

## Does my bomb look big in this?

### Britain's nuclear choices after Trident

MICHAEL CLARKE

The United Kingdom has always been a committed nuclear power, from the inception of the Manhattan Project, which produced the first atomic bomb in 1945, to the commissioning in 1999 of HMS *Vengeance*, the latest submarine in the nation's nuclear deterrent fleet. Though the UK's nuclear stance has been domestically and internationally controversial at various times, as in the late 1950s and the early 1980s, successive governments have generally grappled only with *how* they could most affordably remain an effective nuclear power, not *whether* they should. The international environment of the Cold War always appeared to provide an imperative answer to the 'whether' question, even up to the decisions taken in the early 1980s to develop the strategic nuclear deterrent the UK now operates. That nuclear capability now exists in an international environment which renders the UK territorially safer than at any other time in its history. Modern terrorism threatens many cherished ideals of western democracy, but does not constitute the threat to its territorial integrity against which the state traditionally defends itself. The fact that UK forces are deployed in many parts of the world is an option the government chooses to exercise for both foreign policy and wider defence reasons; none of these operations are intrinsic to the physical well-being of the UK. Its interests may be threatened, but as a country the UK is uniquely safe.

In this situation the UK's present nuclear deterrent appears no longer to be a sensitive political or military subject. The development costs have been paid. It was one of the few major defence programmes of the past twenty years to come in on time and actually under budget, albeit thanks to shifts in the dollar exchange rate. It might appear that the government can relax on nuclear questions and the dilemmas of 'strategic deterrence' for a while. This would be a mistaken perception, however. The fact is the mechanics of the procurement cycle, with the length of time new defence systems take to progress from conception to delivery, and the rapid evolution of the current international system both suggest that the present government will have to consider the country's future nuclear posture before the next general election, and its successor will almost certainly have to take some specific decisions to give effect to it. In December 2003 the

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government explicitly confirmed this in its Defence White Paper: 'Decisions on whether to replace Trident are not needed this Parliament but are likely to be required in the next one'.<sup>1</sup>

### The current strategic nuclear deterrent force

The United Kingdom's current strategic nuclear deterrent system came into operation over a six-year period in the 1990s. HMS *Vanguard*, the first of four Trident nuclear missile submarines (SSBNs), became operational in December 1994. The second, the *Victorious*, followed into operational service a year later, the third, *Vigilant*, at the end of 1998, and the final vessel in the force, HMS *Vengeance*, was operational by 2001.<sup>2</sup> The government assumes a life-cycle for this whole system of 'up to 30 years',<sup>3</sup> so HMS *Vanguard*, commissioned in 1993, is now about one-third of the way through its operational life and will be expected to go out of service around 2023.

Successive governments have claimed that the UK maintains only a 'credible minimum deterrent',<sup>4</sup> and while this might have been contestable in the 1970s, when the UK held well over 400 warheads on a range of land-, air- and sea-based systems, there is some justification for the present government's claim that this four-boat SSBN force is both 'credible' and 'minimum', at least for the purposes of strategic nuclear deterrence.<sup>5</sup>

It is 'credible' because the system is the most technically sophisticated currently available. An SSBN force with modern missiles and warheads is far and away the cheapest and most efficient method of retaining an invulnerable and flexible nuclear deterrent force. The *Vanguard* class 16,000-tonne Trident boats are built in Britain and are fast, have long endurance and carry advanced sensors and electronics which make detection very unlikely even by sophisticated adversaries. The UK's geographical location also offers intrinsic advantages in evasion for submarines leaving its bases.<sup>6</sup> Every Trident boat carries 16 US-built D5 missiles, each with three independently targeted warheads. The total number of warheads carried on each boat is therefore 48. The warheads themselves are produced in Britain and are close copies of the US W76 design, originally with

<sup>1</sup> *Delivering security in a changing world*: Defence White Paper, Cm 6041-1, 13 December 2003, para. 3.11.

<sup>2</sup> Stockholm International Peace Research Institute, *SIPRI Yearbook 2000* (Oxford: Oxford University Press, 2000), p. 486. These four boats were commissioned between 1993 and 1999.

<sup>3</sup> *The Strategic Defence Review*, Cm 3999 (London: Stationery Office, 1998), para. 62.

<sup>4</sup> 'Minimum deterrent' is defined in *Strategic Defence Review*, paras 60-61. The addition of 'credible' is offered by *The Strategic Defence Review: supporting essays* (London: Stationery Office, 1998), p. 5-5, para. 13.

<sup>5</sup> Numbers of UK nuclear warheads and their yields during the 1970s and 1980s were indicated, though not offered as precise figures, in *Strategic Defence Review: supporting essays*, p. 5-3, fig. 1.

