bombs on the Japanese cities of Hiroshima and Nagasaki. In the years since 1945, no state or other actor has carried out an attack using nuclear weapons. What accounts for this absence of nuclear war? And just as important, can this condition of what, with caveats, could be called ‘nuclear peace’ be maintained?<sup>1</sup>

Scholars have offered several explanations for the non-occurrence of nuclear war. Without rejecting any of these, in this chapter, I will argue that existing explanations are incomplete. I will propose that there are crucial psychological underpinnings of nuclear peace, which at times are promoted or reinforced by societal factors. Specifically, I will suggest that a combination of fear and hope is necessary to reduce (though not eliminate) the chances of nuclear weapon use. Further, activities in civil society have helped create the necessary psychological conditions and will continue to be needed in the years ahead.

These psychological and societal sources of nuclear peace are only becoming more important. In response to the dangers posed by nuclear weapons, the world developed international institutions and informal norms that helped provide global governance of nuclear issues. But recent trends are not good; the nuclear order is under increasing stress (Bollfrass and Herzog 2022; Knopf 2022). At a time when global governance of nuclear weapons is eroding, the contributions to avoiding nuclear war made by psychological and societal factors must carry more of the weight. This is not, however, grounds for complacency. On the contrary, it will be crucial to strengthen global governance of nuclear arms; even better would be to find a path to abolition of nuclear arms. But recent geopolitical trends are not favourable for achieving nuclear disarmament in the near term. Hence, at present, it has become necessary to shore up the psychological and societal sources of nuclear restraint as a stopgap measure to try to maintain nuclear peace while working to improve global governance arrangements and increase the momentum towards nuclear disarmament.

This chapter is organised as follows. It first reviews existing explanations for the absence of nuclear war and argues they cannot fully explain this fortuitous result. The chapter next outlines psychological factors that contribute to restraint. It emphasises the importance of leaders having a healthy level of fear of nuclear war, combined with the hope that nuclear catastrophe can be avoided. The following section notes how civil society has contributed to creating fear and hope. A concluding section relates the analysis to global governance and offers recommendations for future action.

### Existing Explanations for Nuclear Peace

Scholars have offered several possible explanations for the absence of nuclear war. The supposed deterrent effects of nuclear arsenals remain the most commonly cited factor (Waltz 1990). Others have suggested that non-use is less a function of deterrence than an absence of situations in which nuclear arms would have tactical utility in conflict (Mueller 1988). Still others argue that a strong norm, a nuclear taboo, is the primary reason for the non-occurrence of nuclear war (Tannenwald 2007). For other observers, none of these explanations is convincing, and they attribute the non-use of nuclear weapons to sheer luck (Pelopidas and Wellerstein 2020; Sherwin 2020).

I do not dismiss any of these factors; I believe each accounts for a portion of the explanation for non-use. But neither singly nor collectively can they fully explain more than 75 years of nuclear peace. This is so for two reasons. First, each explanation is imperfect; we should not expect any hypothesised cause to be 100 per cent reliable in preventing any use of nuclear weapons. Second, each explanation is incomplete. None can explain why national leaders would hold the beliefs required by the hypothesis. Why, for example, would leaders see nuclear weapons as a deterrent too powerful to ignore? Why would they decide that nuclear arms lack military utility, or that there should be a norm against first use or that incidents that raise the possibility of nuclear escalation require leaders to do everything in their power to step back from the brink? We need to explain the caution associated with each explanation. The hesitation about using nuclear weapons is all the more striking given that most states with nuclear arsenals continue to modernise and in some cases increase their forces, suggesting they do not see ongoing possession as itself a source of unacceptable risk. How then has the maintenance of nuclear arsenals so far coexisted with the absence of use? And can this state of affairs continue?

Consider each explanation for non-use in turn. There are good reasons to believe that nuclear weapons have strong deterrent effects. In normal circumstances, it is hard to imagine that any state would make aggressive moves that threaten the survival of a nuclear-armed opponent; what could the challenger gain that would outweigh the costs of possible nuclear retaliation? But there are also good reasons to doubt that any deterrent posture will prove 100 per cent effective. States can initiate lower-level challenges in the belief they can control the risk of escalation, only to find the situation begins to spiral out of control in ways that lead to possible nuclear use (George and Smoke 1974).

In addition, states will not always make the kinds of rational calculations assumed by theories of nuclear deterrence. Military organisations can follow rigid routines that leaders above them are not aware of, and these can lead to dangerous developments in a crisis that increase the risk of states launching nuclear strikes (Sagan 1993). Furthermore, the predictions made by rational actor models can be undermined by many well-documented sources of misperception (Harrington and Knopf 2019; Jervis, Lebow and Stein 1985). Given the multiple factors that can subvert expectations of rationality, we cannot count on nuclear deterrence to remain for the rest of history fully effective in preventing any use of nuclear weapons.

