

TRIDENT

WHITE ELEPHANT OR BLACK HOLE?

HUGH BEACH

Britain has possessed its own nuclear weapons for just over fifty years and is laying plans to keep them going for the next half-century. Hugh Beach argues that there are better things to spend government money on and the Trident replacement programme should be cancelled.

The government formally set out its reasons for renewing Trident in a White Paper published in December 2006.¹

It is not possible accurately to predict the global security environment over the next 20 to 50 years. On our current analysis, we cannot rule out the risk either that a major direct nuclear threat to the UK's vital interests will re-emerge or that new states will emerge that possess a more limited nuclear capability, but one that could pose a grave threat to our vital interests. Equally there is a risk that some countries might in future seek to sponsor nuclear terrorism from their soil. We must not allow such states to threaten our national security, or to deter us and the international community from taking the action required to maintain regional and global security. We can only deter such threats in future through the continued possession of nuclear weapons. Conventional capabilities cannot have the same deterrent effect. We therefore see an enduring role for the UK's nuclear forces as an essential part of our capability for deterring blackmail and acts of aggression against our vital interests by nuclear-armed opponents.

This rationale contains a number of interesting features which expand considerably on previous notions of deterrence. Up to now the aim of a nuclear deterrent force in British hands has been simply to deter a nuclear attack upon the nation,

our dependencies or our allies.² This aim is retained, in the reference to 'a major direct nuclear threat to the UK's vital interests'. But it is coupled with explicit reference to three other possibilities. The first arises from the emergence of 'new states [who possess] a more limited nuclear capability' and might 'pose a grave threat to our vital interests'. The second might be described as deterrence in reverse: 'We must not allow such states to ... deter us and the international community from taking the action required to maintain regional and global security.' In other words, any such state could seek to deter us from intervening 'as a force for good' in ways we might otherwise wish to do. The third possibility arises from the 'risk that some countries might in future seek to sponsor nuclear terrorism from their soil'. In any of these situations, according to the White Paper, if we did not possess our own nuclear weapons, we should have no option but to submit. Conventional capabilities would not suffice. Only possession of our own nuclear weapons can give us freedom to deter 'blackmail and acts of aggression against our vital interests by nuclear-armed opponents.' Put in these stark terms the argument carries a certain ring of conviction. The aim of this paper is to show that it is far from being the whole story.

Resisting Nuclear Blackmail

The first and obvious point is that of the 188 states party to the Nuclear Non-

Proliferation Treaty (NPT), all but five have committed themselves to maintaining non-nuclear weapon status. If this makes them all potential victims of nuclear blackmail, they do not seem to be unduly worried. Many of them have the economic, industrial and scientific capacity to become nuclear weapon states if they wished, but have chosen not to. A huge majority of states has voluntarily

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accepted non-nuclear weapon status and seems to suffer no disadvantage from this fact. Nor do they appear to suffer from the fear of 'blackmail and acts of aggression against [their] vital interests' by one of the eight countries that have these weapons, or by any others who might acquire them. Why should Britain be any different?

A similar point can be made from the other end. It is not clear that any of the possessor states has derived benefit from its weapons. America was defeated by the North Vietnamese in 1975 and has backed down in the face of casual-



The prospect of costs spiralling out of control is not the only reason some are second-guessing Trident. Photo courtesy of US Department of Defense.

ties on many other fronts, most notably the Tehran hostage crisis (1980), Beirut (1983), and Mogadishu (1993). The Soviet

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Union was defeated by the Afghans. In none of these cases were nuclear weapons any help to the possessors. The same applies to Britain. It cannot be shown that by virtue of its UK nuclear arsenal, Britain has been able to take any action *vis-à-vis* another country that it could not otherwise have undertaken, nor prevented action by any other country that it could not otherwise have prevented. British nuclear weapons did not deter Argentina from attempting to annex the Falkland Islands in 1982, nor

did they help Britain to recover them. The most that can be claimed is that Britain, as a nuclear weapon state, has been influential in promoting arms control measures such as the Nuclear Non-Proliferation Treaty (NPT) and the various nuclear test ban treaties. It is said that Britain may have been able to dissuade America from contemplating the use of nuclear weapons, if not in Vietnam then possibly in the Gulf War of 1991. It is a strange argument for possessing nuclear weapons that their main use is to help persuade one's ally not to use theirs.