<sup>6</sup> UK SSBNs can leave their Scottish bases and slip by a number of routes into the deep waters of the Atlantic or the North Sea. The only reliable way for an adversary to detect an SSBN is to track it with a hunter-killer submarine somewhere near its base. But the hunter-killer has to be exceptionally fast and quiet to keep in contact, and the SSBN is normally escorted by a hunter-killer of its own and can be routed through an underwater (and movable) 'avenue' of sensors as it enters deep water that will detect the pursuer. These advantages are not available to many other naval powers.

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a nuclear yield of around 100 kilotons.<sup>7</sup> Both the Trident II D5 missiles and the W76 warheads are highly accurate, giving them a margin of targeting error of a mere 100 metres over a missile range of more than 4,000 nautical miles.<sup>8</sup>

The system can realistically claim to represent a 'minimum' deterrent for a number of reasons. First, the numbers are at a historically low point. By the late 1990s all other UK nuclear systems had been retired. Battlefield nuclear weapons—mainly, nuclear depth charges, the *Lance* missile and the 155mm nuclear artillery shell—were all withdrawn by 1993.<sup>9</sup> The UK then kept a total of eight squadrons of Tornado GR1/1A capable of dropping WE177 free-fall nuclear bombs. In March 1998 the last of the WE177s were withdrawn and the dual-use Tornado squadrons relinquished this role.<sup>10</sup> The present government also reduced warhead numbers in the 1998 Strategic Defence Review. It pledged to deploy no more than 48 per submarine, but the Trident II D5 missile is capable of a maximum loading of eight warheads per missile which, as in US boats, makes each Trident submarine capable of carrying 128 warheads.<sup>11</sup> So, for this four-boat, 16 x 3 missile/warhead force, the UK possesses in total some 58 missiles on a lease arrangement from the United States, and has a warhead stockpile—never officially disclosed—widely believed to number 185.<sup>12</sup> By 2000 the explosive power of these warheads was about 15 per cent less than it had been in 1996 and around 70 per cent less than it had been in the 1970s.<sup>13</sup> In announcing these reductions in warhead numbers, the government also declared a significant amount of weapons-grade nuclear material surplus to military requirements and placed it under international safeguards,<sup>14</sup> though the highly enriched uranium that came from these warhead cutbacks was not placed under international control but retained for use in the propulsion units for the *Vanguard* class boats.

<sup>7</sup> Some accounts suggest 120kt yields, but the fact that the D5 was tested after the Threshold Test Ban Treaty was in place certainly indicates a yield of less than 150kt. See H. Beach, J. Finney, T. Milne, R. S. Pease and J. Rotblat, *An end to UK nuclear weapons?*, British Pugwash Paper, 2002, p. 4.

<sup>8</sup> Missile range is listed as 7,500nm (12,000km) in International Institute for Strategic Studies, *The military balance, 2003–2004* (Oxford: Oxford University Press, 2003), p. 228, but other sources suggest a range greater than 4,000 nautical miles is more accurate, even with reduced payloads. Accuracy listed in Charles Heyman, *The armed forces of the United Kingdom, 2001–2002* (Barnsley: Pen and Sword Books, 2001), p. 38. This is expressed as the 'circular error probable': the radius within which 50 per cent of all warheads will land.

<sup>9</sup> Stockholm International Peace Research Institute, *SIPRI Yearbook 1994* (Oxford: Oxford University Press, 1994), p. 298.

<sup>10</sup> *SIPRI Yearbook 2000*, p. 486. The last WE177 bombs were finally dismantled by August 1998.

<sup>11</sup> Based on 16 tubes in use. *Ohio* class Trident boats are designed for 24 tubes, giving a possible maximum loading of 192 warheads per boat—more than the entire UK stockpile.

<sup>12</sup> The UK has title to 58 missiles from the US, officially announced as representing 10 for testing, 4 for spares and 44 for operational deployment, as required by whichever of the UK's SSBNs is in service at a given time: *House of Commons Debates*, 30 July 1998, cols 448–9. The missile bodies are collected from, and returned to, the US base in King's Bay, Georgia in an efficient leasing arrangement. The warhead stockpile was announced as 'fewer than 200' in *Strategic Defence Review: supporting essays*, p. 5–2, para. 9. A figure of 185 would allow for the full equipping of three boats if ever necessary and a reasonable margin for testing and rotation.

<sup>13</sup> *Strategic Defence Review: supporting essays*, fig. 1, p. 5–3.

<sup>14</sup> A total of 4.4 tonnes of plutonium (0.3 tonnes of it weapons grade) and 9,000 tonnes of non-highly enriched uranium was placed under EURATOM and IAEA safeguards: *Strategic Defence Review: supporting essays*, p. 5–10, para. 26.