The argument about an absence of military utility similarly does not provide a full explanation for nuclear non-use. Although there are few circumstances in which a tactical nuclear strike can achieve a military objective that conventional arms cannot, some situations could create a temptation to consider a nuclear option. Why would a nuclear-armed state risk possibly losing a war against a non-nuclear adversary when it might change the tide of the war with a narrowly targeted nuclear strike? After its invasion of

Ukraine bogged down, Russia hinted that it would consider using tactical nuclear weapons rather than accept defeat. And there is historical precedent. The United States considered possible nuclear use in the wars in Korea and Vietnam (Tannenwald 2007). And after 9/11, when Osama bin Laden eluded U.S. efforts to capture him in Afghanistan, some strategic analysts suggested that low-yield, earth-penetrating nuclear warheads could have been used to eliminate bin Laden and his forces while they were hiding in the caves of Tora Bora (Bell 2008).

The notion that nuclear arms never have tactical utility risks becoming circular. If the weapons are not used, it must be because they were not militarily useful. But the fact that possible use has been considered and debated, and that the United States and other countries have fielded what they view as potentially usable tactical devices, shows that the issue of utility is not so clear-cut. Nina Tannenwald (2007) has demonstrated convincingly that governmental debates over possible-use scenarios end up rejecting the nuclear option because of the belief that this would violate a norm against use and lead world opinion to turn against the state that launches a nuclear strike in any scenario other than a retaliatory second strike.

But the nuclear taboo also cannot fully account for non-use. Critics have argued that the norm is not as strong as the word ‘taboo’ suggests (Paul 2009). There is also evidence that the general public does not share in the sense of nuclear use as taboo (Press, Sagan and Valentino 2013). More to the point, states do not always respect international norms. Among nuclear-armed states, the North Korean regime, which sees the United States as an existential threat, has not been shy about broadcasting threats to use nuclear weapons in response to any challenge to the survival of the Kim regime (Smith 2022). A strong norm against use would also logically imply that states exercise restraint in threatening to launch a nuclear strike. But when Russia began its invasion of Ukraine, President Vladimir Putin issued an obvious nuclear threat in an effort to deter possible Western intervention to help Ukraine. And Putin and other Russian officials subsequently repeated nuclear threats on multiple occasions (Sanger, Troianovski and Barnes 2022). Although U.S. rhetoric has not been as overt, the United States has never embraced a no-first-use policy, and nuclear postures adopted by the George W. Bush and Donald Trump administrations envisioned a range of scenarios beyond a retaliatory second strike in which the United States might use nuclear weapons. Given repeated and seemingly growing challenges to the norm against being the first side to use nuclear weapons, even Nina Tannenwald (2018) has concluded that the nuclear taboo is getting weaker. The norm, although essential, cannot be counted on to fully rule out any chance of nuclear war.

A final common explanation for the absence of nuclear war puts the emphasis on good luck. This perspective points to the many close calls the world has experienced which fortunately did not escalate to nuclear use. These include false alarms, accidents, dangerous and unexpected incidents during crises, and erratic or impaired leaders who might have tried to order nuclear attacks in a moment of madness (Lewis *et al.* 2014; Sagan 1993). Martin Sherwin (2020) recounts how the essentially random assignment of Capt. Vasily Arkhipov to a particular Soviet nuclear submarine likely prevented the Cuban missile crisis from turning into World War III when Arkhipov convinced his submarine commander not to go through with an order to launch a nuclear torpedo. This explanation has rather different implications from the first three. To argue that it has been a matter of luck that we have so far dodged nuclear Armageddon does not offer any reason for confidence that this condition could continue indefinitely. As Benoît Pelopidas (2017) has pointed out, leaders tend to draw false confidence from the past track record of luck,

as if good luck in previous close calls means that good luck should be expected again the next time nuclear dangers rise. But luck is random. The next time an accident, false alarm or unexpected incident pushes leaders closer to the nuclear brink, instead of good luck, the world could just as easily experience bad luck. The argument that the world has so far been lucky does not provide any reason to expect that nuclear peace will continue to prevail.

### **Begging the Question: The Psychological Microfoundations Underlying Existing Explanations**

The most popular explanations for nuclear peace all shed some light on how the world has avoided nuclear war, but none of the hypothesised causes is foolproof. Each allows for some possibility that nuclear weapons could be used. In addition, each explanation rests on assumptions that cannot be taken for granted. They each assume that political and military leaders will think in certain ways, but the required modes of thought are not automatic.

Why are policymakers deterred by nuclear weapons, especially if they think there are strong norms that would inhibit others from following through on nuclear threats? Why do decision-makers and military planners see so little utility in using nuclear weapons on the battlefield? Why would states embrace a norm that limits their options and can probably never be enforced? Why would accidents and false alarms induce efforts to de-escalate a crisis rather than convince a state to launch its own weapons before the other side can complete an attack that appears to have begun?

Any explanation for non-use depends on psychological underpinnings that affect how leaders think and act, and these need to be examined. All of the existing explanations assume leaders view nuclear use as a danger to be avoided, but there is no reason to assume this will necessarily be true in every case.

