

The Idea of ‘Limited Nuclear War’: As Impractical and Dangerous Now, As It Was Then

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*[T]he most fruitful area for current strategic thought is the
conduct and efficacy of limited nuclear war.*

– Henry Kissinger, 1957¹

Nearly six and a half decades after the above statement was made by Henry Kissinger, it seems to be yesterday once more. Yet again, the nuclear world seems to be standing on the threshold of being seduced by the utility of counterforce capabilities. Nuclear deterrence by denial, or the projection of an ability to fight a limited nuclear war, seems to be back in fashion. Such a school of thought is known to have guided US nuclear strategy between the 1960s and the 1980s. But, the idea of being able to successfully fight and win a nuclear war with another nuclear armed nation was pretty much abandoned by the late 1980s. This transformation in thinking came about as a result of many factors, but was facilitated, to a large extent, by the simultaneous presence of leaders in the USA and USSR who thought more strategically about nuclear issues.

Presidents Reagan and Gorbachev made a historic statement when they acknowledged that a nuclear war cannot be won and, therefore, should not be fought. With that, much of the chatter about nuclear war-fighting subsided. Thereafter, once the Cold War ended and as US-Russia relations improved between 1990 and 2014, it was expected that tactical nuclear weapons, the ostensible instruments of nuclear war fighting, would be eliminated through bilateral arms control. In fact, in 2011 when Pakistan first tested a very short-range ballistic missile, the Nasr, and claimed it as a nuclear weapon for a tactical role, there was much criticism of the move. That was the time when tactical nuclear weapons (TNWs) were considered more a problem than an asset in the nuclear arsenal.

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By 2014, however, relations between Washington and Moscow had begun to sour, and the possibility of arms control of TNWs dissipated. In fact, this was about the time that the idea of deterrence by denial was ready to make a comeback in American nuclear discourse. In line with this thinking, the US Nuclear Posture Review of 2018 inclined itself towards a doctrine and capability that would equip the US to fight and win ‘limited’ nuclear wars, and thereby deny Russia and China any chance of getting away with the use of a low yield nuclear weapon. The NPR was premised on the view that Moscow and Beijing had developed the capability to undertake the limited use of nuclear weapons. Therefore, the US felt compelled to reciprocate the same sentiment.

Why is the idea of a limited nuclear war back in the discourse? What is the rationale being put forth by the USA? Will new technologies heighten or reduce the possibility of a limited nuclear war? Can a nuclear war ever be limited? How will the advocacy of the idea of limited nuclear war impact the nuclear behaviour of others? What should India watch out for? Would any changes be necessary in its own nuclear doctrine? These are some of the questions that this essay attempts to answer.

The Concept of a Limited Nuclear War: The Original Rationale of the 1960s

Soon after the end of the Second World War, once the USA and USSR had established the balance of terror, the decade of the 1950s saw both looking at their steadily growing stockpile of nuclear weapons as a deterrent to threaten overwhelming destruction in retaliation to the adversary’s crossing of some red lines. With a reciprocal devastating damage capacity, deterrence rested upon the idea of mutual assured destruction (MAD).

Nuclear thinkers of the time, like Bernard Brodie, drew attention to the awesome destruction potential of the weapon. In fact, Brodie identified four reasons on why casualty rates with nuclear weapons would be far greater than non-atomic bombing²: the warning time would be virtually non-existent; the duration of an attack would, literally, be a single instant, not permitting any reaction time; shelters capable of protection would be of no use within the fire-ball radius; and, the radioactivity that would be released instantaneously - and which would linger on - would keep on causing further casualties. He opined that no exchange of nuclear weapons, once begun, could be kept limited. “It was, therefore, impossible to place any kind of limits on nuclear war. Nuclear war was, by definition, unlimited war.”³

A decade down the line, however, US analysts had begun to contemplate other strategies of deterrence that did not have to rely only on the threat of massive retaliation. In fact, this thinking emerged as a counter to the doctrine of massive retaliation announced in 1954. Its credibility was doubted by many nuclear strategists who opined that the large-scale use of nuclear weapons against any kind of conventional provocation was unrealistic, and would never be taken seriously by the adversary.⁴

Hence, in order to re-establish nuclear deterrence, the USA felt the need to signal a more effective use of nuclear weapons. Accordingly, proportionate response was recommended along a spectrum of flexible nuclear use. The concept of limited nuclear war then came into vogue. While there is no definition of a limited nuclear war, it may be taken to mean one in which a limited number of nuclear warheads with low yields are employed to attack a limited set of military targets to impact a limited geographical space for limited objectives. The idea would be to restrict the tempo, level of violence, or the breadth of conflict. Such an attack was meant to be illustrative of the destruction potential of a nuclear weapon, rather than unleashing its complete fury. The demonstration was meant to shock and scare the adversary to back off, and agree to the termination of hostilities on one's terms or suffer the full might of the strategic arsenal.

