BJHS **45**(4): 519–533, December 2012.
doi:10.1017/S0007087412001033

'Never a credible weapon': nuclear cultures in British government during the era of the H-bomb

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Abstract. This article explores British 'nuclear culture' by examining how individuals and groups within British government tried to comprehend nuclear weapons after the advent of the hydrogen bomb in 1952. It argues that thinking about nuclear weaponry was not uniform, and there was no monolithic 'nuclear culture' in government. Instead, political and social habits interacted with Cold War experience to create views of the nuclear weapon – nuclear cultures – that varied across government to create a diverse, and shifting, set of ideas – nuclear cultures – about what the nuclear weapon meant in British hands, and the role it played in providing military power and political influence.

On 15 February 1968, the Royal Navy submarine HMS *Resolution* launched a Polaris A3 missile with a dummy nuclear warhead from the sea off the eastern coast of the United States. The culmination of a successful partnership between the United States and Britain, begun in 1962, the launch showed that the UK remained a nuclear weapons power. Outwardly, Polaris seemed to epitomize the government's commitment to British nuclear weapons, yet, only months before, in October 1967, Treasury officials engaged in a confidential review of the future of the nuclear weapons programme had argued that, 'since our nuclear capability was never a credible weapon, its abolition could not leave a gap in our defence'.[1] While this comment might be seen as part of the normal rough and tumble of government business, this article suggests that it expressed a genuine lack of belief in the arguments made in favour of the British deterrent. As such, it is an example of a range of responses to nuclear weapons within government in the 1950s and 1960s that can be examined productively using the idea of 'nuclear cultures'.

The cultural aspect in the British quest for an atomic bomb was acknowledged by the programme's official historian, Margaret Gowing, who argued that, alongside a recognition that these weapons were militarily devastating, there was an 'almost instinctive … feeling that Britain as a great power must acquire all major new weapons, a feeling that atomic weapons were a manifestation of … scientific and technological superiority … a symbol of independence'.[2] Other historians have touched upon this subject. John Baylis has talked about the 'mind set' that underpinned the adherence to

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1 Nicholls to Bancroft, 20 October 1967, the National Archives (subsequently TNA), T/225/2933.

2 Margaret Gowing, *Independence and Deterrence: Britain and Atomic Energy, 1945–1952*, 2 vols., London: Macmillan, 1974, vol. 1, p. 184.

the 'Moscow criterion' from the 1960s onwards.[3] Peter Hennessy's description of the various sections of 'the secret state' as a 'cluster of priesthoods' forming 'worlds apart unto themselves' appears to suggest that intra-governmental identities may have played a significant role in responses to nuclear weaponry.[4] These ideas have not, however, removed an inclination among many historians to see a British 'nuclear weapons state', with a purportedly uniform approach to nuclear weaponry, whose officials held similar attitudes and ideas; a perception that, as Michael Howard puts it, the Cold War ran 'according to the arcane calculations of strategic analysts' and that the key element in government thinking about nuclear weaponry was not cultural, but strategic, what Hennessy terms 'the cold rules for national safety'.[5]

This paper attempts to use the idea of nuclear culture to reconsider British nuclear weapons policy. It looks at the policy discussions around strategic nuclear weapons – those weapons designated to attack strategic targets, such as nuclear missile bases and cities – concentrating on the era of the hydrogen bomb, beginning in late 1952, when the United Kingdom detonated its first atomic device only to see the Americans detonate an H-bomb a few weeks later. It ends in 1968, when, with the conclusion of the defence review, it became clear that Britain would retain its Polaris nuclear missiles. This period is a useful source of material because it was a time of turmoil in the British nuclear weapons programme, marked by technological change, advances in Soviet capabilities, and alterations in the relationship between Britain and the United States. This turbulence required government officials to re-evaluate the purpose and form of the British nuclear force and to commit their interpretations of the rationale behind it to paper.

Drawing upon a Weberian sense of 'culture' (*Kultur*) as the content of everyday lives – the framework of understanding that allows social actors to provide meaning to their daily activity – this article characterizes 'nuclear culture' in government as the structures of explanation through which individuals and departments within British government attempted to comprehend nuclear weapons.[6] I agree with Holger Nehring that we should avoid using 'culture' as an umbrella term when examining Cold War thought. Nehring suggests we should 'discuss the manifold experiences and meanings of Cold War cultures' that varied across social groups, gender and nation.[7] Here, I propose that the complex relationships between the different individuals and departments

3 John Baylis, 'British nuclear doctrine: the "Moscow criterion" and the Polaris improvement programme', *Contemporary British History* (2005) 19, pp. 53–65.

4 Peter Hennessy, *The Secret State: Whitehall and the Cold War*, London: Penguin, 2010, p. 404.

5 For example, Len Scott, 'Labour and the Bomb: the first 80 years', *International Affairs* (2006) 82, pp. 685–700; Claire Duncanson and Catherine Eschle, 'Gender and the nuclear weapons state', *New Political Science* (2008) 30, pp. 545–563; John Hamwee, Hugh Miall and Scilla Elworthy, 'The assumptions of British nuclear weapons decision-makers', *Journal of Peace Research* (1990) 27, pp. 359–372; Greta Jones, 'The mushroom-shaped cloud: British scientists' opposition to nuclear weapons policy, 1945–57', *Annals of Science* (1986) 43, pp. 1–26; Michael Howard, *The Lessons of History*, Oxford: Oxford University Press, 1991, p. 47; Hennessy, op. cit. (4), p. xiv.

