


RESEARCH ARTICLE

# Casting the atomic canon: (R)evolving nuclear strategy: A reply

Lawrence Freedman<sup>1</sup> and Jeffrey H. Michaels<sup>2\*</sup> 

<sup>1</sup>Emeritus Professor of War Studies, King's College London, United Kingdom and <sup>2</sup>Institut Barcelona d'Estudis Internacionals, Carrer de Ramon Trias Fargas, Barcelona, Spain

\*Corresponding author. Email: jmichaels@ibeio.org

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## Abstract

We are grateful to Kjølvs Egeland, Thomas Fraise, and Hebatalla Taha for their commentary on the four editions of *The Evolution of Nuclear Strategy*. In addition to their critique of the book, their review was intended to offer 'a looking glass into the broader field of nuclear security studies'. Our reply to their review therefore touches both upon their critique, as well as the more general theme of writing about the history of nuclear strategy. Although we disagree with many of their criticisms, and in some instances believe our work was misrepresented, the reviewers have nevertheless made points that deserve serious consideration by ourselves as well as other scholars working in the field. In this reply, we not only defend our work, but also use this as an opportunity to discuss how to approach the past of nuclear strategy, which in turn can allow us to better appreciate the present and future. In the first half of our reply we discuss the reviewers' more general criticisms of our approach. In the second half we deal with some specific criticisms.

**Keywords:** Nuclear Strategy; Disarmament; Arms Control

## Introduction

We are grateful to Kjølvs Egeland, Thomas Fraise, and Hebatalla Taha for their commentary on the four editions of *The Evolution of Nuclear Strategy*, and for the description of the book as an 'authoritative intellectual history'.<sup>1</sup> Their aim is to offer 'a looking glass into the broader field of nuclear security studies'. Therefore, our reply to their review will touch both upon their critique of the book as well as the more general theme of writing about the history of nuclear strategy. We should state at the outset that we greatly appreciate and admire the three reviewers' Herculean efforts to review not only the most recent edition of *The Evolution of Nuclear Strategy*, but to compare it with the three preceding editions.

We welcome this critical engagement with our work. Although we disagree with many of their criticisms, and in some instances believe our work was misrepresented, the reviewers have nevertheless made points that deserve serious consideration by ourselves as well as other scholars working in the field. We are grateful to the editors of *EJIS* for allowing us to not only defend our work, but also to use this as an opportunity to discuss how to approach the past of nuclear strategy, which in turn can allow us to better appreciate the present and future. In the first half of this review we discuss the more general criticisms of our approach and in doing so try to explain what we were trying to do with the Fourth Edition. In the second half we deal with some specific criticisms.

<sup>1</sup>Kjølvs Egeland, Thomas Fraise, and Hebatalla Taha, 'Casting the atomic canon: (R)evolving nuclear strategy', *European Journal of International Security* (2021), pp. 1–18.

Egeland, Fraise, and Taha criticise the book for not explaining our general methodology, including case and text selection criteria, epistemology, and so on. To some extent these issues are addressed in the Introduction (especially pp. xi–xii). The value of a methodological discussion is to help readers make sense of the subsequent analysis rather than to engage in extended discussions of matters which may be of only slight interest to readers. The approach we adopted was neither unusual nor eccentric and there were no complaints (as far as we are aware) about the earlier editions. For future editions we can see that there might be areas where a more extended discussion could be helpful, for example on the quality of source materials, especially as we are now covering more countries.

What were the issues in our approach to *The Evolution of Nuclear Strategy* (hereafter referred to simply as *Evolution*)? We started with a set of debates about nuclear strategy that have been remarkable both for the lack of consensus on the core issues, other than the threat to humanity posed by nuclear war, and continuity in the competing positions on the best way forward – the utility of nuclear weapons, the appropriate size and composition of the arsenals, and the ethics of their possession let alone potential use. Some have argued for a strong and credible nuclear capability; others have favoured disarmament leading to complete abolition. Between these two positions come those reluctant to lose the benefits of deterrence but also keen to reduce the risks of nuclear war and so prepared to look at a variety of arms control measures to achieve that. Our aim then was not to resolve these differences but to chart how they had developed both as an intellectual exercise and in the policymaking process. The history of nuclear strategy could, in principle, be pursued solely as a history of ideas, essentially written in a similar manner to other academic disciplinary histories. But many of the prompts for the intellectual activity came from shifts in policy. Hence our focus on the interrelationship between ideas and policy.

Over time the balance has shifted. The first edition concentrated more on the public debate because that was all that could be done then with confidence. As it was being written, largely during the late 1970s, there was only limited material available on internal government debates. It was relatively straightforward assessing the intellectual discourse because that largely required reading what the leading (and some minor) strategic thinkers had written. On the policy side, with few internal documents available, it was necessary to work with official statements and testimony, press leaks, the odd memoir, interviews with key participants, and scholarly works that dealt with key aspects of nuclear history. In both cases it was natural to concentrate on American nuclear strategy. The United States was the first nuclear power whose policies had shaped the framework for all discussions of nuclear strategy, its ‘academic strategists’ had a high profile, and there was the most accessible material on the intellectual and policy debates. In other countries intellectuals played little or no role in strategic debates and information on how policy was made was sparse, especially in those without a free press and no equivalent of Congressional hearings.

