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Britain and France as Nuclear Partners

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In November 2010, as part of a broad-ranging bilateral defence agreement, the United Kingdom and France signed a treaty providing for limited cooperation on nuclear weapons. Modest in scope, and the product in immediate terms of economic pressure, the nuclear treaty's main substantive provision is for the joint construction of radiographic-hydrodynamic facilities.[1] Beneath the surface of this treaty, however, lies a story of significant strategic shifts, and there are intriguing possibilities for future collaboration between the UK and France, and perhaps for trilateral cooperation involving the United States.

The potential for UK–French collaboration spans the spectrum of nuclear-weapons issues, from technology to policy, and perhaps to operational matters. These possibilities are sensitive, not only because they run into the everyday difficulties of political–military relations between the countries, but also for their relevance to two current debates: the ongoing battle over renewing the UK's fleet of strategic nuclear submarines, and international demands for multilateral nuclear disarmament.

The impulse towards a nuclear partnership is not new: it existed to varying degrees over the course of the Cold War, most strongly at certain moments in the 1960s and 1970s; and in the 1990s the first steps were taken, at least towards consultation. However, for a number of strategic, political and technical reasons, no significant progress in this direction was made. By 2010, three things had changed.

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Survival | vol. 54 no. 1 | February–March 2012 | pp. 7–30 DOI 10.1080/00396338.2012.657528

Firstly, certain obstacles had been removed: the stakes in arguments over strategic nuclear forces in Europe are much lower now than during the Cold War; French and British attitudes towards Europe, NATO and each other have begun gradually to converge; and American objections to British cooperation with France in this field have receded (although they have not entirely disappeared). Secondly, new areas have emerged in which relatively uncontroversial, yet important, cooperation can take place: for example, the stewardship of nuclear-weapon stockpiles in a non-explosive-testing era, and responses to the threat of nuclear or radiological terrorism. Thirdly, short-term economic circumstances, and long-term deficiencies, have driven both the UK and France to look for strategic partners.

The November 2010 treaty reflected what was feasible at the time, with a relatively new British government and several decisions on *Trident* renewal not yet taken; moreover, whether or not the treaty's provisions will be successfully implemented remains to be seen. Certain areas of cooperation may be confined by political red lines, and the scope for cooperation in the nuclear arena may also be affected by the way the conventional military partnership develops. Nevertheless, the strategic trends which made the nuclear treaty possible, and the context in which the British and French nuclear arsenals exist, suggest that further cooperation on nuclear weapons may be possible, and may be seen as desirable.

Impulses to cooperation

There was no systematic collaboration on nuclear weapons between Britain and France during the Cold War (at least as far as can be determined from open sources).[2] In simple terms, the nature of both national deterrents as we know them today was determined in late 1962 and early 1963, when the *Skybolt* crisis was resolved by Harold Macmillan and John F. Kennedy at Nassau, and Charles de Gaulle used Anglo-American nuclear collusion as a rhetorical hook (and, perhaps, as substantive grounds) for vetoing British entry into the European Economic Community (EEC).

By the time Macmillan and Kennedy flew to the Bahamas in December 1962, a combination of poor communication, wishful British myopia and a contingent of mid-level American officials with little time for Anglo-

American sentimentality had placed both leaders in a bind. For Macmillan, who faced the more acute crisis, the challenge was to preserve the impression (more, perhaps, than the material fact) of an independent deterrent after the successor delivery system to which the British had pinned their hopes, the air-launched ballistic missile *Skybolt*, had been cancelled by Robert McNamara's Department of Defense. For Kennedy, the question was how, on the one hand, to avoid publicly rebuffing a staunch ally, but on the other, to make sure that Washington was not propping up a nuclear force which Britain could not afford, which de Gaulle could not swallow, and which offered little strategic value to the United States itself.

The process by which this crisis was resolved was, literally, a study in bureaucratic politics; Kennedy later commissioned Richard Neustadt to deliver an account of '*Skybolt*' and its implications.[3] Briefly, an appeal by Macmillan, drawing shamelessly on the emotional well of shared Anglo-American sacrifice and common nuclear history, won the day: the British would be supplied with *Polaris*, the submarine-launched ballistic missile; British nuclear forces would be made available for inclusion in a NATO multilateral force and used for the purposes of the Western Alliance as a whole (except, crucially, when the UK government decided that supreme national interests were at stake). Kennedy had recognised at an early stage that Macmillan had two ways to avoid disaster: 'by hailing [American] generosity or by assailing our bad faith'.[4] He chose to make sure Macmillan did the former, and in so doing demonstrated in public that the UK–US relationship ranked higher in American priorities than the idea of the European project (and thus higher than pleasing the French).