Second, there is no sense in which the UK is now 'arms racing' any other power, as it undoubtedly was during the Cold War, when the need to react to the nuclear deployments of the Warsaw Pact and overcome defences around Moscow drove the modernization of the whole system.<sup>15</sup> The UK's holdings of nuclear weapons and major components are now modest compared to those of other powers. The 185 nuclear warheads represent little over 1 per cent of the total number (16,945) in the world and only just 1.5 per cent of the world total of *strategic* nuclear warheads (12,193). The UK's total is also lower than those of most of the other nine recognized nuclear powers in the world. The United States, Russia, China, France and Israel all have more warheads; only India, Pakistan and North Korea have significantly fewer.<sup>16</sup> In concentrating these weapons in a single—albeit high-quality—system, the UK has also abandoned the concept of the nuclear triad, where weapons are deployed by air, land and sea as a guarantee of survival. The United States, Russia and China all have powerful systems across their triads. Israel has joined their ranks with its recent development of a submarine-launched nuclear cruise missile.<sup>17</sup> India and Pakistan both have two legs of a potential triad in aircraft delivery and evolving ground-based missile programmes, but India is planning to have an SSBN submarine and a ballistic missile delivery system deployed by around 2007/8 to give itself a full triad by the end of the decade.<sup>18</sup> All the minor nuclear powers are experimenting with upgraded intermediate range ballistic missiles as delivery means for their own nuclear weapons. North Korea is close to a credible aircraft and IRBM dyad of delivery means.

A final aspect of deterrent minimalism is the de-alerting procedures that the UK has undertaken. In February 1994 the UK and the Russian Federation signed a 'de-targeting' declaration which pledged each side not to have its missiles targeted on the other as a matter of course. This is a useful anti-accident measure, though it can be reversed within minutes once a political decision on specific targets is communicated to an SSBN. More significantly, the Strategic Defence Review announced in 1998 that UK SSBNs would henceforth be at a notice to fire 'measured in days' rather than minutes<sup>19</sup>—meaning that boat commanders would be in less frequent touch with their base as a matter of normal operating procedure, and SSBN submarines would engage in a range of new 'secondary tasks'.<sup>20</sup> These are fairly modest de-alerting measures, relying on new procedures rather than the more radical technical changes, some of which the US and Russia have adopted to reduce their own first-strike threat to each

<sup>15</sup> Lawrence Freedman, *Britain and nuclear weapons* (London: Macmillan, 1980).

<sup>16</sup> All figures from IISS, *Military balance*, 2003–2004, pp. 228–9.

<sup>17</sup> Israel modified US-supplied Harpoon cruise missiles, made them nuclear-capable and installed them in German-supplied *Dolphin* class submarines, purchased in 1998, giving it an SSGN capability. See *Los Angeles Times*, 12 Oct. 2003.

<sup>18</sup> India appears to be planning to adapt an upgraded *Charlie-1* class SSGN submarine of 6,000 tonnes and fit it with the 300km-range Sagarika missile to make it an SSBN. See 'South Asia's nuclear navies', *Strategic Comments* 9: 9, Nov. 2003.

<sup>19</sup> *Strategic Defence Review: supporting essays*, p. 5–2, para. 12.

<sup>20</sup> *Ibid.*

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other.<sup>21</sup> For the UK, the argument is that its deterrent is now so obviously at a minimum—incapable of an effective first strike already—that any measures such as keeping SSBNs 'alongside', or separating the warheads from the missiles, would erode the technical credibility of the system out of all proportion to the extra reassurance it might provide. British nuclear planners have great confidence in both the political control over the issuance of orders and the technical system for communicating those orders to the SSBN force: only the Prime Minister can authorize a launch—no one else, under any circumstances whatever—and the highly classified launch procedures are said to be at once extremely simple and yet impossible to duplicate, imitate or frustrate. For this reason, there is nothing to be gained from making them artificially complicated with extra steps and hence more liable to failure.<sup>22</sup>

In sum, the United Kingdom finds itself with a small, highly potent nuclear force composed of the best boats, missiles and warheads currently available in the world. Trident came into service in the UK less than five years after it entered service for the US with the launch of the USS *Tennessee* in March 1990. Its direct cost to the UK defence budget averages out at around £1 billion a year (around 4–5 per cent of the defence total) across the full lifetime of the system; the indirect costs—for example, of deploying other military assets to protect the force—are never officially calculated, but should fall somewhat as external threats to the force have diminished.<sup>23</sup>

The government may feel quite comfortable with this situation, especially since there is no longer much evidence of public disquiet over the independent British nuclear deterrent. In the era of 'superterrorism' the salience of nuclear politics is generally low among the public and the UK's official posture appears to be in tune with the dominant trends in public opinion: the present—rationalized—-independent deterrent is secure and potent; it is affordable and worth keeping as an insurance policy against an uncertain future; and it should be relinquished only in the event of a major act of multilateral disarmament on the part of other nuclear powers.<sup>24</sup> Though there is evidence that the public have nuanced views on certain aspects of arms control and nuclear safety, on the basic question—whether to retain a nuclear deterrent or not—there is a longstanding consensus. The Strategic Defence Review, for example, commissioned an independent public opinion survey which found that some 70 per cent of the British public favoured retention of UK nuclear weapons in 'all' or 'some' circumstances.<sup>25</sup> Even after the September 11 attacks of 2001 and the more gruesome implications that event suggested, there is no evidence that the

<sup>21</sup> Michael Clarke, 'De-alerting and the British nuclear deterrent', *UNIDIR Newsletter*, no. 38, Aug. 1998, pp. 23–4.