So all this left *Evolution* with a pronounced American bias. This bias was not really addressed in the second and third editions because these updated the work only by picking up the story where the previous edition had left off. For the Fourth Edition we were able to rethink the structure of the book and what it should cover. Most importantly, for the book to remain useful it was essential to engage with the scholarship and declassified documentation for the period covered by the first three editions. Even when these new sources did not lead to major revisions of the analysis it could improve the quality of the supporting evidence, for example by substituting or supplementing second-hand accounts and official statements with the minutes of high-level policy meetings and the correspondence of senior policymakers.

This permitted a deeper consideration of the relationship of the public with the private strategic debates. The new evidence provided insights into how policymakers understood some of the key strategic concepts, and the extent to which they guided policy, military plans, and procurement decisions. We were also able to move beyond the United States, and in particular take advantage of valuable material from the former Soviet Union. In addition, new scholarship

and materials on the nuclear policies of many other countries allowed us to address for the first time, or in much greater depth, the nuclear programmes of India, Pakistan, Israel, North Korea, Iran, Iraq, South Africa, Sweden, Switzerland, Japan and Taiwan, among others. To take one example, we knew far more by the mid-2010s than we did in the early 2000s about Iraq's nuclear ambitions due to the release, translation, and analysis of Iraqi records.<sup>2</sup> As can be seen from this list we decided to cover some countries without nuclear weapons because they also had views on their utility and had considered acquiring them. If they were not prepared to join a nuclear-armed alliance, they had to consider how they would fight nuclear-armed adversaries with non-nuclear means. We therefore considered some, though obviously not all, of the nuclear have-nots, especially those who at some point aspired to be nuclear powers.

The US was less dominant in the Fourth Edition compared with the earlier editions, and it is likely to be less prominent in any future editions. There are still two reasons why the US requires more attention than other nuclear powers. First, it was where the most influential concepts were first developed. These concepts appeared regularly in the non-American debates, as they were revived and adapted to individual circumstances. For many countries, there was simply no need to reinvent the wheel or employ different terminology. Second, and most important, the US debate has been shaped by a strategic choice, made in the 1950s, that its nuclear forces would be used not just to deter attacks on North America but also on its allies. Extended deterrence – the readiness to risk nuclear war on behalf of other countries – raises the most perplexing issues of nuclear strategy. Soviet strategists in principle faced the same issues, in that the Warsaw Pact was an alliance, but these were never addressed with the same attention that was present in the US.

When *Evolution* was first published, the nuclear age was in its thirty-sixth year. It has now lasted another four decades. In 1981 many of the events described were still fresh and the key figures still alive. With readers born after the end of the Cold War, and increasingly after 9/11, it can be challenging to demonstrate the centrality of older ideas to contemporary debates. The passage of four decades has also affected the interpretation of earlier debates. At the time the first edition was being drafted there were several important historiographical issues to be addressed, around, for example, the decision to use atoms bombs in 1945, or the 1962 Cuban Missile Crisis, or the origins of flexible response. These were briefly covered in the first edition, but these debates are obviously much deeper and more extensive now. So one issue, to which the reviewers allude, was whether to keep the focus largely on tracing the development of the major strategic concepts and themes and their influence on policy, essentially a 'history of the field', or shift instead to more of a 'state of the field' historiographical approach to trace the evolution of academic interpretations of the nuclear field generally and not just key events. Although we could not ignore these debates as they are part of the intellectual history of nuclear strategy, we decided to keep our firm focus as a history of thinking about strategy. No doubt a work tracing the orthodox, revisionist, post-revisionist, feminist, and other approaches to the subject would be of value but that is not what we aimed to do.

The most important characteristic of our approach, which was there from the first edition, was to discuss nuclear strategy in its broader context. As was acknowledged from the start, the term 'nuclear strategy' can be hard to pin down. Unless confined to the realm of pure theory, it must be about the political setting that gives meaning to any threats and possible use of nuclear weapons. It has to go beyond a narrow conception as the threat or use of nuclear weapons to achieve political ends. The book covers the effect these weapons have on alliances, how they were treated as part of efforts to improve relations between adversaries, rather than exclusively for the purpose of deterring or fighting wars, and the importance of particular crises as tests of the strategies but also in shaping attitudes to the weapons thereafter. This approach required synthesising the strategic

<sup>2</sup>Numerous translated Iraqi records dealing with Saddam Hussein and nuclear weapons can be found at the Conflict Records Research Center: {<https://conflictrecords.wordpress.com/>}.

ideas and military capabilities, on the one hand, with political and other non-military factors, including norms, on the other.

