

Better late than never: Considering a Virtual Nuclear Arsenal for Britain

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The notion of deterrence premised upon the latent threat of deconstructed nuclear weapons remains a relatively obscure branch of contemporary strategic thought.¹ This concept first gained popular recognition following Jonathan Schell's argument for 'weaponless deterrence' (1984). This argument was subsequently developed in a series of publications throughout the 1990s under the standard of 'virtual nuclear arsenals', or 'virtualisation' in strategic parlance.² A considerable degree of criticism developed alongside these contributions and, as the twentieth century drew to a close, the broader debate over the validity of a virtual nuclear deterrent largely evaporated.³ This article considers this debate to have ended prematurely and, more specifically, believes the unilateral adoption of a Virtual Nuclear Arsenal (VNA) to be a preferable alternative to Britain's present nuclear posture.

This article presents a three-pronged case for the adoption of a VNA in Britain. Part I, 'Practical Considerations', reveals why virtualisation is practicable within Britain's existing nuclear infrastructure, noting similarities to India's largely recessed nuclear deterrent. Part II, 'The Benefits of Virtualisation', explores why a

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² Molander & Wilson 1993, pp.47-52; Mazarr 1993, pp.73-75; 1995; 1997; 1999.

³ Booth & Wheeler 1992, pp.21-55; Waltz 1997, pp.309-18; Cohen & Pilat 1998, pp.129-144; Gray 1999, pp.85-88.

VNA should be adopted in Britain. It is argued that the adoption of a VNA serves to complement the diplomatic aspirations of the British government whilst simultaneously improving national security. Furthermore, the argument for virtualisation as a stepping stone towards disarmament is strengthened by the appropriateness of its timing and its newfound political expediency. Part III, ‘Sustaining Deterrence’, attempts to prove that Britain’s deterrent capabilities would not be harmed by the adoption of a VNA. Taken together, these arguments seek to address the surprisingly lengthy absence of discussion on this matter and, more specifically, Britain’s broad exclusion from such debates over the last two decades.

Practical Considerations

The adoption of a VNA is best understood as a shift in a state’s strategic nuclear posture. Specifically, a state would replace its operationally deployed nuclear weapons with stockpiles of largely deconstructed nuclear weapons. Nuclear deterrence, however, would be sustained by the threat of reconstruction and deployment. The argument presented throughout this paper is therefore based on the reasonable presumption that a sufficient number of Britain’s disassembled nuclear weapons could survive a first strike. Reconstruction would thereby ensure a state’s second strike capability and consequently provide a valuable hedge against future acts of aggression.

The concept is therefore quite distinct from arguments for complete nuclear disarmament. Although both present a strong conceptual utility, disarmament fails to appreciate, and thereby affect, deep-seated strategic-political needs. Conversely, a VNA can satisfy the underlying premises of existing nuclear policy and thereby better facilitate policy change in Britain. From a more practical perspective,

disarmament would require the total abolition of every component of Britain's nuclear weapons infrastructure. A VNA would instead sustain Britain's nuclear infrastructure, removing only all pre-assembled or ready-for-use nuclear weapons. Nuclear weapons could, at all times, be reconstructed and launched therefore delaying, rather than abandoning, their inherent strategic utility.

Such a concept is certainly not without precedent. Indeed, a growing body of literature has emerged over the last decade concerning the 'option strategy' or 'recessed' nuclear deterrence that has been established in India (Perkovich 1999; Tellis 2001; Basrur 2005). Given that Indian nuclear arsenals are largely deconstructed and not ready for immediate use it is reasonable to consider them to be *virtual* nuclear arsenals. Beyond the theoretical value of this example, little consideration has been given to India's remarkable relevance to the British strategic context. In keeping with India's self-proclaimed reliance upon minimum deterrence, Britain presently possesses less than one percent of the world's nuclear weapons, having greatly reduced its nuclear weapon stockpiles in the post-Cold War period.