6 See, for example, Max Weber, *Der Nationalstaat und die Volkswirtschaftspolitik: Akademische Antrittsrede*, Freiburg: Mohr, 1895.

7 Holger Nehring, 'The British and West German protests against nuclear weapons and the cultures of the Cold War, 1957–64', *Contemporary British History* (2005) 19, pp. 223–241, 223–224.

involved in nuclear weapons policy generated specific intra-governmental 'nuclear cultures', shifting, interactive and often conflicting frameworks of understanding that impacted upon policy-making. My aim is to demonstrate that, as Jacques Hymans has argued in relation to the use of the atomic bomb in 1945, we should avoid any 'implicit depiction of British behaviour as that of a rational, unitary actor state pursuing a relatively clear conception of the national interest'.[8] Beyond a general acceptance that the West needed some form of nuclear force to face the Soviet threat, there was no single, or even dominant, structure of explanation among the politicians, scientists, civil servants and military officers who discussed British nuclear weapons in the first twenty-five years of the H-bomb. The 'cold rules for national safety', and approaches to nuclear weapons policy generally, were the products of varied frameworks of understanding: 'nuclear cultures' that drew upon individual experience, political and social tradition, understandings of technology, and specific Cold War experience.

The early years of the H-bomb

On 3 October 1952, a British team led by the physicist William Penney successfully tested the first British atomic device, codenamed Hurricane, in the Monte Bello islands, near Australia, demonstrating to the world that Britain had become a nuclear weapons power. Hurricane was an expression of a specific framework of understanding about atomic weaponry, identified by Gowing and others, that had developed over the previous decade. During the Second World War Britain had cooperated with the United States to create the first atomic weapons. This collaboration ended with the passage of the Atomic Energy Act in 1946, which banned the sharing of American atomic information with any foreign power. In 1947, the Labour government decided that a British atomic programme had to continue for a number of reasons: to provide independent atomic weapons for any future conflict, for those 'instinctive' reasons identified by Gowing, and also to help restart nuclear cooperation by convincing the Americans that the British were their technological equals.[9] In the years following Hurricane, the first generation of the British nuclear force would take shape, but within a month of the British test, events and technology had overtaken these British atomic efforts. On 1 November 1952, the United States detonated the world's first fusion device in the Ivy Mike test, the yield of which (10.4 megatons) was vastly greater than that of the weapon used against Nagasaki (21 kilotons). Because of its size and the fact that it used liquid deuterium fuel, however, the device was not a deployable weapon, and its significance was not immediately appreciated, either by the British public or by government. It was only in March 1954, when the United States tested practical fusion weapons in the Castle tests at Bikini atoll, that the potential of the H-bomb became apparent. The Castle Bravo explosion was the most powerful ever detonated by the

8 Jacques Hymans, 'Britain and Hiroshima', *Journal of Strategic Studies* (2009) 32, pp. 769–797, 773.

9 Lorna Arnold, *A Very Special Relationship: British Atomic Weapon Trials in Australia*, London: HMSO, 1987, pp. 4–8.

United States (15 megatons), and also brought the issue of radioactive fallout to the forefront of public scrutiny, when it caused the radioactive contamination of surrounding islands, and of the Japanese fishing boat *Daigo Fukuryū Maru* (*Lucky Dragon 5*), leading to the eventual death of one of its crew.

The fatal power of Castle Bravo had a significant effect on the manner in which nuclear weaponry was perceived, both inside and outside government. With newspapers reporting that the 'Hydrogen device blast equalled 600 A-bombs', it soon became evident that these new weapons overshadowed the atomic bombs that had seemed the ultimate embodiment of technological prowess since 1945.[10] Moreover, the insidious nature of radioactive fallout – invisible, spread by the wind, and lethal – fuelled a new strand of concern about the nuclear issue. What Sophie Forgan terms the 'enormous emphasis' on the peaceful and positive uses of atomic energy, seen in exhibitions such as 1951's Festival of Britain, which had been prominent in the discussion of nuclear issues before 1954, now gained a dark shadow of fear; evidenced in a variety of ways, from the spate of films such as *Godzilla* and *Them!* that explored concerns about radioactive contamination, to the gradual appearance of anti-nuclear movements across Europe.[11]

Hennessy has argued that 1954 was 'the pivotal year' for nuclear issues within British government, a moment when 'interlocking reappraisals' about nuclear strategy were 'forced' onto officialdom.[12] One clear consequence was the British H-bomb programme, decided upon within months of the Bikini tests, and described by Churchill as 'the price we pay to sit at the top table'.[13] The advent of the H-bomb should not be seen only in terms of strategic reappraisal, however. It had a crucial influence on the frameworks of understanding within government. Officials had to learn to think about warfare on a scale previously unimagined, and in doing so they utilized a variety of structures of explanation – nuclear cultures – that produced disparate responses.

The discussion over the merits of 'active' defence – the capacity to attack an enemy with nuclear weapons – as against the 'passive' measures of civil defence, reveals this process at work. As Matthew Grant has demonstrated, much official thinking about atomic war in the later 1940s had been based on a perception that adequate civil defence measures would allow Britain to continue to fight in the event of a major European war.[14] Doubts emerged during the Berlin crisis, which increased as Soviet atomic capacity grew, but this view remained significant. Only days after Bravo, E.C. Allen, the principal scientific officer to the Home Office, appeared confident that civil defence measures would ensure that, if war occurred, 'many of the atomic bombs … would not

10 *Eastern Daily Press*, 18 March 1954.