Nor can nuclear capabilities be considered separately from non-nuclear weapons. The book is about the nuclear *component* of a broader strategy, diplomatic as well as military, geared to preventing or fighting a war. For example, NATO's strategic concept for territorial defence during the Cold War never relied exclusively on nuclear weapons. Conventional forces were expected to play a role, from stopping or slowing down a Warsaw Pact invasion on their own to creating the conditions in which nuclear use might be a serious possibility. Likewise, Alliance expectations of Soviet nuclear use were predicated on the assumption that this would only occur in conjunction with a conventional military invasion of NATO territory. Political, social, economic, and many other factors played a role in the choice of strategic concepts, and as these factors evolved, so too did the concepts.

The reviewers suggest that our approach 'risks obscuring the power structures and vested interests shaping nuclear strategy, rendering invisible the forces that determine which ideas are deemed acceptable, mainstream, and "policy relevant"'. The 'cui bono' question is worth asking, especially when it comes to weapons procurement. The role of power structures in these debates is important and is one on which both of us have written elsewhere. We do refer to it in the book (for example, where we discuss the military-industrial complex in relation to the early Anti-Ballistic Missile (ABM) debates, pp. 449–51). The story of arms control in the US during the Cold War, for instance, is one in which the warhead developers and the Joint Chiefs of Staff, worried about the loss of funding and role respectively, had to be bought off with new weapons programmes to get their agreement to whatever was agreed with the Soviet Union. Politicians who might otherwise favour deep cuts in the nuclear arsenal and switching from a maximum to a minimum deterrence posture, would likely hold back for fear of the political consequences. Alternatively, they might be offered inducements (bases, etc.) to support the status quo.<sup>3</sup>

The interrelationship between vested interests, political acceptability, strategy formulation, and implementation is not straightforward. We consider in a number of areas the effects of shifts in the overall political climate. As we noted, for example, with the continuing debate on ballistic missile defence (BMD), the changing political climate does make a difference. The Nixon administration negotiated the 1972 ABM Treaty yet criticism of the Treaty and promotion of BMD then became a Republican cause. If the political climate changes, ideas that were previously unacceptable can suddenly become acceptable. After being a matter of debate during the Fourth Republic, the Force de Frappe came to be uncontested in French politics. It is important to note the tensions between established foreign policies and changes in popular moods, for example between some NATO states who might hold back on criticism of the US because of concerns about alliance cohesion or damaging bilateral relations. The German population might strongly support disarmament, and even be attracted by the Treaty for the Prohibition of Nuclear Weapons, yet the government is conscious of its extended nuclear deterrence relationship with the United States, and is no doubt wary of upsetting relations with the US and other NATO allies should it back the treaty.

Apart from exceptional cases such as Ukraine and South Africa that chose to abandon their nuclear arsenals, the remaining nuclear states have basically limited themselves to questions about how many weapons of what types to have rather than whether they should still possess them. Quite often discussion is restricted to technical questions dealing with the explosive power of the weapons, their disposition, command and control, means of delivery, etc. As with broader national debates about defence posture, such as what types of armed forces to possess, knowledge of the role power structures and vested interests play in shaping policy is essential to understanding the choices states make, but so too is awareness of political agendas, alliance

<sup>3</sup>For a recent analysis, see William Hartung, 'Inside the ICBM Lobby: Special Interests or the National Interest?', Center for International Policy, Washington DC (March 2021).

politics, geopolitical competition, the changing character of war, military-technological developments, the salience of international norms, etc., among many other issues bearing on the nuclear question that are in a constant state of flux. These tensions help explain continuity and change in nuclear strategy.

Having discussed aspects of the Egeland, Fraise and Taha's review that encourage reflection on how we approached the Fourth Edition of *Evolution* and what might be considered in a fifth edition, we now turn to criticisms that we believe to be unwarranted.

*Lack of engagement with Russian-language sources in our discussion of Soviet strategy.* This is demonstrably false. In almost all instances where we discuss Soviet strategy we refer to secondary works that rely on Russian-language material as well as primary source material that has been translated. Many more Russian-language sources were used for the Fourth Edition than in the earlier editions simply because more material is now available. Translated documents were utilised from such sources as the Wilson Center's Cold War International History Project, George Washington University's National Security Archive, as well as CIA archival material that includes translations of Soviet military journals (such as references to two articles from *Voennaia mys'*, see p. 282). For example, in our discussion of Gorbachev's views of Reagan, we referred to the translated minutes of a Politburo meeting in which the American president is described as having 'a caveman outlook, and intellectual impotence' (p. 541). More generally when it comes to researching any non-English speaking country's strategy we were obliged to rely on English-language secondary sources that utilised non-English primary sources, as well as using non-English primary source documents that had been translated.