<sup>22</sup> *Ibid.*, p. 25.

<sup>23</sup> Beach et al., *An end to nuclear weapons?*, pp. 6–7.

<sup>24</sup> For the background on British public opinion and nuclear weapons see Peter M. Jones and G. Reece, *British public attitudes to nuclear defence* (London: Macmillan, 1990).

<sup>25</sup> Quoted in Beach et al., *An end to nuclear weapons?*, p. 25.



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public took more than a minimal interest in the UK's nuclear posture.<sup>26</sup> For a Labour government whose party appeared to make itself unelectable in the 1980s partly on nuclear issues, there is every reason to leave well alone and concentrate on the problems posed by counterterrorism and the current requirements of expeditionary operations in diverse parts of the world.<sup>27</sup>

This relatively relaxed situation, however, is unlikely to last very much longer; and though the completed Trident system has only been in full operation for less than three years, the next UK government will certainly have to take some important decisions before the end of this decade. It will undoubtedly face technical decisions before 2008/9. More importantly, it will do so against an international environment which appears to be evolving in directions that were never anticipated in the immediate aftermath of the Cold War when the UK's 'credible minimum deterrent' posture was articulated.

### The timing of successor decisions

The timing of decisions on any successor to the Trident force will be determined by two key factors: the available lifetime of the submarines themselves; and the ability of the UK to retain the appropriate nuclear expertise to build a new generation of warheads.

The *Vanguard* class submarines are designed for a 30-year life and, to date, there are no published plans to try to extend this operational cycle. The United States intends to extend the life of its *Ohio* class Trident submarines from 30 to around 44 years in a series of mid-life updates, but there is some doubt that this would be economically feasible in the case of the UK. The boats are the key technical limitation on the lifetime of the system. The Trident D5 missiles and the British version of the W76 warheads are not a problem in this regard and are expected to remain current well into the 2030s with, at most, relatively modest upgrading. The United States plans to begin a programme in 2015 to upgrade its own missiles and warheads. If the UK continues to operate a leasing arrangement on the missiles there is no reason in principle why this would not continue with upgraded versions of the D5 missile, and it is reasonable to suppose that the present W76 warhead would still be adequate, given that it presently operates so far inside the full capabilities of the D5's potential payload. There would be plenty of scope for extra decoys or evasion devices if these were felt to be necessary.

The lifetime of the UK's SSBN submarines therefore provides the framework within which decision-makers must operate. A fifteen-year process from concept, through development, to construction, testing and commissioning is probably a realistic estimate of the time required to replace Trident on a like-

<sup>26</sup> MORI *Public Opinion Newsletter*, 1983–2001, recorded the salience of nuclear issues dropping among the British public to less than 5 per cent by 1990 with nothing more than very small blips since then. See Beach et al., *An end to nuclear weapons?*, p. 24.

<sup>27</sup> Philip Gould, *The unfinished revolution* (New York: Little, Brown, 1998).

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for-like basis. Certainly, the process is very unlikely to be completed in less than ten years, even in a climate of urgency. In the case of the present Trident force, necessary—though conditional—decisions were taken prior to 1979.<sup>28</sup> A firm decision to proceed was taken in 1980 and the first boat entered service in 1994; the last in 2001. If the first boat in the force—commissioned in 1993—is due to go out of service in 2023, then some clear development decisions will loom around 2008, and some preliminary decisions even before then. A decision to wait until 2010 or later before making a firm decision will, in effect, reduce the force below the level of a secure strategic deterrent, since it would then be either a two-boat force—not practical for continuous operation—or a three-boat force—just about continuous but unreliable.

The second timing factor is less easy to measure, namely the rate at which expertise in warhead design (and the good 'stewardship' that follows such knowledge) can be maintained now that the nuclear programme is relatively modest. After rationalizations and closures in Burghfield and Cardiff and at the Foulness site, the UK's human expertise in nuclear weapons design and engineering is concentrated at the Atomic Weapons Establishment at Aldermaston, whose mission is to build, maintain and certify the existing Trident weapons stockpile.<sup>29</sup> The workforce there is now around one-third of its Cold War levels of 9,000. In the past, UK nuclear testing was a major vehicle for keeping weapons designers up to date, but the entry into force of the Comprehensive Test Ban Treaty (CTBT) has removed this source of knowledge. Certainly, many of the UK's reservations about the whole concept of the CTBT were driven by what would be lost to the UK workforce by a failure to continue with nuclear tests.<sup>30</sup> It is a moot point how far the practical knowledge of weapons designers can be maintained when they cannot put their expertise into development and testing, and as engineers retire and leave the workforce it is not clear that the essential skills will still exist after 2010 without a specific design programme on which to work.

