The McMahon Act and its effects on Britain's decision for an independent atomic programme

During and after 1946, the wartime alliance between Britain, the United States and the Soviet Union began to break down.[1] Already shortly after the war, but particularly with the Berlin Blockade in 1948, the Soviet Union was accepted as the 'enemy' and Western Europe was regarded as the area of future conflicts.[2] In September 1945, the Chiefs of Staff estimated that the Soviet Union was to be ready for this major war in the mid 1950s.[3] As a consequence, one principal objective for the policy makers was the preparation of Britain's forces to encounter this threat.

With the detonations of the American atomic bombs in Hiroshima and Nagasaki, it was clear that this bomb was the weapon of the future. The atomic bomb was superior to everything known hitherto and became "a symbol of great power and no state could risk being left without one"[4]. In addition, it was originally believed that the bomb would result in reduction of the defence costs because it would replace manpower and other conventional military resources.[5] In this sense, the atomic bomb transformed the nature of war and consequently the defence policies of Britain and several other countries. This is highlighted in the report on 'Future development in Weapons and Methods of War' by Henry Tizard, which states "if atomic energy can be released explosively, the character of war, the size and composition of military forces, and the scope of armament production will be completely changed"[6].

[1] M. Dockrill, British Defence since 1945, 1988, p. 23.
[2] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 69.
[3] R. Ovendale (ed), Documents in Contemporary History: British defence policy since 1945, 1994, p. 5.
[4] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 34.
[5] R. Carey, 'The British Nuclear Force: Deterrent or Economy Measure?' in Military Affairs, 1972, Vol. 36, p. 135.
[6] National Archive, London, Chiefs of Staff Committee, C.O.S. (45) 402 (0), Report on 'Future Development in Weapons and Methods of War' by Sir Henry Tizard's "Ad Hoc" Committee, 16th June 1945, in Defe 2/1251 Examination of Possible Development of Weapons and Methods of War.

During the war Britain stood in close co-operation with the United States concerning nuclear development. As Ball points out "nuclear-co-operation with the United States was integral to all British military planning"[7]. He further argues that an understanding of these military relations is essential for the understanding of Britain's nuclear policy making during this time.[8] The aim of this paper is to highlight the impact of Anglo-American nuclear collaboration on Britain's nuclear policies and Britain's decision to build her own nuclear deterrent respectively. Firstly, this paper will outline the history of the Anglo-American collaboration up to the McMahon Act. After that, I will analyse the content of the McMahon Act and its impact on Britain's defence policies. Finally, this essay will assess whether Britain's decision to go ahead with its own program resulted primarily out of the McMahon act or the end of American nuclear collaboration respectively.

These aims will be accomplished by analysing selected primary sources from the National Archive, but also using a wide range of secondary material. At this point I would like to emphasize that even though primary sources can be seen as the "historian's raw material", they are already one step away from the event and as such "selective and subjective"[9]. To mention some examples, minutes of meetings are only summaries of what was said, witnesses sometimes exaggerate their own roles, and Hansard "is not an accurate record of what was said in the House of Commons" because members "have the right to change the text of their speeches"[10].

During World War II Britain and the United States engaged in close atomic weapon research collaborations. As the Prime Minister Clement Attlee states:

[7] S.J. Ball, 'Military Nuclear Relations between the United States and Great Britain under the Terms of the McMahon Act: 1946-1948' in The Historical Journal, 1995, Vol. 38, p. 445.
[8] ibid, p. 439.
[9] R. Ovendale (ed), Documents in Contemporary History: British defence policy since 1945, 1994, p. 2.
[10] ibid

> During the course of the present struggle now brought to a victorious conclusion there has grown up a close collaboration between the United Kingdom and United States Governments and agencies concerned with the development of new and improved weapons and techniques.[11]

In this telegram Atlee highlights that "both countries have benefited immeasurably from this frank exchange of information and personnel"[12]. A particular close collaboration took place within scientific research. According to Dockrill, "British scientists, assisted by French scientists and other refugees from Nazi-occupied Europe, had made considerable progress towards developing an atomic bomb"[13].