11 Sophie Forgan, 'Atoms in Wonderland', *History and Technology* (2003) 19, pp. 177–196; Nehring, op. cit. (7), pp. 224–225; Lawrence Wittner, *Resisting the Bomb: A History of the World Nuclear Disarmament Movement, 1954–1970*, Stanford: Stanford University Press, 1997, pp. 14–17.

12 Hennessy, op. cit. (4), p. 52.

13 Edwin Plowden, *An Industrialist in the Treasury*, London: Deutsch, 1989, p. 95.

14 Matthew Grant, 'Home defence and the Sandys Defence White Paper, 1957', *Journal of Strategic Studies* (2008) 31, pp. 925–949, 927.

arrive on their targets'.[15] Yet, even as Allen stated this, William Penney was explaining to senior officials that they had now to contemplate an assault 'the intensity of which far exceeded our previous assumptions and the plans which we had based on them'.[16] As information from the 1954 tests seeped into government circles, concern grew, about both the power of the H-bomb and the issue of fallout. A committee of civil servants led by a Treasury official, William Strath, was tasked with examining the repercussions of an H-bomb attack on the UK.[17] In March 1955, Strath's report concluded that such an attack would devastate the country; postulating a death toll of 12 million, with four million others injured or disabled.[18]

Historians have rightly seen Strath's report as auguring a period of debate about how to deal with the Soviet nuclear threat.[19] The eventual outcome, the 'triumph' of active over passive defence options, often seems inevitable; however, this debate highlights the influence of frameworks of understanding on policy, for the discussions that took place were derived from the individual structures of explanation used to explore the H-bomb issue. Strath is a useful example. The son of a police constable, he received a first in Latin and Greek at Glasgow University before joining the Inland Revenue in 1929. During the war he worked at the Ministry of Aircraft Production, where he came to the attention of Edwin Plowden, who placed Strath in the central economic planning staff from 1947 to 1955, before working with Strath at the Atomic Energy Authority.[20] The Strath report bore the traces of a framework of understanding steeped, like that of his mentor Plowden, in an idea of benevolent, centralized government control and a belief that atomic energy could be controlled and utilized.[21] Strath did not shrink from describing the carnage that a thermonuclear attack would cause, but refused to accept that government could do nothing to ameliorate this disaster. Instead, his approach was that the government had a duty to protect the subject, as evidenced by the report's proposals for stockpiling, the dispersal of factories and government functions and a renewed stress on civil defence. His emphasis on the importance of public information reflected a belief in consensus and social stability that characterized both himself and Plowden.[22] Similar influences can be seen behind the efforts of the Home Secretary, Gwilym Lloyd George, to have fallout shelters provided for the population in the years after 1955, and in the Home Office more generally.[23]

15 *Eastern Daily Press*, 12 March 1954.

16 'Note of a meeting Held in Sir Norman Brook's Room', 12 March 1954, TNA/CAB/130/101.

17 Jeff Hughes, 'The Strath Report: Britain confronts the H-Bomb, 1954–1955', *History and Technology* (2003) 19, pp. 259–261.

18 'The Defence implications of fall-out from a hydrogen bomb', 8 March 1955, TNA/CAB/134/940.

19 Melissa Smith, '"What to do if it happens": planners, pamphlets and propaganda in the age of the H-bomb', *Endeavour* (2009) 33, pp. 60–64, 61–62.

20 Alec Cairncross, 'Strath, Sir William (1906–1975)', *Oxford Dictionary of National Biography*, Oxford University Press, 2004.

21 'Profile: Sir Edwin Plowden', *New Scientist*, 8 August 1957; Peter Jay, 'Plowden, Edwin Noel Auguste, Baron Plowden (1907–2001)', *Oxford Dictionary of National Biography*, Oxford University Press, 2005.

22 'Defence', March 1955, TNA/CAB/134/940.

23 'Shelter policy', 25 October 1955, TNA/CAB/134/1245; Matthew Grant, *After the Bomb: Civil Defence and Nuclear War in Britain, 1945–68*, Basingstoke: Palgrave Macmillan, 2010, p. 124.

For others responding to the H-bomb, quite different understandings were at work. Hennessy describes a mood of fear in 1954, with government looking 'into the abyss'.[24] With Penney's briefings on the potential power of the H-bomb ringing in their ears, many involved in these early discussions responded viscerally to the potential threat. This gave added intensity to policy formation. In an acceleration of the feeling identified by Gowing, that nuclear weapons represented scientific prowess and national potency, the H-bomb came to be seen as a special thing, which superseded all other modes of warfare. A leading MoD scientist, Victor Macklen, exemplified this approach in 1958, when he asserted that 'the difficulties caused by forcing nuclear weapons into the same mould as obsolescent weapons are very obvious'.[25] As Smith has shown for the Home Office, scientific advisers provided technical background for policy-makers and, in doing so, played an active role in framing defence policy by determining the range of policy options considered.[26] Macklen's view is especially significant because he was a 'key adviser' on nuclear weapons at the MoD for decades, rising to become deputy chief adviser (projects and nuclear) from 1969 to 1979, and has been described as one of those who 'kept the UK nuclear warhead and weapons program alive'.[27]

Macklen spent most of the Second World War in air defence research and then operational research, progressing afterwards into the scientific staff at the War Office and then the MoD.[28] His belief in the efficacy of the nuclear weapon made him very active in opposing developments that might threaten the programme; the influential American nuclear physicist Herbert York felt that Macklen was instrumental in obstructing British agreement to any comprehensive test-ban treaty in the 1970s.[29] The strength of Macklen's faith in nuclear weaponry appears to have drawn heavily upon his technical background, especially the operational research method of applying mathematical models to the planning of military operations. He was convinced that nuclear weapons were irresistible and fundamental to British defence. At the same time, however, his response was similar to that behind the nuclear protest movements, or even *Godzilla*: a feeling that the H-bomb had changed the nature of human interaction with the environment in a potentially uncontrollable manner.