Again, start with deterrence. Why would nuclear threats deter states from starting mischief? The answer seems obvious: the costs a state would suffer in any nuclear retaliation its actions might provoke would certainly outweigh any prospective benefits they might hope to gain. But this only seems obvious if people think about nuclear weapons in particular ways. It requires decision-makers to believe that any nuclear attack could be enormously destructive and that once nuclear weapons start being launched, there is an unacceptable risk of further escalation. It also requires leaders who prioritise the self-preservation of their country and its people over other possible values.

It is easy to understand why actors might hold the necessary beliefs, but none are inevitable. Decision-makers must possess a certain base level of information. People are not born knowing what nuclear weapons can do. They must somehow be informed about nuclear weapon effects and how significantly these differ from conventional weapons. During the Cold War, leaders and the public alike could learn about the effects of nuclear weapons from books such as John Hersey's *Hiroshima* (1946) or Jonathan Schell's *The Fate of the Earth* (1982). But from the end of the Cold War until recently, the nuclear issue in many parts of the world had faded into the background, and it is no longer automatically the case that national leaders will be well-briefed on the consequences of nuclear weapon use. A leader who has only a vague sense that these weapons are more powerful than conventional alternatives might be tempted to order a nuclear attack on the assumption that 'bigger is better'. This risk has been compounded in recent years by the presence of authoritarian-leaning world leaders who prize a tough-guy persona.

In addition to having a basic grasp of the facts, leaders must also draw certain inferences about what those facts mean (Knopf 2012). Deterrence rests on the premise that nuclear dangers require states to act with caution. But why? Throughout the nuclear age, some government officials and strategic thinkers have rejected the idea that nuclear weapons are qualitatively different and hence inappropriate for battlefield use in war. Both the United States and Russia have invested in tactical and low-yield nuclear weapons. A single or very limited use of lower-yield nuclear weapons against targets not located close to major cities would not necessarily cause the level of death and destruction we commonly associate with nuclear war. It is not unimaginable that the leaders and top military officers in a country could view such nuclear weapons as usable instruments of war and dismiss as unwarranted the fear of nuclear war that many analysts have tended to take for granted. Officials who hold such views will not necessarily be deterred from using nuclear weapons if they believe the other side will recognise that their nuclear attack was of a limited nature.

State leaders must also hold values that give priority to national survival. Most will, but possibly not all. Leaders who face defeat in war and possible loss of political power at home might decide to go out in a blaze of glory that destroys both sides rather than suffer humiliation and removal from power. The fear that Putin might be such a leader is one reason why Western governments have taken his nuclear threats seriously.

At the opposite end from attempts to 'conventionalise' nuclear arms, the idea that nuclear weapons are uniquely powerful can make them especially attractive to certain leaders. The literature on nuclear proliferation has long recognised that some states pursue nuclear weapons in part because they believe that such weapons confer status or prestige (Sagan 1996/97). Jacques Hymans (2006) has suggested that individual leaders who both fear the outside world and have high levels of national pride are likely to fall in love with the idea of having the bomb and will pursue nuclear weapons regardless of the associated cost-benefit calculations. Where symbolism and emotions loom large, leaders might decide to proceed in the face of nuclear deterrent threats in the belief that their actions will be a source of pride or prestige for their country or a way to achieve honour.

Self-righteousness about one's own cause or negative images of 'the other' could have similar effects. This is especially the case when the other side lacks its own nuclear deterrent, and decisions not to conduct a nuclear strike depend more on the norm of non-use. The decision by the United States to drop atomic bombs on Hiroshima and Nagasaki, and more recent U.S. policy debates that have contemplated nuclear 'pre-emption' against Iraq or Iran, suggest that neither norms nor deterrence would necessarily always restrain the United States against an adversary that is non-democratic and non-white.

In short, deterrence is most likely to be maintained when decision-makers understand the potential level of destruction that could follow nuclear use, believe that such death and destruction should be avoided where possible, believe escalation is hard to control and believe that these facts require the state to act with caution. These beliefs are likely to be common, but they are not automatic and might not be held universally. For these reasons, it would be helpful if there were ways to spread and reinforce the knowledge and inferences that support stable deterrence relationships. However, as the foregoing suggests, deterrence can never be made perfectly stable.

These same considerations apply to arguments about utility, norms or luck. If political and military leaders considered nuclear arms to be just another weapon, to be used when convenient, debates about utility would not arise. In a world that 'conventionalised' nuclear arms, if a nuclear strike were viewed as even slightly more likely to be effective or

to cost less than a conventional alternative, military commanders would order its use and probably would not even have to get political authorisation. But we do not live in that world. And this is because governments in all the nuclear-armed states regard nuclear weapons as distinct, as being in a category apart from conventional forces. To get a nuclear option even to be considered, a nuclear strike would have to have a significant margin of utility above that of conventional weapons, and the objective to be achieved would have to be of overriding importance. The bar for judging utility has been set extremely high precisely because relevant decision-makers understand nuclear weapons to be exceptionally destructive and conclude that it is better to behave cautiously and not risk escalating a situation to what might become a catastrophic nuclear exchange.