This close relationship was acknowledged by the United States and Britain in several collaboration agreements during this time. The Quebec Agreement of August 1943, states "the following arrangements shall be made to ensure full and effective collaboration between the two countries in bringing the project [Tube Alloys] to fruition"[14]. The most important arrangements in this document were that Britain gained access to the American project, which resulted in the joint acquisition of uranium supplies. And also that neither side would use "this agency [the atomic bomb] against each other", "not use it against third parties without each other's consent" and "not either of us communicate any information about Tube Alloys to third parties except by mutual consent"[15]. The content of the Quebec Agreement was reaffirmed in the Declaration of Trust in 1944 and the Aide-memoire at Hyde Park in 1945 where again full exchange of information and close collaboration was agreed.

[11] National Archive, London, Attlee to Truman, Telegram Nr. 8436, 17 August 1945 in FO 800/512, fo. 8, US/45/7,
[12] ibid
[13] M. Dockrill, British Defence since 1945, 1988, pp. 23-24.
[14] Extracts of the Quebec Agreement, 19th August 1943, in J. Baylis, Anglo-American Defence Relations 1939-1984: The Special Relationship, 1984, Appendix 1, pp. 23-24.
[15] ibid

Yet, it is of importance to mention that the Quebec Agreement and the Hyde Park Agreement were signed by Roosevelt only and not approved by the US Congress. Consequently the agreements were not binding for future administrations.[16] Nevertheless, next to Britain's scientific contribution, these documents let Britain's policy makers belief that the Anglo-American nuclear project rested on an equal partnership and would continue after the war had ended.

Yet, despite these agreements the Americans became reluctant in providing technical information on the progress of nuclear research after 1945. On the one hand this was due to the fact that the United States "was determined to retain her monopoly over the secret of the atomic bomb"[17], or as Gowing and Arnold put it, "the USA was the sole nuclear power and was anxious to remain so"[18]. On the other hand, "they profoundly mistrusted the British in anything to do with atomic affairs"[19]. According to Dockrill the United States obstructed the flow of information because they thought that Britain might use the information to build a weapon of her own.[20] In addition, it can be argued that America distrusted the efficiency of British security.

However, the American refusal to meet the agreements of free exchange of information found its climax in the passing of the Atomic Energy Act, later on referred to as the McMahon Act, on 1st August 1946[21]. The McMahon Bill was essentially an act dealing with the American atomic energy programme; "an Act for the development and control of atomic energy"[22]. Yet, as Bevin rightly states "the military exploitation of atomic energy depends, in large part, upon the same methods and

[16] M. Dockrill, British Defence since 1945, 1988, p. 24.
[17] M. Dockrill, British Defence since 1945, 1988, p. 25.
[18] M. Gowing & L. Arnold, The Atomic Bomb, 1979, p. 23.
[19] M. Gowing, The Origins of Britain's Status as a Nuclear Power, 1988, p. 6.
[20] M. Dockrill, British Defence since 1945, 1988, p. 25.
[21] R. Ovendale (ed), Documents in Contemporary History: British defence policy since 1945, 1994, p. 28.
[22] National Archive, London, US Atomic Energy Act 1946, in AB 16/36.

processes as would be required for industrial uses"[23]. With the McMahon Act becoming law, the transfer of any classified nuclear information, being "all data concerning the manufacture or utilization of atomic weapons, the production of fissionable material, or the use of fissionable material in the production of power"[24], to a foreign country, including Britain, needed approval of the Congress. Section 10 of the McMahon Act deals with the control and restrictions towards nuclear information in a detailed way whilst following the general principle that

> until Congress declares by joint resolution that effective and enforceable international safeguards against the use of atomic energy for destructive purposes have been established, there shall be no exchange of information with other nations with respect to the use of atomic energy for industrial purposes.[25]

The penalties for disregarding this new law included "death or imprisonment for life"[26].

The passing of this act came as a shock to British policy makers and was widely seen as a betrayal in London.[27] Attlee and Anderson "considered the Americans guilty of a breach of faith"[28] with regard to the several Anglo-American nuclear agreements and its commitments, as well as Britain's scientific participation in the American nuclear program. This becomes evident in a letter of the Prime Minister to President Truman, which states

[23] National Archive, London, Private Papers of Ernest Bevin on Atomic Energy: 1945-1951 in FO 800/438, Telegram from J.S.M., Washington to Cabinet Offices on 15th November 1945, p. 50.
[24] National Archive, London, US Atomic Energy Act, 1946, in AB 16/36, p. 13.
[25] National Archive, London, US Atomic Energy Act 1946, in AB16/36, p. 13.
[26] ibid
[27] N.J. Wheeler, 'British Nuclear Weapons and Anglo-American Relations 1945-1954' in International Affairs, 1985-1986,Vol. 62, p. 71.
[28] A. Goldberg, 'The Atomic Origins of the British Nuclear Deterrent' in International Affairs, 1964, Vol. 40, p. 416.