With a framework of understanding based on a mechanical positivism that highlighted the unstoppable and uncontrollable aspects of the new technology – the H-bomb as the ultimate in offensive power – individuals such as Macklen in the MoD and others in the Royal Air Force and the Air Ministry argued that the balance had moved decisively towards the offensive. As Bomber Command planners explained in 1957, 'the

24 Hennessy, op. cit. (4), p. 58.

25 Macklen to Brundrett, 28 October 1958, TNA/DEFE/7/2294.

26 Melissa Smith, 'Architects of Armageddon: the Home Office Scientific Advisers' Branch and civil defence in Britain, 1945–68', *BJHS* (2010) 43, pp. 149–180, 175.

27 John Walker, *British Nuclear Weapons and the Test Ban 1954–1973*, Farnham: Ashgate, 2010, p. 57; Frank Panton, 'Government, scientists, and the UK nuclear weapons programme', in Jenifer Mackby and Paul Cornish (eds.), *US–UK nuclear cooperation after 50 years*, Washington, DC: CSIS, 2008, pp. 235–246, 246.

28 Victor Macklen, available at www.oldvarndeanians.org.uk.

29 Herbert York, *Making Weapons, Talking Peace: A Physicist's Odyssey from Hiroshima to Geneva*, New York: Basic Books, 1987, pp. 307–309.

only course of action is to attack as many cities as possible'.[30] In the immediate, fear-ridden, aftermath of Castle Bravo, the approaches of men such as Strath, which highlighted not offensive power but the state as a shield for the subject, were unable to withstand the impetus towards the offensive. Over the next few years, conventional military forces were cut in favour of the 'thermo-nuclear threat', a process culminating in the Sandys Defence Review of 1957.[31] The idea of deterrence became central, concentrating on the threat of 'unacceptable destruction' provided by the new technology, which it was claimed provided both military strength and political weight, meaning that both the USSR and the USA would 'think we are a political power to be reckoned with'.[32] Civil defence came to be considered only as a support for deterrence; since it was 'impracticable' to actually defend the population, the Home Office's shelter policy was abandoned and civil defence became a means of creating public confidence in deterrence.[33]

This focus on attack meant that considerable thought had to be given to quantifying the level of nuclear threat that would convince the Soviet leadership of Britain's power and resolve. Again, the mechanical positivism of the MoD approach was evident. Dr Ian Shaw, a War Office scientist who pioneered the use of computer modelling in the study of fallout, later summarized the process. Having decided that it was 'unrealistic' to calculate how many weapons would be needed to kill the entire Soviet population, MoD scientists 'adopted a 90% kill level' as a target. Data from wartime area bombing campaigns was used to create models of destruction, and the requisite number of weapons needed by the UK was identified as 'some few hundred', on the grounds that after a certain level of damage had been inflicted, there was a 'progressive inability' of a country to continue functioning.[34] Such analysis gave apparent arithmetical certainty to the vision of defence based upon 'thermonuclear threat'. By 1959, those favouring the nuclear force were arguing that the credibility of the 'independent deterrent' was a function of how many Soviet civilians British weapons could kill; the force needed to be able to destroy 'some 30–40 of the major Russian cities'.[35]

Yet, despite their apparent success from 1954 to 1959, those arguing for the offensive approach to nuclear weaponry felt under pressure. As an Air Ministry official explained, 'the RAF is endeavouring to hold single-handed the whole strategic offensive front at all points against all comers. In this situation no weaknesses can be admitted either to the other Services or to the Treasury'.[36] This feeling reflected a growing diversity of thought about the nuclear issue inside government. While the momentum appeared to be with those arguing that defence should be equated with the nuclear deterrent, its effect had been to cause others – in the Treasury, Navy and Army – to think about the H-bomb in very different ways.

30 'Strategic target policy for Bomber Command', 20 September 1957, TNA/AIR/2/13717.
31 'The size of the deterrent', 11 July 1956, TNA/DEFE/5/69.
32 'The size of the V-bomber force', 30 May 1957, TNA/AIR/8/2400.
33 Minister of defence, 5 September 1958, TNA/CAB/131/20; Smith, op. cit. (19), p. 62.
34 'What is a deterrent?', 30 June 1971, TNA/DEFE/19/129.
35 'Maintenance of the British deterrent, 23 July 1959, TNA/AIR/2/13707.
36 'Future bombing policy', 7 July 1959, TNA/AIR/2010/122.