The Next Fifty Years

Since possession of nuclear weapons for the past fifty years has not done Britain any demonstrable good, what does this tell us about the next fifty years? In answering this we need first to consider Britain's position with regards the United States. The crucial question is to what extent Britain can rely on the support

of America in facing down any future nuclear threat. The possibility of having to confront a recidivist Russia is hinted at by the reference to re-emergence of 'a major direct nuclear threat to the UK's vital interests', and is plainly something to be borne in mind. In August 2008, Russia was reported to be indicating that they might point nuclear missiles at Western Europe from bases in Kaliningrad and Belarus.³ But if the American

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The American Nuclear Umbrella?

So far as the security of the British homeland is concerned, this appears to fall squarely within the North Atlantic Treaty. Article 5 says:

The parties agree that an armed attack against one or more of them in Europe ... shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them ... will assist the Party or Parties so attacked by taking forthwith, individually and in concert with other parties, such action as it deems necessary, including the use of armed force, to restore and maintain the integrity of the North Atlantic area.

While falling well short of a cast-iron guarantee, the implication has always been that the United States – and all the others – will provide cover and support to any NATO allies against nuclear or other kinds of military blackmail or aggression in any European context. It has certainly been understood in this way by all the non-nuclear European members, including those who have recently joined from Central and Eastern Europe.

But Britain also operates as an ally of the United States outside Europe and not necessarily in a NATO context. Here also there is an explicit policy of relying upon the military capabilities of the United States. The 2003 British Defence White Paper 'Delivering Security in a Changing World' explains:

The most demanding expeditionary operations, involving intervention against state adversaries, can only plausibly be conducted if US forces are engaged, either leading a coalition or in NATO.⁴

The full spectrum of capabilities is not required (by Britain) for large scale operations, as the most demanding operations could only conceivably be undertaken alongside the US, either as a NATO operation or a US led coalition, where we have choices as to what to contribute.⁵

Reference to 'the most demanding operations' implies that, where a nuclear threat is concerned, America would

be in the lead and would provide the necessary cover. And because the operational nuclear forces provided by the US are many times greater than the UK's nuclear forces, what possible significant contribution could Britain make other than as a rather expensive signal? This point is generally true of most of the

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more sophisticated military packages deployed, but most of all with the Trident system, already heavily dependent upon the Americans.

British Technical Dependence on the United States

The D5 missiles used on British Trident are American. The fifty-eight missiles 'bought' by the UK are not British exclusive property but form part of a 'shared pool of US/UK missiles',⁶ based on the Strategic Weapons Facility Atlantic at King's Bay, Georgia.⁷ The weapons are collected from there by British submarines and returned there for refurbishment as necessary. The hardware and much of the software associated with the missiles' targeting and firing are also of American provenance.

This close co-operation with the United States on technical matters is covered by the regularly renewed terms of the Mutual Defence Agreement of 1958. In an amendment the following year, the US agreed to supply Britain with non-nuclear parts of atomic weapons systems, together with 'special nuclear material'⁸ required for research, development or manufacture of atomic weapons.⁹ This arrangement was extended by agreement between the President and the Prime Minister for a further ten years until December 2014.¹⁰ These agreements have underpinned the close and continuing link between the two countries in constructing, operating and maintaining the British strategic

nuclear submarine force over the past forty years. As the AWE Annual Report for 2004 explained, co-operation with the United States on nuclear weapon matters, under the 1958 Mutual Defence Agreement, now 'covers every aspect of weapon design, development and maintenance'. So no-one doubts the description of the British Trident Warhead, as an American W76 warhead 'anglicised' at Aldermaston. It is generally assumed that all the items of the Re-entry Vehicle outside the Nuclear Explosives Package are of American supply.¹¹

Would the Americans Stand By Us?

Given this close tie-up between Britain and the United States, both strategically and technically, what geopolitical niche can be discerned in which Britain could be exposed to nuclear blackmail without being able to count on American cover? This, of course, is an ancient question and no such scenario has ever been described, nor have Britain's 'vital interests' ever been defined. Yet such a contingency has been held in the past to be of enough weight to justify the costs of a separate British system. One could argue that the same should apply to the next half century.

