The Royal Air Force and the Strategic Nuclear Deterrent: An Introduction

By Dr David Jordan

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Introduction

On the afternoon of Friday 25 October 1946, a cabinet committee known as GEN75, chaired by the Prime Minister Clement Attlee, was in the process of discussing Britain's future in terms of atomic energy. One chair was empty, that of the Foreign Secretary, Ernest Bevin. The committee, established to discuss nuclear matters, was in the middle of a discussion about whether to build a gaseous diffusion plant which would permit the production of uranium 235, a vital component in an atomic bomb.

The Chancellor of the Exchequer, Hugh Dalton, and Sir Stafford Cripps (President of the Board of Trade) were carrying the argument. The serious financial situation in which Britain found itself after the Second World War simply did not allow for the high costs involved, they contended: Britain would have to do without. At this point, Bevin walked in. He apologised for his late arrival, explaining that he had fallen asleep 'after a good lunch', and listened to the debate. After a few moments, he interjected:

> That won't do at all, we've got to have this... I don't mind for myself, but I don't want any other Foreign Secretary of this country to be talked to or at by a Secretary of State in the United States as I have just had in my discussions with Mr Byrnes. We've got to have this thing over here, whatever it costs. We've got to have the bloody Union Jack flying on top of it.[1]

This intervention was both dramatic and decisive. Attlee was, almost certainly in agreement with his Foreign Secretary, well aware of the fact that Britain would have to embark upon production of its own atomic weapons if the country were to have any hope of influencing the United States at a time when it appeared that America might once again adopt a rather hands-off approach to Europe in the aftermath of a major war.[2] He saw the atomic bomb, despite the enormous cost, as being something that the United Kingdom must seek to possess. Cooperation with the United States was ruled out as a result of the McMahon Act, passed into law in July 1946, and which prohibited the transmission or dissemination of nuclear-related data even to allies.[3] This was the source of considerable resentment in Britain and Canada, given the important part played by scientists from those two nations in the development of the atom bomb, but American concern for close control over information trumped wartime alliances. Thus, Britain was set on course for developing its own weapons and becoming an atomic power. The detonation of an atomic bomb by the Soviet Union in 1949 simply added impetus to Britain's pursuit of similar weapons.

In 1952, the first British device was ready for testing. Under the auspices of Operation HURRICANE, an atomic weapon was loaded into the frigate HMS *Plym*, and sailed to the Monte Bello islands off Australia. On 3 October, the device in the *Plym* was detonated, making Britain the third nuclear power.[4]

Developing the bomb was one thing; the means of delivery another. The Air Staff duly issued requirements and specifications for bomber aircraft capable of carrying and delivering an

atomic bomb. As a result of Britain's financial difficulties, RAF Bomber Command was equipped with aircraft ideally suited to fighting a continuation of the air offensive against Germany in the form of the Avro Lincoln, the immediate descendant of the famous Lancaster, and was in the process of ordering the aircraft which would become the English Electric Canberra, a most versatile aircraft which would go on to carry nuclear weapons as cooperation between the UK and US resumed in the 1950s. Yet the Canberra – a twin-engined aircraft which did not have the range to reach targets deep in the USSR, which was clearly by then the major strategic threat to Britain – was not the answer to the nation's requirement. Nor was the interim step of obtaining surplus Boeing B-29 Superfortresses from the United States (known in RAF service as the Boeing Washington) sufficient, since, as had been displayed in the Korean War, the type was increasingly vulnerable to the Soviets' rapidly advancing air defence systems. The solution came in the form of not one, but three aircraft: the Vickers Valiant, the Avro Vulcan and the Handley Page Victor. As a result of their names, inspired by the decision of the then-Chief of the Air Staff (CAS), Sir John Slessor, that the bombers would be the 'V-class bombers', the nation's initial deterrent capability would be provided by the so-called V-Force until its phased replacement by the Royal Navy's Polaris-armed Continuous At Sea Deterrent (CASD) carried by *Resolution*-class submarines from 1969.