*Chapter entitled the 'Nuclear War on Terror'.* The reviewers ask what the common thread is between the 1991 war with Iraq, 9/11, and the 2003 war, on the one hand, and nuclear weapons, on the other. The connection is quite clearly traced, starting with ideas about the post-1991 revelations that Iraq had been closer to obtaining nuclear weapons than had been appreciated at the time, debates about the extent to which Saddam had been deterred from using chemical weapons during the 1991 war, the prospect of terrorism-related WMD use, and the pre-emption and prevention arguments that featured so prominently ahead of the 2003 war. In other words, Iraq was central to the US discourse on nuclear threats, especially amidst the post-Cold War prioritisation of so-called 'rogue states'. We are told that we should have included some discussion about 'how the security interests involved were constructed' and how the 'threats of "proliferation" and "rogue actors" were exploited by interventionists' in the lead-up to the 2003 war. Yes, they are issues to be covered. No, we did not ignore them (see, for instance, pp. 560–1 and 607–09). We are also criticised for not addressing the issue of how the campaigns in the Middle East led to the US becoming a 'nuclear-armed counterterrorist state'. It is unclear what is meant by this. The US did not aggressively threaten nuclear use as part of its counterterrorism efforts.

*The new edition is 'more generous than previous versions in its praise for the thought-leaders of the first few decades of the American nuclear enterprise'?* The exact opposite was our intention. As we note (p. 672), given that we are comparing the early theorists with subsequent generations, especially in terms of how the latter drew on the foundational concepts of their predecessors, it is unsurprising that in assessing the field of nuclear strategy, as with any other field, one naturally highlights the contributions of the 'founding fathers'. That is important in assessing the degree of originality, or lack thereof, of those contributions that followed. What we were able to do in the Fourth Edition, using declassified materials, was to look much more carefully at the question of whether their ideas had any policy impact or if the same, or at least similar ideas, were already held by practitioners. Was there anything more to the nuclear strategy concepts promoted by the early theorists compared to the substance of what was already being discussed by policymakers and bureaucrats? Did the nuclear strategists merely provide the terminology and intellectual gloss to ideas that were already in circulation? The unsurprising result of posing these questions was to acknowledge that the practical consequences of the new theories were less than implied in the earlier editions.

The lack of a 'wider reflection on the role of luck in the non-occurrence of unwanted nuclear explosions' or what 'the long history of close calls' might mean for the study and practice of nuclear strategy and security. This is qualified on the grounds that 'to the extent that *The Evolution* can be criticised for lacking a serious treatment of chance and contingency, the fault lies primarily with the wider field of nuclear strategic studies and not with its historians'. It is still wrong. In several places, we refer to specific 'close calls', such as the Soviet nuclear submarine officer who countermanded an order to launch a nuclear-armed torpedo during the Cuban Missile Crisis (p. 276), or the officer in charge of the Soviet early warning centre during the false alarm in September 1983 (p. 532). Moreover, we refer to statements by Thomas Schelling (p. 241) and Scott Sagan (p. 585) dealing with this matter, and throughout the text we also discuss arguments about the ostensible caution-inducing effect of nuclear weapons (as the reviewers themselves note). Concerns about accidents and worst-case scenarios are a staple in discussions of nuclear risks, including in our book.

We 'largely abstain from considering the economic and ideological conditions shaping the field'. This is not a claim the reviewers adequately substantiate. Economic and ideological conditions do feature in the book, but they are not its principal focus. As with the issue of the influence of power structures on what is acceptable, the difference between our views may be a matter of degree rather than of kind, of style more than substance. We do not dwell on the employment backgrounds and financial sponsors of individual strategists. The reviewers note, for instance, that Pierre Gallois became a marketing director of Dassault – 'the main contractor for the production of the first generation of French nuclear bombers' – after he retired from military service in 1957. They also discuss Herman Kahn's research being funded by the Martin-Marietta Corporation, 'the then-leading manufacturer of American intercontinental ballistic missiles'. The inference is that the views of Gallois and Kahn were influenced by their paymasters. But they had the same views prior to these associations. Gallois supported an independent French nuclear deterrent before 1957 (p. 349), while Kahn's views did not shift after leaving the RAND Corporation to set up his own Hudson Institute in 1961. An easier claim to make is that it was because of their established views that Gallois, Kahn, and numerous other strategists were attractive recipients of government and corporate largesse in the first place.

In the years since its founding, the Hudson Institute received funding from numerous philanthropic foundations, corporations, and governments.<sup>4</sup> Likewise, the RAND Corporation received most of its funding, at least in the 1950s when Kahn worked there, from the US Air Force. It is extremely difficult to show that individuals held back from their true views because of contracts. We also discuss one particular case when Congress sought to prevent certain sorts of research from taking place (for example, Paul Kecskemeti's study on Strategic Surrender, see pp. 124–5). Probably the more important point the reviewers do not adequately appreciate is that nuclear debates will inevitably be awash with biased views. For example, it should be unsurprising to discover institutional and national biases – that Air Force officials favour Air Force solutions, that military officials can see possibilities in the use of force that others might dismiss, that an American strategist may have a pro-American bias, a French strategist a pro-French bias, a Soviet strategist a pro-Soviet bias, and so forth.