A similar observation holds even more clearly for norms. Why try to make nuclear attacks taboo? This is because *any* use is seen as likely to be exceptionally destructive, with the potential to escalate further, combined with a belief that no legitimate policy objective exists that could justify causing so much harm. An understanding of nuclear weapons as uniquely destructive and an inference that this requires erecting as many barriers as possible to their use are necessary underpinnings for the development of a norm of non-use.

Although luck would seem to be random, beliefs are also relevant here. In practice, the world has experienced good luck. False alarms, accidents and other close calls have not resulted in nuclear war. In large measure, this is because when unexpected incidents have pushed the world closer to the brink, key actors have reacted with extreme caution. Here again, decision-makers have held certain views of nuclear dangers that have inclined them in moments of uncertainty or rising tensions to shy away from any risk of escalation.

One famous example took place in September 1983. At a time of heightened U.S.-Soviet tensions, the Soviet early warning system reported an apparent launch of American ICBMs. Lt. Col. Stanislav Petrov, the officer who at that moment was in charge of monitoring alerts, concluded it was probably a false alarm. He decided to ignore official procedure and did not report the warning to his chain of command. Had he done so, Soviet doctrine called for launching a massive nuclear strike against the United States. Petrov's decision to violate his orders and risk ignoring the alert quite possibly saved the world from nuclear Armageddon (Stein and Lotan 2019).

In one way, this observation seems to support an argument that good luck might be a feature of a nuclear world. It suggests that unforeseen developments do not have a 50/50 chance of leading to a nuclear exchange because decision-makers will shy away from moving up the ladder of escalation. But if this is true, it is only because critical actors have beliefs that motivate them to react in a particular way to incidents that raise the risk of nuclear war. Had Petrov not believed that early warning systems can issue false alarms and been highly motivated to avoid any unnecessary escalation, events might not have unfolded so benignly. The earlier case of Capt. Arkhipov is similar. In one of his previous deployments, an accident on a nuclear-powered submarine had exposed several crew members to a lethal dose of radiation. Arkhipov's first-hand knowledge of radiation effects added to his motivation to ensure that his submarine commander during the Cuban missile crisis did not accidentally start a nuclear war (Sherwin 2020: 22–28).

There is no reason to assume that someone like Arkhipov or Petrov will always be in the loop when false alarms, accidents or unplanned incidents take place. Instead, the officers in key positions might not have a sufficient aversion to nuclear war to consider defying mandated procedures. And at the top of the system, there could be leaders who do *not* have a good understanding of what might happen once they push the button or

who believe that suffering a first strike would be the worst possible outcome and so would launch on warning, no matter how dubious that warning were. As long as nuclear weapons continue to exist, in order to avoid nuclear use in the aftermath of accidents or false alarms, there must be a critical mass of key actors with a certain view of nuclear dangers that motivates them to act as circuit-breakers in response to events that could trigger nuclear war.

All of this points to the importance of nuclear learning (Nye 1987). If political and military leaders do not automatically come to their positions with good knowledge of nuclear weapon effects, and if they do not necessarily infer from this knowledge that in situations of risk or uncertainty, they should be very cautious about doing anything that would bring the two sides closer to possibly using nuclear weapons, then such leaders must be educated or socialised into the required understandings. Nuclear learning serves as an intervening variable between the brute facts of what nuclear explosions could do and the presence of decision-makers who display extreme risk aversion in situations that could lead to nuclear war.

Nuclear learning involves both a factual dimension, which involves learning the effects of nuclear detonations, and an inferential component, which involves adopting beliefs that nuclear dangers require states to act with prudence. This nuclear learning must also be shared across relevant governments (Knopf 2012). Learning only serves to reduce nuclear dangers if nuclear-armed rivals hold a similar understanding of the implications of nuclear weapons and recognise that the other side shares the same understanding. If one side believes nuclear dangers require acting with caution, but the other side sees nuclear weapons as great tools of intimidation and believes that it can use nuclear sabre-rattling to coerce the first side, then the relationship will not be stable.

The key point here is that nuclear weapons do not, by their mere existence, produce nuclear peace. Certain kinds of learning, shared across nuclear-armed states, are necessary. And this learning might not happen or might be unlearned (Bell and Miller 2022). Moreover, even if all states have come to share an understanding that nuclear weapons require behaving cautiously, this still does not ensure that these weapons will not be used. There are still things that could go wrong and lead to accidents or inadvertent escalation. Rather than despair, however, until such time as an effective state of nuclear disarmament might be achieved, the goal must be to create the conditions that most favour the continued avoidance of nuclear war.