De Gaulle's suspicion was well entrenched

De Gaulle's suspicion of Anglo-American collusion was well entrenched, and he had already been developing a well-rounded case for vetoing British EEC entry, as Macmillan had found out to his dismay at Rambouillet. Nevertheless, many saw Nassau as a self-inflicted wound. George Ball, US under-secretary of state at the time, reflected the opinion of a sizeable State Department lobby when he wrote at decade's end that Nassau was a mistake: it encouraged Britain to continue thinking of herself as a great power, and

'deflected her from coming to terms with her European destiny'.[5] Whatever the broader strategic wisdom of providing Britain with *Polaris*, among its immediate effects was to quash the notion of a truly united Europe under the protection of an Anglo-French nuclear alliance.

As was apparent to the protagonists, this was a moment of decision with fundamental implications for the political shape of Europe, for the structure of European security and for the relationship between the nuclear forces within the Western alliance. Here, the ground was laid for two divergent national nuclear narratives: the British chose (or rather slid down) a path of technological reliance on the United States, whilst attempting to preserve operational independence; the French, by contrast, resolved to remain independent in both respects. By 1966, France had withdrawn from NATO's integrated military command, and throughout the rest of the Cold War, this national-deterrent model would remain in place, never overtaken by NATO, European or Franco-British alternatives.

In practice, however, the story of the relationship between the Western nuclear programmes was more complicated than this brief sketch might suggest. The French divergence after Nassau was primarily a matter of politics, overriding technical and operational considerations which at least initially made cooperation a reasonable proposition. Although these considerations never fully prevailed, the impulse towards collaboration persisted.

For one thing, the publicly flaunted French independence was in private willingly forgone through an American policy, starting during the Nixon administration, of 'negative guidance'. Recently declassified documents from the US National Archives provide details and firmer confirmation of a half-acknowledged story: that the United States assisted the French nuclear-weapons programme from the early 1970s, by authorising US officials to advise on missiles (eventually including re-entry vehicle and missile hardening, and multiple independently targetable re-entry vehicle (MIRV) technology), safety of nuclear weapons, and high-speed computing.[6] As if to underline the French point that the national-deterrent path was taken at Europe's expense, National Security Adviser Henry Kissinger encouraged US assistance to France on the grounds that cross-channel nuclear

rivalry was in the American interest. 'We want to keep Europe from developing their unity as a bloc against us', he told Secretary of Defense James Schlesinger, which could be accomplished 'if we keep the French hoping they can get ahead of the British'.[7]

As the remaining side of the Western triangle, the UK made some semi-earnest attempts over the course of the 1960s and early 1970s to open the door to nuclear cooperation with France. Before the *Skybolt* crisis peaked, Harold Macmillan had viewed a British (and thus, at least indirectly, American) offer of nuclear-weapons assistance as the one proposal 'which will persuade de Gaulle to accept a European settlement', and wrote to Kennedy in April 1961 in an attempt to win his support for nuclear information sharing and discussions with the French on the production of delivery vehicles.[8] This offer was partly tactical, however, allowing the UK to wield some influence over the shape of a French nuclear force whose coming seemed inevitable.[9] The Kennedy administration, for its part, was in the midst of deciding to throw its weight behind the option of a multilateral NATO force (MLF).[10] In any event, *Skybolt*'s cancellation forced Macmillan to focus squarely on maximising British returns from the 'special relationship', and the door to cooperation was closed. France's withdrawal from NATO's military command in June 1966 (which, like the veto of British EEC entry in 1963, was justified as part of resistance to nuclear collusion, this time in the shape of the MLF) moved the two European nuclear powers even further from the possibility of operational or technological cooperation.

De Gaulle's resignation in April 1969, however, encouraged fresh hope of British entry into the EEC, and a revival of British intimations: Prime Minister Harold Wilson and his defence secretary, Denis Healey, both floated the idea of Franco-British nuclear cooperation in this context.[11] Edward Heath, who became prime minister after the Conservative Party's victory in the general election of June 1970, had called for a joint UK–French nuclear force whilst in opposition, and took steps to pursue one once in government. But the barriers of French nationalism and British self-restraint, based on a growing realisation of the overwhelming technological and strategic advantage in maintaining a close relationship with the United States, proved too strong.[12]

The 1973 summit between French Defence Minister Michel Debré and British Defence Minister Lord Carrington essentially marked the end of attempts to join the British and French strategic nuclear programmes together at their foundations: the essential condition for Britain to seek cooperation thereafter would be a change in the French attitude towards NATO.[13] With only minor exceptions, formal Anglo-French nuclear collaboration progressed no further until the end of the Cold War.