> It is not for me to try to assess what that assistance [referring to scientific participation in the Manhattan project] was worth, but we gave it in the confident belief that the experience and knowledge gained in America would be made freely available to us. [29]

Hence, Britain's policy makers felt that they were entitled "both by the documents and by the history of our common efforts in the past"[30] to full exchange of information. As Schrafstetter and Twigge argue, the McMahon Act could, therefore, be seen as America's return to isolationism.[31] In particular, when considering that specific amendments to the McMahon Bill did not take place before 1954.[32] The motives behind this act were complex. Whereas Schrafstetter and Twigge point out that they were of commercial nature[33], Baylis regards the American concerns "over the vulnerability of the British nuclear programme to Soviet attack"[34] as decisive.

However, this change in the close nuclear collaboration between the United States and Britain had a deep impact on Britain's defence policies. From an economic perspective Britain was not in a position to endeavour in an atomic research programme in the American scale. After the Second World War "Britain was, in effect, bankrupt"[35]. As a consequence, defence expenditure, such as 18.8 per cent of the national income in 1946[36] was a great burden for the budget and needed to be reduced rather than increased. Scott argues that Attlee's government was

[29] National Archive, London, Prime Minister to President Truman, 6th June 1946 in FO 800/438: Private papers of Ernest Bevin, Atomic Energy: 1945-1951, p. 111.
[28] ibid, p. 116.
[31] S. Schrafstetter & St. Twigge, Avoiding Armageddon: Europe, the United States, and the Struggle for Nuclear Nonproliferation: 1945-1970, 2004, p. 30.
[32] see National Archive, London, AB 16/36
[33] S. Schrafstetter & St. Twigge, Avoiding Armageddon: Europe, the United States, and the Struggle for Nuclear Nonproliferation: 1945-1970, 2004, p. 33.
[34] J. Baylis, Anglo-American Defence Relations 1939-1984: The Special Relationship, 1984, p. 44.
[35] R. Ovendale (ed), Documents in Contemporary History: British defence policy since 1945, 1994, p. 18.
[36] ibid.

faced with the central dilemma to allocate Britain's resources "between domestic and foreign/defence policy objectives"[37].

In this sense the British Government relied to a large extent on the nuclear collaboration with the United States. Twigge notes that after the war, Britain's own research faced economic difficulties, severe shortage of resources and trained manpower.[38] To overcome this situation the British had hoped that the close Anglo-American collaboration would supply them with information on nuclear weaponry on a bilateral basis without the major burden of an own nuclear weaponry research program. As Attlee states in one of his letters to Truman:

> I must repeat, but for that system [referring to nuclear collaboration], we should have been forced to adopt a different distribution of our resources in this country, which would not have been so advantageous to the common interest[39].

Due to the Anglo-American collaboration within nuclear research Britain was able to distribute her resources to other fields "such as radar and jet propulsion, on which, as a result of this decision, we were able to concentrate"[40].

Yet, since Britain was in need of American dollar loans[41], policy makers did not confront America directly but adopted a dual strategy. On the one hand, the Prime Minister authorized the development of Britain's own atomic bomb in order to encounter or deter the Soviet Union. On the other hand, British policy makers continued to seek American assistance and attempted to re-establish nuclear

[37] L.V. Scott, Conscription and the Attlee Government: The Politics and Policy of National Service 1945-1951, 2001, p. 9.
[38] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 33.
[39] National Archive, London, Prime Minister to President Truman, 6th June 1946 in FO 800/438: Private papers of Ernest Bevin, Atomic Energy: 1945-1951, p. 111.
[40] ibid
[41] S. Schrafstetter & St. Twigge, Avoiding Armageddon: Europe, the United States, and the Struggle for Nuclear Nonproliferation: 1945-1970, 2004, p. 31.

collaboration because they believed that the special relationship with America would deter the Soviet Union more effectively; "because of her manpower, industrial resources and her lead in the development of weapons of mass destruction the United States alone can turn the balance in favour of the Democracies"[42]. This understanding is explicitly clear in Ernest Bevin's foreign policy, which was designed around the assumption that

> the United States would soon overcome her reluctance to become too closely involved with Western Europe and would eventually decide that her own interests required her to come to the assistance of the area military and economically[43].