Moreover, the British and Indian governments strongly adhere to the idea that nuclear weapons remain desirable in the context of pressing national security concerns. Both nuclear weapons states are committed to retaining, and developing, their nuclear capabilities. The Indian nuclear model, however, is helpful in revealing that a virtual nuclear weapons state (VNWS) does not equate to a rejection of the use, or continued research and development, of nuclear weapons (Tellis 2001, pp.725-6). Instead a VNWS simply rejects any reliance upon operationally deployed nuclear weapons, as is presently the case in Britain. The adoption of a VNA therefore need not be immediate or irreversible. Britain's

existing nuclear infrastructure could become increasingly virtualised, culminating in the creation of a VNWS over several decades. One might consider this process as an inversion of India's gradual progression from 'nuclear capable state' to 'nuclear weapon power' (Tellis 2001, p.211, 725).

There are numerous gradients of virtualisation. Indeed, the first step towards becoming a VNWS has already been taken by the British government. British nuclear weapons have been de-targeted since 1994 (Reid 2005). Accordingly, no defined targets presently exist, leaving all weapons unready for *immediate* use. It is true that removing fuel from missiles and deactivating guidance sets would all increase the virtual nature of Britain's nuclear arsenal. However, such actions serve only to add more time to potential nuclear re-deployment. Britain could only become a truly VNWS by dismantling its nuclear weapons, specifically ensuring that nuclear cores and detonation sets are removed from their delivery vehicles and stored separately. These steps would ensure a more protracted period of reconstitution and, ultimately, use. Such steps would provide an important step towards the benefits of disarmament without surrendering Britain's nuclear deterrent.

From a technical perspective, Britain's current Trident submarine force would remain essentially unchanged. It would, however, carry largely disassembled, rather than fully active, nuclear weapons. The submarines would continue to operate as an effectively undetectable deterrent beneath the ocean. Consequently, all weapons onboard could be deconstructed, and reconstructed, in complete safety. Such reconstruction processes already occur during maintenance checks, with missile guidance sets and warhead batteries safely replaced onboard. The distinction would be *keeping* the components separate. Critics will rightly question whether such

virtualisation offers anything more than a brief delay to Britain's present nuclear posture. What needs to be understood is that the aforementioned examples offer only the first step of a much longer process.

Once this initial change towards a VNA system was in place the British government could subsequently lengthen or shorten the rearmament process as they saw fit. More complex levels of deconstruction could be performed onboard as confidence in virtualisation grew. Processes of deconstruction could develop to the point at which one weapons system was shared across two submarines, operating beneath the world's oceans. To be sure, this would notably slow any process of reconstruction. There is, however, little reason to believe that such a delay would undermine a secure reconstruction process. Consequently, the Trident force's ability to *ultimately* launch a retaliatory strike is left unaffected. If the adoption of a VNA is practicable, it then becomes essential to understand why Britain should wish to alter its present nuclear posture.

The Benefits of Virtualisation

The British government strongly adheres to the idea that fully constructed and operationally deployed nuclear weapons remain fundamental to national security (Browne 2007). The nuclear weapon status quo is thus reinforced and self-perpetuated. This conception of national security, however, fails to adequately address the lingering and inherent dangers posed by Britain's continued reliance on nuclear weapons. This threat is comprised of several distinct, but interrelated, dangers. Of particular importance is the small lead-time between the decision to use, and the launch of, nuclear weapons. Separating nuclear warheads from their delivery

vehicles, as proposed in the adoption of a VNA, would virtually eliminate the dangers of accidental launch. Moreover, this could be achieved without requiring the tremendous political advancements necessary for full nuclear disarmament (Glaser 1998, p.118).