### **Fear and Hope: The Psychological Sources of Nuclear Peace**

Continued non-use of nuclear weapons cannot be taken for granted. The factors that help prevent nuclear attacks must be regularly cultivated and reinforced. If the foregoing analysis is correct, however, the factors most commonly identified in the literature as preserving nuclear peace cannot fully account for non-use. Whether we are discussing deterrence, a perceived lack of military utility, a norm of non-use, or even luck, certain underlying conditions must be in place for these to operate to reduce the chances of nuclear war. All of the leading explanations for the absence of nuclear attacks since 1945 assume certain types of knowledge and reasoning. In the face of potential nuclear dangers, critical decision-makers must react with a caution that leads them to hesitate to do anything that might make the situation worse.

This caution derives from certain underlying psychological states of mind. It depends primarily on fear of nuclear war, but this fear must be accompanied by hope that such a

war can be avoided. Fear and hope in combination serve as psychological sources of nuclear peace (see also Lifton 2022).

The importance of fear is easy to grasp. If people were not afraid of nuclear war, they would feel freer to use nuclear weapons. But fear is not automatically helpful. Too much fear can be paralyzing. Decision-makers who are overwhelmed by fear will be less able to take action to steer events away from the abyss. The same holds true for members of the public. As the psychologist Robert Jay Lifton long ago observed, the danger of nuclear war can lead to ‘psychic numbing’, in which people simply ignore the nuclear threat because it is so overwhelming that they feel no hope of being able to do anything about it (Lifton and Falk 1982).

In an insightful blog post, Michael Krepon (2022) commented on what he called ‘the use and misuse of nuclear fear’. Advocates of arms control and disarmament seek to mobilise public support for these goals by painting a terrifying picture of the risks and consequences of nuclear war. But sometimes such scare tactics can be counterproductive, Krepon notes, ‘because nuclear fear can breed resignation, hopelessness, and despair’. They can also lead to public support for building more nuclear weapons in the name of effective deterrence, which is not necessarily conducive to nuclear peace.

There is still another risk in emphasising nuclear dangers. Krepon’s blog post was a response to nuclear threats issued by Russian President Vladimir Putin in connection with his country’s invasion of Ukraine.<sup>2</sup> Putin’s threats were an attempt at coercion, trying to manipulate the fear of nuclear attack to persuade Ukraine and its supporters in the West to back away from efforts to defeat Russia on the battlefield. If fear of nuclear war were to lead Kyiv or its supporters to concede to Russia’s territorial conquest, this would show that nuclear coercion can be effective and possibly encourage more countries to engage in nuclear blackmail. In such a scenario, nuclear fear would have led to outcomes likely to make the world more violent and less safe. For these reasons, Krepon concludes, what is really needed when discussing nuclear dangers is ‘calibration’. As N vine Schepers (2022) puts it, ‘The challenge, therefore, lies in explaining the risks of possible nuclear escalation and their consequences without either overstating or downplaying them’.

At the risk of creating an oxymoron, I propose that what is needed is a ‘healthy fear’ of nuclear war, or, in the words of Lifton (2022), what could also be called ‘appropriate fear’. A healthy fear would be whatever level of concern about nuclear dangers falls into the Goldilocks zone between too much and too little fear.

To explore how a healthy fear might be created and sustained, one must deal with an added complexity. The word ‘fear’ has a double meaning; it can refer to both a cognition and an emotion (Crawford 2000). In one meaning, fear is compatible with a rational actor model. It describes an actor’s reasonable recognition of a future risk or danger. An actor with such foresight can take prudent steps to avoid or alleviate the risk in question. A rational fear of this sort is at the heart of deterrence. A rational actor who fears triggering possible nuclear retaliation is expected to exercise restraint so as not to cross the other side’s red lines.

But fear in this cognitive sense is not sufficient to explain the extraordinary lengths state leaders have sometimes gone to in order to stay away from the brink of nuclear war. And, before continuing, it must also be acknowledged that, at other times, states have engaged in nuclear sabre-rattling or pursued arms buildups in an effort to achieve a first-strike advantage, actions that are less consistent with a fear of nuclear war. Where fear is at play, however, to see the limits of fear in its rational sense, consider a well-known issue with deterrence. A great deal of nuclear deterrence theory has been based on a concern that some threats of



nuclear retaliation lack credibility. In situations other than a nuclear attack on one's homeland, would a state follow through on nuclear threats if introducing nuclear weapons into a conflict could then lead to its own destruction? Fear in the sense of a rational anticipation of future dangers would seem to limit the scope of deterrence, as there would be less need to fear nuclear threats that lack credibility. One might argue that prudence is still rational because even if there is a low probability of retaliation, it still has exceptionally high consequences. But note that this depends on a further understanding of any nuclear weapons use as potentially catastrophic. If one worries that even a limited tactical use has inherent potential to escalate to something much worse, we are moving beyond an objective, rational calculation to something that involves emotional reactions as well.