This can also be seen in the communication between the Cabinet Office and J.S.M. Washington. In one of the cipher telegrams it is stated that "the importance to the defence of the United States of a strong United Kingdom"[44] should be made clear to the American Chiefs of Staff. As Ball argues, after the passing of the McMahon Act "it became a high priority for successive British governments to re-establish a close nuclear relationship with America"[45].

Nevertheless, despite these efforts British policy makers were aware that there was little prospect to establish such a close relationship with the United States in the near future. Several historians argued that out of this end of the Anglo-American nuclear collaboration the British decided in "favour of their own independent

[42] National Archive, London, Report by the Chiefs of Staff, COS (47), 227th Meeting: review of the world strategic situation, 17th November 1947, in Defe 5/6, Point 27, p. 4.
[43] M. Dockrill, British Defence since 1945, 1988, p. 27.
[44] National Archive, London, Cipher Telegram from Cabinet Office to J.S.M. Washington, 20th February 1947, in FO 800/597 Tripatite Co-Operation: Prime Minister-President Exchanges.
[45] S.J. Ball, 'Military Nuclear Relations between the United States and Great Britain under the Terms of the McMahon Act: 1946-1948' in The Historical Journal, 1995, Vol. 38, p. 440.

programme to produce nuclear weapons"[46]. Attlee, cited in Baylis, comments on this decision many years later:

> We had to hold up our position vis-à-vis the Americans. We couldn't allow ourselves to be wholly in their hands, and their position wasn't' awfully clear always. At that time we had to bear in mind that there was always the possibility of their withdrawing and becoming isolationist once again. The manufacture of a British bomb was therefore at this stage essential to our defence […] we could not agree that only America should have atomic energy.[47]

This statement highlights two objectives for Britain's decision to go ahead with its own programme. Firstly, Britain saw herself as a major world power and as such could not stand back behind the United States. Therefore it was essential to be in possession of the latest weapons because it would keep Britain in the league of a world power. The British understood the atomic bomb as "the key to post-war national power"[48] and it was seen as a comparatively 'cheap' means to remain so. In the beginning it was believed that Britain's defence could solely rely on the atomic bomb, which would compensate for Britain's deficiency in manpower and conventional military resources - "Nuclear weapons seemed to be the way by which a medium sized, but technically advanced, nation could retain Great Power status"[49]. Hence, Britain's decision to build an atomic bomb was partly about prestige and great power thinking because the atomic bomb symbolised "Britain's scientific and

[46] J. Baylis, Anglo-American Defence Relations 1939-1984: The Special Relationship, 1984, p. 32.
[47] ibid, pp. 32-33.
[48] M. Gowing, The Origins of Britain's Status as a Nuclear Power, 1988, p. 4.
[49] ibid, p. 6.

technical superiority" and was a "guarantee of independence in an uncertain and rapidly evolving new world order"[50].

Secondly, Attlee's statement points out that the bomb was not so much intended as a means of attack but as a form of defence; "the supreme object of our defence policy is to prevent war"[51]. The Chiefs of Staff made clear in one of their reports that

> the advent of mass destruction weapons and long-range weapons has produced a situation in which methods of attack are far ahead of those of defence, and enormous damage will be done to the dense and concentrated population and industries of the United Kingdom unless attacks by such weapons can be prevented[52].

As a consequence, "the very existence of the United Kingdom will therefore depend upon its ability to hit back hard at the outset and to withstand and counter by itself the initial onslaught"[53]. Therefore, from a strategic point of view the development of a British atomic bomb was regarded as a means to encounter and deter the Soviet threat. As the Chiefs of Staff in a review of the world strategic situation state

> the knowledge that we are in a position to use them [weapons of mass destruction in particular the atomic bomb] will be the best means of ensuring they are not used against us, we must have them available and be ready to use them when required. [54]

[50] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 66.
[51] National Archive, London, Report by the Chiefs of Staff, COS (47), 227th Meeting: review of the world strategic situation, 17th November 1947, in Defe 5/6, Point 17, p. 3.
[52] ibid.
[53] ibid.
[54] National Archive, London, Report by the Chiefs of Staff, COS (47), 227th Meeting: review of the world strategic situation, 17th November 1947, in Defe 5/6, Point 17, Point 23, p. 3.