The British government concedes: 'We judge that no state currently has both the intent and the capability to pose a direct nuclear threat to the United Kingdom or its vital interests'.¹² It then continues, 'we cannot rule out the risk that such a (direct nuclear) threat will re-emerge over future decades'. This is the key argument made by the British government in support of Trident replacement as summarised in the first paragraph of this paper.

In considering a period up to the middle of the twenty-first century, the White Paper is clearly right to argue that one cannot predict the political context so far ahead. For example, the focus of American interest may have shifted decisively towards the Pacific Rim; the Russians and Chinese may have become hegemonic powers in their own right and the number of nuclear weapons states may have doubled or halved. One can distinguish two possible situations. The first is where the United States, while

possibly sympathetic to Britain's position, is not prepared to commit to our nuclear protection – bearing in mind that this could place American forces or homeland at risk of retaliation – the adversary being, by definition, a nuclear power.¹³ The second is where the United States is actively opposed to the position taken by Britain. We consider this latter contingency first.

Could We Go Ahead Without Them?

Under the Mutual Defence Agreement, co-operation by either party is contingent on their determining that such action 'will promote and will not constitute an unreasonable risk to its defence and security'.¹⁴ The message is clear that such co-operation could be withdrawn at any time if the UK embarked on a course of action that the US regarded as inimical to its interests. The agreement referred to the fact that the two countries were participating in an international arrangement for their mutual defence and security (i.e. NATO), and at Nassau the British prime minister accordingly agreed that the strategic missiles to be provided would be used for the nuclear defence of the Alliance. He did, however, insist on an exception 'where Her Majesty's government may decide that supreme national interests are at stake'.¹⁵ The question arises whether British Trident could be used without US consent or targeted independently of US assistance. When this question was put in the House of Lords in 1995, the government representative replied, 'Trident is an independent nuclear deterrent. That means exactly that, I can go no further'.¹⁶ The Delphic nature of this answer was obviously deliberate.

The issue needs to be discussed at two levels. If the United States were to determine that co-operation on British Trident was no longer promoting American defence and security, or was posing an unreasonable risk to it, then all technical assistance could be withdrawn. Denied help in maintaining, testing and upgrading the missiles, the fire control system and key components of the warhead, and with no re-supply of materials or components that degrade over time, the whole system would

start to become unworkable and unsafe within a few years. Therefore, if Britain were to use or threaten to use Trident in circumstances of which the United States actively disapproved, this would sign the death warrant for British Trident.

For as long as the system remained functional there is the further question of actually firing a missile in circumstances where the Americans were opposed. The submarine could no doubt be sailed to an area where the sea-bed had been accurately surveyed by the British. The order to fire could be conveyed and authenticated without using an American satellite. The missile would then presumably work, although the accuracy might be impaired if gravitational and weather information, normally supplied by the Americans, was not available. If the British prime minister, deciding that 'supreme national interests were at stake', were to order Trident to be used, then it would be able to be aimed and fired. Short of attacking the submarine¹⁷ or the prime minister, there is nothing the Americans could do to stop it.

But how likely is it that a prime minister would act in defiance of the United States? The last time that Britain took military action in the teeth of opposition from America was at Suez in November 1956. America checkmated this action within days by means of financial, economic and political pressure.¹⁸ Does anyone seriously imagine the United States would not act to similar effect

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if Britain were contemplating the use of Trident against US wishes?

Let us now consider the kind of scenario where America, while not actively opposing British action, is unwilling to support it. Until 1942, Britain had to face the existential threat from Hitler

by itself. President Roosevelt, our best friend and ally, uttered kind words and gave financial support, but until forced in by the Japanese, he kept the United States firmly out of the struggle, even when it looked as if we might go under. Perhaps it is unlikely that this would ever happen again, but it might. If this was after we had given up our nuclear weapons, how would we fare on our own? Lacking any direct historical precedent, it may be helpful to consider some past interactions between nuclear and non-nuclear weapon states.

Who Knuckles Under to Nuclear Blackmail?

