



# Entente Nucleaire

## Options for UK-French Nuclear Cooperation

Bruno Tertrais

Senior Research Fellow

Fondation pour la Recherche Stratégique

Discussion Paper 3 of the  
**BASIC Trident Commission**

*An independent, cross-party commission  
to examine UK nuclear weapons policy*

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# Foreword from the Commission Co-Chairs

The last Labour Government reaffirmed its commitment to Britain's independent nuclear deterrent, based on Trident, at the end of 2006. The current coalition government, in its October 2010 Strategic Defence and Security Review (SDSR), maintained a commitment to this decision in principle but also announced some changes to UK nuclear doctrine, a reduction in the number of warheads and missiles possessed by the United Kingdom, and a delay to the timetable for the construction of the replacement submarines on which the Trident system depends.

The decision to delay the final judgment on replacing the submarines until after the next election has created a window of opportunity for further deliberation on UK nuclear weapons policy. The starting point for the BASIC Trident Commission is a belief that it is important to make the most of this opportunity.

We are living through a period of enormous change in international affairs with new powers and security threats emerging, increased nuclear proliferation risks, and growing pressure on economies and defence budgets in the West. Since the original 2006-07 decision on Trident renewal modest arms control progress has also been made by the United States and Russia and President Obama has set out a vision of a world free of nuclear weapons. The current government, more recently, has also initiated a further review of possible alternatives to Trident.

In our view, there is a strong case in this context for a fundamental, independent, review of UK nuclear weapons policy.

There is also a case, in the national interest, for lifting the issue of the United Kingdom's possession of nuclear weapons out of the day to day party political context and for thinking about it in a cross party forum. The BASIC Trident Commission is doing this by facilitating, hosting, and delivering a credible cross-party expert Commission to examine the issue in depth.

The Commission is focusing on three questions in particular, namely:

- Should the United Kingdom continue to be a nuclear weapons state?
- If so, is Trident the only or best option for delivering the deterrent?
- What more can and should the United Kingdom do to facilitate faster progress on global nuclear disarmament?

This discussion paper is the third in a series and focuses on the scope for future cooperation with France over the procurement, deployment, doctrine and control of nuclear weapon systems between the two countries. There has been exhaustive treatment of the more extensive cooperation between the United Kingdom and the United States in this field, cooperation that will feature heavily in the Commission's work and the final report. But the relationship with France is less developed and even less discussed in public until recently.

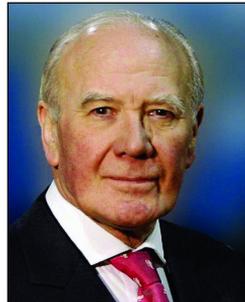
This study does an excellent job of drawing together the strands, outlining the history of past proposals, and assessing the prospects for the future. This could have significant bearing on the options for Britain in the next few years.

The report is published in the name of the author, rather than in the name of the Commission as a whole, but it will feed into the Commission's deliberations and we hope it will stimulate wider discussions and further submissions of evidence for the Commission's consideration.



**Malcolm Rifkind**

A handwritten signature in black ink, appearing to read "Malcolm Rifkind".



**Ming Campbell**

A handwritten signature in black ink, appearing to read "Ming Campbell".



**Des Browne**

A handwritten signature in black ink, appearing to read "Des Browne".

# Executive summary

This paper draws lessons from past attempts at nuclear cooperation between London and Paris, evaluates present arrangements, and gauges the prospects for increased cooperation. It understands nuclear cooperation as closer links between the two countries in one or several of the following areas: science and technology; industrial programs and procurement; operations and crisis management; and political-military and strategic affairs. Incentives for cooperation may include scientific, financial, diplomatic or strategic benefits. Constraints have often been the same and include divergent policy preferences, legal or political obstacles, incompatible technical requirements or modernization timelines.

There have been many attempts by both countries to cooperate on one aspect or another in military nuclear matters over the past fifty years. All failed, though London and Paris were very close to procuring a common air-launched missile in the early 1990s.

Lessons from these attempts include the following:

- it is pointless to envisage nuclear cooperation when the political conditions are not ripe;
- the convergence of timelines and requirements is an imperative for concrete cooperation; and
- the US-UK relationship can be a serious impediment to such cooperation.

Several political factors linked with the end of the Cold War have made UK-French cooperation easier. The 2010 Lancaster House Treaty and the Teutates projects are true historical milestones in the nuclear cooperation between the two countries, building upon two decades of in-depth dialogue on nuclear matters.

UK and French nuclear policies and postures are largely similar, more so than they were during the Cold War. There has been a convergence of nuclear doctrines. However, London has a different

conception of independence from that of Paris; the UK deterrent is available to NATO;

and its doctrine and technology has always been in sync with that of the United States. There is also a stronger nuclear consensus in France.