This quote shows that for the Chiefs of Staff the most effective way to prevent war was that Britain was equipped and prepared and also had the intention to use this equipment in the case of a war with the Soviet Union.[55] This view derives from a paper on the 'Effects of Atomic bombs on Warfare in the next few years' where the Chiefs of staff Committee, the Joint Technical Warfare Committee, concludes: although it is not certain "that atomic bombs will actually be used in all wars between nations possessing them, but no nation will escape unless it has enough bombs to make retaliation serious"[56]. Hence "this country should keep pre-atomic defence forces as well as bombs and the means of using them"[57].

This point of view became of high importance in matters of defence, especially since the Chiefs of Staff stated that the densely populated Britain was an ideal target for Soviet atomic attack.[58] The military planners were aware that only 30-120 accurately delivered atomic bombs "might cause the collapse of the United Kingdom" whereas several hundreds were needed to defeat the Soviet Union[59]. Hence, the incorporation of British nuclear weapons in early war plans as a system of deterrence is founded on understandable logic and reasoning.

Apart from these two reasons there was also a third motivation implied in Britain's decision to go ahead with its own program. Namely the policy makers' assumption that "British determination to have the bomb would persuade Washington that the United Kingdom could make a worthwhile contribution to the problems of

[55] ibid, Point 28, p. 4.
[56] National Archive, London, Chiefs of Staff Committee Joint Technical Warfare Committee, Memorandum by Sir George Thomson, 'Effect of Atomic Bombs on Warfare in the Next Few Years', 24th October 1945, in Defe 2/1251 Examination of Possible Development of Weapons and Methods of War, p. 4.
[57] Ibid.
[58] See National Archive, London, Defe 2/1251: Examination of Possible Development of Weapons and Methods of War.
[59] St. Twigge & L. Scott, Planning Armageddon: Britain, the United States and the Command of Western Nuclear Forces: 1945-1964, 2000, p. 23.

post war defence"[60]. This political reason for Britain's decision is also acknowledged by Baylis. In his view Britain's possession of an own atomic bomb "might persuade them [the United States] to re-open collaboration on the lines of the wartime partnership"[61].

In this context it is worth mentioning that the collaboration between the United States and Britain was not only of technical nature in order to gain nuclear information, but also of the "greatest political and strategic concerns"[62]. At this time, Britain, in contrast to the United States, was explicitly vulnerable to a nuclear attack and was eager to

> gain influence both over United States planning for the circumstance in which it would use nuclear weapons and planning for the ways in which those weapons would be used in the event of a conflict with the Soviet Union[63].

In short, the possession of an own nuclear device would have helped the British to gain insight into America's foreign and defence policies and might have given them influence to some extent. Out of these three reasons – prestige, deterrence and re-establishment of Anglo-American nuclear collaboration - Britain endeavoured to produce an atomic bomb by her own efforts. Thus, the decision was not taken as a response to an immediate threat.

Even though the actual decision fell not before 8th of January 1947 in an ad hoc meeting of six ministers, known as Gen 163[64], there can be little doubt that this

[60] N.J. Wheeler, 'British Nuclear Weapons and Anglo-American Relations 1945-1954' in International Affairs, 1985-1986, Vol. 62, p. 71.
[61] J. Baylis, Anglo-American Defence Relations 1939-1984: The Special Relationship, 1984, p. 33.
[62] M. Gowing, The Origins of Britain's Status as a Nuclear Power, 1988, p. 8.
[63] S.J. Ball, 'Military Nuclear Relations between the United States and Great Britain under the Terms of the McMahon Act: 1946-1948' in The Historical Journal, 1995, Vol. 38, p. 440.
[64] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 66.

decision was implicit right from the beginning of the atomic energy programme. This is evident in the minutes of a Gen 75 meeting

> We could not be left behind in a field which was of such revolutionary importance from an industrial, no less than from a military point of view. Our prestige in the world, as well as our chances of securing American co-operation would both suffer if we did not exploit to the full a discovery in which we had played a leading part at the outset[65].

Gen 75 was an inner circle of senior ministers who discussed nuclear issues from 1945 onwards. To support the work of Gen 75, Attlee approved the interdepartmental Committee on Atomic Energy[66] under the chairmanship of Edward Bridges on the same day as the McMahon Act was passed. Hence, the 1947 decision was little more than "the formal ratification of an already accepted policy"[67].