In June 1948, the Soviet Union blockaded the surface routes into West Berlin, no doubt expecting to achieve control of the whole city, despite the fact that it was defended by substantial American, French and British garrisons, and that the United States then possessed nuclear weapons while the Soviet Union did not. The American Chiefs of Staff proposed to send an armoured column from West Germany to force open the autobahn, but this plan was vetoed by President Truman as too risky. Instead the allies decided to re-supply West Berlin by means of a massive airlift. The Russians harassed the transport aircraft, buzzing them, shining searchlights and firing flak nearby, but stopped short of shooting them down. The airlift was successful; the blockade failed and was lifted in May 1949, leaving the Soviets humiliated. One reason why the Soviet Union did not attack the allied transport fleet may have been that they feared a nuclear response from the Americans. A more likely explanation is that, like the Americans, they were not prepared to take their military action to lengths that might lead to a third World War.

In July 1950, at the very beginning of the Korean War, President Truman ordered ten nuclear-configured B-29s to the Pacific. He warned China that the United States would take 'whatever steps are necessary' to stop Chinese intervention and said that the use of nuclear weapons 'had been under active consideration'. The Chinese at that time were several years short of acquiring nuclear weapons of their own. By late Novem-

ber, the Americans had made substantial incursions into North Korea. The Chinese then struck along the Chongchon River, completely overran several South Korean divisions and attacked the flank of the remaining UN forces. The ensuing defeat of the US 8th Army resulted in the longest retreat of any American military unit in history. This was a major defeat for the Americans, and plainly their attempt at nuclear blackmail had not dissuaded the Chinese from inflicting it.

Saddam Hussein was not deterred from invading Kuwait in 1990 by fear of American nuclear weapons, although he had none himself. It has often been suggested that the reason Saddam did not use his chemical weapons to stave off subsequent defeat was that he had been warned repeatedly by the Americans, Israelis and British of dire consequences if he did so. One might question whether the United States would actually have used nuclear weapons in response to a chemical attack, but Saddam Hussein could not have been confident that they would not. As Bruce Blair noted at the time: 'There's enough ambiguity in our deployments of nuclear weapons at sea and our ability to deliver nuclear weapons by air and quickly move them into the region to plant the seeds of doubt in Hussein's mind.'¹⁹ The effectiveness of the threat of chemical or nuclear retaliation was asserted by Lt General Calvin Waller, deputy commander of *Desert Storm*, who said that 'we tried to give him [Saddam Hussein] every signal that if he used chemicals against us that we would retaliate in kind and may even do more, so I think he was hesitant to use them there'.²⁰

Coalition forces found no evidence that chemical weapons had been moved into the Kuwaiti theatre. This may have been because the desert was seen as not being conducive to their effective use. But such a consideration would not apply to the use of chemical armed missiles. Iraq fired conventionally armed missiles at Israel in an effort to draw Israel into the war. Iraq is believed to have had chemical warheads that could have been delivered by these missiles, which suggests that for whatever reason Saddam Hussein had been deterred from using them. Whether the nuclear component of this

was decisive must remain a matter for speculation.

A fourth example is provided by Chinese threats against Taiwan. Concern over a formal declaration of Taiwan's independence has been a major impetus for the military buildup between Taiwan and mainland China. China has been increasing the deployment of missiles aimed at Taiwan by 100 or more a year, and may now have an arsenal of more than 700 ballistic missiles capable of being fitted with nuclear warheads.

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Presumably their deployment is a gambit on the part of China, aimed at increasing political pressure on Taiwan to abandon any unilateral move toward formal independence. But the Chinese government never declares such deployment publicly, nor does it provide reasons or explanations.

The nearest that matters came to a show-down was in 1996 when China began conducting military exercises near Taiwan and launched several ballistic missiles over the island. This was done in response to the possible re-election in Taiwan of then President Lee Teng-hui. The United States, under President Clinton, sent two aircraft carrier battle groups to the region, sailing them into the Taiwan Straits. China was unable to track the ships' movements, and unwilling to escalate the conflict, quickly backed down. The event had little impact on the outcome of the election, since none of Lee's rivals was strong enough to defeat him, but it is widely believed that China's aggressive acts, far from intimidating the Taiwanese people, gave Lee a boost that pushed his share of votes over 50 per cent.

None of these four incidents is unambiguous. But all can be read as examples where a non-nuclear weapon state, faced

with threats of attack by a nuclear weapon state, has gone ahead exactly as if such a threat did not exist. It follows that faced with the threat of nuclear blackmail, a non-nuclear weapon state is by no means bound to knuckle under. This is not to argue that a non-nuclear Britain could never be constrained in its actions *vis-à-vis* a nuclear adversary by fear of nuclear blackmail. Conceivably, it might be, but we have failed to unearth a single unequivocal precedent. It is far from a foregone conclusion that Britain should submit under these circumstances.