[T]he authors present the RAND Corporation ... simply as an "independent non-profit corporation", leaving out its links to the Kennedy and Johnson administrations, connections to the Ford Foundation and Douglas Aircraft Company, and symbiotic relationship with, and enduring financial reliance on, the US Air Force'. Our reference (p. 218) to RAND as an 'independent non-profit corporation' was technically speaking correct. That was the legal description. We also note RAND's 'close links to the Air Force' (p. 37) and, as the reviewers acknowledge, we report that Kahn left RAND because the institution did not want to 'challenge Air Force priorities'. Yet despite the close links, RAND was not part of the Air Force and as we show the Air Force often resented the civilian analysts working there, especially when their views collided with

<sup>4</sup>B. Bruce-Briggs, *Supergenius: The Mega-Worlds of Herman Kahn* (New York, NY: North American Policy Press, 2000).

those held by key officials. Moreover, when some analysts left RAND to join the Kennedy and Johnson administrations, they were selected in large part because of their willingness to use their expertise to challenge the procurement preferences of the military services. Omission on our part of the Douglas Aircraft Company and the Ford Foundation was incidental as we did not deem these relationships to be particularly relevant to the points we were making. The relationships of the civilian nuclear strategists with politicians, the military and bureaucracy are sufficiently self-evident that it was only necessary to draw attention when it led to some controversy or new analytical development.

This is also the case in terms of the financial support provided to academics working in the nuclear field by philanthropic foundations. The reviewers specifically mention ‘conservative foundations’ having an impact on the development of ‘security studies’ yet they neglect to point out that centrist and liberal foundations – especially the Ford Foundation, the Rockefeller Foundation, the Carnegie Foundation, and later the MacArthur Foundation – were often the biggest donors. The Harvard-MIT arms control seminar that the reviewers cite was funded by a Rockefeller Foundation grant, academic programmes and centres dealing with arms control and disarmament at America’s top universities periodically received strong support from the Ford Foundation, the Institute for Strategic Studies (later IISS) was also supported by Ford, Pugwash meetings would have not taken place without foundation support,<sup>5</sup> and so forth.

Without doubt, conservative foundations have played an important role in the field, although it wasn’t until relatively recently that they began to dominate it. This development is often associated with the establishment of Grand Strategy programmes at numerous American universities, sponsored by conservative philanthropists such as the Koch and Herzog foundations.<sup>6</sup> Not only did the centrist and liberal foundations significantly reduce their support in the post-Cold War period, but in 2021 the MacArthur Foundation – the most significant funder of nuclear studies research – announced it would no longer be funding research in this area.<sup>7</sup> The role of the sponsors of nuclear strategy, arms control, and disarmament research, and the relative balance of funding that exists across the ideological spectrum, is no doubt worthy of further study. Nonetheless we assume that in this area as in others biases exist and that most research is not produced for free but that it still possible to evaluate the output based on the quality of the arguments and the evidence used to support them.

*Sources are used uncritically.* The issue of sources is central to the craft of a historian. There are always issues of trustworthiness, corroboration, and interpretation. Sometimes materials used in good faith turn out to be poor while others that appear flimsy are really illuminating. As we have already noted, much of our work on the Fourth Edition was about incorporating new source materials, which often led to changes in our analysis. There is often room for debate about whether it was wise to rely on a particular memoir or book. Nonetheless, we find odd the particular examples used by the reviewers. For example, with regard to the decision to use atomic bombs on Japan we are criticised for treating Henry Stimson’s ‘post hoc utterances’ on the centrality of their ‘shock’ value as ‘objective descriptions of fact’. Perhaps that would be fair if we had only relied on Stimson’s postwar recollection. In our discussion of the decision the references to ‘psychological shock’ draw primarily on declassified documents (see pp. 23–6).

Another example from the reviewers is our reference to General Maxwell Taylor’s reflections on the Cuban Missile Crisis at the time of the twentieth anniversary in which he said that the atmosphere was not one of ‘sitting on the edge of Armageddon’. The accuracy of Taylor’s remark that ‘I never heard an expression of fear of nuclear escalation on the part of any of my colleagues’

<sup>5</sup>Paul Rubinson, ‘Pugwash Literature Review’, Urban Institute (April 2019), available at: {[https://www.urban.org/sites/default/files/2019/06/27/pugwash\\_literature\\_review.pdf](https://www.urban.org/sites/default/files/2019/06/27/pugwash_literature_review.pdf)}.

<sup>6</sup>A study is currently in preparation dealing with the influence of foundation funding on the development of the field of strategic studies. Jeffrey H. Michaels and Matthew Ford, ‘Grand Strategy or Grant Strategy: Foundations, Strategic Studies and the American Academy’ (forthcoming).