First steps after the Cold War

The collapse of the Soviet Union and the reordering of European security created some space for modest initiatives in Franco-British nuclear cooperation. In the first place, some mid-level bureaucratic consultation structures were established, beginning in 1992 with a Joint Commission on Nuclear Doctrine and Policy. This was tasked, as the name would suggest, with discussing matters of doctrine and policy, including arms control, but supposedly not ('by joint agreement'), operational cooperation.[14] The commission continues to meet twice per year, alternating between London and Paris. Its activities are opaque, though it has been officially credited with coordinating the French and British positions in preparing for joint deposition of the instruments of ratification of the Comprehensive Test Ban Treaty.[15] In 1995, UK Secretary of State for Defence Malcolm Rifkind said the commission had done 'very good work in discussing attitudes towards nuclear weapons, their role and relevance in the post-cold war age and other matters' (lending weight to reports that the commission conducted a thorough comparison of French and British approaches to deterrence[16]) but denied that it had been a conduit for the French to hand over nuclear test data.[17] Nuclear staff talks and ad hoc visits began in the years following the establishment of the Joint Commission.[18] Again, their scope is not publicly discussed, though it is known that meetings between officials from the two nuclear-weapons laboratories are ongoing. In 2009, 70 staff from the Atomic Weapons Establishment (AWE) at Aldermaston visited facilities associated with the Commissariat à l'Energie Atomique et aux Energies Alternatives – Direction des Applications Militaires (CEA-DAM), and 42 French personnel visited AWE.[19]

More broadly, a recognition emerged in the post-Cold War security environment that the principles of the British and French approaches to deterrence were converging. In February 1993, Rifkind reported that 'there are no differences between France and the United Kingdom on the fundamental nuclear issues'.[20] This doctrinal convergence was in large part made possible by British force reductions: with the British no longer planning on first use of several nuclear weapons, the principal scenario for nuclear use short of a full-scale strategic exchange would be similar to the long-standing French concept of a 'pre-strategic' shot, designed as a shock to force an adversary to reconsider his options.[21] As the WE-177 gravity bomb was phased out, the *Trident* force inherited the role of 'substrategic' use (as formalised in the 1998 Strategic Defence Review[22]). This is technically a slightly different concept, yet in broad terms, those differences in doctrine caused by differences in the manner of threat perceived from the Soviet Union, or by differences in available hardware, had receded.

In this vein, when French President Jacques Chirac and UK Prime Minister John Major met in October 1995, the British leader stated that they had 'concluded that the vital interests of one [country] could not be threatened without the vital interests of the other equally being at risk'. Given the focus of minimum deterrence postures on 'vital interests', this could be read as a statement about the possible circumstances of nuclear use, and that the UK and France would seek together to strengthen deterrence as a whole whilst maintaining the independence of their national deterrents.[23] Consultation through the joint committee and the staff talks has since continued along these lines, but there was little further formal expansion of cooperation, at least openly, before the 2010 treaty.

The 2010 agreement

The nuclear treaty signed on 2 November 2010 provides for cooperation on the safety and security of nuclear weapons, stockpile certification and countering nuclear and radiological terrorism. Its main substantive provision is for the construction of joint radiographic–hydrodynamic facilities under the project name *Teutates*. A radiographic–hydrodynamic facility, called EPURE, is to be built at the Valduc site of the French nuclear-

weapons establishment. A joint Technology Development Centre in support of the EPURE facility will be built at Aldermaston in the UK. The purpose of a radiographic–hydrodynamic facility is to conduct trials to simulate various aspects of detonating a nuclear warhead. These trials seek to understand the behaviour of a fissile-material primary (mimicked through the use of a non-fissile isotope, and not involving a nuclear explosion) at the moment at which the high-explosive component of a warhead is triggered. Under extreme pressure, fissile material (or in this case a non-fissile substitute) will behave like a liquid, hence 'hydrodynamic', and this behaviour can be captured by taking x-ray photographs, hence 'radiographic'.[24] EPURE is eventually to consist of three radiographic machines on two firing points, and is to be built in three stages, with a final completion date set for 2014. France is responsible for the costs of stage one, the UK for the costs of the Technology Development Centre, and costs will be shared thereafter.

Costs will be shared

The EPURE facility is intended to allow each side to conduct independent hydrodynamic trials and, eventually, to carry out joint work (with separate areas for joint and solely national use). The treaty permits the exchange of classified information, and it might be supposed that the day-to-day effect not only of joint experiments but simply of sharing a facility will be to share and converge in working practices, assumptions and practical knowledge, similar to the 'peer review' dynamic between the United Kingdom and United States.