It has been argued that the accidental use of nuclear weapons is somewhat doubtful (Quinlan 1993, p.488). Although well considered and eloquently argued, serious doubts emerge regarding basic assumptions that nuclear war can only occur when political leaders decide it to be in their interests. Scott D. Sagan has convincingly highlighted the inherent dangers residing in the maintenance of nuclear weapons (1995). First, it is impossible to guarantee the mental stability of each and every individual responsible for managing nuclear weapons. Second, the majority of the critical decisions leading to accidental launch occur at lower operational levels. Decisions can therefore occur without the full and prior consent of political authorities. Any nuclear weapons state operates with inherent dangers, both in command and control, which are exacerbated in times of stress. A VNA could better dilute such structural dangers by allowing more time for communication in stressful periods and by lessening the immediate consequences of accident and error. To be sure, it is impossible to accidentally launch or steal a nuclear missile if one is largely deconstructed. Indeed, even those sceptical of a VNA have conceded this point (Gray 1999, p.86; Booth & Wheeler 1992, p.32; Waltz 1997, p. 310).

Beyond these international dangers, the existence of operationally deployed nuclear weapons threatens domestic security. Considering the United States, for example, '[n]uclear bombs have been inadvertently dropped from aircraft [...] In a number of cases, warning sensors have reported false indications that the United States was under nuclear attack [...] Individual military officers certainly

have become mentally unstable' (Sagan 1995, p.250). Such problems are not unique to the United States. Appreciating that data on nuclear accidents remains highly restricted it has nevertheless been revealed that there have been at least twenty incidents with Britain's nuclear weapons between 1960 and 1991 (Evans 2003). Although it is doubtful that Britain has ever come close to an accidental detonation it is reasonable to conclude that domestic security cannot be guaranteed as long as fully constructed weapons continue to exist. Adopting a VNA would mean that any potential future accidents would be small and, as further steps were taken, ultimately non-nuclear. As Gray remarks, a 'virtual nuclear arsenal has the attractive quality that it will not explode by accident' (1999, p.86).

A VNA is thus highly appealing to pessimistic assessments of domestic safety. Indeed, it has been suggested that the risks and costs associated with a fully deployed nuclear arsenal have inhibited India's decision to move away from its presently recessed deterrent (Tellis 2001, p.249). Nuclear accidents, whether domestic or international, remain an inherent possibility of Britain's existing nuclear infrastructure. Although the scale may vary, ultimately accidents will occur. By the nature of these weapons, it may well be catastrophic. A VNA removes the threat of immediate or accidental nuclear war, whilst simultaneously reducing the threat of domestic accident.

Arguments that a VNA is unattractive because national policy makers are content with existing methods present a very common, but wholly unsatisfactory, criticism:

none of the existing NPT-licensed, nuclear weapon states would be strategically comfortable moving from the now familiar condition of being more or less ready for nuclear action, into some zone of only near-nuclear armament [...] There are some ideas in strategic studies that are too clever, too eccentrically brilliant, or just too eccentric to be real contenders for policy or strategic adoption (Gray 1999, p.87).

The argument that one can logically reject an idea because it is 'too clever' is somewhat unsettling. Furthermore, many leading statesmen in Washington, Moscow, London and Paris have, however, expressed an interest in changes to present nuclear weapons policy (Schell 1998). Ultimately, as with all hazardous technologies, it is important to appreciate that simply because something is familiar and functioning adequately at the present time, one should not shirk the need for reconsideration and improvement (Sagan 1995, p.259).

Despite such domestic advantages, some strategists might be anxious that the unilateral adoption of a VNA would undermine Britain's broader international commitments. Such criticisms overstate the importance of nuclear weapons within existing strategic relationships. Alliance commitments are almost entirely served by Britain's conventional forces. Moreover, security concerns, once dominated by fear of apocalyptic war, are now led by fears of terrorism, rogue states, and unpredictable potential enemies with access to Weapons of Mass Destruction (WMD). Strong conventional forces present a much more credible alternative to such threats: 'If the west has to use force to meet, control or deter nuclear threats by lesser powers, it will almost certainly prefer to use conventional force rather than nuclear' (O'Neil 1995, p.748). Nuclear deterrence, virtual or physical, is near impossible to utilise against smaller groups. Not only is this demonstrably true but conventional weapons are far more politically expedient than nuclear weapons for the purposes of retaliation (O'Neil 1995, pp.748-9).