Today, all the building blocks of a solid nuclear relationship exist and strong incentives (including financial ones) exist to deepen it. There remain,

however, three constraints: the close US/UK nuclear partnership; different modernization timelines; and the force of habit. These limit the scope of cooperation on weapons systems, and there remains reluctance on both sides to break with traditional policy outlooks.

Further work on stockpile stewardship and the question of the robustness of warheads could almost certainly be considered, if only in the form of peer reviewing. Other avenues of technical and industrial cooperation remain much more hypothetical, apart from limited cooperation on the supply of parts for future strategic ballistic missile submarines (SSBNs).

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Separately from their cooperation on weapons systems, the two countries could consider making a stronger joint commitment to the effect that they guarantee the protection of the vital interests of the European Union. They could also increase cooperation on nuclear planning. A different option would be to consider the pooling of the two countries' forces by accepting that each country could exercise deterrence on behalf of both. This would be a formidable change in the way both countries have exercised deterrence in the past fifty years. Other options such as a truly common deterrent, and *a fortiori* a single deterrent, would be even more ambitious. Trilateral nuclear cooperation is a sensitive topic and raises problems. Any form of technical cooperation is generally simpler to manage at two than it is at three. A trilateral format would almost inevitably create a supplementary level of cooperation – in other words, the development of three bilateral relationships with some form of overarching trilateral arrangement. However, it could happen in the area of safety, security and reliability of warheads; and separately on issues of deterrence and crisis management.

*The more they cooperate, the more they will be able to reduce their nuclear expenses and even, perhaps their respective nuclear forces or stockpiles. But the more the two countries tie the future of their respective nuclear futures with one another, the more it may be difficult for them to make unilateral decisions on concrete disarmament steps.*

As long as the United Kingdom and France will want to retain independent deterrent forces, and the United States remains interested in maintaining its close and unique nuclear links with London, UK-French nuclear cooperation will always remain limited. Its deepening will continue to require three major conditions: political will on both sides; a common interest in cooperating; and the absence of US opposition. Successful cooperation on nuclear programmes will require three additional

conditions: convergent timelines; compatible requirements; and prospects for cost-savings.

A good reference point or window of opportunity for the next UK-French nuclear choices is the year 2014.

Two years later, both countries will have taken major decisions regarding the future of their respective forces and some avenues of cooperation might then be closed.

There is a potential paradox in the development of UK-French nuclear cooperation. The more they cooperate, the more they will be able to reduce their nuclear expenses and even, perhaps their respective nuclear forces or stockpiles. But the more the two countries tie the future of their respective nuclear futures with one another, the more it may be difficult for them to make unilateral decisions on concrete disarmament steps. At the extreme, a complete pooling of UK and French nuclear forces might make it impossible for one of the two to give up nuclear weapons without the other doing so as well.

***“Caught between the inadequate,  
the impossible and the incredible,  
the idea of Anglo-French nuclear cooperation  
will still offer obvious attractions”***

Ian Smart,

*Future Conditional: The Prospect for Anglo-French Nuclear Cooperation*,  
Adelphi Paper n° 78, London, International Institute for Strategic Studies (IISS),  
1971, p. 34.

## 1. Introduction

In the early 1950s, the United Kingdom and France were the closest defence and security partners. Both were founding members of the United Nations and permanent members of the Security Council. They had joined new military arrangements (the 1947 Dunkirk treaty, followed one year later by the Brussels treaty). They were also founding members of the North Atlantic Treaty Organization (NATO, 1949) and both embarked in the creation of their deterrent forces in the early 1950s.

A major strategic divergence between the two countries began in 1956 in the aftermath of the Suez crisis. London decided to reinforce its alliance with the United States, while Paris sought a more independent foreign policy. This led them to different nuclear choices. Through the 1957 Bermuda Agreement, US-UK nuclear cooperation resumed in earnest. In 1962, the Kennedy administration sought to sell Polaris Sea-Launched Ballistic Missiles (SLBMs) to both Paris and London. The United Kingdom ended up accepting the US offer. France refused and in 1967, De Gaulle announced France's withdrawal from the NATO integrated military structure. After the French departure, the Alliance was able to adopt a new strategy of flexible response.

The divergence was completed. To be sure, this did not preclude London and Paris from embarking in various defence cooperation enterprises (including what remains to this day their most ambitious common project, the conception and construction of the Jaguar combat aircraft). Despite recurrent interest on both sides, however, nuclear cooperation remained by and large non-existent. Indeed, every decade since 1960 has seen one or several failed attempts to this effect. Only by the end of the Cold War did it become a realistic prospect.