Two relatively minor objections were raised in the press and elsewhere to the information-sharing implied by the treaty. Each has perhaps some merit in spirit but not much in practice. The first was a fear of 'leakage' to France of confidential information that had been provided by the United States to the United Kingdom under the 1958 Mutual Defence Agreement. The provision of areas reserved for solely national use, though, should allow highly sensitive information to be protected, and the 2010 treaty requires written consent for a third party's proprietary information to be released. Joint hydrodynamic trials need not involve sharing proprietary aspects of warhead design; and it is understood that British officials consulted their American counterparts on this issue in advance

of the treaty negotiations. The second objection was that the treaty violates Article I of the Non-Proliferation Treaty. Though the public-relations impact of the European nuclear-weapon states sharing weapons-related information on the one hand, and on the other urging stronger multilateral non-proliferation measures, is not ideal, this is a political rather than legal objection. Under Article I, the nuclear-weapon states commit 'not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly', and the transfer of equipment and materials for hydrodynamic trials falls short of this mark. A stronger, though still not persuasive, objection can be raised under the nuclear-weapon states' NPT Article VI commitment to disarmament, given in particular that the 2010's treaty's duration is fixed at 50 years (or until another time mutually agreed).

In 2001 Michael Quinlan concluded that 'there seems to be little basis for expecting that new directions of Franco-British cooperation would offer any advantage to the UK, in either technical or financial terms, large enough to make it worthwhile to reduce or endanger the dividend we get from [cooperation with the United States]'.[25] Yet the first formal approach in pursuit of the 2010 agreement was made in January 2009, followed by 'preliminary discussions'; substantive discussions on the topic began in June 2010.[26] How can the calculation in 2010 that such new directions were worthwhile be explained?

The answer seems to be that this was the first time that acute financial pressures, symptomatic of severe structural deficiencies, appeared at a time when the strategic and political context allowed Britain and France to consider such cooperation acceptable. The French calculation that collaboration would offer dividends (derived in no small measure from the financial burden of maintaining technological independence) was made a little earlier than the British, mostly likely as a product of different electoral cycles, but UK Prime Minister Gordon Brown announced after a February 2010 summit with French President Nicolas Sarkozy that closer nuclear cooperation had been agreed in principle, and Conservative MPs in opposition had been already proposing closer alignment with France in defence matters.[27] In May 2010 the Conservative-led coalition took power with a

strongly advertised commitment to balance the budget in the current parliamentary term, and with a newly anointed chancellor of the exchequer ready to wring cuts from all government departments. Crucially, this political moment arrived as a number of strategic trends were reaching maturity.

The first was a gradual process of Franco-British defence rapprochement: the 'end of the Suez paradigm', to use Etienne de Durand's phrase.[28] That is to say, Franco-British relations would no longer be governed by the emotional legacy of the Suez crisis of 1956, after which Britain resolved that its interests must never again differ so sharply from those of the United States, and France emerged determined to acquire and maintain inviolable autonomy of action.[29] By November 2010, French and British politico-military attitudes towards Europe, NATO and the United States had narrowed considerably (as would later be demonstrated by Sarkozy and Prime Minister David Cameron's campaign in support of military action in Libya). The St Malo summit of December 1998 had demonstrated that the UK could participate in the construction of a European Union with an independent identity in defence and security policy without abandoning its Atlanticist instincts; post-Lisbon, the UK is bound into a European Union with its own identity in foreign policy.[30]

Relations were no longer governed by the legacy of Suez

This convergence in attitudes was also in part based on a French recognition of the practical difficulty of coordinating action in military matters at the European level, with a consequent lowering of ambitions. In other words, not only were the British by this point less suspicious of European defence policy, but cooperation with the French would no longer inherently contribute to the European project (as Cameron was eager to point out in the wake of the November 2010 agreement).[31] The UK had, at least in the abstract, come to face less of a stark choice between the 'special relationship' on the one hand and European integration on the other. Indeed a number of developments since St Malo had softened US fears of a European defence project intended as a rival to NATO, including success in the Balkans, a greater need for post-conflict expertise, and the 're-nationalisation' of defence policy (for example on the Iranian nuclear issue and in Lebanon

in 2006).[32] France's re-entry into the NATO integrated military command (although not the Nuclear Planning Group) in 2009, a moment of no little political significance, further smoothed the path towards Franco-British defence collaboration, and began to erode one of the long-standing obstacles to cooperation in the nuclear field.