It has been suggested that the physical removal of nuclear weapons might raise suspicions that Britain was seeking to escape its alliance commitments (Booth and Baylis 1989, p.174). Although this particular argument was raised in the context of nuclear disarmament, it remains worthy of consideration. Britain's adoption

of a VNA would, at first glance, appear somewhat counterintuitive to its existing obligations to NATO:

[T]he Alliance's conventional forces alone cannot ensure credible deterrence. Nuclear weapons make a unique contribution in rendering the risks of aggression against the Alliance incalculable and unacceptable (NATO 1999, Paragraph 46).

Importantly, however, NATO has never categorically stressed the need for any physical actuality. The alliance merely stresses the need for nuclear deterrence and the threat of unacceptable destruction. A VNA could adequately facilitate such requirements by perpetuating deterrence. Moreover, the rationale underlying NATO's maintenance of nuclear weapons is better served by the adoption of a VNA.

Since 1991, NATO has dramatically reduced its sub-strategic nuclear forces, eliminating all nuclear artillery and ground-launched short-range nuclear missiles, whilst its nuclear forces no longer target any country. Furthermore, NATO has significantly relaxed the readiness criteria of its nuclear-rolled forces and terminated standing peacetime nuclear contingency plans. With regard to future threats, it concedes: 'The circumstances in which any use of nuclear weapons might have to be contemplated by them are therefore extremely remote' (NATO 1999, Paragraph 46). Accepting this shift in NATO's needs, the role of nuclear weapons now lies solely in establishing a deterrence framework. The adoption of a VNA therefore need not harm alliance solidarity or, equally importantly, its practical demands. One must, however, avoid the temptation to exaggerate any diplomatic benefits.

It has been suggested that a state adopting a VNA would be provided with greater international stature which would, in turn, encourage international recognition and domestic pride (Mazarr

1999, p.76). Accepting a unilateral approach tailored to British needs, rather than Mazarr's multilateral preference, such achievements would be more limited. It would be difficult to prove, for example, that virtualisation had occurred given the British government's understandable reluctance to allow inspections throughout its own nuclear facilities. However, this fails to completely undermine the potential for future imitation. As other states came to consider the British model of virtualisation, however sceptically, it would become possible to regard virtualisation as an alternative to the present extremes of operational deployment and full disarmament. Accordingly, a VNA could subtly begin to address the underlying dangers of horizontal nuclear proliferation.

Presently, Britain's failure to challenge its own nuclear orthodoxies serves only to encourage the growing threat of global nuclear proliferation and, ultimately, conflict. The adoption of a VNA offers an important contribution to this dilemma. The existing proliferation debate is framed around two diametrically opposed viewpoints. According to Kenneth Waltz, 'Nuclear weapons, responsibly used, make wars hard to start. Nations that have nuclear weapons have strong incentives to use them responsibly [...] Because they do, the measured spread of nuclear weapons is more to be welcomed than feared' (1981). By contrast, Sagan challenges this proposed connection between international stability and nuclear weapons. He suggests such proliferation optimists mistakenly see war as 'a rational tool, controlled and used by statesmen, to achieve important ends' and challenges the belief that wars 'do not begin by accident' (1995, p.262). As neither absolute of the horizontal proliferation debate has been achieved, both theories remain unsatisfied. Nevertheless, it is unlikely that the British government

would welcome the minority of states working towards the acquisition of nuclear weapons (Buzan & Herring 1998, pp.64-68).

The point that should be made is that a VNA could produce a more satisfactory version of the Waltz-Sagan debate by changing its key variable. In sum, nuclear weapons states would be replaced by *virtual* nuclear weapons states. Although Britain's adoption of a VNA would not solve the proliferation debate, it clearly presents a more palatable alternative to its contemporary dimensions. The virtual nuclear stalemate between India and Pakistan, for example, is far more preferable to the stockpiled nuclear confrontation between the U.S. and Soviet Union during the Cold War. Moreover, virtualisation might even help to reverse the current trend of proliferation. It is possible that as virtual nuclear arsenals became legitimised they might also encourage nuclear-armed states to consider disarmament (Cohen & Pilat 1998, p.142; Perkovich & Acton 2008, p.102).