Research on emotion identifies fear as one of the core human emotions. Fear exists along with happiness, sadness and anger, and perhaps a handful of other emotions as something apparently innate in human nature. How do actors react to being threatened, for example, with nuclear attack? Threats are most likely to lead to fear or anger, or perhaps a mix of both. If a threat is seen as unprovoked or illegitimate, anger is the most likely response. But if the other side threatens retaliation if a vital interest or widely recognised norm is challenged, then fear of provoking such a response is more likely. This difference matters because different emotions have different effects (Stein 2012). Anger tends to lead to reckless or risk-acceptant behaviour, which would not be conducive to maintaining nuclear peace. But fear tends to induce caution, an effort to shy away from danger. Fear of stumbling into a nuclear war, when it functions as an emotion, reinforces fear in the sense of rational anticipation of future danger and helps explain the extra steps decision-makers might take to minimise the risk. Such fear, again presuming that fear exists at a healthy rather than a paralysing level, can also motivate ordinary people to join efforts to put pressure on governments to reduce nuclear dangers.

But fear alone is not enough. Fear by itself can lead to despair unless people also believe there is a possible way to escape a prospective fate of nuclear annihilation. Fear, in other words, must be paired with hope. For government leaders, this is the hope of finding an effective policy. In ordinary circumstances, leaders must believe that deterrence can work, and they do not need to resort to a preventive first strike.<sup>3</sup> In crisis, leaders must hope they can find a diplomatic solution that will let them avoid war.

Perhaps the most famous illustration of the necessary mix of fear and hope comes from the Cuban missile crisis. At the height of the crisis, as war appeared increasingly inevitable, Soviet Chairman Nikita Khrushchev sent an extraordinary letter to U.S. President John F. Kennedy. This last-ditch effort to find a way out of the crisis is worth quoting at length:

Mr. President, we and you ought not now to pull on the ends of the rope in which you have tied the knot of war, because the more the two of us pull, the tighter that knot will be tied. And a moment may come when that knot will be tied so tight that even he who tied it will not have the strength to untie it, and then it will be necessary to cut that knot, and what that would mean is not for me to explain to you, because you yourself understand perfectly of what terrible forces our countries dispose.

Consequently, if there is no intention to tighten that knot and thereby to doom the world to the catastrophe of thermonuclear war, then let us not only relax the forces pulling on the ends of the rope, let us take measures to untie that knot. We are ready for this.

(Sherwin 2020: 8–9)

In this passage, there is a clear recognition of the ‘terrible forces’ that will be unleashed if nuclear arms start flying. There is also an urgent sense of increasing danger as the metaphorical knot gets pulled tighter and just as important a realisation that this is a shared danger. These reflect the nuclear fear that was so central to the crisis. But there is also hope that it is not too late for the two sides to ‘relax the forces’ pulling on the rope and ‘take measures’ to resolve the crisis. The combination of fear and hope expressed in Khrushchev’s message opened the door to diplomatic resolution of the crisis.

But hope is important not only for political and military leaders but also for people around the world who can raise their voices and take action to pressure governments to reduce nuclear dangers. We cannot count on political leaders to always behave with prudence. Russia’s nuclear sabre-rattling in connection with its invasion of Ukraine shows that leaders who are not constrained by social pressures can talk very recklessly about nuclear weapons and take actions that increase the danger of war. For people to act, however, they must have reason to hope that their actions might make a difference.

Research commissioned by the Nuclear Threat Initiative (2021) found compelling evidence that messages based solely on fear do not motivate people to act. Educational efforts that consist exclusively of images of mushroom clouds leave people feeling hopeless and thinking that nothing they might do would make a difference. The result is apathy, not activism. To be willing to take action, people must be able to imagine the possibility of a better future. And they must believe that actions they can take personally can contribute to bringing about this better future. To mobilise people to participate in a campaign to reduce nuclear dangers requires communicating a persuasive narrative that conveys at least as much hope as it does fear.

### **The Societal Sources of Nuclear Peace**

Actual control over nuclear weapons is restricted to only a handful of top officials in the nine countries that have nuclear arsenals. The willingness of these national leaders to push the button, or to take steps that bring their nations closer to the brink of nuclear war, depends on underlying psychological states of mind. To reduce the risk of nuclear war, leaders must have a healthy fear of getting too close to the nuclear precipice and a hope that by prudent, careful behaviour, they can stay away from the brink.

Where do the requisite fear and hope come from? There are several possibilities. As some of the work on nuclear learning suggests, leaders might learn from their own experiences with a crisis or close call that nuclear dangers require them to act with prudence in the future (Cohen 2017). But it is also possible that a new nuclear nation might not learn the lessons in time to survive its first crisis, or new leaders could come to power who have not internalised the lessons taught by an earlier crisis.

Leaders might also develop nuclear fear after they take office as a result of receiving briefings about the consequences of nuclear weapons use. Or they might simply use their own imagination to envision nuclear Armageddon. But neither of these is inevitable. There is no reason to assume that leaders and their top advisers, if left to their own devices, will learn much about the consequences of nuclear use or develop a healthy fear of nuclear war or an associated belief that this requires acting cautiously.