A second strategic trend was the convergence of British and French attitudes to deterrence**.** The ambitious declaration made at the Major–Chirac summit of 1995 was echoed in the text of the nuclear treaty, which affirmed that the parties 'do not see situations arising in which the vital interests of either Party could be threatened without the vital interests of the other also being threatened'.[33] By now the general statement that the two countries' interests were inseparable was accompanied by French and British strategic-planning documents outlining similar methods for their defence, with very similar statements about the role of nuclear weapons. As Bruno Tertrais points out, the 2006 UK White Paper on the future of the deterrent included language familiar to French thinking: 'the systematic use of the expression "vital interests"; the State terrorism scenario; the role of missile defense; and the implicitly strategic nature of any nuclear strike'.[34] The 2008 French Defence White Paper and the 2010 UK Strategic Defence and Security Review took this convergence further.

The third enabling trend for Franco-British cooperation was the emergence of relatively uncontroversial areas in which nuclear collaboration could be pursued: in particular, managing the challenges of stockpile stewardship after a comprehensive test-ban treaty, and responding to threats from new nuclear states and non-state actors. Britain and France both face the challenge of maintaining ageing weapons stockpiles in an era of strong normative pressure against the development of entirely new warhead designs (and in which a return to explosive testing is unthinkable), and there is scientific capacity-building to be undertaken to allow better understanding of material ageing processes and to ensure the reliability of warheads maintained past their intended lifespans. Similarly, the technical challenges of nuclear forensics and attribution (identifying the source of material used in nuclear or radiological terrorism) and the mitigation of effects of nuclear or radiological terrorism are problems with an international dimension in

which the UK and France can share resources with relatively little political difficulty.

Lastly, and perhaps most significantly, American objections to Franco-British nuclear cooperation have receded. In a broad sense, without the need to design national strategy around the Soviet threat, strategic nuclear weapons are no longer the primary currency of political influence in Europe, nor are they a major factor in relations between Washington, London and Paris. Kissinger's calculation that US strategic nuclear assistance to France could promote a healthy cross-channel rivalry is no longer salient, and in turn neither is the fear that UK–French cooperation could lead to undesirable leakage of nuclear knowledge.

More important in practical terms is the fact that, since the end of the Cold War, significant steps to develop formal US–French cooperation have quietly been taken. In June 1996 a memorandum of agreement on 'safety and security; was signed, giving French personnel access to certain weapons-related facilities in the United States, and initiating coordination between the US National Ignition Facility and the French Laser-Mégajoule (both laser-fusion facilities). As Tertrais puts it, during the Cold War the United States and France were 'stretching the limits of their respective national strategic paradigms' (non-proliferation and nuclear independence) by cooperating on nuclear weapons, and thus the extent of collaboration was extreme sensitive;[35] but in the post-Cold War environment, with the French arsenal firmly established, there was some limited scope for public acknowledgement and formalisation of the relationship. The development of a legal and institutional framework for Franco-American cooperation was a significant factor in reducing fears that Franco-British collaboration could endanger the 'special relationship', and is a significant factor in whether trilateral cooperation might be a realistic prospect.

Moreover, UK–French cooperation of the sort undertaken in 2010 offers potential benefits to the United States, which faces its own challenges in stockpile stewardship and is also pursuing technical responses to the threat of nuclear or radiological terrorism. Just as British investment at AWE might be used to offset cuts to the US nuclear infrastructure budget,[36] Washington might seek to enjoy the fruits of joint UK–French spending (assuming that

British data from experiments conducted at the EPURE facility can be made available to the United States under the Mutual Defence Agreement). Future operational cooperation between the UK and France might even be tailored to reduce the workload of American nuclear-powered ballistic-missile submarines (SSBNs).

Trident and disarmament

Quinlan's 2001 judgement that the likelihood of Franco-British cooperation was low was grounded in the condition of each country's capabilities at the time. He argued that, absent dramatic changes in the international security environment, the case for Britain and France maintaining their national nuclear forces was strong enough to justify 'the political and financial costs imposed by keeping the capabilities going in broadly their current form and size'. He warned, however, that his conclusion would become 'progressively less certain, perhaps even to the point of reversal, if we had to face a situation of needing to renew or augment the capabilities in a high-profile and costly way'.[37] The UK faces that situation today, as it approaches the 'main gate' decision-point (now pushed back to 2016) for the building of a new generation of nuclear submarines capable of carrying *Trident* ballistic missiles. The cost–benefit calculation for the deterrent has changed (particularly in the post-2008 economic crisis), suggesting that the calculus with regard to the attractiveness of UK–French collaboration has changed too.