As a consequence, it is hardly possible to argue that America's passing of the McMahon Act was the only reason for Britain's decision to build her own bomb. Although it is interesting to speculate whether Britain would have definitely started her own deterrent without the restrictions of the McMahon Act, it is clear that the Chiefs of Staff were eager for their own nuclear weapons as early as 1945; "British production of atomic weapons should start as soon as possible. To delay […] might well prove fatal to the security of the British Commonwealth"[68]. Nevertheless, the Chiefs of Staff's first definitive request for an atomic bomb to the Ministry of Supply came after the passing of the McMahon Act.[69]

[65] National Archive, London, Gen 75, 15th Meeting held on 25 October 1946, in FO 800/585.
[66] National Archive, London, Cabinet Official Committee on Atomic Energy, Note by the Chairman, 1st August 1946, in CAB 21/2953 Official Committee on Atomic Energy: Composition and Terms of Reference.
[67] R. Carey, 'The British Nuclear Force: Deterrent or Economy Measure?' in Military Affairs, 1972, Vol. 36, p. 134.
[68] National Archive, London, Gen 75, 4th Meeting held on 11 October 1945, in CAB 130/2.
[69] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 66.

The restrictions of the McMahon Act had an impact on Britain's own programme. The project took longer without the access to United States' research information - "the issue is whether the United States will help us and so advance the date"[70] by which Britain will be in the position to have its own nuclear device – and also cost more. Yet, despite the economic difficulties, outlined earlier in this paper, Britain's own research program had considerable financial resources to its disposure. The severe defence cuts afters 1945 affected primarily missile, jet bomber and fighter technology, whereas nuclear research was given a high priority.[71] Since the bomb was developed in secrecy the financial means were estimated and hidden within miscellaneous estimates[72]. Carey suggests that this resulted from the general feeling that "technological progress was so fast that it was better to invest in an adequate organization for pure and applied research than to build stocks of obsolete weapons"[73]. In addition, the progress of nuclear development was of personal interest for the Prime Minister, Clement Attlee[74] and it symbolised that Britain was determined to remain a world power despite post-war financial difficulties.

Nevertheless, Britain was far behind the two super-powers. Her first primitive Nagasaki type bomb exploded in 1952, three years after the Soviet Union's first testing.[75] With the Chiefs of Staff's information that Britain would need 200 bombs if its defence was to be an effective one[76], there was the fear that "Britain would spend a disproportionate effort in building up a stock of bombs too small to be of military value"[77].

[70] National Archive, London, Cipher Telegram from Cabinet Office to J.S.M. Washington, 20th February 1947, in FO 800/597 Tripatite Co-Operation: Prime Minister-President Exchanges.
[71] M. Dockrill, British Defence since 1945, 1988, p. 36.
[72] M. Dockrill, British Defence since 1945, 1988, p. 26.
[73] R. Carey, 'The British Nuclear Force: Deterrent or Economy Measure?' in Military Affairs, 1972, Vol. 36, p. 134.
[74] ibid.
[75] M. Gowing & L. Arnold, The Atomic Bomb, 1979, p. 26.
[76] M. Dockrill, British Defence since 1945, 1988, p. 26.
[77] M. Gowing, The Origins of Britain's Status as a Nuclear Power, 1988, p. 7.

Having this defence vulnerability in mind, the collaboration with the United States was once again aspired. Negotiations were renewed and the Modus Vivendi was signed on 8th of January 1948. Although Britain finally gained access to much needed atomic information in nine specific areas, the agreement was of higher benefit for the United States. Modus Vivendi modified the clause of the Quebec Agreement, which had given Britain veto on American's use of the atomic bomb and allowed an increased allocation of uranium ore for the United States.[78] Thus Modus Vivendi did not live up to the hope for a new beginning of Anglo-American nuclear collaboration even though some useful information was received. However, since the atomic bomb was the major weapon of Western powers it was in Britain's benefit if "there were no necessary delays in the American weapons project"[79]. It was not before August 1954, that the Congress with an amendment to the McMahon Act allowed nuclear co-operation with another country, which prepared the ground for an Anglo-American agreement of civil and military atomic cooperation almost one year later.[80]