<sup>7</sup>Bryan Bender, “‘A big blow’: Washington’s arms controllers brace for loss of their biggest backer’, *Politico* (19 July 2021).

can certainly be doubted, on the basis that the prospect of nuclear escalation was certainly discussed during the EXCOMM meetings. It featured in the reluctance to take courses of action that would lead to a general war with the Soviet Union. We interpreted these remarks as Taylor defending what he viewed as a rational decision-making process compared to other more dramatic portrayals of the Crisis. By contrast, the reviewers suggest – without evidence – that Taylor’s remarks were intended to influence the arms control and disarmament debates of the early 1980s. How can they be so sure? Regardless of Taylor’s motives, the substance of his statement is better understood when read in conjunction with Henry Kissinger’s remarks (p. 464) downplaying the extent nuclear use featured as a serious policy option in crises that occurred during the Nixon administration, as well as those of Colin Powell (p. 600) during the 1990–1 Persian Gulf crisis in which the option of nuclear use briefly arose in US policy discussions. A similar phenomenon was observable during the Korean (pp. 95–8) and Vietnam wars (pp. 384–8). In each of these cases we showed that although nuclear use was undesirable as well as highly improbable that this did not mean it was unmentionable. In most cases nuclear use would have been marginalised if not automatically dismissed out of hand. Indeed, as Nina Tannenwald’s research on the ‘nuclear taboo’ demonstrates nuclear options have traditionally held little appeal for policymakers.<sup>8</sup>

*We accepted too readily claims that nuclear weapons had a cautionary effect, and occasionally implied ‘that nuclear deterrence prevented a Soviet attack on the United States or Western Europe’.* The idea that NATO has deterred a Soviet attack on Western Europe has been a prominent theme in the discourse on nuclear deterrence, both during the Cold War, and in many subsequent interpretations of the Cold War. For what it’s worth, the Soviets appear to have viewed their presence in Eastern Europe as successful in deterring a NATO attack. There were certainly Soviet plans for the invasion of Western Europe, and it is reasonable to assume that if there had been no NATO and no US nuclear guarantees, the geopolitics of Europe might have taken a very different form after 1945. The problem with deterrence, as we noted, is that there can be many reasons why nothing happens, but it is very hard to say that the prospect of nuclear war has been irrelevant. Otherwise, for example, we might have expected Stalin and Khrushchev to take advantage of the Soviet conventional military advantage during the Berlin Crises of 1948 and 1961, respectively. At any rate it is impossible to discuss the history of nuclear strategy without noting the standard assumption that in some way nuclear deterrence ‘worked’ without putting a question mark beside it at each point.

In one passage, the reviewers suggest that the ‘cautionary effect of (American) nuclear weapons is ... asserted as a fact’. It really is a fact that nuclear weapons do have a cautionary effect. Oddly, the reviewers focus specifically on our references to Chinese leaders in the mid-1950s appreciating ‘the importance of the American nuclear force as an explanation for the caution in Soviet foreign policy’ (p. 393). In the first place we are referring to the beliefs of Chinese leaders rather than our own views. Secondly, this is quite clearly *an* explanation, not *the* explanation. They suggest that our references to a cautionary effect have somehow obscured the fact that nuclear weapons ‘often serve to increase tensions rather than the other way around’. They state: ‘As demonstrated by the Cuban Missile Crisis and Taiwan Strait Crises, deterrent threats can often lead to anger and escalation rather than restraint and caution.’ Absolutely true. It should not be hard to accept that at different times and places nuclear weapons can generate caution and tension. It is entirely possible for tensions to be increased by the presence of nuclear weapons, or by the threat to use them, whilst at the same time leaders recognise the dangers of further escalation and seek a non-violent resolution – as seems to have been reflected in the two cases they cite.

*The nuclear winter debate of the 1980s.* The reviewers state that we did not refer to ‘the wealth of corroborating data and scholarship that has appeared in the decades since or engage in analysis of

<sup>8</sup>Nina Tannenwald, *The Nuclear Taboo: The United States and the Non-Use of Nuclear Weapons Since 1945* (New York, NY: Cambridge University Press, 2008).



the ideological structures that allowed scientific findings to be brushed aside'. This is unfair. Admittedly we did not engage with the most recent scholarship on this, particularly the literature dealing with environmental consequences of a nuclear war in South Asia.<sup>9</sup> We did in several places consider instances of politicians ignoring or seeking to discredit scientific advice that ran counter to their nuclear policies – for example, with the 1945 Franck report (pp. 26, 55), postwar US debates over the superbomb (pp. 215–16), and the rejection by Soviet leaders of scientific advice about the catastrophic effects of nuclear war (p. 183), and also with the nuclear winter thesis, where we state: 'the Reagan administration initially tried to counter the scientific findings' (p. 509). With regards the nuclear winter thesis, we also note Carl Sagan's ideas about how 'mutual assured destruction' had been superseded by 'assured self-destruction' (pp. 508–09). Despite the scientific arguments about the need to reduce nuclear arsenals, we highlight that they had little effect on policymakers, and 'merely reinforced existing views' (pp. 509–10).