Although the 2010 treaty itself does not extend to cooperation on operational matters or in SSBN procurement, the opening of a formal axis of substantive UK–French collaboration does raise the possibility that the UK could look across the channel to make up a gap in capabilities brought on by fiscal austerity. Moreover, the political environment is such that a Franco-British solution to the *Trident* spending problem might gain some traction. Under the Conservative–Liberal Democrat coalition agreement, hammered out in the immediate aftermath of the May 2010 general election, the government is bound to maintain the UK's nuclear deterrent. But collective responsibility on the means by which the deterrent will be maintained was explicitly set aside: 'the renewal of Trident should be scrutinised to ensure

value for money [and] Liberal Democrats will continue to make the case for alternatives'.[38] In this vein, addressing the Franco-British Defence Council in March 2011, Armed Forces Minister Nick Harvey said that 'I and my [Liberal Democrat] party colleagues would certainly be willing to explore the options for the UK and France to plan our successor programmes in closer co-ordination including, in the longer-term, the case for deeper co-operation on operational nuclear deterrence' (which, according to the *Guardian*, included proposing joint UK–French patrols, involving a fleet of three British submarines rather than four).[39]

The other important issue concerns respective British and French attitudes towards nuclear disarmament A 50-year agreement to cooperate on the science of maintaining a nuclear-weapons stockpile in itself hardly indicates progress towards a world free from nuclear weapons, or that the United Kingdom is gladly assuming the roles of 'disarmament laboratory' and 'responsible nuclear-weapon state' which it is increasingly urged to adopt.[40] Rather, the prevailing sentiment about this new axis of cooperation is that France, whose attitude to the recent nuclear disarmament revival lies somewhere between the quizzical and the rejectionist (notwithstanding her post-Cold War stockpile reductions and halt to fissile material production), has a strong interest in binding the United Kingdom in the nuclear club for the foreseeable future, to avoid being left as the only nuclear power in Europe.

Pessimism is probably justified

This pessimism is probably justified, but it can be tempered by three observations. The first is that the 2010 agreement is compatible with British disarmament policy as it exists on paper. Given a process in which the United States and Russia greatly reduce their stockpiles before the British arsenal becomes part of a multilateral negotiating process, it seems reasonable to take practical steps to assist the certification of stockpile safety and reliability. (The spirit of this commitment would, to be sure, be severely tested if joint hydrodynamic trials were to be used to support the development of a new generation of warheads, especially if they were judged to provide augmented military capabilities). Secondly, any British shift towards significant unilateral disarmament would be a matter of high-level

political decision-making. If economic, moral or strategic pressures were to lead the UK in that direction, the 2010 agreement would hardly stand in the way. To the extent that Anglo-French collaboration is problematic for disarmament, it is as a symptom rather than a cause. Finally, if the French can influence the British, the British can influence the French. Beyond the scope of the 2010 agreement, a closer nuclear relationship on all fronts raises the possibility of coordination not only in technical matters, but on policy; two minimum-deterrent powers in political alignment might be more conducive to disarmament than a forward-looking Britain and an insular France.

French officials may nevertheless find reassurance in the fact that the 2010 treaty provides a legal instrument with which to resist British movement towards disarmament; and the contrast between the treaty's commitment to 50 years of nuclear-weapons cooperation and the UK government's commitment to global multilateral disarmament may become more stark should the latter become a more realistic prospect.

Expanding cooperation

The 2010 agreement is a modest tangible manifestation of long-term strategic shifts, triggered by severe economic pressures. The strategic shifts that made the agreement possible, however, suggest that this cooperation could be pursued further, and it seems almost impossible that either country's nuclear forces will be exempt from the demands of the new age of European austerity.

There are significant limits to expanded cooperation. Whatever the economic reality, it will be extremely difficult for France to abandon, at least in public, its mantra of nuclear autonomy. The 2008 Defence White Paper, intended to form the basis of national strategy for 15 years, positions France according to three principles in the tradition of de Gaulle: 'nuclear independence'; 'freedom of assessment' (or the rejection of 'automaticity'); and 'permanent freedom of decision'.[41] These form a red line beyond which cooperation with the UK is highly unlikely to extend. A similar, if less intense, dynamic exists in British politics, exacerbated by frictions in Franco-British relations outside the realm of security. In strategic terms, moreover, however close the alignment of each country's vital interests, any

arrangement which ceded nuclear decision-making power to an external actor would undermine the stated purpose of the two national deterrents. Finally, there is no reason to believe that, all else being equal, the British nuclear establishment would pursue cooperation with France if it came at the expense of relations with the United States. The psychological and practical legacy of 50 years of UK–US nuclear partnership is substantial, and the experience of those occasions when the UK followed a different technological path (in particular the expense of developing *Chevaline*, and of having to re-open rocket-motor production lines for *Polaris* after its withdrawal in the United States) is not likely to be forgotten.[42]

The most likely path for future cooperation would be to push up to but not beyond these limits. Further joint work seems possible and potentially useful in matters of technology, policy, and operational issues, but in each area the depth of possible collaboration is different. A parallel consideration in each, moreover, is the possibility of trilateral cooperation involving the United States.