Before I conclude this paper I will briefly outline some of the positive effects of the passing of the McMahon Bill. It is true, that the McMahon Bill caused severe financial burdens as well as political strains and strategic difficulties for Britain. Yet, with the gained scientific knowledge Britain was in a possession to launch her own nuclear programme. As a consequence, "it made the British think for themselves"[81]. The British were not "constrained to copy American nuclear facilities" which had been built in haste but constructed her own plants and atomic bombs respectively which

[78] St. Twigge, The Early Development of Guided Weapons in the United Kingdom: 1940-1960, 1993, p. 70.
[79] ibid.
[80] S.J. Ball, 'Military Nuclear Relations between the United States and Great Britain under the Terms of the McMahon Act: 1946-1948' in The Historical Journal, 1995, Vol. 38, p. 449.
[81] J. Baylis, Anglo-American Defence Relations 1939-1984: The Special Relationship, 1984, p. 33.

were at times regarded as superior to the ones in the United States.[82] They were able to develop a flexible programme, which could be either used for military or industrial means.[83] Thus, after 1952, Britain was in the possession of an independent nuclear deterrent, or as Gowing puts it a deterrent "home-grown, home-made"[84]. In addition, it is worth pointing out, that collaboration in the joint procurement of uranium, as well as other military areas, such as the armed forces, did not cease after the passing of the McMahon Act.[85] In 1952, the special Anglo-American relationship was still seen as the "cornerstone of Britain's foreign and defence policy"[86]. Yet, Britain, having her own deterrent, was not in the same dependent position as she had been before the McMahon Bill was passed.

In conclusion, with the passing of the McMahon Act the Anglo-American nuclear-collaboration came to an end. Although during a period of three years several agreements, which should ensure continuing collaboration after the war, were signed between the United States and Britain, with the passing of the McMahon Bill the flow of information ceased. This change in the special relationship between the United States and Britain resulted in a defence dilemma for the British policy makers.

On the one hand British policy makers, explicitly Bevin and Attlee, regarded the atomic bomb as a comparable cheap means to ensure Britain's Great Power status; there was a wide belief that "the loss of prestige, influence, and international respect…would be greater than the nation could endure"[87]. On the other hand, the atomic bomb was seen by the Chiefs of Staff as the most effective way to deter and encounter the Soviet threat. Hence, the United Kingdom looked to nuclear weaponry

[82] ibid.
[83] M. Gowing, The Origins of Britain's Status as a Nuclear Power, 1988, p. 6.
[84] ibid, p. 9.
[85] ibid, p. 10.
[86] R. Ovendale (ed), Documents in Contemporary History: British defence policy since 1945, 1994, p. 9.
[87] A. Goldberg, 'The Atomic Origins of the British Nuclear Deterrent' in International Affairs, 1964, Vol. 40, p. 427.

for military security and also political power.[88] In addition, it was assumed that the development of a British atomic bomb could be a way to restore Anglo-American nuclear collaboration. Or as Wheeler puts it, Britain's decision to have her own atomic bomb "had both a political explanation – to fortify an alliance with the United States – and a military rationale: to assure the survival of the United Kingdom in an atomic war"[89].

Therefore, in 1947 Britain officially decided to build her own nuclear weapons. Yet, it is of significance that this decision was implicit right from the beginning of the Nuclear Energy programmes. Out of this fact, and also referring to the decisions' other objectives, it can be argued that the McMahon Act or America's return to isolationism respectively was not the primary reason. It is difficult to speculate whether without the McMahon Act or the end of Anglo-American nuclear collaboration respectively, the British would have decided for their own deterrent. It is, nevertheless possible to say, that what the policy makers were looking for was to remain in the leading role of international affairs, to provide the British population with the security of an effective military defence and also to enter into an interdependent nuclear partnership with the United States for strategic reasons. By the end of 1952, Britain "was ready to take her place as the world's third nuclear Power"[90] and in 1954, the nuclear collaboration with the United States was re-established.

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[88] St. Twigge & L. Scott, Planning Armageddon: Britain, the United States and the Command of Western Nuclear Forces: 1945-1964, 2000, p. 17.
[89] N.J. Wheeler, 'British Nuclear Weapons and Anglo-American Relations 1945-1954' in International Affairs, 1985-1986, Vol. 62, p. 72.
[90] A. Goldberg, 'The Atomic Origins of the British Nuclear Deterrent' in International Affairs, 1964, Vol. 40, p. 429.

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