Differing understandings

From the early 1950s, Treasury officials had argued that defence planners had to face 'the world as it is'.[37] Those arguing that nuclear weapons could form the backbone of Britain's defences had utilized the Treasury's downward pressure on defence spending to advance their position by claiming that nuclear weapons were cheaper than conventional forces. This was a dangerous alliance, however, for Treasury officials did not, necessarily, accept that nuclear weapons were special, or should be considered in a different manner to any other aspect of government spending. The basis of the Treasury approach can be discerned in 1953, when it was noted that officials 'cannot help feeling that the first Aldermaston reaction to any new afterthought is to demand a new building automatically instead of making every effort to make do with the buildings already available or in hand'.[38] As British economic circumstances became more difficult, the expanding nuclear programme proved an irresistible target for those looking for savings. This was only possible, however, because some officials were willing to challenge the basic claims made about nuclear weapons. This is apparent in discussions about the Blue Streak ballistic missile in the late 1950s. Blue Streak was intended to take on the task of delivering British nuclear weapons when the V-bombers became obsolete in the mid-1960s. From 1958, however, the American government, concerned that the USSR had overtaken them in the missile race, became more willing to collaborate with Britain on nuclear weapons development, meaning that Blue Streak could be replaced by American alternatives, such as the submarine-launched ballistic missile Polaris. Cancellation was, however, controversial. For example, it was asked how a deterrent using an American missile would be independent. Moreover, it was argued that if the American missiles did not arrive on schedule, Britain would be left with no credible nuclear force.[39]

The Treasury was unconcerned. Officials were willing to accept that Blue Streak should be cancelled 'even if this meant that at some time in the 1960's we should cease to have an independent nuclear deterrent'.[40] It was, of course, probable that the American replacement would arrive on time, meaning there would be no gap in deterrent capacity. Nevertheless, Treasury equanimity at the prospect contrasted strongly with the response from the MoD, where it was argued the move would leave Britain 'defenceless'. Those who favoured the deterrent felt that 'the Treasury appear to be advocating … a greater dependence on the United States in respect of deterrent weapons … than has hitherto been regarded as politically acceptable'.[41] Furthermore, the suggestion was seen as the thin end of the wedge. If nuclear weapons could be foregone temporarily, it would be much easier to argue that they were not truly needed. The parties here were drawing upon different frameworks to assess the situation. On one hand, in the MoD, with a framework of understanding that saw nuclear weapons as the epitome of military

37 Bancroft to Davies, 3 November 1951, TNA/T/225/124; Grant, op. cit. (14), pp. 925–949.

38 France to Penney, 21 April 1953, TNA/AB/16/792.

39 Aubrey Jones to Duncan Sandys, 24 January 1958; 'Long range rockets', 3 September 1958, TNA/DEFE/13/193.

40 Memorandum by Heathcoat-Amory, 5 November 1958, TNA/DEFE/7/2332.

41 Chilver to Sandys, 22 January 1960, TNA/DEFE 25/13.

technology, there was an absolute acceptance of the need for an ongoing, and up-to-date, nuclear option. On the other, Treasury officials were far less fixed on the technological aspect of the weaponry and were driven instead by brutally economic assessments of what the UK could afford. Against the economics, the frameworks of explanation used by those favouring a British nuclear force were found wanting.

Within the military, the RAF was wholly devoted to the idea of the nuclear deterrent. In part this was because the first generation of atomic weaponry was dropped from aircraft, which meant that the Royal Air Force had been involved in developing nuclear strategy from the beginning of the atomic programme. The service's willingness to embrace the focus on attacking civilian populations as time progressed had other drivers, however. Concentration on the nuclear strike provided the RAF with a rationale for Bomber Command and placed the RAF at the centre of British defence policy. The mechanistic approach to bombing policy relied heavily upon data from wartime bombing raids and was, therefore, an approach with which Air Force personnel were familiar. The highly technical representation of the H-bomb fitted into the self-image of the RAF as the most advanced military arm technologically. It also reinforced a perception, born in the war, which saw air power as the dominant factor in modern warfare. As Air Marshall Stewart Menaul put it, 'never before in her long history has Britain possessed such a powerful military force'.[42]

The Royal Navy's position on nuclear weapons was complex, and it appears that planning for the possibility of Polaris submarines began in 1955. Overall, however, the Navy was unreceptive. This was partly simply because naval officers preferred surface ships over submarines. At a deeper level, however, many officers were unconvinced of the case for attacking civilians. As Ken Young has put it, 'Senior naval officers regarded with distaste the RAF's entrenched stance of city-busting through massive retaliation.'[43] This feeling meant that RAF scenarios for nuclear attack on the UK were treated sceptically.[44] The Navy argued that the idea of a British deterrent required 'very critical examination'. Indeed, the words naval officers tended to use when the idea of a unilateral British attack was broached, 'ruin' and 'suicide', indicate a corporate perception that such activity was antithetical to the service's fundamental aim of protecting the realm.[45]

For the Army, this feeling was, apparently, even stronger. In 1958 Field Marshall Francis Festing, chief of the imperial general staff, joined his naval colleagues in arguing that if financial considerations required a choice between nuclear forces and conventional, then conventional had to be chosen over nuclear.[46] Indeed, Festing appeared unconvinced that Britain would ever use nuclear weapons unilaterally.[47] A deeply religious man, Festing's great talent was the leadership of soldiers in the field and his strategic focus was on the defence of Britain's global role. It seems that his

42 Stewart Menaul, *Countdown: Britain's Strategic Nuclear Forces*, London: Hale, 1980, p. 12.

43 Ken Young, 'The Royal Navy's Polaris lobby, 1955–62', *Journal of Strategic Studies* (2002) 25, pp. 56–86.

44 'Vulnerability of the bomber force', 1 April 1960, TNA/ADM/1/31023.

45 'Nuclear sufficiency', 25 July 1958, TNA/DEFE/7/1816.

46 'Nuclear sufficiency', 24 September 1958, TNA/DEFE/7/2300.