## The choices

The next decisions on nuclear successor systems will not be as straightforward as any of the previous ones. British thinking about nuclear weapons, however nuanced it was in the light of particular circumstances, has always rested essentially on a faith in existential deterrence: nothing is in principle undeterrable, and a nuclear deterrent provides an ultimate guarantee if all other means of dealing with potential threats have failed.<sup>31</sup> This is, by definition, true as long as

<sup>28</sup> Such as the Devonshire Dock Hall in Barrow, begun in 1977 for SSBN construction. See MoD, *Trident: thirty years of the Polaris sales agreement* (London, HMSO, 1993), p. 6.

<sup>29</sup> Beach et al., *An end to nuclear weapons?*, pp. 9–10.

<sup>30</sup> See Patricia Lewis, 'The United Kingdom', in Eric Arnett, ed., *Implementing the Comprehensive Test Ban Treaty* (Oxford: Oxford University Press/SIPRI, 1994); Eric Arnett, 'The Comprehensive Nuclear Test Ban', in *Stockholm International Peace Research Institute Yearbook 1995* (Oxford: Oxford University Press, 1995), p. 715.

<sup>31</sup> Statement on the Defence Estimates 1994, cm 2550, London, 1994, p. 19.

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nuclear weapons represent the ultimate destructive power. It was a bedrock argument that did not seem to require further justification in the Cold War. But its existential truth is little help in constructing a defence strategy for the present era, and for picking up the strand of defence policy that will begin from around 2008. Sir Michael Quinlan, one of the acknowledged framers of UK nuclear thinking since the original Trident decision was taken, summed up the balance of the problem in 2002.

The case for a degree of nuclear independence is manifestly less strong now than it used to be ... it is very doubtful whether the capital cost of the UK Trident force, at around £13 billion, would be worth incurring if we were now to face anew the decisions of the early 1980s on a clean sheet basis. But this is not where we are; and the opportunity cost of sustaining the capability we have paid for does not yet seem so high as to compel re-consideration before we reach, some years at least ahead, the point where step changes in system or expenditure have to be faced. There is no special merit in trying to reach conclusions now, but there will be an important and challenging debate to be had then.<sup>32</sup>

The most obvious difference between 2008 and 1980, and even more between 2008 and 1963,<sup>33</sup> in the 'debate to be had' is that the rationale for a *strategic* nuclear deterrent—that is, a weapons system capable of crippling even a large country in strikes on its homeland—is increasingly weak. A world dominated by a single superpower hegemon, whose overwhelming nuclear superiority represents much less than its full capacity for such superiority, is not a world which gives minor players much of a role in strategic deterrence. It is scarcely conceivable (even as a long-term defence planning assumption) that other known nuclear powers such as India, Pakistan, Israel or North Korea, or for that matter a near-nuclear power such as Iran, could become a strategic threat to the UK homeland (in isolation from other traumatic events), whatever British interests might be threatened abroad by such actors in some unforeseen circumstances. The essence of a case for a genuinely strategic deterrent rests on the danger of the UK being drawn into a nuclear crisis between its ally the US, and perhaps Russia or China; or else somehow being involved, perhaps with France, on behalf of the Europeans to confront a resurgent Russia making nuclear threats in ways that question our survival, and in the absence of US involvement. In principle, such circumstances could arise—as indeed could circumstances in which the US turns vengefully and coercively on its former allies—but none of these existential possibilities are worth much of the time of a policy planner, still less a politician; and as Sir Michael Quinlan implies, they would be unlikely to attract the resources necessary to hedge against such exotic scenarios when the next major financial commitments have to be made.

<sup>32</sup> Sir Michael Quinlan, 'Weapons of mass destruction: threat and response', inaugural lecture in the Quinlan Lecture Series, International Policy Institute, King's College London, 8 May 2002.

<sup>33</sup> The Polaris sales agreement was signed in April 1963, following Macmillan's summit with President Kennedy at Nassau in December 1962. This has been the basis of the UK's ability ever since to operate an SSBN force.