The execution of such an attack was to be enabled by the counterforce capabilities of high precision and accuracy that could allow more flexible strategic options for a 'discriminate' nuclear war. Technological advancements in the miniaturisation of nuclear warheads, the development of more and more accurate delivery systems, and better remote sensing to gain knowledge of enemy nuclear storage sites enabled the concepts of counterforce, city avoidance, escalation dominance, and measured retaliation. Accordingly, the administrations of Presidents Kennedy and Johnson replaced massive retaliation with the concepts of flexible and controlled response. These plans were eventually operationalised in the Single Integrated Operational Plan in the late 1970s, and became popular as the Schlesinger doctrine. MAD was replaced by the ideas put forth by the nuclear use theorists, or NUTS.

By the 1980s, these concepts had undergone several iterations, and come to be known as comprising the countervailing strategy. Its basic contours were best outlined by the US Secretary of Defence, Harold Brown, in the Annual Report of the Department of Defence to the Congress in 1981. He said,

large scale counter-value attacks may not be appropriate to deter the full range of potential Soviet threats... instead we could attack in a selective

and measured way, a range of military, industrial, and political control targets, while retaining an assured destruction capacity in reserve.⁵

Challenge of Fighting a Limited Nuclear War

NUTS premised nuclear deterrence on the projection of nuclear war fighting that envisaged operations in a logical and controlled manner. The idea of escalation dominance and cool control while using low-yield, small nuclear weapons on a limited number of military targets was rationally put forth. Improved offensive capabilities for counterforce attacks were their focus, as also active defences for damage limitation. The intent was to signal an ability to undertake a limited, pre-emptive, counterforce attack in order to deter the adversary from initiating or escalating a conventional conflict.

However, the question that soon raised its head was whether it was at all possible to direct nuclear forces to execute a controlled nuclear response. Fred Kaplan calls this the “unresolvable dilemma” since it involves the planning of “a nuclear attack that [is] large enough to terrify the enemy but small enough to be recognized unambiguously as a limited strike, so that, if the enemy retaliated, he’d keep his strike limited too”.⁶

Two challenges were clearly evident. The first of these pertained to the need for hugely sophisticated nuclear forces in sufficient numbers and types as well as an elaborate and delegated command and control capability to plan such an operation. TNWs had to be placed in the battlefield, and equipped with a certain amount of pre-delegation of authority for quick use when necessary. This meant that the field commander had his hand on the nuclear artillery (or its variants depending on the launch platforms), and he could get a country into an escalation spiral. This meant a serious dilution of centralised command and control. Meanwhile, irrespective of the detailed planning involved in use of TNWs, a strategic reserve arsenal had, nevertheless, to be built to a certain level, and maintained in a state of readiness for any eventuality. So, the former capability was not to replace the latter, but impose an additional burden in terms of the cost of build-up, maintenance effort, human resource requirement, and the command and control processes. And yet, despite everything, it still amounted to placing the survival of the nation in the hands of subordinate officers, any of whom could trigger a nuclear war.

Though these were supposed to be small nuclear weapons to fight a limited nuclear war, the second and even more problematic challenge arose from the uncertainty about the adversary’s willingness to play the game of a

limited nuclear war. In his book, *The Evolution of Nuclear Strategy* (1981), Lawrence Freedman states, "It takes two to keep a war limited." It could never be taken for granted by the first user that the adversary would read the signal of limited nuclear use correctly, and respond in the same manner. In fact, going by the experience of simulation exercises and the war games conducted during the Cold War, no war that began with the use of tactical nuclear weapons ever ended at that level. Freedman has described such use as resulting into

battles of great confusion; the casualties would be high; troops would be left isolated and leaderless; and morale would be hard to maintain. It would be difficult to ensure uncontaminated supplies of food and water or even of spare parts. The Army found it extremely difficult to work out how to prepare soldiers for this sort of battle and to fight it with confidence.⁷

Soviet thinking on the idea of a limited nuclear war during this period was described by Brodie in one of his writings as being "uniformly hostile and derisive. Especially derided has been the thought that wars might remain limited while being fought with atomic weapons."⁸ Many other American nuclear watchers too found no reference to limited nuclear wars, flexible responses, etc., in Soviet nuclear writings. Rather, according to a Soviet Major General, "the assertion made by supporters of 'limited' nuclear war that it could be kept within pre-planned limits and made 'controllable' is altogether false."⁹ The Soviets, therefore, interpreted US countervailing strategy as a move towards a credible first strike.