Critics of virtualisation have rightly highlighted the difficulty of establishing a global disarmament regime or legitimate international order following the implementation of a VNA (Booth & Wheeler, 1992, p.37). Such an insistence on world government, however, ignores the possibility of far less dramatic changes and the plausibility of unilateral action. Despite the ubiquitous nature of multilateralism within the majority of VNA scholarship, unilateral adoption is a viable form of virtualisation. Moreover, it can successfully encourage imitation. Conversely, calls for a multilateral approach towards virtualisation are far more cumbersome to implement and, more pressingly, deeply intrusive to national security. Issues of international agreement and subsequent methods of verification become seemingly impossible barriers to change within the international community. Consequently, in proposing a global

system of virtual nuclear arsenals for all, many strategists, in effect, create a solution for none. In this sense, it is possible to agree that some proponents of virtualisation have exaggerated the prospects for the creation of a multilateral verification regime, particularly between sworn enemies (Booth & Wheeler 1992, p.37). This has often led many to prematurely conclude that a VNA is therefore impossible to implement.

Instead, as this article stresses, states will not, but need not, all simultaneously transition to a VNA. A process of virtualisation could be adopted by any nation, but equally so too could rearmament, meaning that all states can disarm independently of a global contract. In rejecting the need for an immediate global transition in favour of a gradual state-by-state progression, the process of virtualisation would be reassuringly legitimated by an increasing sense of global participation. It would therefore not matter that some states might refuse to join an abolition agreement, as some critics have worried (Booth & Wheeler 1992, p.37). To be sure, not all states would be influenced by such a precedent. Yet, it still remains more likely that states will come to consider the virtual alternative as a precedent emerges. Indeed, India's virtual nuclear posture begot Pakistan's virtual nuclear posture.

The political benefits associated with the adoption of a VNA are not limited to better addressing the current trend of nuclear proliferation. Senior ministers within the British government have spoken of Britain becoming a 'disarmament laboratory' (Beckett 2007; Browne 2008). These lone voices have more recently been joined by a broader chorus of dissent (Hurd et al 2008). A VNA respects this desire to shift political emphasis away from nuclear weapons towards a world free of nuclear weapons. Such arguments have traditionally been the preserve of 'minimum deterrence'

proponents. Changes in nuclear weapons stockpiling, it is alleged, 'can help in de-emphasising the importance of nuclear weapons in relations between states' (Herring 1991, pp.106-7). There is no reason that these alleged benefits could not be transposed upon a virtual, rather than minimum, deterrent. Moreover, a VNA has the benefit of avoiding the anxiety with which many strategists view the term minimum deterrence and its perceived threat to effective retaliation. A VNA poses no such danger but can ably de-emphasise the importance of nuclear weapons. In producing a 'third-way' from the traditional 'either-or' disarmament debate, a VNA can credibly begin to address many of Britain's long-standing international commitments. This would be a major achievement in securing a stable international nuclear peace. As Jervis notes, 'in nuclear peacemaking the ability to make credible promises is as important as the ability to make credible threats' (Jervis 1984, p.167).

Sustaining Deterrence

It has been suggested that the adoption of a VNA pushes the concept of nuclear weapons security into the direction of troubling post-existential deterrence: 'I deter therefore I do not need to exist' (Booth & Wheeler 1992, p.33). Although a well crafted argument, it is somewhat disingenuous. It is the threat of rebuilding, rather than the threat of absence, which validates a virtual nuclear arsenal. The threat of mutually assured destruction would therefore continue to provide the central basis of British nuclear deterrence, irrespective of any immediate physical actuality. To clarify, strategic deterrence involves the *threat* of force in order to prevent the use of force (Morgan 1983, p.11; 2003, p.1; Freedman 2004, pp.26-27). The very core of deterrence rests on the promise, or threat, of retaliation. This is achieved through the manipulation of fear to forge a position

of strategic stalemate. It does not necessarily follow, therefore, that physical actuality is a prerequisite of deterrence. In sustaining a virtual or a tangible nuclear arsenal, Britain would continue to threaten the use of its nuclear weapons so as not to use them. As Schell remarked, 'either way, paradox is our lot' (1984, p.112).