Nuclear Terrorism

Even more problematic is the contention in the White Paper that Trident could be of use in confronting the risk that 'some countries might in future seek to sponsor nuclear terrorism from their soil'. So they might. But it has never been explained how Trident could be brought into play. Suppose that a quantity of fissile material has been smuggled from Siberia, through Central Asia, and is being made into a crude nuclear weapon by a team of gunsmiths near Peshawar. All intelligence sources agree that this is taking place, using designs from the A Q Khan network, under the control of Al-Qa'ida. The plan is evidently to ship the resulting weapon through Karachi and thence, by unobtrusive coastal vessels, to a French Atlantic port such as Brest. From there it will be carried in the fish hold of a trawler to its ultimate destination, say in Grimsby or Lowestoft. On arrival, Al-Qa'ida will divulge its existence, without saying where, and threaten to detonate it unless Britain agrees to the immediate release of all Muslim terrorist suspects in custody and the withdrawal of all troops from Afghanistan. The Pakistani authorities disclaim all knowledge of or responsibility for the plot, and may well be telling the truth, but the collusion of their Inter-Services Intelligence (ISI) directorate is strongly suspected. There are many agencies that the British government could set on foot to foil the project, including diplomatic pressure, intelligence, police, the customs service, fishery protection, Special Forces and many others. But Trident? Against what target could it be fired, or threatened or its use even conceived. Any such scenario

fails under the weight of its own evident absurdity.

Non-proliferation

A major disadvantage arising from the Government's defence of replacing Trident is that it proves too much. If we believe that there is an 'enduring role for the UK's nuclear forces as an essential part of our capability for deterring blackmail and acts of aggression against our vital interests by nuclear-armed opponents' then the same could be said of any country on earth. Britain is, by most counts, one of the least threatened of states, securely nested under the American nuclear umbrella. If there is a serious danger of nuclear attack or blackmail against ourselves, it must lie in the realm of further proliferation. However, as Lords Bramall and Ramsbotham have pointed out:

It is difficult to see how the United Kingdom can exert any leadership and influence on this issue if we insist on a successor to Trident that would not only preserve our own nuclear-power status well into the second half of this century, but would actively encourage others to believe that nuclear weapons were still somehow vital to a secure defence, both to deter and even to use, and that self-respecting nations should therefore aspire to holding them.²¹

It is obviously true that the decision by any country whether or not to go nuclear will be taken in the light of its own best interest. But the way in which a national interest is perceived can be swayed, often decisively, by what it sees other countries doing.²² For example, it has been suggested that if Britain renounced her nuclear weapons this would make it hard for the French to retain theirs. It would cast a new light on the question of American nuclear weapons in Europe, and this in turn would give fresh impetus for negotiating down the (vastly larger) stockpile of tactical nuclear weapons in Western Russia – arguably the most imminent nuclear threat confronting the UK.²³ At the very least it would show that one major player was taking their obligation seriously, under Article 6 of the NPT, to negotiate in good faith on nuclear

disarmament. Failure in this regard is causing widespread resentment among the non-nuclear weapon states party to the treaty and could precipitate its early collapse.

Max Hastings regards any argument based on our giving a lead against nuclear proliferation as flatulent, because a British disarmament precedent is irrelevant to the world's regional disputes and is almost universally perceived as

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such.²⁴ He may well be right. If so, this also demolishes the argument – implicit in almost everything the British Government says on this subject – that Britain should wind down its nuclear capability only as part of, and in step with nuclear disarmament on the part of the other nuclear powers.²⁵ This is to assume that the possession of nuclear weapons gives us some residual leverage in such negotiations that further unilateral reductions, let alone going to zero, would somehow squander. The truth is that our leverage in any such forum is marginal at best. The simple principle holds that if getting rid of nuclear weapons is the right thing for Britain to do, then we should go ahead regardless of what other states decide. Max Hastings adds: 'My own instinct is that Trident should go'.

Can We Afford It?

The Government's White Paper predicted an acquisition cost for the new Trident system of £15–20 billion in 2006–07 prices.²⁶ It concluded that the operating costs would be similar to the current deterrent, but did not quantify those costs. Currently they run at between 5 and 6 per cent of the annual defence budget. As the National Audit Office has recently reported, the Ministry of Defence is improving the White Paper cost estimates, but they are not yet sufficiently robust to support the future deterrent programme throughout its planned life.