Meanwhile, the negative effects generated by such a posture were not insignificant. Firstly, it reduced the perceived risk of nuclear use by touting the idea that the use of a few, small nuclear weapons was a better proposition than the large-scale use of nuclear weapons. But, there was never any guarantee that the numbers in use would remain small. Secondly, by suggesting that use of some nuclear weapons would not be such a bad thing, the idea of limited nuclear war actually increased the temptation for their use. Thirdly, the increased likelihood of their use generated a sense of vulnerability in the country likely to receive such a limited strike. This, then, raised the incentives for pre-emption, thereby making a nuclear exchange more likely.

For NUTS, the risk created by the increased likelihood of use was actually beneficial to strengthen deterrence. That is what they sought to exploit. The limitation in this thinking, however, was the inability to factor in the adversary's capability and plan of operation as well as his rationality/irrationality quotient.

Swayed by such thinking for a while, Washington did liberally spend on offence and defence capabilities to give teeth to its countervailing nuclear strategy. Moscow too played along. By the mid-1980s, the two had accumulated as many as 65,000 nuclear warheads, including several thousand TNWs. Eventually, owing to a number of developments in the two nations, and across the world, a realisation of the dangers emerged, and the idea of limited nuclear war was discarded when Presidents Reagan and Gorbachev reached the understanding that nuclear wars could not be won, and must not be fought.

Re-emergence of the Concept: The New Rationale

The idea of limited nuclear use remained out of mainstream nuclear discourse roughly from the end of the Cold War to about the mid-2010s. A return to the old thinking, however, began in the USA from around 2014. An edited book published around that time made a case for reconsidering the concept in light of the changed US threat environment.

Given its international commitments and the possibility of future regional conflicts with small nuclear armed powers, the United States needs to be prepared for the possibility that it may one day find itself in a limited nuclear war...¹⁰

As said by one of the authors of the book, Jeffrey Larsen,

today we cannot assume that any war will remain conventional, particularly when facing a rogue state for whom the stakes are much higher than they are for the United States.... The fact that the US has thousands of nuclear warheads may not prevent an adversary, even in a small, limited conventional conflict, from crossing the threshold and using one or more of its weapons of mass destruction....¹¹

The book highlighted the concern that small nuclear powers could get the USA involved in regional conflicts. “Such adversaries may believe that only the threat to employ nuclear weapons would dissuade the US from engaging its superior conventional force.”¹² In order to deter such eventualities, the US NPR 2018 announced,

Expanding flexible U.S. nuclear options now, to include low-yield options, is important for the preservation of credible deterrence against regional aggression. It will raise the nuclear threshold and help ensure that potential adversaries perceive no possible advantage in limited nuclear escalation, making nuclear employment less likely.¹³

Yet another threat perception that is seen to merit the limited *use* of nuclear weapons is believed to have arisen from advances in the disruptive capabilities of Russia and China. Russia's ambiguity, cultivated or otherwise, on its right to use low yield nuclear weapons in response to aggression with non-nuclear weapons, widely referred to as 'escalate to de-escalate'¹⁴, is cited as the reason for Washington's search for a "range of limited and graduated options, including a variety of delivery systems and explosive yields."¹⁵ The NPR states, "Recent Russian statements on this evolving nuclear weapons doctrine appear to lower the threshold for Moscow's first-use of nuclear weapons ... Correcting this mistaken Russian perception is a strategic imperative."¹⁶ Russia counters that it was compelled to do so to address the threat created by US conventional global prompt strike (CGPS) involving the use of long-range, high precision delivery systems with non-nuclear weapons. Though Washington justifies this capability to handle time-sensitive terrorist targets, Moscow perceives them as a threat to its critical nuclear arsenal or infrastructure.