Of course, any nuclear deterrence, virtual or otherwise, cannot transcend wilful destruction. Despite this, it has been claimed that conceptions of a VNA are inherently weak because they ignore the possibility of those who are 'beyond deterrence', namely irrational leaders or rogue states who would be undeterred by the threat of a nuclear holocaust (Booth & Wheeler 1992, p.33). This is somewhat unfair, as it is a criticism that can be made against existing nuclear weapons policy, and with equal weight. Indeed, a traditional, or physical, nuclear deterrent is quite unable to defend against a direct nuclear attack from an aggressor. Instead it relies on deterring any such act. Nuclear deterrence thereby only suffers in the existence of a state that chooses, or fails to understand, wilful destruction in order to satisfy its own needs. This is so limited a threat, and a threat that is indefensible, it is of little use to contemplate, and fails to constructively criticise any policy of deterrence, particularly those of a virtual nature.

A VNA effectively maintains a viable nuclear deterrence. Accepting that the ease and speed of a first or second strike would be altered, ultimately offensive or retaliatory measures would still occur, following a predetermined delay. The reconstitution of nuclear weapons can therefore be understood as an additional stage in the process of escalation from peace to confrontation to nuclear war:

The levels of nuclear armament, from zero up to a full-scale doomsday machine, can be pictured as lower rungs on that same ladder, and the levels of technical and industrial preparation for the production of nuclear arms as still lower rungs (Schell 1984, p.122).

Rearmament, not the speed at which retaliation can occur, is what perpetuates the stability of deterrence. India provides a strong example whereby 'the possession of even a few survivable nuclear weapons capable of being delivered on target [...] is seen as sufficient to preserve the country's security' (Tellis 2001, p.269).

Criticisms, however, persist and generally converge upon the problem of cheating. This is perhaps the weakest criticism of a VNA, particularly when considering unilateral adoption in Britain. Gray has suggested that, for a virtual deterrence, even limited cheating would be catastrophic. Countries would, he argues, wait for others to disarm and then rebuild in secret to launch an overwhelming and unanswerable surprise attack. Gray, amongst others, wrongly pre-empted the only solution possible to this dilemma as the adoption of a global disarmament regime which he then goes on to criticise as being unverifiable and unenforceable (Gray 1999, p.116; Cohen & Pilat 1998, p.141).

This paper, however, departs from any such approach to a VNA and specifically the need for international cooperation and verification. It is therefore impossible to 'cheat', as Britain's decision to virtualise is taken irrespective of any other nation's actions. The challenge is thus not cheating, but the risk of nuclear confrontation and the threat posed to the survivability of Britain's nuclear weapons. Perkovich & Acton rightly question whether virtual arsenals might be vulnerable to attack (2008, p.103). It therefore becomes essential to understand how such survivability could be achieved from a more practical basis.

Traditional solutions suggest that the adoption of a VNA could be strengthened by relatively limited strategic defences. Such solutions presume the existence of disassembled nuclear weapons on land-based sites and fail to ensure complete survivability. Britain's

present Trident submarine force would, however, allow the full reconstruction of nuclear weapons onboard in complete safety underneath the world's oceans, making them virtually invulnerable. The absence of, and immense costs of creating, the technology to make the oceans transparent merely reinforces the survivability of Britain's proposed VNA. Complete reliance upon the Trident system therefore highlights the utility of virtualisation within the British strategic context, as opposed to the vast majority of other nuclear powers (Mazarr 1997, p.19). India, by contrast, would require complex operational shifts to reap such benefits (Tellis 2001, p.459).