*'The authors' apparent conclusion that the atomic bombings were responsible for the end of the war diverges in degree from that of the previous editions, in which it is argued that the lessons that could be drawn from Hiroshima and Nagasaki were limited, and that if the atomic bombings had a role "it was in accelerating and intensifying the process of political change. But even here caution is due."* In support of this contention, they cite the third edition (p. 19) and state that the 'same claim appears in all previous editions'. Unfortunately, they seem to have overlooked the fact that we repeat this claim in the Fourth Edition as well: 'The two detonations accelerated and intensified a process of political change that had been underway for some months' (p. 28). They also say that we oversimplified the 'so-called revisionist literature' and missed out 'on a wealth of rich historiography on the atomic bombings'. For example, they state we do not 'seriously consider the effect ... of the Soviet entry into the war', but instead give too much weight to the argument that the atomic bombs were decisive in causing the Japanese surrender. We do consider the matter and conclude that the significance of the Soviet entry into the war does not detract from the role played by the atomic bombs. This is an example of an issue on which we could have delved deeper into the historiographical debates if that had been our intention, but as we discuss in the Introduction (p. viii), our principal concern was the 'first impressions' of atomic use and how these affected perceptions about the 'transformational' nature of these weapons and their 'apparent ability to win wars' (emphasis added).

*We treat nuclear weapons as 'stabilising and war-winning'.* This allegation is both serious and puzzling as we do not make such a claim. As for 'war-winning' we constantly point to the reasons to doubt the possibility of victory in a nuclear war and note the reluctance of policymakers to use these weapons. After Japan, which had no nuclear weapons of its own, nuclear weapons have not been used to fight a war, even when they might have conferred some degree of military advantage. To recall Clausewitz, war is about the use of military means to achieve *political* ends. Due to the political consequences associated with nuclear use, conventional military forces remained the preferred means to *win* wars – despite their lack of success in many cases. The 'stabilising' issue is more complex. Nuclear weapons have added to the risks associated with major war, which is one reason why there has not been a third world war. In other situations they can be destabilising. Hence the international efforts to prevent further proliferation as well as the reluctance of those states that possess them to use them.

*We pay limited attention to 'authors who conceive nuclear deterrence practices as irresponsible, irrelevant, or incompatible with the state system'.* In addition to chapters dedicated to disarmament and anti-nuclear protest movements during the Cold War (as well as references to the recent achievements of their post-Cold War successors), and significant discussion of the

<sup>9</sup>See, for instance, Alan Robock and Owen B. Toon, 'Self-assured destruction: The climate impacts of nuclear war', *Bulletin of Atomic Scientists*, 68:5 (2012), pp. 66–74; Owen B. Toon, Alan Robock, Michael Mills, and Lili Xia, 'Asia treads the nuclear path, unaware that self-assured destruction would result from nuclear war', *The Journal of Asian Studies*, 76:2 (2017), pp. 437–45.

opposition of scientists, etc., we also refer to various strategic debates dealing with the limits of nuclear deterrence and the drawbacks associated with acquisition of nuclear weapons. In these chapters we regularly refer to critics of nuclear deterrence so this at most is an issue of degree. The reviewers mention some authors, such as Hans Morgenthau, that we did not include (contrary to the reviewers' claim, we did refer to Bertrand Russell on several occasions – see pp. 57–8, 216, 236–7, 254).

## Conclusion

More than two years have elapsed since the Fourth Edition was published. During that period several important developments in the nuclear field have occurred. The Treaty for the Prohibition of Nuclear Weapons is now established, albeit unsupported by the nuclear states and their allies. This may change at some point, particularly for the allies, but for the foreseeable future it seems unlikely. Russian aggression against Ukraine in February 2022 and Putin's dark warnings about the consequences of Western interference are if anything likely to encourage America's allies to hold on to nuclear deterrence. There has been little, if any, progress in reducing nuclear weapons, as provided for in the Non-Proliferation Treaty. Indeed, the reverse seems to be the case. The United Kingdom has abandoned a past commitment to reduce its nuclear stockpile. US-Russia arms control has taken serious hits in recent years with the collapse of the Intermediate Nuclear Forces and Open Skies treaties, although the New START Treaty was given a last-minute five-year reprieve. When, or rather if, a follow-on strategic nuclear arms treaty will be forthcoming, is hard to predict, though as we discussed in the book, the number of impediments is growing, due to developments in the military applications of cyber technology, artificial intelligence, unmanned aerial vehicles, as well as hypersonic weapons. Again, the Russia-Ukraine war has hardly created the best political climate for any sort of negotiations between the US and Russia, even if they could agree on such issues as the comprehensiveness of a follow-on strategic arms treaty.<sup>10</sup> NATO's forthcoming eighth Strategic Concept, due to be approved at the June 2022 Madrid Summit is almost certain to reaffirm the status quo of the Alliance's nuclear posture for at least another decade. Notably, this was going to be the case even before the Russia-Ukraine confrontation raised tensions again with NATO. Meantime, there are few signs of progress in the denuclearisation of North Korea. There may be more hope in persuading Iran to return to the JCPOA that Trump had previously abrogated with negotiations on a revived deal making some progress, although this too may be a victim of the increase in international tension resulting from the Russia-Ukraine war. Regardless, prospects for progress on a Middle East Nuclear Weapons Free Zone remain as elusive as ever. Although we had anticipated that China would continue to modernise its nuclear arsenal, including some limited increase in numbers, we had not expected as large an increase as has been reported in 2021.<sup>11</sup> Overall, these developments in the field are generally consistent with some of the most important themes we highlighted in the new edition, such as the continued attractiveness of nuclear arsenals despite policymakers' unwillingness to authorise their use, the strategic arguments used to perpetuate this state of affairs, the sharp decline of nuclear arms control, the recent successes of the disarmament community in influencing public debates, as well as the major hurdles they will face in the future.