Meanwhile, from the US perspective, China too has been building advanced capabilities at a rapid pace. Its anti-access, area denial strategy has been particularly mentioned in many American security strategy documents as eroding the effectiveness of its deterrence by punishment. The argument goes that even in the case of small confrontations, the USA would be compelled to rely on its nuclear deterrence. But, this would be ineffective since adversaries would doubt that the USA would use nuclear weapons in such contingencies "in an era of public aversion to casualties..."¹⁷ The USA accuses Russia and China of having

introduced limited war techniques.... For Russia, 'jab and grab' land incursions; for China, the creeping militarization of maritime zones. Both techniques operate below the threshold of deterrence by punishment, and seek to create territorial *faits accompli* that lower the costs of revisionism.¹⁸

In order to address such threats, the US NPR has expanded the role of nuclear weapons to include the deterrence of large-scale conventional threats, cyber-attacks, or those against space assets. This is to be achieved by developing capabilities and options for the execution of 'limited' nuclear strikes. In order to make the threat of limited use look credible, the US NPR plans, in the short term, to "modify a small number of existing SLBM warheads to provide a low-yield option, and in the longer term, pursue a modern nuclear-armed sea-launched cruise missile."¹⁹ This capability has been described as necessary to have diversity in platforms, range, and survivability, besides being a hedge against future nuclear breakout scenarios and to bridge the

perceived “credibility gap”, especially in “low yield weapons”, to defeat Russia’s nuclear strategy.²⁰

In keeping with this vision, in January 2020, the US Navy reportedly deployed a low yield warhead, the W76-2, on its SLBM aboard the *USS Tennessee*. With a yield of 5-6 kilotons, it is deemed to provide a prompt and assured delivery capability against targets that require a quick response. The National Nuclear Security Administration (NNSA) announced that the “W76-2 will allow for tailored deterrence in the face of evolving threats”, and give the USA “an assured ability to respond in kind to a low-yield nuclear attack.”²¹ In the long term, the NPR has tasked the DoD to develop a nuclear-armed SLCM to “provide a needed non-strategic regional presence, an assured response capability.”

In US perception, all these capabilities will provide a diverse set of characteristics enhancing our ability to tailor deterrence and assurance; expand the range of credible U.S. options for responding to nuclear or non-nuclear strategic attack; and, enhance deterrence by signalling to potential adversaries that their limited nuclear escalation offers no exploitable advantage...²²

Russia, obviously, describes these developments as destabilising for lowering the nuclear threshold by indicating a willingness to wage a limited nuclear war. Its own focus on hypersonic delivery vehicles, autonomous drones - air and sub-sea - for nuclear delivery, etc. are all meant to deny the US political and military objectives, and shore up its own deterrence. China is following along similar lines. In the process, however, the idea of limited nuclear war is beginning to take root in the two countries and attracting the attention of other nuclear armed states, especially those like North Korea and Pakistan, that believe in brinkmanship as a strategy of deterrence.

Challenges Redux

As a consequence of these developments, the perception that appears to be gaining ground is that a limited nuclear war with low yield weapons is a credible and feasible military strategy.²³ But is it really? The political and military challenges of such a strategy stand clear from the period of 1960-80; but they will perhaps have to be refreshed in public memory. The belief that one could successfully conduct a ‘limited’ nuclear exchange, keep it limited, and somehow come back to business as usual is not only bizarre but also has serious implications for military build-up. It presages a renewed focus on building more and more accurate counterforce weapons for precision targeting.

Showcasing the feasibility of limited nuclear use will lead to a greater focus on the war-fighting aspects of nuclear weapons, and drive up tendencies for building arsenals with low-yield weapons and necessary counterforce delivery systems. Vertical nuclear proliferation may, therefore, exacerbate the chances of deterrence breakdown due to miscalculation and misunderstanding. These challenges will only be compounded by the fact that the number of nuclear armed states today are nine, and many nuclear dyads elongate into nuclear chains.

Even more importantly, the taboo against the use of nuclear weapons will be seriously damaged. The conduct of a nuclear exchange and the *successful* ability of the parties involved to keep nuclear war limited could set a precedent that others could be tempted to follow. The idea that two countries can survive a limited nuclear exchange, and resume 'near normal' relations could tempt others to acquire small arsenals to settle scores with adversaries. Nuclear proliferation could then be on the rise as the salience of nuclear weapons goes up. Another related danger would be a heightened possibility of nuclear terrorism by non-state actors. The availability of nuclear weapons, related material, and infrastructure in more states not only raises the risks of nuclear security but also raise the chances of terrorists also feeling liberated from the taboo against the use of nuclear weapons. If states can find limited use of nuclear weapons useful, so can non state actors. Therefore, a limited nuclear exchange is likely to bring about a sense of complacency in nuclear use that will be most harmful for international security.