There remain a number of major areas of uncertainty in the budget, including the provision for contingency, inflation and Value Added Tax. Budgetary control arrangements are still being developed and there are some areas of potential risk which need to be addressed.²⁷ This is ominous enough. But already the defence budget is known to be heavily overdrawn.²⁸ As the *Financial Times* has commented:

Once again the Ministry of Defence is taking short term spending decisions without any idea of what its long term ambitions are. Generals complain about fighting two wars at once. Frontline troops complain about poor equipment. These problems have a single root cause. The UK has not conducted a full Strategic Defence Review since 1998. This means that the MoD still operates on planning assumptions drawn up before 9/11.²⁹

Already some sacrosanct items, such as the two aircraft carriers, are being shunted to the right. The present down-turn in national income and consequent rise in government borrowing cast a long shadow over public spending in the next decade, and defence will not be immune. The Government said that 'the investment required to maintain our deterrent will not come at the expense of the conventional capabilities our armed forces need';³⁰ but whatever the intention today, over the longer term this promise is clearly undeliverable.

Provided the cost is not exorbitant, an insurance policy against a low risk but devastating event is not unreasonable. In a highly volatile security environment, where nuclear proliferation is a continuing danger, there may be some comfort in such insurance. But in no other area of military provision is the justification of a general insurance against the unforeseen accepted. There is a very narrow range of circumstances where the situation would be regarded as grave enough for a non-nuclear Britain to suffer nuclear blackmail without the blackmailer needing to consider the US or other nuclear arsenals being brought into the balance. And there is no precedent to suggest that Britain, even on its own, would necessar-

ily kow-tow to the blackmailer. It is time to reflect on how thin the justification for Trident really is and to evaluate it fairly and rigorously against the opportunity costs.

A Final Word

The purpose of this paper has been to examine the statement 'we can only deter such threats [of nuclear blackmail] in future through the continued possession of nuclear weapons'. We have shown

that this is far from being the brass-bound certainty for which it is commonly taken. The precedents do not support it. It is a partial truth at best, and needs to be carefully balanced against the many other factors which will determine the future security of this Kingdom.

The outcome of any forthcoming Strategic Defence Review should be, at the very least, to shift the Trident replacement programme several years to the right. It would be better to cancel

it now and better still to decommission the existing Trident boats forthwith. ■

General (rtd) Sir Hugh Beach works mainly on defence policy, arms control and disarmament, and also on ethical issues concerning peace and war.