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One other strategic argument emerges from contemporary world politics: namely, that another weapon of mass destruction—a chemical or biological warhead—mounted on a ballistic missile could be targeted against Europe or the UK individually by any of a growing number of states at some time in the next two decades. This is an extension of the scenario currently possible between Libya and Italy, and, as the government emphasized in the build-up to the war against Iraq in 2003, is at least a technical possibility that should be taken seriously, preferably before it becomes a full-blown threat.<sup>34</sup> This scenario may become more politically credible if the United States' global 'war on terror' provokes widespread statist opposition rather than the enmity of individual groups and precarious regimes. The argument is neither straightforward nor convincing, however. Though chemical and biological warheads could be targeted strategically, their strategic impact would be orders of magnitude less than that of nuclear explosions.<sup>35</sup> The conversion of chemical and biological agents into weapons is characterized by many uncertainties, and their destructive effects are dependent on contingent factors in the environment of the target which simply do not apply to nuclear explosions. It is very difficult to imagine a major western country being crippled by a chemical or biological attack, even though it would have horrific and shocking local results. There is no comparison between the strategic destructive power of nuclear weapons on the one hand and of chemical and biological weapons on the other.

Even if the government's dire fears in justifying the case for war against Iraq in 2002 prove to be politically credible, the problem would likely have to be dealt with through ways other than nuclear threats.<sup>36</sup> The use of strategic nuclear weapons would cross the clearest of 'red lines' that are instinctive and unambiguous for the world as a whole. The 100-kiloton yield of the original UK warheads on Trident—six times the strength of the Hiroshima bomb on each warhead—would devastate around 15–30 square kilometres in a built-up area, causing perhaps 100,000 casualties on a conservative estimate.<sup>37</sup> The magnitude of such a counterstroke would hardly be credible or legitimate against the sort of rogue behaviour the government evidently worried about in 2002, and risk-taking rogue regimes would have plenty to gamble on in the obvious asymmetry. Both political and moral imperatives suggest that strategic nuclear weapons can deter only other strategic nuclear weapons.

In the face of these political questions, the government sticks to the general formula on existential deterrence: 'while large nuclear arsenals and risks of proliferation remain, our minimum deterrent remains a necessary element of

We might  
need n.w.  
because of the  
US war on  
terrorism!

<sup>34</sup> See foreword by the Prime Minister in *Iraq's weapons of mass destruction: the assessment of the British government* (London: Stationery Office, Sept. 2002), and the Prime Minister in *House of Commons Debates*, 24 Sept. 2002.

<sup>35</sup> On the extent of strategic potential see Avigdor Haselkorn, 'Iraq's bio-warfare option', *Biosecurity and Bioterrorism: Biodefense, Strategy, Practice and Science* 1: 1, 2002, pp. 1–8.

<sup>36</sup> Steven Everts, 'Iran: the next big crisis', *Prospect* 93, Dec. 2003, pp. 46–9.

<sup>37</sup> Beach et al., *An end to nuclear weapons?*, p. 4.

our security.<sup>38</sup> Simultaneously, however, a somewhat different choice is also being exercised as the Trident system evolves a substrategic role. When the air-launched tactical nuclear missile project (TASM) was cancelled in 1993, work began on substrategic warhead options for Trident, and this work was believed to be complete by 1998.<sup>39</sup> From at least one technical standpoint this is feasible. Given the accuracy of the warhead and the flexibility of the big missile designed to carry it, the W76-type warhead could be rigged for much smaller explosions than 100 kilotons. Triggering the primary explosive only, a warhead could produce an explosion of just a few kilotons, perhaps between 5 and 10. An unboosted primary explosion would produce a yield of 1 kiloton or even less. Given that the UK's Trident boats have 16 launch tubes, it is likely that a mix of strategic and substrategic weapons would be carried in some combination up to 16 as Trident boats go on patrol.<sup>40</sup>

Other technical questions, however, still raise some doubts. A substrategic role suggests that small nuclear weapons stand ready to be launched against other powers (presumably nuclear) anywhere in the world, not just in the northern hemisphere where the UK's essential strategic interests lie. When targeting its warheads on eastern Europe and/or Moscow during the Cold War, the UK could rely on highly accurate navigational and geodetic information (regarding the earth's shape and variations in magnetic fields) from the US in a hemisphere in which it always operated. It is not clear that this sort of information is automatically available to the UK, either for itself, or through the US, for a wide range of conceivable future operations in other parts of the world.<sup>41</sup> Another problem in mixing strategic and substrategic roles is that if a Trident boat is intended to provide a deterrent umbrella for UK forces deployed abroad, a number of potential locations would not offer suitable deep water within the right proximity for the undetected passage and operations of a strategic SSBN. Moreover, if a boat is carrying a range of warhead types, then firing one or more substrategic weapons would easily reveal the general location of the submarine and compromise its strategic role—which, almost by definition, would be at a moment of unprecedented tension and danger when the integrity of the strategic deterrent would matter most.

These may be regarded as limiting factors more than failures in the objective itself. A more fundamental technical question over substrategic options affects the successor decisions in particular. Given the way the international environment has changed since Trident was initiated, and largely paid for, the present substrategic option may be regarded as a sensible way of getting more potential utility from a system that is simply less vital to UK defence interests now than

<sup>38</sup> *Strategic Defence Review*, para. 60.