Analysing India's Choices

India has a nuclear strategy based on deterrence by punishment. It does not believe in war-fighting with nuclear weapons, and considers limited nuclear war an oxymoron. Its nuclear doctrine categorically establishes that retaliation in the case of *any* use of nuclear weapons would be designed to cause unacceptable damage. The same thought was reiterated by Prime Minister Narendra Modi when he announced the first deterrent patrol of *INS Arihant* in October 2018.

As other nuclear-armed states once again explore old ideas of limited nuclear war, India must stay the course on the wisdom enshrined in its nuclear doctrine. India's understanding of the futility of war-fighting with nuclear weapons stems from insights into some basics. Not only should India not forget them, but also make every effort to get other nuclear armed states to revisit them. Two of these are briefly highlighted in the following paragraphs.

The first of these is that nuclear weapons are distinct from conventional weapons. The instantaneous release of large amounts of energy in the form of a blast and thermal heat, ionizing radiation, in addition to the long-term radiation from a nuclear fallout make nuclear detonations very different from others. Even low yield warheads will not be devoid of the deleterious effects of nuclear explosions. A report prepared by the Federation of American Scientists in 2001 had concluded that even a ground burst of a nuclear yield as small as 1 percent of the Hiroshima weapon, would “simply blow out a massive crater of radioactive dirt, which rains down on the local region with especially intense and deadly fallout.”⁷ Since these weapons are so markedly different from conventional weapons, even a “tactical” use would have grave strategic impacts and cause a humanitarian disaster.

Secondly, the probability of being able to undertake limited nuclear attacks with no, or only limited, blowback on own self amounts to wishful thinking when the adversary has a secure second-strike capability. Analytical studies on how to conduct limited nuclear wars can only make educated guesses on matters of critical planning. For instance, such a planner may be able to reasonably determine the physical effects of nuclear explosions based on the yield of weapons, the height at which they would burst, the amount of warning time the adversary may have, the time of the attack, etc. But, whether such calculations can completely factor in more complicated issues - such as the overall impact of the attack on the whole national complex, or other immeasurable imponderables such as “popular panic and administrative disorganisation”²⁴ - can never be ascertained. That a planned limited nuclear use will remain within those parameters is virtually impossible to determine, and it would be foolish to base one’s use of nuclear weapons on such an unknown.

A recognition of these basics has enabled New Delhi to eschew nuclear counterforce capabilities or nuclear war-fighting strategies. Deterrence based on the ability to cause unacceptable damage is the primary purpose of the nuclear weapon. And, India seeks to deter all use of nuclear weapons, irrespective of whether the adversary propagates them as limited or otherwise, with its own ability to cause unacceptable damage. Those who argue in favour of proportionate response as sounding more credible, need to answer the following questions: how does one determine what is proportionate in the case of nuclear weapons - the use of the same number of weapons? the use of the same yield of weapons? the use on the same number and type of targets? Or, the sameness of the number of people killed in the immediate fireball, and then later due to ambient surviving radioactivity?

It is best if the genie of the use of nuclear weapons is not allowed to escape the bottle. The nuclear weapon is a weapon of mass destruction, and is best suited for deterrence. The credibility of this deterrence rests in signalling the availability of capability and the resolve to use it, irrespective of the nature of the use. The pursuit of nuclear war fighting capabilities (ostensibly for the purpose of deterrence) through the greater accuracy of nuclear-tipped missiles, elaborate intelligence, surveillance and reconnaissance infrastructure, and damage limitation defences is not only a financially exhausting exercise but may also prove to be dangerous by actually bringing about deterrence breakdown. On the other hand, deterrence by punishment requirements for counter value attacks can be relatively easy from the technological point of view, and fewer in numbers - thus being financially less demanding. By following the latter approach, India helps rationalise its deterrence requirements and avoid a wasteful, dangerous competition in counterforce capabilities.