There is therefore no technical reason as to why reconstruction, and thus retaliation, could not occur. This reality refutes arguments that the concept of a VNA ignores a broader domestic-political context where some societies, each with differing nuclear weapons capacities, would be much better at cheating than others (Booth & Wheeler 1992, p. 38). If stockpiles were concealed, their use would be ultimately self-defeating. Bernard Brodie's work for the Department of State in the post-war period showed that deterrence undermines any such challenge: 'the fact that [an aggressor] destroys the opponent's cities some hours or even days before its own are destroyed may avail it little [...] Under those circumstances, no victory, even if guaranteed in advance—which it never is—would be worth the price' (Quoted in Kaplan 1983, p.31). This precedent merely reinforces the inherent strategic credibility of a VNA and its ability to deter. Ultimately, a delayed retaliation is just as valid as an immediate retaliation within the realm of nuclear deterrence.

British officials continue to prepare for an uncertain nuclear world some ten to fifteen years in the future (Quinlan 1993, p.487). Appreciating this dilemma of future uncertainty, the conditions

necessary for the adoption of a VNA in Britain are instead premised only on the ability to perpetuate the permanent threat of rearmament. This, in turn, unilaterally stabilises any new virtual condition. Accordingly, suggestions of destabilisation, both during and after a process of virtualisation, are largely unfounded. Dealing with the former, it has been argued that the risk of moving from present policy, which has proved so successful over the last five decades, to something as radical as the physical removal of nuclear weapons threatens to destabilise the present strategic balance and is therefore too great a risk to take (Booth & Baylis 1989, p.310). Although John Baylis made this argument with regard to traditional notions of nuclear disarmament, it is worthy of consideration within the context of virtualisation. Such an argument reveals the utility of deterrence, not nuclear weapons. In arguing for the adoption of a VNA one must not confuse the two. Indeed, Baylis later showed a reasonably favourable assessment of Virtual Nuclear Arsenals (1998, pp.648-9). Moreover, such arguments ignore the relative success of the delayed deterrence presently in operation between India and Pakistan, and its role as a viable instrument of statecraft (Tellis 2001, p.715). It is difficult to see what additional stability could be produced by either state adopting a fully deployed and assembled nuclear stockpile.

Returning to the latter point, it has also been argued that any such process of virtualisation poses an inherent danger that subsequent clashes between states would carry the highly destabilising risk of nuclear rearmament (Booth & Wheeler 1992, p.32; Cohen & Pilat 1998, p.141; Perkovich & Acton 2008, p.103). Although the adoption of a VNA is reversible by its very nature, any VNWS would be quite aware that nuclear rearmament would produce limited rewards. Such an action would contradict the benefits of

adopting a VNA in the first place. Furthermore, if such action were taken for the purposes of launching a pre-emptive strike, the result would be retaliation. Rearmament therefore returns a VNWS to a posture it had presumably sought to escape in the first place, and does so at additional cost. Although nuclear rearmament is therefore unlikely, it does remain a possibility. The alleged dangers posed by the rearmament of a VNWS, however, require more consideration than they have previously been afforded.

Rearmament would only destabilise the *virtual* status quo in operation between rearming states. This is a crucial distinction. Rearmament would ultimately be no more destabilising than a return to a posture of immediate nuclear readiness. It is difficult to appreciate how the momentum of rearmament could ever exceed these limits. Nuclear deterrence would continue to impede outright nuclear confrontation. Furthermore, the delay in rearming would actually provide more time to address the causes underlying rearmament. Accordingly, delay could potentially avert imitation by other states. The alleged threat of rearmament is therefore dramatically more appealing than the permanent immediacy of nuclear confrontation underlying existing nuclear weapons policy. In this sense a ‘delayed deterrence’ is not only adequate but preferable.

