

The British Nuclear Program and the United States: Dependency and Interdependency in the 1950s and early 1960s

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Abstract

In twenty-first century Britain, the idea of a nuclear deterrent has developed into one of contention. One of the most important issues surrounding this topic is the dependency of Britain on the United States for the supply, and possibly even the use of, Britain's nuclear arsenal. The current programme, Trident, was established in 1980 and the missiles were purchased from the United States in the mid-1990s. Trident itself replaced Polaris, another nuclear programme developed entirely by the US. Traditionally, historians such as Edward Spiers have been more optimistic about Britain's dependence, focusing more upon the idea of interdependency. Recently, with historians such as Andrew Scott and Andrew Priest, the debate has shifted more pragmatically towards dependency. This paper claims that Britain had completely failed in its attempts to maintain independence in its efforts to achieve a working nuclear deterrent, showing how almost every aspect of the development and supply came from the US.

Keywords: Britain, Nuclear Program, United States

Article

Great Britain was the third country to successfully develop and test an atomic bomb in 1952, after Russia in 1949 and the United States in 1945. Initially, it was the British who were leading the development of nuclear weaponry, yet this did not last due to Britain's considerable lack of manpower and resources in comparison with that of the United States. After the Quebec agreement in 1943, all British scientists working on uranium-235 related projects and atomic research calculations moved to the American project. Most worked at Los Alamos, but no British scientists were even permitted to enter US factories where plutonium was produced. Britain quickly became the junior partner of the project they had launched (Gowing, 1981). With the introduction of the McMahon Act (The Atomic Energy Act of 1946, which brought the sharing of nuclear information to an end), British involvement in the American project came to an end. When the McMahon Act was scrapped, full co-operation between Britain and the United States began again, however, this gave way to the belief that the British nuclear deterrent was dependent on assistance from the United States. This essay will take a chronological approach towards the analysis of Britain's nuclear project, analysing the role both nations played in the establishment of the nuclear deterrent in the 1950s through to the 1960s. It will also look at the attempts to achieve interdependency by the British government, and how these ultimately failed to have any real effect.

With the implementation of the McMahon Act, it became illegal for any classified atomic information to be divulged to any foreign power, including Great Britain (Gowing, 1981). Yet this was not received so negatively by all the British. Christopher Hinton, a nuclear engineer, said that "it would make the British think for themselves" (Gowing, 1981). And indeed it did. As mentioned before, Great Britain developed its first atomic bomb in 1952. Anglo-American co-operation was not needed for the construction of atomic plants and the basic atomic bomb. In 1957, Britain unleashed a series of megaton bomb tests, and by 1958 it had its first hydrogen bomb ready (Dumbrell, 2001). But to what extent was this project truly independent? Although the McMahon Act was not fully repealed until 1958, it was amended in 1954. This amendment enabled nuclear co-operation between the United States and any independent country that had achieved significant advances in the field of nuclear energy. A year later, the United States and Great Britain had signed civil and military co-operation agreements, as well as a grant of \$210 million dollars in March 1954

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(Ball, 1995). The US military had agreed to pass on to the British details of size, weight, and attachment systems so that they could carry American weapons in the future. This move was a little more covert as the Atomic Energy Commission had denied the Department of Defence's request to send the information to the British, but the military did it anyway, as the United States Air Force pushed for closer ties with the British Royal Air Force, bringing some of their intelligence with them (Ball, 1995). However, the British treasury initially blocked the funding to adjust the British V-bombers so they could carry American weapons, fearing that this would compromise the independence of the British nuclear force. Not long after, the treasury was overruled and 176 aircraft of varying types were converted to accommodate American weapons (Ball, 1995). Even early on, there were clear signs of dependency on the United States in the British quest for a nuclear deterrent.

Eventually, the McMahon Act was amended yet again, allowing the United States to share information with any of its close allies (although this had already happened with Britain as previously mentioned). It is important to question what changed the minds of the American legislature. First, in 1957, the Soviets surprised the world (and more importantly, the United States) by launching the Sputnik 1, the first artificial Earth satellite. Although its apoapsis (the highest point of orbit) was only around 583 miles, the distance between Berlin and London is only around 579 miles (Nssdc.gsfc.nasa.gov, 2017). The vehicle that launched Sputnik was capable of launching rockets over 3,700 miles, meaning it was the first intercontinental ballistic missile (ICBM) (Arnold, 2001). Due to this vehicle, the Soviet Union could now strike the US, who then decided they could no longer afford to be the only western nuclear power. Another factor that influenced the end of the McMahon Act was the understanding of its futility. It was designed to help the United States keep its monopoly on nuclear weapons, but a mere seven years later, both the Soviet Union and Great Britain had developed their own. Churchill was convinced that Operation Hurricane (the official name of the test), would impress the United States into co-operating again like they had during the Second World War. Yet, by 1952, the US had already refined the atom bomb and moved onto the hydrogen bomb. When asked what they thought about possible atomic energy exchanges with Britain, one congressman replied with "We would be trading a horse for a rabbit" (Arnold, 2001). It was Britain's subsequent "hydrogen bomb" in 1958 that did leave an impression, coupled