The most obvious possibility in the technical realm is deepening collaboration on stockpile certification, along the lines of the 2010 agreement (which itself is yet to be implemented). If the first stages of cooperation under the *Teutates* project are seen to be successful, later work may become more ambitious, and the scope of information-sharing may be expanded. Moreover, since the United States shares similar stockpile stewardship challenges and similar, if not more severe budgetary pressures, it would not be surprising if the results of experiments at EPURE were to be communicated to the United States, and perhaps even if the direction of research came to have some American input. But there appears to be a natural limit to the likelihood of UK–French collaboration on detailed aspects of warhead design. The current UK warhead is reported to bear very close resemblance to the United States' W76, and there are signs of US–UK coordination of warhead modernisation work, including joint scrutiny of various aspects of US experience with the W88. It is hard to see either any great incentive for the UK to abandon this collaboration, or any great incentive for a US administration to risk the domestic political fallout of extending such collaboration to France.

Secondly, and following a similar pattern, there is limited potential for collaboration on means of delivery. Here, the question of UK–France relations interacts with the British debate over *Trident* renewal. It has been reported, though without any public confirmation, that there was some French interest in selling the M-51 submarine-launched ballistic missile to the UK.[43] Purchase of this missile this would, however, involve a direct break with the United States (and the reversal of decisions already made on the joint procurement of a common missile compartment).[44] And should London decide, as seems likely, to maintain a fleet of *Trident*-armed SSBNs, the areas for possible collaboration would be circumscribed. The 2010 accord does, however, provide for extending bilateral cooperation on submarine technologies (though presumably not on nuclear propulsion), and it has been suggested that cooperation on 'non-black' sub-systems might build confidence for more sensitive cooperation in future.[45]

This would involve a direct break with the US

Thirdly, the paper commitment in the treaty to collaboration on responses to nuclear and radiological terrorism could be implemented in practice.[46] The problem of nuclear weapons in the hands of non-state-actors is an international one, involving a multiplicity of possible sources of material and weapon designs, and demands an international response. Moreover, the alignment of British and French interests and national characteristics make this a shared threat. UK–French collaboration in this field could not match the depth of collaboration between London and Washington, which is facilitated by the ability to discuss detailed aspects of potential improvised nuclear-device designs, as well as the provision under the Mutual Defense Agreement to transfer materials, but some sharing of expertise and resources could mimic the US–UK dynamic of 'peer review', and might offer cost savings in the process. This would perhaps include joint work on nuclear forensics and on mitigating the effects of nuclear or radiological attacks.

In the area of policy, the combination of shared capabilities, shared characteristics and shared challenges suggests a number of avenues for further UK–French collaboration, and some potential for coordination at the trilateral

level. (It should be noted that some of the following might already be taking place under the auspices of the nuclear staff talks or the joint commission.)

In the first place, the UK and France both identify themselves as minimum deterrent nuclear powers: for France, the phrase is 'strict sufficiency', for the UK, 'minimum effective'.[47] Neither identifier is precisely defined in public. Both countries are committed to the goal of multilateral nuclear disarmament, and both are subject to the NPT Article VI commitment to pursue negotiations in good faith towards that end. Reaching a joint understanding of the meaning of minimum deterrence, therefore, could be useful. It would further clarify the role of nuclear weapons in the national strategies of each country as they confront a world of asymmetric conflict, political uncertainty and the erosion of national boundaries; and it would provide some response to the charge that the continued possession of nuclear weapons and continued emphasis on their importance subverts the disarmament process and encourages proliferation by others. It would seem relatively unproblematic in this context, moreover, to coordinate declaratory policy (which for the moment would mean a French move to the British and American assurance of no nuclear use against a state in good standing with its NPT obligations). As part of the same process, there could be some value in a Franco-British dialogue on what, if any, role strategic nuclear forces would play in a broader strategy of containing or deterring new nuclear states, should any emerge in the near-to-medium term. For political reasons, the likelihood of France joining the NATO Nuclear Planning Group remains low, but bilateral Franco-British talks, or trilateral discussions including the United States, might provide some practical compensation.

Finally, there is the domain of future operational cooperation, which at its upper limit is perhaps the most sensitive of all. Here, proposals have ranged from modest, practical matters to ambitious thoughts of a true joint deterrent force. There might well be potential to build on existing low-level initiatives;[48] and the collision of UK and French nuclear submarines in the Atlantic in February 2009 led French Defence Minister Hervé Morin to propose the bilateral coordination of patrol zones.[49] But the most interesting question is whether UK–French operational cooperation could be the basis for cost savings in the maintenance of the British deterrent.