Because leaders do not automatically develop a healthy fear of nuclear war, civil society matters. Activities in civil society can be a source of education about nuclear dangers and also about how to manage them. Leaders can learn to have fear *and* hope as a result of being exposed to these activities (either before or while in office). But even leaders who

have not developed a healthy fear of nuclear war or hope for a better future might be constrained by civil society. They might have to worry about domestic public opinion or world opinion. Expressions of public or world opinion can create incentives for political leaders to restrain their use of nuclear threats or their willingness to consider ordering a nuclear strike out of concern that this could hurt their ability to stay in power or provoke international condemnation that leaves their country diplomatically isolated.

Several different strands of activity in civil society (construed broadly here) have contributed to promoting fear and hope in the minds of world leaders and segments of the general public. In the years after World War II, scientists who had helped develop the atom bomb had great concern about what might happen to the world as a result of their invention. They launched an array of educational efforts designed to bring attention to the dangers of nuclear war (Smith 1965) and, beginning in the 1950s, to the risks of radioactive nuclear fallout from nuclear weapon testing (Divine 1978).

Social protest movements have also been important (Wittner 2009). Protests and associated media coverage often draw attention to the dangers of nuclear war, which helps promote nuclear fear. And even where leaders are not necessarily convinced, social movements have helped prod reluctant governments to enter nuclear arms-control talks and to build support for arms-control treaties that have been negotiated (Knopf 1998). With respect to hope, NGOs and think tanks can be important—although not all think tanks are the same, and some have instead been major promoters of a continued commitment to nuclear buildups. Pro-arms-control groups are often sources of ideas for potential agreements or other risk-reduction measures that open the door to possible progress on addressing the nuclear threat. They can also convene meetings that allow diplomats and experts from different countries to interact and explore ideas that are not yet ripe for formal negotiation.

In addition, the impact of popular culture should not be overlooked; images related to all things nuclear have long played a major role in producing fear (Weart 1989). Books and movies like *On the Beach*, *Dr. Strangelove* and *Fail Safe* gave an entire generation the ability to imagine how a nuclear war might start and how terribly destructive it might be. Science fiction also left its mark through movies like *Godzilla* and a host of stories set in a post-apocalyptic landscape, of which the post-apocalyptic novel *A Canticle for Leibowitz* might be the best known (Miller 1960). The 1983 made-for-TV movie *The Day After* reportedly made a big impression on then-President Ronald Reagan and reinforced his desire to find a way to reduce nuclear dangers (Stover 2018).

In short, societal sources of nuclear peace supplement the psychological sources. They help disseminate the images and information that promote a healthy fear of nuclear dangers and can sometimes also suggest paths for hope. Pressures from civil society can also constrain leaders who do not particularly fear being drawn into nuclear war to still behave with restraint. The psychological factors of fear and hope are most fundamental, but societal forces can help to produce these psychological sources of nuclear peace or magnify their effects.

### **Implications for International Institutions**

After 1945, the world invested considerable efforts in developing mechanisms to limit the dangers associated with nuclear weapons. There is a long-running debate over whether existing treaties, such as the nuclear Non-Proliferation Treaty (NPT), have ever been sufficient to deal with the danger of nuclear war. But regardless of how one evaluates

existing global governance of nuclear arms, it is possible to describe a global nuclear order. It includes both formal arrangements, such as arms control and nonproliferation treaties, and informal norms, such as the nuclear taboo.

The problem today is that the global nuclear order is under a great deal of strain, and the international institutions that govern this issue are in danger of unravelling (Bollfrass and Herzog 2022; Knopf 2022). This has several implications. First, because international institutions are getting weaker, more of the task of preventing nuclear war now rests on the psychological and societal sources of nuclear peace. It is important to try to strengthen the psychological and societal factors precisely because we cannot be as confident in the restraining effects of international institutions.

Second, an agenda for strengthening international institutions should give consideration to how new initiatives and proposals would interact with the psychological and societal elements of nuclear peace. Ideally, we should look for positive feedback loops between the two. On the one hand, when developing proposals to buttress global governance, it might be less important at this time to consider their ability to bring about reductions in nuclear arms or other practical constraints and more important to look for initiatives that would reinforce the psychological and/or societal sources of nuclear peace. On the other hand, it would also be appropriate to look for proposals that would dovetail with psychological and societal forces since tapping into these would provide a kind of wind in the sails to help build momentum behind new initiatives.

Several possibilities exist. One option involves continuing the Humanitarian Initiative. The Initiative grew out of the 2010 NPT Review Conference, which approved a statement of concern about ‘the catastrophic humanitarian consequences of any use of nuclear weapons’. This led to a series of international conferences to discuss the humanitarian impact of nuclear weapons. These were designed, in part, to set the stage for negotiations on a treaty to ban nuclear weapons. The United Nations General Assembly adopted the Treaty on the Prohibition of Nuclear Weapons (TPNW) in 2017 (Davis Gibbons 2018; Kmentt 2021).