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with the advances in Soviet technology which destroyed American complacency that led to the changes in the McMahon Act and the development of overt US-Anglo nuclear co-operation.

As the construction of Britain's nuclear deterrent became built upon the practice of purchasing missiles from the United States, Britain's involvement continued to dwindle. The first weapon sold to the British was the PGM-17 Thor missile, also the first ICBM developed by the Americans. It was deployed in Britain in 1959, but only as a temporary measure, completely dependent on the United States, and was retired in September 1963 (Gibson, 1996). It was intended as an interim deterrent until the US had finished the development of Skybolt, their new missile delivery system, which Great Britain was to have as an "independent deterrent" (Gowing, 1964). Britain was to put all of its proverbial eggs in one basket with Skybolt. Recent advances in Surface-to-Air missiles meant that dropping bombs was implausible; therefore, a new alternative was needed. Skybolt meant the extended lifespan of the British V-bombers, thus avoiding the search for a new delivery system such as Blue Streak, the British attempt at an independent delivery system which was scrapped in 1960. It gave the RAF greater strategic flexibility and range, as well as preventing the further unbalancing of the RAF and the Royal Navy (Priest, 2006). Britain based its entire "independent" deterrent force on the Skybolt. The subsequent crisis when the US pulled development on it is a clear demonstration of the dependence of Britain on the United States, as Her Majesty's Government broke out into protests. Britain had cancelled all other projects to focus on assisting and preparing for Skybolt, and with its cancellation in 1962, Britain was left without an effective nuclear deterrent to call its own.

Before this, Britain had planned and begun the development of its own, new weapon delivery system, the Blue Streak. The operational requirement was issued in 1955, and the design for the middle was completed by 1957, but it became apparent quite quickly that Blue Streak was going to be too expensive. When compared with the progress that the Soviet Union or the United States was making with their new delivery systems, it became abundantly clear that Blue Streak was progressively becoming a less and less viable option. The weapons systems were also particularly vulnerable to first-strike attacks due to recent improvements to the accuracy of ballistic missiles, and would only be viable as a second-strike deterrent; they were outdated before they had even

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become deployed (Dumbrell, 2001). It was scrapped in 1960, and while it never served as a nuclear deterrent it was moved to civil programmes and developed over the 1960s-70s (Hill, 2006). Britain had started reasonably well in its pursuit of an independent deterrent in the 1950s. Yet, the later in the decade, the more it began to rely on the United States. Even during the McMahon years, Britain was covertly supplied information by parties in the USAF. When Blue Streak proved a failure, Britain moved to Skybolt, which was developed almost purely by the US, and when that failed to bear fruit and was cancelled, Britain was left without any nuclear deterrent to speak of. The weapons it had already developed had been made redundant by advances in Surface to Air Missile technology, and other preventative measures. The Thor missiles deployed in Britain were not sold or granted to Britain.

With the failure of Skybolt the US agreed to sell Britain the Polaris missile for 105% of the material costs (5% for the cost of research and development). For 9 submarines and 125 weapons, it would cost the British around £800 million (Priest, 2006). Yet it is not just the provision of the missiles they relied on, under the Nassau agreement Britain was granted the following: “details on the launching system, components of the inertial navigation system, the fire control, satellite intelligence, communications equipment, testing facilities in Nevada, and even the high stress steel for the submarine hulls” (Spiers, 1981). Both the equipment and the training in the use of the Polaris missile came from the United States, something the Pentagon’s staff was incredibly forthcoming with, especially considering some of their prior reservations about trading atomic secrets. The majority of the equipment used in Polaris was also manufactured by the Americans, especially in the construction of the Polaris submarines. There was no effort made to hide this high level of US involvement, in fact, the former First Lord of the Admiralty Carrington is quoted to have said: “we must buy in the USA every item of sub-installed Polaris weapon system that they will sell to us” (Priest, 2005). Britain could claim some of the “independence” of their deterrence as they designed the warheads themselves.