***Despite recurrent interest on both sides, however, nuclear cooperation remained by and large non-existent. Indeed, every decade since 1960 has seen one or several failed attempts to this effect.***

The purpose of this paper is to draw lessons from past attempts at nuclear cooperation between London and Paris, evaluate present arrangements, and gauge the prospects for increased cooperation. It understands nuclear cooperation as closer links between the two countries in one or several of the following areas: science and technology; industrial programs and procurement; operations and crisis management; political-military and strategic affairs.<sup>1</sup>

Why cooperate? Incentives can be of a varying nature according to each area: they may include scientific, financial, diplomatic or strategic benefits. But as will be seen, constraints have often been the same: they include divergent policy preferences, legal or political obstacles, incompatible technical requirements or modernization timelines. Today's context may be a little different – but only to some extent.

<sup>1</sup> Throughout this paper, non-sourced information comes from informal conversations with current and former UK and French officials, as well as from personal recollections. The author expresses his gratitude to three anonymous reviewers.

# Part 1

## Past nuclear cooperation

### 2. Failed attempts at cooperation during the Cold War <sup>2</sup>

There has been a surprisingly high number of attempts by both countries to cooperate on one aspect or another in military nuclear matters. In some cases, the United Kingdom took the initiative, in others, France did. But all failed to deliver concrete results.

UK-French nuclear cooperation began in fact as soon as German troops invaded France in 1940. French atomic scientists were sent to the United Kingdom. Some of them participated in the Maud Committee, the early (1941) UK nuclear programme. Bertrand Goldschmidt, later to become a key figure in the French programme, was charged by the UK government to find a method to extract plutonium. However, the 1943 Québec agreement separated the two countries. In 1954, US opposition likewise prevented the sale of a UK plutonium separation plant to France.

Serious attempts at bilateral nuclear cooperation began very quickly after the two countries had become nuclear powers, but ran across fundamental divergences of political goals and strategies.

In the early 1960s, cooperation on ballistic missiles was briefly considered.<sup>3</sup> The opening came from London. UK Prime Minister Macmillan discussed the idea with De Gaulle when they met in Rambouillet in December 1962, and he found the French President very amenable to the idea. Macmillan suggested the possibility of cooperation “in some of the details which were within [Britain’s] own control”.<sup>4</sup>

<sup>2</sup> Among other sources, this section draws from Olivier Debouzy, *Anglo-French Nuclear Cooperation: Perspectives and Problems*, Royal United Services Institute (RUSI), 1991, pp. 51-75.

He no doubt wanted to show Britain’s European credentials to France, even though from his point of view any nuclear cooperation, albeit for Europe’s sake, could not be separated from the broader NATO framework. His strategy was to foster closer cooperation between the three allied nuclear powers and become a member of the European Economic Community (EEC).

For London, the Polaris sales agreement had to be accompanied by a clear statement of UK nuclear independence in order to enter the EEC. But for Washington, the sale of a new US system to London was a way to downgrade the independence of the UK deterrent and make it clear that the United States now opposed nuclear proliferation. And for both countries, it was also a way to entice France into putting its deterrent at NATO’s service. As one historian put it, “Polaris was in fact never meant as an American aide for an independent British deterrent, rather, it was meant as a stepping stone towards pooling the British and French deterrent”.<sup>5</sup>

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<sup>3</sup> On the 1960-1962 intra-Alliance debates see Oliver Bange, *The EEC Crisis of 1963: Kennedy, Macmillan, De Gaulle and Adenauer in Conflict*, London, Palgrave Macmillan, 1999. Paris, CNRS editions, 2002, p. 372.

<sup>4</sup> Harold MacMillan, *At the End of the Day, 1961-1963*, London, Macmillan, 1963, p. 121.

<sup>5</sup> Bange, *op. cit.*, p. 51. Ironically, the “supreme national interests” expression was suggested by Macmillan at Nassau to replace a more restrictive US draft, to be acceptable to De Gaulle.

In July 1963, UK Defence Secretary Peter Thorneycroft proposed to his French counterpart Pierre Messmer a full nuclear cooperation between the two countries, from joint programs to force coordination. Again, this was seen in the light of London's desire to join the EEC, but also as a hedge against future unreliability of the US-UK alliance.

But de Gaulle would not settle for anything less than a fully independent deterrent, and there was no question for him of assigning French nuclear forces to NATO without some recognition of the central role of the three countries in the Atlantic Alliance. The US-UK agreements, the US push for a new Alliance strategy of flexible response, and the subsequent French withdrawal from the NATO military structure killed any significant prospect of cooperation between the two countries. There was one exception: the United Kingdom confirmed in September 1967 that one of the H-bomb designs France was working on would bear fruit, saving the French considerable time and money. Speculation remains as to how much this weighed on France when it lifted its veto on the UK membership of the EEC.