Now that the ban treaty exists and has received the requisite number of state ratifications to enter into force, it is possible to consider a new version of the Humanitarian Initiative that would serve as a purely educational effort. Either as part of continuing the Humanitarian Initiative, or as a spinoff from it, there could be a renewed effort to call attention to what we have learned about the likely consequences of nuclear weapon use. This effort should also be directed at a broader audience. The initial Humanitarian Initiative targeted diplomats. A Humanitarian Initiative 2.0 should aim to educate publics around the world about the effects of nuclear war. Doing so could both help stimulate more civil society activism against nuclear weapons and reinforce the psychological inhibitions among leaders contemplating the use of nuclear weapons.

Another approach would be to look for negotiating forums that could attract participation by a wide range of states, despite the deep geopolitical tensions current in the world. One candidate would be to revive the Nuclear Security Summits that took place from 2010 to 2016.<sup>4</sup> These meetings, launched by the Obama administration, brought together heads of state from more than 50 countries. The summits were designed to promote action and coordination around measures that would reduce the chances that actors such as non-state terrorist groups could obtain nuclear materials useful for constructing a nuclear explosive device (Kutchesfahani, Davenport and Connolly 2018; Turpen 2016). Because much of the focus was on the threat posed by terrorist groups, the summit process sidestepped political divisions that pit nuclear and non-nuclear countries against each other. Because most states do not want a terrorist actor to get the bomb, the

summits invited states to make common cause against a shared danger. Given this shared interest, a revived Nuclear Security Summit process could get states that would otherwise be reluctant to negotiate new arms control or disarmament measures to engage with each other in a constructive manner.

A third option is to find issues in which it would be possible to convene small groups of technical experts who operate well below the head of state level. In the past, both scientist-to-scientist and military-to-military activities between Russia and the United States have proved fruitful (Hecker 2016). Working-level, bureaucratic relationships can help buttress abstract agreements to cooperate by giving them a solid foundation (Knopf 2016). Although Russia might not agree to participate, concerns about the Zaporizhzhia nuclear power plant in Ukraine suggest that ensuring the safety of nuclear reactors in war zones would be a logical area for technical discussions.

Finally, it is worth thinking about how to promote appropriate norms in relation to nuclear weapons. In his final book, Michael Krepon (2021) identified three existing norms in relation to nuclear weapons: no use, no testing and no proliferation. He suggested trying to promote a further norm of never threatening to use nuclear weapons. Repeated nuclear threats issued by President Putin and other Russian officials in connection with their invasion of Ukraine have created new urgency around the idea that threatening a nuclear attack should be off-limits. Efforts to negotiate a statement of principles or code of conduct could be one vehicle for trying to establish a no-threats norm.

It is vitally important to maintain the health and functioning of existing international institutions that limit nuclear arsenals and seek to reduce the chance of nuclear weapons use. It also continues to be necessary to negotiate new agreements and create new arrangements that could further reduce nuclear dangers. And in the longer run, a verifiable nuclear disarmament agreement would be the safest possible arrangement. At this moment, however, existing global governance arrangements are under tremendous strain, and the prospects for new initiatives, let alone abolition, are not promising. In these circumstances, less tangible psychological and societal sources of inhibitions play a more important role. It makes sense to think of global governance not only in terms of tangible institutions and numerical limits on weapons but also as a way to excite and energise civil society and to remind world leaders of the catastrophic consequences that could follow any nuclear attack. Even where new meetings, discussions or proposals do not, in the short term, lead to concrete progress in restricting nuclear weapons, they can still be useful in helping to reinforce the psychological and societal sources of nuclear peace. As people continue to search for a path to global zero, it has become increasingly vital to reinforce the guardrails against nuclear war at a time of immense challenges to the global governance of nuclear weapons.

## Notes

- 1 I use the term 'nuclear peace' in a narrow sense of no deliberate attacks using nuclear weapons. It would be misleading to imply that this meant peace in broader terms. The years since 1945 have seen plenty of wars and other acts of organised violence. The threat of nuclear attack has been used for purposes of deterrence and in some cases coercion. And many nuclear devices were exploded in nuclear tests. Although the decades following World War II have hardly been peaceful overall, the absence of nuclear war is still a very important fact.
- 2 I will not address here whether the war in Ukraine could have been avoided by different U.S. and NATO policies. Regardless of whether better U.S. diplomacy might have satisfied Russian concerns and prevented its invasion, Russia's rhetoric and actions have increased the risk of nuclear weapon use, and my focus here is on the implications of the fears raised by the situation in Ukraine.

3 Lack of such confidence was a key motivation for the U.S. invasion of Iraq in 2003.

4 I thank George Moore, scientist-in-residence at the James Martin Center for Nonproliferation Studies (CNS), for this suggestion.

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