47 'Nuclear sufficiency', 20 November 1958, TNA/DEFE/7/2300.

personal belief systems and extensive combat experience, combined with a belief that soldiers on the ground, rather than missile systems, provided global reach, caused him to pause when looking at the issue of nuclear weaponry. His fellow officers appear to have shared such concerns, and the Army remained aloof from discussions. Their relative silence seems to have reflected their distinctive approach to warfare, entrenched in the regimental system: that the role of the British Army is to fight other soldiers, not civilians. The discussions around Blue Streak support this interpretation. Debate centred on the suggestion that, because of its vulnerability to a surprise attack, Blue Streak would have to be fired before any Soviet nuclear assault. The Ministry of Aviation argued that 'in the last resort' the government had to be ready to do so.[48] Army officers were unequivocal: 'To "fire first", they stated, 'is NOT acceptable.'[49]

These inter-service differences were not merely part of what Howard sees as the normal 'acrimonious internecine conflict' of the British military.[50] They were indicative of a different way of understanding the H-bomb and its relation to both British defence policy and the British state more widely. For the Ministry of Aviation, the RAF and men such as Macklen, Soviet knowledge that the UK would not fire its weapons first, if required, would 'completely undermine the value of our deterrent'.[51] Their belief in the unstoppable technology of the H-bomb combined with their mathematical certitude of its efficacy as a war-winning weapon to make them argue that the defence of Britain required its government to be willing to destroy forty enemy cities without having been attacked itself. To many Army and Navy officers this approach was wrong; this was not how they had been taught to view the British way of warfare. Others in government felt similar disquiet, and came to radical conclusions. As the chief scientific adviser, Solly Zuckerman, wrote in early 1960, 'In a democracy, one cannot conceive of a Government giving the order to fire first ... So why do we have a deterrent at all?'[52]

Zuckerman was not alone in asking this question. It seems that the very process of making the British nuclear force real, the arguments over civil defence, building an H-bomb and the discussions over how many enemy civilians had to be killed to make the threat credible had required many in government to think deeply about the nuclear option, and they had drawn on their respective cultures, their individual and shared frameworks of understanding, to do so. It seems that they had also been influenced by discussions of the nuclear issue outside Whitehall. This process led some to doubt if Britain could, or should, use such weapons, and, therefore, whether they should be in the country's arsenal.

As these alternative frameworks of understanding developed, those supporting the deterrent relied progressively more on the idea that nuclear weapons were a political force multiplier.[53] Although long-standing, this idea was even more elusive to prove than the military case, for while it was often stated that abandoning nuclear weapons would

48 'Strategic missiles', February 1960, TNA/AIR/19/998.
49 'Nuclear deterrent briefing', 22 January 1960, TNA/DEFE 7/2278 (original emphasis).
50 Michael Howard, 'Every club in the bag', *London Review of Books*, 10 September 1992, p. 3.
51 'Blue Streak', 19 February 1960, TNA/AVIA/92/24.
52 Zuckerman to minister of defence, 19 February 1960, TNA/DEFE/25/13.
53 Wilson to Powell, 18 November 1959, TNA/DEFE/7/2216.

result in 'a serious loss of influence', no one could produce definitive proof that nuclear weapons had ever conferred political advantage.[54] In these circumstances, those in favour of the nuclear force knew they had to fight their corner. As one Air Ministry official explained, if they ever accepted that there was a certain level at which the deterrent was not effective, 'This would be dangerous, since there are numbers of people in the discussion who would jump at such a conclusion.'[55]

'Outright negation and opposition'

In December 1962, President Kennedy and Prime Minister Macmillan signed the Nassau Agreement, under which the USA was to provide the UK with a supply of Polaris missiles, onto which British-made warheads would be placed, which would be carried by submarines and replace the ageing V-bombers. While the Nassau Agreement marked an end to the intense discussions about the future shape of the British deterrent that had marked previous years, it did not mean that understandings of nuclear weapons were settled. Although the Polaris programme went ahead, some groups continued to circle it and probe for weakness.

Chief amongst them remained the Treasury, which harried the programme at every opportunity. The election of a Labour government, whose position on British nuclear weapons was ambiguous, encouraged a feeling that future policy was not decided. In 1964, for example, Treasury officials pushed hard to reduce the Polaris fleet from four submarines to three. As one explained, 'We lost out on that one', but the policy thrust remained, and two years later the Treasury was asking 'whether we needed the boats at all'.[56] Treasury officials remained unconvinced by the arguments for British nuclear weapons, coining the term 'retentionists' to describe those in government who favoured the deterrent.[57] By 1967, they were casting themselves as the purveyors of common sense against a doctrinaire position – 'the dogmas of the AEA', as one termed it. 'It is necessary', he argued, 'to have some counter-balance, and the Treasury may be the only Department able to supply it'.[58]

The gulf became clear during the 1967 Defence Review. Although the review had not been intended to cover nuclear weapons, in July the prime minister agreed that it should, suggesting that it 'might start from the point that we have decided not to develop (or to purchase) a new generation of nuclear weapons to succeed Polaris'.[59] This decision came at a difficult moment for those favouring the deterrent. They now found themselves having to explain why the deterrent was necessary when, in fact, they wanted to argue for more money to be assigned to the programme: to 'harden' the warhead. 'Hardening' – that is, incorporating technology into the missile and warhead that would make enemy anti-ballistic-missile (ABM) defences less effective – had been a