<sup>39</sup> The Ministry of Defence, in its *Statement on the Defence Estimates 1995*, cm 2800 (London: HMSO, 1996), stated that a robust substrategic capability could be expected when *Vigilant* enters service, which it did in 1998. See p. 38.

<sup>40</sup> *SIPRI Yearbook 2001*, p. 471.

<sup>41</sup> Clarke, 'De-alerting and the British nuclear deterrent', p. 24.

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appeared evident in 1980. If Trident is going to run its 30-year life span, and its mere existence is no spur to nuclear arms racing by other countries,<sup>42</sup> then the more hedges it can provide against an uncertain future the better. It will provide a serviceable substrategic system during its lifetime. But it would be a very expensive, and overcomplicated, way of providing substrategic deterrence if that were its prime purpose. Much cheaper means of delivery over shorter distances, using cruise missiles and/or aircraft, for example, have long been feasible,<sup>43</sup> and the vulnerability problem for these systems does not arise with the same force as it did in the Cold War.<sup>44</sup> Government statements on sub-strategic logic all stress the need to demonstrate resolve in the face of limited, risk-taking, nuclear aggression, as well as the expectation that it would tend to apply to threats of attack on targets other than the UK homeland itself. If future nuclear deterrence revolves around these possibilities, more than the grand 'balance of terror' between East and West in the Cold War, then another submarine-based nuclear system might seem an extravagance where a mixture of less glamorous old and new technologies would suffice. Putting the argument the other way round, before UK planners commit to any major expenses on successor systems to Trident, they will have to consider anew the relationship between strategic and substrategic deterrence—and not in that order of priority. On the fragmentary evidence available to the public, the government appears to have embarked on the substrategic option without a settled view of the longer-term strategic rationales it might affect.<sup>45</sup>

Here lies the political essence of the future choices problem. The government still argues for a substrategic nuclear role in largely existentialist deterrent terms: an 'aggressor' might 'gamble' against our 'lack of resolve' to meet a nuclear or other WMD threat.<sup>46</sup> But there are several reasons why this logic will be very hard to apply in the future. First, the fact is that 'aggressors' do not come in the shape and size they used to. Precarious rogue regimes are not in a position to wage purposeful war against western powers, only to commit destruction. And 'rogue states' that fuel the terrorist potential for use of WMD do so ambiguously and at several removes.<sup>47</sup> Terrorist groups themselves would hardly be deterred by nuclear threats: indeed, the mentality of the suicide bomber would probably rejoice at the prospect of provoking an incoming nuclear strike against many innocent others. Second, the nuclear proliferation problem for the future, as it affects the defence of western powers, is essentially one of 'loose nukes' rather

<sup>42</sup> This assumption, it should be noted, is vigorously disputed by some analysts. See M. McCwire, 'Shifting the paradigm', *International Affairs* 78: 1, January 2002, pp. 12–13.

<sup>43</sup> See e.g. Colin McInnes, *Trident: the only option?* (London: Brassey's, 1986). Original costs of cruise missiles were surprisingly high in the 1980s but they have fallen a good deal since.

<sup>44</sup> See R. Betts, ed., *Cruise missiles: technology, strategy, politics* (Washington DC: Brookings, 1981).

<sup>45</sup> See House of Commons Defence Committee, *The Strategic Defence Review: minutes of evidence*, HC 138-I, 30 July 1997, p. 17.

<sup>46</sup> Statement on the Defence Estimates 1994, cm 2550 (London: HMSO, 1994), p. 19; Malcolm Rifkind, 'The role of nuclear weapons in UK defence strategy', in Brassey's Defence Yearbook 1994 (London: Brassey's/Centre for Defence Studies, 1994), p. 28.

<sup>47</sup> Steven Simon and David Benjamin, 'America and the new terrorism', *Survival* 42: 1, 2000, pp. 59–75.

than involvement in the local arms races proliferation tends to provoke. The Russian problem of leakage from its former and current nuclear stocks is demonstrative of a more general problem of nuclear stewardship. A recent international report found that the single biggest security challenge in this regard was the 'loose accounting system' and the inability of Russian officials to offer any firm baseline for the nuclear materials and devices they ever possessed.<sup>48</sup> This is likely to be repeated, not only in obvious cases such as Iraq, but in a number of other nuclear—and especially in secretively near-nuclear—states.