It has been argued that a taboo on the use of nuclear weapons has grown since their last utilisation in conflict. This taboo has become ‘more embedded and internalised’ helping ‘to restrain use of nuclear weapons [...] through more constitutive processes of stigmatisation and categorisation’ (Tannenwald 1999, p.463; 2007). Conversely, it has been claimed that the notion of a taboo actually ‘confuses a limited truth—that nuclear weapons carry some normative stigma—with a social proscription of great significance [...] the idea of a nuclear taboo is both empirically somewhat valid

yet all but irrelevant to international security' (Gray 1999, pp.93-94). Like the concept of deterrence, however, the real question is not whether taboo exists and functions but whether the adoption of a VNA would undermine its potential utility for Britain.

Herring suggests, '[t]aboo objects are not only feared: they are also worshipped as totems. This raises the question of whether or not a taboo can exist if the totemic object does not' (2000, p.17). It is conceivable that some form of nuclear use might need to occur in order to weaken charges of bluffing. Conventional military manoeuvres, including a range of Intercontinental Ballistic Missile tests, would continue to show the British government's resolve. This would mirror India's increasingly overt reminders, following their transition to a more active nuclear status (Tellis 2001, p.726). Furthermore, technological developments would allow the perpetuation of a more subtle, but certainly applicable, virtual arms race. Currently, missile deters missile but, in a state that had adopted a VNA, factory could deter factory (Schell 1984, p.119). It is not difficult to see the taboo surrounding the use of nuclear weapons becoming extended, as rearmament to tangible nuclear arsenals became a new taboo. A VNA thus offers the chance to build upon the existing taboo and further entrench the present unease surrounding nuclear use. This taboo does not replace a second-strike capability as has been incorrectly assumed (Waltz 1997, pp.311-2). Instead operational capabilities would continue to work in support of the taboo.

What unites all of these arguments, whether considering cheating, stability or taboo, is that all actors are united by a very basic desire to remain alive. The ability of virtual deterrence to function effectively therefore satisfies the myriad of criticisms placed before it. This not only allows Britain to begin a process of virtualisation but

ensures that, upon completion, it will be self reliant, stable and strong. As Schell noted, the ‘either-or character of the choice between deterrence with full-scale nuclear arsenals and world government without them no longer has to paralyze the world’ (1984, p.122).

Looking to the Future

Britain’s nuclear deterrence has always been based on the perpetuation of physical stockpiles of nuclear weapons: ‘If we want nuclear weapons to help deter war—or limit its incidence and severity—in a world like ours today, they have to have some physical actuality’ (Quinlan 1993, p.488). This article has attempted to prove that such presumptions are flawed. Indeed, the adoption of a VNA appears well suited to British strategic and political needs.

To be sure, the adoption of a VNA remains controversial. Gray has argued that ‘the idea of virtual nuclear arsenals is such a bad one that even many among the Western opinion leaders who routinely will endorse propositions for policy that staple together disarmament, anti-nuclear action, and clever-sounding theory are unlikely to be seduced’ (1999, p.117). This is not only false, but highly offensive to the intelligence of leaders and advisers who might wish to return to this debate (Croft 1997, pp.235-6). Ultimately, such criticisms rest upon a personal incapacity to accept the concept’s utility. Gray sarcastically asks, ‘[w]ould one settle for [...] “virtual wealth”?’ (1999, p.117). It is interesting to note that ‘wealth’ is based on a virtual system. The money we all use everyday is an ostensibly trust-based mechanism upon which the entire globe depends and readily accepts. It would seem absurd to return to a barter economic system’s inefficiencies and inconveniences just for the sake of physical actuality.

The problem is not that a VNA would challenge national security but that it challenges historically ingrained conceptions of security. As Fred Kaplan explains, early nuclear policy ‘became a catechism, the first principle carved into the mystical stone of dogma [...] Even many of those who recognized its pretence and inadequacy willingly fell under its spell’ (1983, p.390). One must accept that many of the criticisms surrounding the adoption of a VNA are counter-intuitive. This is not because of a personal failure to grasp the reality of the situation but because existing policy is itself confused and contradictory. Ultimately, a VNA recognises this confusion and, whilst perpetuating deterrence to facilitate adoption, cautiously begins to mitigate the inherent dangers of existing nuclear weapons policy in Britain.

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