54 'Deterrent policy', 20 February 1960, TNA/CAB/131/23.
55 Note by Kent, 19 January 1962, TNA/AIR/19/998.
56 'Future nuclear weapons policy', 20 October 1967, TNA/T/225/2923.
57 Note by Patterson, 2 November 1967, TNA/T/225/2933.
58 'Nuclear review', 7 July 1967, TNA/T/225/2922.
59 'Future UK weapons policy', 24 July 1967, TNA/T/225/2922.

concern from the late 1950s, and received impetus in the mid-1960s as it became clear that the Soviet Union was working on such systems.[60] It was argued that hardening was necessary militarily, to ensure that British warheads would hit their targets, and also because it offered the 'best prospect' to keep the nuclear weapons research establishment at Aldermaston 'viable' and so ensure a continuing British capacity to produce nuclear warheads.[61] Those favouring Polaris faced determined opposition, for, having read the prime minister's comment that there would be 'no new generation', Treasury officials scented blood. As one put it, 'the discussion is about the timing of our renunciation, not whether such renunciation is desirable'.[62]

The subsequent discussions echoed those of the earlier period, but there was a new and determined edge to the arguments against the deterrent, with the Treasury moving to a position 'of outright negation and opposition'.[63] The argument for the continuation and improvement of the Polaris programme was made by the Foreign Office, the Commonwealth Office, and the Ministries of Defence and Technology. The Board of Trade did not support hardening, but favoured retaining Polaris. These officials accepted that there was 'no great likelihood' of British weapons being used independently, but argued that 'uncertainty' was useful. This acknowledged the shift away from the assertion that Britain would 'fire first' if required, but reflected the continuing belief that the deterrent had to be militarily credible and faith that credibility was expressed by destructive capacity. Polaris was 'credible' because it threatened 'simultaneous destruction to thirty major cities in Western Russia'. That credibility relied, it was now said, on the system being able to get through Soviet defences, an argument which was then deployed to support spending further money on hardening. Failure to do so would mean that 'we shall deliberately be allowing the threat which we can pose decline' and British status would wane.[64] As Macklen explained, 'If Britain wants political power in the world it must retain some independent nuclear capability and keep it up to date.' This argument was imbued with the ongoing belief in technological mastery and retained the idea that the threat to act independently had to be real. 'For public presentation', Macklen wrote, 'it may be necessary to talk about contribution to the Western deterrent, but this double talk must not blind us to the fact that the real value of the British force is in its independent power'.[65]

A new thread was added that had not been of major concern before 1962, and which emphasized the connection between nuclear weapons and status: the issue of France, which was now building its own deterrent force. The French nuclear force appears to have been problematic for various reasons. Politically, 'abandoning' the deterrent would

60 'Ground launched weapon systems', 6 October 1959, TNA/AIR/2/13707; 'Possible hardening of Polaris A3 missile system', 28 April 1967, TNA/PREM/13/1316.

61 'Future nuclear programme', 2 August 1966, TNA/DEFE/19/197; 'Ministerial Committee on Nuclear Policy', 1 December 1967, TNA/CAB/134/3120; 'Ministerial Committee on Nuclear Policy', 5 December 1968, TNA/CAB/134/3121.

62 'Nuclear review', 7 July 1967, TNA/T/225/2922.

63 Nicholls to Bancroft, 20 October 1967, TNA/T/225/2933.

64 Rose to Bancroft, 13 November 1967, TNA/T/225/2293.

65 'Political points. Reasons for British retaining a Nuclear Deterrence [*sic*]', 9 June 1967, TNA/DEFE/19/129.

leave France as the only nuclear power in Europe, increasing French influence at Britain's expense, and possibly affecting British entry into the Common Market.[66] Additionally, there was a link between the development of nuclear weapons and national vitality, akin to that which fed the dreadnought race in the early twentieth century. It was essential that Britain was at the technological cutting edge of nuclear destructive capacity. 'It would be absurd', wrote Macklen later, 'for the UK to contribute an aging 1960s system in the 1980s or 1990s. Would you want … to explain to the French that the UK capability was designed to have a 50% chance of destroying Riga?'[67]

Those seeking an end to the British nuclear force were unconcerned because they felt that national vitality was best represented by economic competitiveness, rather than destructive capacity. A guide to the framework of ideas upon which they drew can be gained from an examination of one of the major figures in these discussions, Ian Bancroft, an undersecretary to the Treasury. A Treasury official since 1947 who would eventually become head of the home civil service, in 1951 Bancroft had proven the arms programme of Hugh Gaitskell to be 'quite impractical' financially, and, over the years, consistently sought to match British military power with the country's economic ability.[68] It seems that this long-standing aim was critical in his approach to nuclear weapons. There was, possibly, more than this involved. As 'one of the best of the old school of civil servants', Bancroft, who had strong ideas on British government, was not afraid to speak his mind. He once said it was the task of a civil servant to 'confront politicians with reality'.[69] Treasury discussions in 1967 and 1968 suggest that he felt that an argument that Britain would use nuclear weapons did not stem from 'reality'.

Bancroft and his colleagues focused on 'a basically economic case' against the nuclear weapons programme, arguing that 'our influence in the world will depend on the soundness of our economy'. It was the economic argument against the deterrent that trumped the military and political arguments, because with potential savings of £300 million over ten years, 'given our difficult economic situation the capability is a misuse of the resources that it will consume'. Furthermore, they felt that the nuclear weapons programme contributed to a wider problem of balance in the economy, which required a 'massive redeployment from defence research to civil research'.[70]

This economic argument could be deployed, however, only because Bancroft and others at the Treasury and the DEA thought that the military arguments for the deterrent were 'nonsense'.[71] As Bancroft put it, 'the reluctance (query inability) of the retentionist Departments to produce convincing scenarios' revealed their lack of substance.[72] It was in this context that Treasury officials argued that the nuclear force was 'never a

66 Rose to Bancroft, 13 November 1967, TNA/T/225/2293; 'Ministerial Committee on Nuclear Policy', 1 December 1967, TNA/CAB/134/3120.