Third, and with a characteristic twist of irony, a prominent feature of the post-September 11 international environment has been a United States with varying degrees of allied support engaging in powerful *conventional* military deterrence and pre-emption against a wide range of WMD threats. It can be argued that the US has established a degree of real military credibility for its overwhelming conventional superiority in the crises in Bosnia during 1995, Kosovo in 1999, Afghanistan in 2001 and Iraq in 2002–3. States and leaderships on the wrong end of US policy now know that if the US is pushed across a threshold of tolerance then it will do whatever it takes to prevail, casualties or no.<sup>49</sup> And September 11 had the effect of lowering the US tolerance threshold dramatically for the foreseeable future. This is an increasingly controversial stance in world politics which backs the US into interventions, involvements, 'nation-building' and policing. But it also has the effect of drawing the US into highly proactive, low-level counterproliferation against dangerous WMD sources without any resort to nuclear threats. Such strategies will continue to be controversial if only because they attack regime-based approaches to arms control and world order. Nevertheless, if such strategies are still prevalent around 2008, it will be very difficult for British nuclear planners to argue, as the Strategic Defence Review did in 1998, that 'risks of proliferation', in some unspecified sense, justify a nuclear deterrent at either strategic or substrategic level.<sup>50</sup>

Past history strongly suggests that the instinctive 'red line' will continue to apply to nuclear use by any state in the world. Nuclear use by non-state actors cannot be deterred by countervailing nuclear threats, if only because such threats require a territorial target. Any breach of the red line that affected western powers in some significant way—even in the case of terrorist radiological bombs—would almost certainly be met with a massive conventional military campaign, the permissive blessing of the world community, and some rough justice for all those people and states in some way implicated. Faced with its immediate security problems, the United States is currently getting very little tangible security from its nuclear superiority, is increasingly sceptical at the lack of effective regimes in the world that used to bolster multinational security, and

US offensive  
CP  
reduces  
the need  
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NW

<sup>48</sup> CSIS Report, *Protecting against the spread of nuclear, biological, and chemical weapons*, vol. 2: *The challenges* (Washington, Center for Strategic and International Studies, Jan. 2003), p. 74.

<sup>49</sup> US Government, *The National Security Strategy of the United States of America* (Washington DC, 17 Sept. 2002), p. 15.

<sup>50</sup> *Strategic Defence Review*, para. 60.

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is searching for ways of translating its other forms of military and economic superiority into effective power.<sup>51</sup> This creates quite new trends in world politics which appear to render a great deal of previous nuclear thinking redundant, even in its own terms.

One final strategic argument that remains at least existentially valid, but will probably not have much effect on the successor decisions, is that which suggests that present conditions in world politics may be only an interregnum between two balance of power eras. The current chaos and fluidity of world politics is only to be expected after so momentous a decade and a half as we have just witnessed, and more traditional security concerns will probably reassert themselves in a new states system that will emerge in due course—possibly containing new types of states.<sup>52</sup> On this basis a mainstream strategic nuclear system with another 30- to 40-year life—taking UK nuclear forces through to 2050 or 2060—will ultimately be seen to be prudent. All the major trends in the world that the UK faces up to 2030—trends that defence officials are publicly trying to think through—suggest that the changes of the last decade or so are systemic rather than short term.<sup>53</sup> The manifestations of conflict and insecurity are no less troubling, but are not so susceptible to the defence strategies that have grown out of the mechanisms and weapons of national survival.<sup>54</sup> If the political and economic investment in a follow-on nuclear system is to be justified, it will have to be on different grounds from those which almost instinctively drove the Polaris and Trident nuclear follow-ons in the Cold War past. More to the political point, if decisions have to be initiated and resources committed over the next ten years, it is unlikely that the surrounding conditions will look very different from the fluidity of the present system, even if the particular issues do. Without a tangible, state-centric and manifest nuclear threat, the financial costs in say, 2015, of a hedge against mere uncertainty may well appear insupportable.

The 'important and challenging debate' at the appropriate time that Sir Michael Quinlan recommends will not feature in the next general election campaign, but may be upon us not long after, certainly in terms of carrying through some facilitating decisions to clear the ground and create conditions for the broad choices after Trident. It will be important and challenging, however, in ways that could not have been foreseen even ten years ago. What will be at issue will not be—as in 1963 and 1980—the problem of how best to operate a credible and affordable nuclear deterrent across a long and unpredictable life-cycle. For a limited military power such as the United Kingdom is now, the coming decisions will be more about the role of nuclear deterrence as compared to other forms of deterrence, denial and persuasion in dealing with historically unique expressions of insecurity. At last, the circular and ultimately sterile

<sup>51</sup> See e.g. Robert Jervis, 'The compulsive empire', *Foreign Policy*, July/August, 2003, p. 86.

<sup>52</sup> See Philip Bobbitt, *The shield of Achilles: war, peace and the course of history* (London: Penguin, 2002).

<sup>53</sup> Ministry of Defence, Joint Doctrine and Concepts Centre, *Strategic trends* (several studies in related volumes) (Shrivenham: JDCC, March 2003).

<sup>54</sup> See e.g. Christopher Coker, *Humane warfare: the new ethics of postmodern war* (London: Routledge, 2001).



debate about nuclear disarmament into which the weaponeers and the disarmers have so readily fallen in the past may be about to move on, even in the present era of proliferation.