The provision of not one but three V-bombers for the RAF sometimes creates mystification when placed in the context of the nation's financial difficulties. This is more readily understood when it is appreciated that the Valiant (arguably the forgotten bomber of the trio) was meant to be a relatively straightforward aircraft which could thus be brought into service swiftly, while the Victor and Vulcan were more advanced designs which might prove technically challenging and thus be prone to delay and, indeed, possible failure. Although there was an intention to choose between one or other of the pair, this never happened, and the RAF was to fly three nuclear-capable medium bombers. The Valiant is best remembered for being the vehicle for the first airborne delivery of a British nuclear weapon. This was conducted as the third test of a series carried out during Operation BUFFALO (which also saw testing of weapons mounted on towers) in September and October 1956; the tests helped to build confidence in the United States that collaboration on nuclear matters could be resumed. A month after BUFFALO, Valiant squadrons were put to use with conventional weapons, attacking targets in Egypt as part of Operation MUSKETEER during the Suez crisis.

The effects of the Suez crisis were profound. If Britain had harboured any desires to be considered a great power, they were dashed after the crisis, as the unfavourable reaction from Washington helped illustrate the limitations of British power. British reflection upon the events of late 1956 led in turn to a major defence review, forever associated with the Minister for Defence, Duncan Sandys.[5] Sandys' review infamously declared that the future of manned aircraft was limited and that missiles would become the order of the day for the RAF. Conscription was ended, and the UK was to place the bulk of its defence effort into the provision of an effective deterrent. This would, for the time being, continue to be delivered

by the RAF and the V-Force, which at the time of Sandys' review was still building up to its full strength (although it never reached the target of 240 aircraft originally envisaged).

This presented a number of challenges. First, the (fission) atomic bomb had been superseded by the successful testing of a much more powerful (fusion) hydrogen bomb by the United States. The USSR soon followed. Concerned that the recently gained nuclear capability would be rendered obsolete in the 'race for megatonnage' and that a proposed nuclear test ban would deny Britain the opportunity to enter the H-bomb 'club', a series of tests of a British H-bomb were rapidly planned and undertaken under the codename Operation GRAPPLE. Although the tests were not quite as successful as portrayed at the time, Britain had become a member of the club just in time, and its credibility as a nuclear weapons state at the leading edge of technology was retained.[6]

The Valiant, as the least sophisticated of the V-bombers, was not planned for long service, particularly as its ability to penetrate growing Soviet defences reduced. Consequently, while three squadrons would remain in the pure bomber role, the type was used also for developing air-to-air refuelling and long-range reconnaissance. Unfortunately, the aircraft had been constructed using a new alloy, DTD 683. By the late 1950s, it had already been demonstrated that the alloy was prone to cracking, and it proved ill-suited to the rigours of the task to which the Valiant would be dedicated. The decision to move the bomber force to low-level operations to improve survivability against the Soviet integrated air defence system (IADS) exposed the aircraft to a harsher flying environment, inducing a higher rate of structural fatigue which added further to the Valiant's troubles. Following two significant structural failures (by some miracle, neither of which brought the aircraft down despite causing major damage), the decision to withdraw the Valiant was taken in 1964.[7]

The Victor and Vulcan arrived in time to address the capability gap, but questions regarding their survivability and, thus, their efficacy were raised even as they were coming into service. It became clear to the Air Staff that a stand-off weapon was desirable, enabling the attacking bombers to launch their weapons outside the range of the Soviet defences, even though there were grounds for confidence that a significant proportion of bombers with their potent payloads would get through to their targets if ever called upon to do so. The British stand-off weapon, the Blue Steel, proved to be a disappointment, and the move to low-level operations to enhance the bombers' survivability impacted significantly on the missile's range. The solution to the ongoing concerns with Blue Steel lay in the procurement of the Douglas GAM-87 Skybolt missile then under development for the USAF's Strategic Air Command (SAC). Unfortunately for the UK, the Skybolt was not well-regarded by the incoming Kennedy administration and was promptly cancelled following a number of failed tests (ironically, on the day the cancellation was announced, a test missile functioned perfectly). The reaction of the UK to the cancellation was one of profound irritation, much to the surprise of the Kennedy administration, which had not appreciated that, while SAC did not require Skybolt to remain viable, Bomber Command did. Relations were patched up at the Nassau conference

in December 1962 - but with serious consequences for the V-Force, since the replacement for Skybolt was to be the Polaris submarine-launched ballistic missile (SLBM).[8] The V-force would continue in the strategic role until 1969, shortly after the first Royal Navy Polaris submarine became operational. Although Duncan Sandys had seen an era when the RAF would use missiles with nuclear warheads as part of the deterrent, this had been just a brief period between 1959-1963 when a number of RAF squadrons based at various locations in the east of England were equipped with the Douglas Thor Intermediate Range Ballistic Missile (IRBM).[9] Although a highly reliable system, the Thor was significantly limited by its vulnerability to a first strike against its positions, and its withdrawal was therefore not met with widespread lamentation, apart from amongst those who had operated it and thought that its contribution to the deterrent had never been properly appreciated.