As we contemplate the future of nuclear history, we agree in principle, with the reviewers' ambition for a more critical history. Nevertheless, we do have two broad reservations. The first comes back to our basic approach. Whereas our work focuses largely on individuals and ideas and policymaking processes, the reviewers prefer to emphasise structural issues. In this

<sup>10</sup>Heather A. Conley, Vladimir Orlov, Gen. Evgeny Buzhinsky, Cyrus Newlin, Sergey Semenov, and Roksana Gabidullina, 'The Future of U.S.-Russian Arms Control: Principles of Engagement and New Approaches', Center for Strategic and International Studies (March 2021), available at: {<https://www.csis.org/analysis/future-us-russian-arms-control-principles-engagement-and-new-approaches>}.

<sup>11</sup>Jeffrey Lewis, 'China is radically expanding its nuclear missile silos', *Foreign Policy* (30 June 2021).

sense, to loosely paraphrase Karl Marx, the ideas on nuclear strategy that dominate only do so because they conform with the preferences of the ruling elite, or to be more precise, the political-military-industrial elites with a stake in managing and developing nuclear weapons.<sup>12</sup> Against such forces advocating disarmament is an uphill ‘David-vs-Goliath’ struggle. Even this approach requires paying attention to the provenance of the ideas of the ruling elite and noting issues on which the elite is divided. This is part of the context of the evolution of nuclear strategy, but so too are factors such as geopolitical changes, new technologies, and shifts in norms and values. This is why the field continues to evolve.

In short, we’ve emphasised an approach that examines the interaction between content and context rather than one that suggests a one-way street in which context largely determines content, as if the role of ideas is confined to sustaining established structures and cannot shape or transform them. We also believe, unlike the reviewers, that it is vital to study the classic texts. *Evolution* is a work dealing with both nuclear strategy as an intellectual exercise, albeit one mostly intended to influence policy, as well as how nuclear strategy was understood and debated by policymakers. With respect to the latter, we believe that counter-factual analysis is less useful than exploring the historical record to demonstrate the wide range of debate on a variety of nuclear issues, from what types of nuclear weapons to procure to the ethics of their possession let alone use, from their fit with a wider military strategy to their role in international crises. Given that nuclear weapons are a reality of international politics, we were particularly interested in exploring how they were perceived from different geographic and cultural perspectives, as well as across different time periods. We looked to explain why some countries refrained from acquiring nuclear weapons, and why all nuclear states since 1945 have thus far refrained from using nuclear weapons ‘in anger’. This effort reflected a deliberate attempt to cast doubt on a type of thinking dominated by a ‘preoccupation with quantification and numbers – warheads, launchers, significant quantities, bomber bases, etc.’ – that seemed divorced from the realities of international politics. That type of thinking has its place in a history of nuclear strategy, as does the type represented by Egeland, Fraise, and Taha. The value of a critical history lies not in providing a challenge to everything that has gone before but to demonstrate how past debates have thrown up good and bad ideas, some which withstand critical scrutiny better than others, all of which are part of our continuing struggle to cope with living in the nuclear age.

**Professor Sir Lawrence Freedman** is Emeritus Professor of War Studies, King’s College London. He was Professor of War Studies from 1982–2014 and Vice-Principal from 2003–13. Before joining King’s he held research appointments at Nuffield College Oxford, the International Institute for Strategic Studies, and the Royal Institute of International Affairs. Elected a Fellow of the British Academy in 1995 and awarded the CBE (Commander of the British Empire) in 1996, he was appointed Official Historian of the Falklands Campaign in 1997. In 2003, he was awarded the KCMG (Knight Commander of St Michael and St George). In June 2009 he was appointed to serve as a member of the official inquiry into Britain and the 2003 Iraq War. Among his recent books are *Strategy: A History* (2013); *The Future of War: A History* (2017); *Ukraine and the Art of Strategy* (2019); and, with Jeff Michaels, the fourth edition of *The Evolution of Nuclear Strategy* (2019).

**Jeffrey H. Michaels** joined the Institut Barcelona d’Estudis Internacionals (IBEI) in September 2020 as the IEN Senior Fellow in American Foreign Policy and International Security. Earlier experience included working as a Senior Lecturer in Defence Studies at King’s College London, as well as serving as an official with NATO and the US Defense Department. He also holds Visiting Fellowships with the Department of War Studies at King’s and the Changing Character of War Centre, Pembroke College, Oxford.

<sup>12</sup>As Marx notes in *The German Ideology*, ‘The ideas of the ruling class are in every epoch the ruling ideas, i.e. the class which is the ruling material force of society, is at the same time its ruling intellectual force.’ See: {<https://www.marxists.org/archive/marx/works/1845/german-ideology/ch01b.htm>}.