By choosing the most advanced version of the Polaris possible, the A3, it had meant that the US could not provide either the warheads or the re-entry vehicles for the missile. But even here, the US made themselves available and their help was crucial to the British effort. As it was not possible

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that the British could simply copy the American's warhead, the US Navy had made information on their warhead design and theories of penetration aids readily available for the British engineers and scientists. The spare parts for Polaris were provided almost entirely by American firms, as they were cheaper and the British firms were plagued by delays. Even when the Minister of Technology tried to continue the practice of using British firms, the tender passed to the US (Priest 2005). These are not phenomena unique to the 1950s and 1960s either, this reliance on the US for the British deterrent continued well into the 1970s. Polaris missiles found themselves quickly outdated by more recent weapons, such as the Poseidon missiles. When the British attempted to improve upon the Polaris design, they encountered similar issues to those they had experienced before; they could not afford to upgrade nor could they keep up with technological advancements made in the United States. As a result, they asked and received US assistance in their "Antelope Operation", which had intended to improve the likelihood of a missile reaching its target by reducing the chances of interception by an anti-ballistic missile. Yet again, the British sacrificed their independence in their nuclear projects, as they had neither the manpower nor the money to continue their own work (Scott, 2011).

Throughout this period, parts of the British government spent considerable amounts of time convincing itself that the nuclear co-operation between Great Britain and the United States was one of "Interdependency". How much of this is true? In order for there to be interdependency, there would have to be some form of British independence in their nuclear deterrent. In this case, some of the previous points made stand, namely the fact that the British were responsible (in part) for their own nuclear warheads. The Nassau agreement also bestowed upon Britain the right to use their nuclear deterrent independently where "supreme national interests are at stake" (Spiers, 1981).¹ Nor was it as if the United States was the sole contributor to the British nuclear project. From 1958, Britain exported plutonium from its civil and military reactors in the UK (although it still relied heavily on the import of uranium and tritium) (Dumbrell, 2001). Another factor that adds "interdependency" to Britain is the existence of the dual key, originally implemented with the placement of Thor missiles in Great Britain. This meant that both the US and Britain had to agree to launch any missiles, granting the British an effective veto over the use of the missiles (Dumbrell,

¹ Spiers, 'The British Nuclear Deterrent' 1981, p. 160

2001). But how much of this has any real impact? It is important to note that Robert McNamara, the Secretary of Defence to Kennedy and Johnson in the United States, was against the European powers having their own independent deterrents, the only reason he went ahead with any plans was because he acknowledged that it was better to control what the British could do by helping, rather than leaving them to their own devices. On the question of veto, McNamara stated in 1983: "I doubt very much that there was any understanding that Britain had a veto". Similarly, Kissinger wrote, "to be frank, we could not have accepted a judgement different from our own" (Dumbrell, 2001). The US was also using the provision of the nuclear deterrent in an attempt to leverage Britain into joining the Multilateral Force (MLF), an international fleet of ballistic missile submarines and warships manned by NATO crews. Although the British managed to resist this for the most part, the use of the nuclear deterrent as a part of NATO (commanded by a US general), or the MLF, would have meant that the British deterrent was not remotely independent (Dumbrell, 2001). This push shows the US attempting to decrease the amount of independence Britain had with its nuclear deterrent, yet even with their overwhelming influence, the British ultimately resisted these efforts, as they were aware of the need of the US for their missile bases.

To conclude, although Britain had played a pivotal role in the original development of nuclear weapons, it quickly found itself slowly alienated from its own project in World War Two. With the introduction of the Atomic Energy Act of 1946 (McMahon), this was further compounded. Whilst this did not stop the sending of covert assistance, Britain did not always have the tools to advance on its own. They simply had neither the technology nor the economic capacity to do that level of research and development. This became more evident when the McMahon act was amended twice, leading to the Skybolt crisis, which clearly indicated that the British were forced to rely on the US as they could not do it on their own. The only real aspects of British independence in this is the need for Britain to construct its own warheads, its exportation of plutonium, dual key system and veto, and the independence "guaranteed" by the original Nassau Agreement. With the British resisting the push from the US to join the MLF or cede over more control to NATO, their influence on the British nuclear project was not absolute, and therefore the British did still have some control as to where or to what they put their missiles to. Yet even some of those concepts have intrinsic flaws. The statements made by McNamara and Kissinger show that they would never have

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respected Britain's "right" to a veto in a serious situation. Even with the independence they had, and their involvement in the creation of the nuclear warheads themselves, the failures of Blue Streak and Skybolt paint too clear a picture. Ultimately, Britain was phased out as an independent nuclear power by the 1960s and was heavily dependent on the US due to its failure to provide its own.

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