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NOTES

- 1 White Paper (Cm 6994), 'The future of the United Kingdom's Nuclear Deterrent', December 2006, pp. 6–7.
- 2 Commodore Tim Hare, formerly Director of Nuclear Policy at the British Ministry of Defence, believes that the only feasible national scenario is if a nuclear weapon state used its nuclear capability to attack the UK or one of our dependent territories. He adds that 'the paradox is that if we do use these weapons, the policy of deterrence has clearly failed. This contradiction makes analysis of the utility of possessing nuclear weapons quite difficult in that any evidence supporting the policy is based on events that do not happen rather than those that do!' (Personal communication).
- 3 *The Sunday Times*, 17 August 2008. Russia is also reportedly thinking of withdrawing from the Intermediate Nuclear Forces (INF) Treaty and has declared that the Conventional Forces in Europe (CFE) Treaty is now dead.
- 4 Defence White Paper (Cm 6041-1), December 2003, paragraph 3.5, p. 8.
- 5 'Future Capabilities', (Cm 6269), July 2004, paragraph 1.2, p. 2.
- 6 Written answers [21902] from Defence Secretary John Reid, House of Commons, Hansard, 27 October 2005.
- 7 Their website claims that the Trident Refit Facility provides 'total integrated logistical supply support to attack and UK submarines' including degaussing services.
- 8 The exact wording is 'source, by-product and special nuclear material, and other material for research on, development of or use in atomic weapons, when the Government of the United States ... determines that the transfer of such material is necessary to improve the United Kingdom's atomic weapon design, development or fabrication capability'. See 'Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for Co-operation on the Uses of Atomic Energy for Mutual Defence Purposes', signed in Washington, 3 July 1958, reproduced as renewed to 2014, quoted in 'Disarmament Diplomacy 77', pp. 57–62.
- 9 '1958 Atomic Energy Agreement', *UN Treaty Series* (Vol. 326, No. 4707, 1959), pp. 4–20; 'Amendment', *UN Treaty Series* (Vol. 351, No. 4707, 1960), pp. 458–464.
- 10 Message to Congress from President Bush, 14 June 2004, <<http://www.whitehouse.gov/>>.
- 11 The Heatshield kits were made by Lockheed Martin. The arming, fusing and firing (AF&F) systems for the British warhead were designed by Sandia National Laboratories, and are almost certainly bought from the United States in toto. A new Neutron Generator was designed and built between 1997 and 2002 and the first units were supplied to the British in 2003. The Gas Transfer System is also American. Because Tritium gas is radioactive and can penetrate stainless steel it requires special reservoirs. Because it decays to produce helium, thus increasing the pressure in the reservoirs, it has to be replaced regularly. British tritium is transported to America as uranium tritide, converted to tritium gas and loaded into reservoirs at the Savannah River site. Both the Neutron Generators and the Gas Transfer System, being limited life items, are replaced on a regular basis. This is done in the Re-entry Body Process Building at Coulport, before the warheads are fitted to the missiles on board the submarines.
- 12 'The National Security Strategy of the United Kingdom', 2008, para 3–11, p. 14.
- 13 The United States adopted a posture of benevolent neutrality at the time of the Falkland Islands campaign in 1982. Clearly this is an inexact parallel because the adversary, Argentina, was not a nuclear weapons power.
- 14 Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for co-operation on the uses of atomic energy for mutual defence purposes – Article 1, Signed in Washington, 3 July 1958. See Footnote 9 above. <www.basicint.org/nuclear/1958MDA.htm>.
- 15 Interestingly this wording was followed closely in the exception allowed by the International Court of Justice in their 'Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons', 8 July 1996; 'the Court cannot conclude definitively whether the threat or use

- of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defense, in which the very survival of a State would be at stake.’
- 16 Lord Henley, House of Lords, 11 January 1995.
- 17 The Royal Navy claims that, since the British sonar is superior to the Americans, this option is also unfeasible.
- 18 This is not a complete explanation. The attack on Suez attracted the condemnation of other members of NATO, the Commonwealth and the General Assembly of the United Nations. But it was the run on the pound and the oil embargo orchestrated by the United States that were decisive in forcing the Anglo-French forces to declare a cease-fire and withdraw.
- 19 David Broder, ‘US Forces Have No Nuclear Arms in Gulf States, No Plans to Use Them,’ *Los Angeles Times*, 2 October 1990, p. 6.
- 20 Ed Gilley, ‘N-Threat Deterred Saddam,’ *Seattle Post-Intelligencer*, 17 May 1991, p. 1.
- 21 Lord Bramall, Lord Ramsbotham, Sir Hugh Beach, letter to *The Times*, 16 January 2009. Lord Bramall was Chief of Defence Staff under Margaret Thatcher, 1982–85.
- 22 An obvious example is the way in which economic and fiscal policies in a time of recession play off each other within the European Union. For example, will countries choose to follow Gordon Brown or Angela Merkel?
- 23 I owe this point to Jayantha Dhanapala, (previously Under-Secretary General Department for Disarmament Affairs at the United Nations, 1998–2003) at a Pugwash open meeting at the Royal Society, London, 10 December 2008.
- 24 Max Hastings, ‘If defence is to be strategic rather than politically expedient, dump Trident,’ *The Guardian*, 19 January 2009. He applies this argument in the case of France also.
- 25 See for example: ‘Lifting the Nuclear Shadow: Creating the Conditions for Abolishing Nuclear Weapons,’ *FCO Policy Information Paper*, Executive Summary of a paper to be read by David Miliband at IISS, 4 February 2009.
- 26 As in endnote 1, p. 7.
- 27 Report by the Controller and Auditor General (HC 1115), ‘The United Kingdom’s Future Nuclear Deterrent Capability’, *Session 2007-8*, 5 November 2008.
- 28 By as much as 17 billion pounds over the next ten years. (Personal communication from an MoD official).
- 29 *Financial Times*, 8 December 2008.
- 30 As in endnote 23.