Conclusion

The idea of limited nuclear use or a small nuclear war threatens to disrupt the organising principle of nuclear deterrence that kept the possibility of nuclear war at bay over the last few decades since war-fighting with nuclear weapons was seen as self-defeating. Of course, counterforce targeting is today far more possible than it ever was, and it tempts nations into believing that limited, small nuclear wars can be custom made to suit situations. Such thinking, however, is akin to tilting at windmills. While the first use of the weapon might be carefully calibrated to cause minimum collateral damage, there can be no guarantee that the recipient of such an attack would not follow a quid pro quo plus strategy, which would not lead to a similar next attack, and so on. It is best that the nuclear weapon is not allowed to be used at all - small or big. The focus of the nations must be on preventing any first use of the weapon because retaliation could prove to be unpredictable. The more nations move towards the idea of being able to contain a small nuclear war, the further we are moving along the road towards conventionalising their use. And, when a small nuclear war turns into a big one, or a war conceived as limited turns into a less limited, would be anybody's guess. Limited nuclear wars remains as unreasonable and dangerous now as it was when the idea was first toyed with and discarded in favour of better sense that nuclear weapons are not for warfighting. Hopefully, the same good sense would dawn once again on the nuclear powers before a humanitarian disaster is created.

Notes :

- ¹ Henry Kissinger, *Nuclear Weapons and Foreign Policy*, New York: WW Norton, 1969; orig. published 1957.
- ² Bernard Brodie, “Implications of Nuclear Weapons in Total War”, *Rand Research Memorandum*, RM-1842, July 8, 1957, p. 13.
- ³ *Ibid.*, p. 15
- ⁴ See, for instance, the writings of Robert McNamara on flexible response; James Schlesinger on selective targeting; and Harold Brown on countervailing strategy.
- ⁵ As cited in Louis Rene Beres, “Tilting towards Thanatos: America’s ‘Countervailing’ Nuclear Strategy” in Klaus Knorr (ed.), *Power, Strategy and Security*, New Delhi: Asian Books, 1987, p. 83.
- ⁶ Fred Kaplan, *The Bomb: Presidents, Generals and the Secret History of Nuclear War*, Simon and Schuster, 2020, p. 120
- ⁷ Lawrence Freedman, *The Evolution of Nuclear Strategy*, Third edition, (New York: Palgrave Macmillan, 2003), p. 104
- ⁸ Bernard Brodie, *Strategy in the Missile Age*, Princeton: Princeton University Press, 1959, p. 322.
- ⁹ As cited in Klaus Knorr, n. 5, p. 85.
- ¹⁰ Jeffrey A Larsen, “Limited War and the Advent of Nuclear Weapons”, in Jeffrey A. Larsen and Kerry M. Kartchner (eds.), *On Limited Nuclear War in the 21st Century*, Stanford, Calif: Stanford University Press, 2014.
- ¹¹ *Ibid.*
- ¹² *Ibid.*
- ¹³ Office of the Secretary of Defence, *Nuclear Posture Review*, February 2018, at <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEARPOSTURE-REVIEW-FINAL-REPORT.PDF>, pp. 17–18
- ¹⁴ There is much confusion about whether Russia has ever claimed this as its nuclear strategy. For an insight into this debate, see Olga Oliker and Andrey Baklitskiy, “The Nuclear Posture Review and Russia De-escalation: A Dangerous Solution to a Non-existent Problem”, *War on the Rocks*, 20 February 2018, at <https://warontherocks.com/2018/02/nuclear-posture-review-russian-de-escalation-dangerous-solution-nonexistent-problem/>
- ¹⁵ NPR, n. 13, pp. 30–31
- ¹⁶ *Ibid.*
- ¹⁷ A. Wess Mitchell, “The Case for Deterrence by Denial”, *The American Interest*, 12 August 2015, at <https://www.the-american-interest.com/2015/08/12/the-case-for-deterrence-by-denial/>.

¹⁸ Ibid.

¹⁹ NPR, n. 13, “Executive Summary”, p. xii

²⁰ Ibid., p. 18

²¹ William M. Arkin and Hans Kristensen, “US deploys New Low-Yield Nuclear Submarine Warhead”, Federation of American Scientists, 29 January 2020.

²² NPR, n. 13, p. 19

²³ For more on arguments in favour of this strategy, see Matthew Kroenig, “The Case for US Tactical Nukes”, *Wall Street Journal*, 24 January 2018, at <https://www.wsj.com/articles/the-case-for-tactical-u-s-nukes-1516836395>

²⁴ Brodie, n. 2, p. 21.