By 1969, the grounding of the Valiant had brought about a re-roling of the Victor B1 bombers, which were converted to assume the air-to-air refuelling duties that the Valiants had hitherto undertaken. The Victor B2 was employed by two squadrons at RAF Wittering (100 and 139), making use of the Blue Steel, but once the V-Force deterrent era was at an end, the Victors were converted into tankers, going on to serve until the mid-1990s. The Vulcan, meanwhile, continued in the nuclear strike role, albeit switching to tactical operations using the WE177 freefall tactical nuclear bomb. Conventional weapons delivery was also assigned to the aircraft in the early 1970s, but further financial constraints saw the deletion of training on conventional weapons delivery in 1975 (with some interesting consequences in 1982, when the Vulcan was called upon to bomb the airfield at Port Stanley as part of Operation BLACK BUCK). Although air-delivered weapons remained in the RAF's arsenal until after the end of the Cold War, the height of the RAF's nuclear era had been in the 1960s. Key to this had been the principle of deterrence; only once did it appear to have come close to the brink of failing, with the Cuban Missile Crisis of 1962.

The concept of aerial deterrence was not new (as Professor Richard Overy and Professor Sir Michael Howard's contributions elsewhere in this edition demonstrate), but the horrifying consequences of a nuclear exchange weighed heavy upon the world. Given that the main contention over Cuba was between the United States and the USSR, it is not surprising that the bulk of literature about the Cuban crisis deals with the US and, to a lesser extent, the USSR - but Bomber Command's place should not be ignored. Although the British approach was rather low-key, the V-Force was at the heart of the Government's response to the crisis. It is often said that the only time that the efficacy of deterrence can be measured accurately is when it fails; it did not fail in 1962, and understanding how Britain's contribution to the machinations over the basing of Soviet missiles in Cuba was a prime driver in the decision to hold an ICBH witness seminar, reproduced later in this edition of Air Power Review. The story told by the participants is both enlightening and sobering (despite the passage of time between the events of 1962 and the seminar in 2009), and helps aid our understanding of Bomber Command's vital role in defending the UK through deterrence during the late 1950s and early 1960s.

Notes

[1] Alan Bullock, *Ernest Bevin: Foreign Secretary* (London: W Norton and Company, 1983), 352.
[2] Ian Clark and Nicholas J Wheeler, *The British Origins of Nuclear Strategy 1945-1955* (Oxford: Clarendon Press, 1989), 51.
[3] The Act was formally titled the Atomic Energy Act, but the Bill bringing it forward was presented by Senator Brien McMahon, whose name has been associated with the Act ever since.
[4] Richard Moore, *The Royal Navy and Nuclear Weapons* (Abingdon: Frank Cass, 2001), 68.
[5] Despite the title, the Minister of Defence was a cabinet rank position, above that of the Secretaries of State for the respective single services and with responsibility for the coordination of defence policy. It was retitled following the creation of the unified Ministry of Defence and the abolition of the posts of Secretaries of State for War and Air and the First Lord of the Admiralty.
[6] Group Captain Kenneth Hubbard, *Dropping Britain's H-Bomb: Story of Operation Grapple* (Barnsley: Pen & Sword, 2008); AVM Wilfred Oulton, *Christmas Island Cracker* (London: Thomas Harmsworth, 1987).
[7] Tony Blackman, *Valiant Boys: True Stories from the Operators of the RAF's First Four Jet Bomber* (London: Grub Street, 2014) 167-176.
[8] Richard E Neustadt, *Report to JFK: The Skybolt Crisis in Perspective* (Ithaca: Cornell University Press, 1999).
[9] John Boyes, *Project Emily: Thor IRBM and the RAF* (Stroud: History Press, 2008); John Boyes, *Thor Ballistic Missile: The United States and the United Kingdom in Partnership* (Stroud: Fonthill Media, 2015); Geoff Goodchild, *Thor: Anatomy of a Weapon System* (Stroud: Fonthill Media, 2016).