Speculation about the possibility of a *Trident* fleet of fewer than four submarines was given some weight by Gordon Brown's announcement in September 2009 that the three-boat option was being considered (although it is believed the announcement came as surprise to many British officials), and it has been argued that moving away from the posture of continuous at-sea deterrence (CASD) would reduce requirements for up-front spending to maintain the deterrent. A paper by British analyst Malcolm Chalmers along these lines has attracted some attention, proposing four potentially cheaper alternatives: a 'normally-CASD', 'CASD-capable', or dual-use submarine force, or a non-deployed nuclear option.[50] One could reasonably imagine French involvement in supporting the first two of these options in an operational sense, and perhaps support for the third in joint procurement. Most commonly, the inauguration of formal UK–French collaboration has led many (not only in the two countries themselves) to speculate that coordination of patrols with France could compensate for the removal of one boat from the next-generation British SSBN fleet, by compensating for CASD with the assurance that there would at least be a British or French boat on deployment at all times. UK press reports suggest that such a proposal has been already been raised by France, but for the moment it is considered too sensitive on the British side.[51]

Such proposals raise a number of tricky questions, both political and substantive. Indeed, an important component of a full and frank debate about the British deterrent will be to determine, through further research and discussion in the public domain, the realm of the possible in UK–French operational cooperation, not least because if a nuclear deterrent is to be credible and politically satisfactory, its general principles of operation ought to be both easily communicable and compatible with good military practice. One explanation for the continuing appeal in some influential quarters in the UK of a posture of CASD provided by a four-boat British SSBN fleet, despite its seemingly hyper-cautious logical reliance on the threat of a nuclear 'bolt from the blue', is its performance against both those measurements. A UK–French joint venture involving, say, coordinated patrols so that either a British or a French boat would be at sea undetected at all times, would require an answer to the political question posed by a French crew

holding theoretical responsibility for the survival of the British state; would raise difficult questions about communications and chain-of-command in a situation in which only French forces were available to respond to an attack on the UK; and would require an answer to Royal Navy complaints about the effect on morale and operational tempo of a smaller SSBN fleet left without total freedom of action. These questions may not be intrinsically unanswerable, but nor have any of them been convincingly answered in public to date. As a sample of the political climate in which such a proposal would have to be sold, the reaction of one British defence blogger to French officials talking down Britain's credit rating in the wake of the failed summit intended to rescue the euro is instructive: 'Can someone remind me why it is a good idea to share major defence assets with people whose first instinct when crisis hits is to cry "shoot him first!"?'[52]

A trilateral partnership?

The strategic trends that enable UK–French cooperation also suggest that cooperation at a trilateral level between the United States, United Kingdom and France may be moving within reach. Cooperation between the three would be an intriguing response to an uncertain strategic environment, in a political climate in which the role of nuclear weapons is once more a matter for debate, and nuclear programmes are under both financial and normative pressure. Over time it might be seen as desirable to move to a more efficient distribution of tasks and resources, whether in terms of regional responsibilities, scientific and technical expertise, or hardware. In early January 2012, the Obama administration announced a shift in strategic focus towards the Asia-Pacific, noting the need for US posture in Europe to 'evolve', and raising the possibility of a smaller nuclear force.[53] Coordination in the nuclear realm between the United States and its nuclear-armed European allies would seem to be a natural (although not easy) part of this project.

Such a suggestion is speculative, and one can imagine any number of political, legal and technical obstacles, as well perhaps as a British reluctance to make the transatlantic relationship less 'special'. Yet it is hard to think about the post-Cold War convergence of the British and French programmes without feeling that it brings together the three Western nuclear

powers in a way that was politically impossible during the Cold War; and it is hard to think about the dilemmas confronting nuclear planners in the coming decades without feeling that they will have to seek strategic, political and economic efficiencies wherever possible.

* * *

One lesson of the *Skybolt* crisis and its resolution at Nassau, the moment the British and French nuclear programmes decisively diverged, is that, if the political imperative is strong enough, a set of options defined by bureaucratic processes and habit can be overridden. We should avoid overconfidence in predicting further Franco-British nuclear cooperation, given the historical friction in bilateral relations. Yet it might be remembered that *Skybolt* was once nearly solved by Kennedy and Ormsby-Gore in half an hour, almost literally on the back of an envelope; and was solved decisively in a couple of days, between heads of state, to the surprise of most officials around the table. The UK–French nuclear relationship might never provide a moment of such drama, but it may yet contain a surprise or two.

Acknowledgements

The author would like to thank Andrew Somerville for his contribution to the early stages of this project, and François Heisbourg and Jean-Claude Mallet for comments on the final manuscript.

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