67 Macklen to Zuckerman, 19 August 1971, TNA/ DEFE/19/129.

68 Kevin Jeffreys, *Labour Forces*, London: Tauris, 2002, p. 93.

69 Christopher Foster, *British Government in Crisis*, Oxford: Hart, 2005, p. 215; David Richards, *The Civil Service under the Conservatives*, Brighton: Sussex Academic Press, 1997, p. 124.

70 Note by Patterson, 2 November 1967, TNA/T/225/2933; Rose to Bancroft, 13 November 1967, TNA/T/225/2293.

71 Nicholls to Bancroft, 20 October 1967, TNA/T/225/2933.

72 Bancroft to Hawtin, 2 November 1967, TNA/T255/2924.

credible weapon'. Bancroft and his colleagues drew on a framework of understanding about government, similar in some ways to that of Strath, one which did not see a British nuclear attack as a realistic means of defence. Soviet retaliatory capacity meant that any unilateral British attack would result in the 'complete destruction' of the UK. If the role of government was to protect the realm from such ruin, a unilateral British attack was 'inconceivable'. In that case – if the British could never act alone – then the British force lacked credibility, because, in comparison with the huge American arsenal, it was 'basically irrelevant'.[73] Additionally, the Treasury officials appear to have felt distaste for the nuclear threat to civilians, arguing that Britain did not possess the 'political will' to devastate large numbers of Russian cities. This conclusion then fed into their critique of the arguments for political influence. As British weapons were 'irrelevant', they were also 'politically incredible'. Further weapons programmes, such as Polaris improvement, were economically wasteful – 'incredibility improved by a factor of twenty or thirty is still incredibility'.[74] The problem was that the ideas of the 'retentionists' had not kept step with reality – 'they have not yet abandoned the delusion that we can be a worldwide power at all'.[75] Bancroft was blunt; in the nuclear weapons world, Britain was 'a minor-leaguer'.[76]

Conclusions: nuclear cultures

Despite these efforts, by the start of 1968 it was apparent that ministers were not going to cancel Polaris. At the same time, however, they refused to commit to hardening the warhead. In essence, a stalemate had been reached, where the proponents of the deterrent could not get agreement to improvements, while the proponents of cancellation could not convince ministers to take the huge step of giving up nuclear status. In the long run, this stalemate meant that Polaris would be deployed and research on hardening would continue in secret, until the Chevaline programme was revealed in 1980. Ultimately, it was the 'culture' of politicians that ensured that the nuclear programme would continue. While those questioning the deterrent had cast doubt on the arguments in its favour, they could not provide a powerful enough alternative for politicians with their eyes on the history books. Inertia was a powerful force. An argument to redeploy resources was insufficient for ministers who recalled the rearmament debates of the 1930s, and worried about being remembered as the one who took Britain out of the nuclear 'club'.

In this article I have argued that the story of British nuclear weaponry can be seen very differently if we do not analyse it purely as an outcome of 'strategic decision-making' but, instead, as a consequence of the manner in which various frameworks of understanding nuclear weapons, what I see as 'nuclear cultures', developed after the detonation of the H-bomb. In the years after 1945, atomic research had embodied

73 Rose to Bancroft, 13 November 1967, TNA/T/225/2293.
74 Nicholls to Bancroft, 20 October 1967, TNA/T/225/2933.
75 Nicholls to Bancroft, 20 November 1967, TNA/T/225/2923.
76 Bancroft, 26 October 1967, TNA/T/225/2923.

the future, and atomic weapons had been associated with military power, diplomatic influence and national vitality. The advent of the H-bomb caused increasing numbers of people, inside and outside government, to reconsider nuclear issues. This was because the H-bomb was new, and terrifying, but also because the acceleration of technology and costs required government to spend ever greater sums on nuclear weapons and to involve more people, from differing backgrounds, in the process. Forced to face images of Armageddon, those who became involved drew upon the content of their everyday lives, their *Kultur*, to make sense of the British nuclear posture. In drawing on distinctive experiences, whether personal (their war service, approach to technology, or even religious beliefs), or departmental (the Treasury idea that Britain had to cut its cloth according to its status, or the different service cultures), each person and, therefore, each group of people, came to think of the British H-bomb in a different manner. Ideas that the hydrogen bomb embodied technological advancement led some to a sense that offence was the only means of defending the nation. A refusal to accept that the state could not defend that nation against new weaponry led others to try to redefine civil defence. Some sought certainty in the quantification of the numbers of civilian deaths required to ensure British security, while others questioned how the mass killing of civilians fitted into the history of British force of arms. The idea that a nuclear arsenal was a cost-effective means of providing defence and status seemed self-evident to some, for others nuclear weaponry was an unaffordable luxury. The meaning of security was interrogated – did an ability to fire nuclear missiles provide security if the country was bound to be destroyed? The upshot of this was that, in the years after 1954, British governmental nuclear weapons policy was a constantly renegotiated field of discussion and division, and it is in understanding the complexities of those processes of negotiation that the idea of nuclear cultures can provide valuable insight.