A second attempt was made in the early 1970s.<sup>6</sup> De Gaulle had left power, the French force was beginning to mature, and the Nixon administration had a more relaxed attitude towards European nuclear forces. There seems to have been a French initiative – arising from a desire to overcome technical and financial problems – which did not bear any fruit. But the main push came from the UK side, first by the Labour government of Harold Wilson, then more forcefully by the incoming Conservative government.

UK Prime Minister Edward Heath came to power in 1970 firmly intending to push forward nuclear cooperation with France, and – contrary to the Wilson government – did not condition it to be in the context of NATO. Like his predecessors, he too believed that it could smooth London's entry in the EEC. But France was mostly interested in US assistance for particular aspects of its ballistic missiles programme, and got a bilateral US agreement to that effect in 1971; Paris did not now need London as an intermediary.<sup>7</sup>

Prospects for a joint UK-French missile programme (a successor to Polaris), were seriously considered in 1973, but frustrated by existing programmes and in the United Kingdom by the lure of US cooperation and the prospects of higher costs. More generally, the political conditions quite simply did not allow it: as a UK historian puts it, “there were differences in British and French political trajectories in the Cold War, even in this period of relative concord between them, and their possession of nuclear arsenals reflected and entrenched this.”<sup>8</sup>

At the same time, the French navy, which was building its SSBN fleet, sought information from London about the management of living conditions onboard. However, Washington blocked London responding. Given that legal and political conditions seemed to prevent even the discussion of submariners dietary habits, the episode became known as the cornflakes saga.<sup>9</sup>

There were also in-depth conversations between the two general staffs in 1972-1973. But they revealed mostly strong disagreements on the NATO strategy of flexible response.<sup>10</sup>

The UK entry into the EEC did not change the picture. In 1978, the French Defence Minister approached his UK counterpart to offer cooperation on the development and construction of submarine hulls, but this was just before London started considering the replacement of its first-generation SSBNs. He also offered to sell the French M4 SLBM missile to the United Kingdom. Despite the prospects of considerable savings this time, London declined the offer,<sup>11</sup> as it was not considered a viable option and bilateral discussions on cooperation were underdeveloped.<sup>12</sup> Some informal conversations between the two ministries of defence also took place in early 1981, but they were broken off when Mitterrand came to power. By 1985, London and Paris had “no relationship, either formal or informal, over nuclear weapons or nuclear strategy”.<sup>13</sup>

6 A thoroughly researched account of this period is Helen Parr, “The Nuclear Myth: Edward Heath, Europe and the international politics of Anglo-French nuclear cooperation 1970-3”, *International History Review* [to be published in September 2013].

7 For background on the early phase of US-French nuclear cooperation see William Burr, *US Secret Assistance to the French Nuclear Program, 1969-1975: from “Fourth Country” to Strategic Partner*, Woodrow Wilson International Center for Scholars, 2011.

8 Parr, *op. cit.*

9 See Parr, *op. cit.* with a reference to the original UK official source which first mentioned this expression in 1972.

10 Kristan Stoddart, “Nuclear Weapons in Britain's Policy towards France, 1960-1974”, *Diplomacy & Statecraft*, vol. 18, no. 4, 2007.

11 The 1978 and 1987 French offers to sell the M4 are described in Henri Conze, *Des tranchées à la chute du Mur*, Paris, Editions DiversGens, 2010, pp. 235-236.

12 See Jenifer Mackby & Paul Cornish (ed.), *US-UK Nuclear Cooperation After 50 Years*, Washington, Center for Strategic and International Studies, 2008, p. 280.

13 David Owen, “Anglo-French nuclear cooperation”, *The World Today*, vol. 41, no. 8-9, September 1985, p. 158.

### 3. The end of the Cold War: plans for a common missile

In the late 1980s, Paris and London then seriously considered procuring together a common tactical nuclear air-to-surface missile (TASM). It is generally believed that the initial political impetus came from London.

After the October 1986 US-Soviet Reykjavik Summit and the December 1987 Intermediate-range Nuclear Forces Treaty (INF), Prime Minister Thatcher was worried that the United States could abandon nuclear weapons altogether and was seeking a hedge with France. The Gaullist government led by Jacques Chirac (1986-1988), itself displaying some Atlanticist inclinations, had responded with some interest. French Defence Minister André Giraud renewed the offer to sell the M4 when he visited Faslane in 1986 a few weeks before Reykjavik. During a return visit by Defence Secretary George Younger to the Ile Longue base in March 1987, other areas of nuclear cooperation were also discussed, and an agreement was made for a closer exchange of information on nuclear issues. It was reported that Paris even proposed in late 1987 to engage in talks about nuclear targeting issues, and in January 1988 an agreement between the two defence ministers included the possibility for French SSBNs to call at UK ports.<sup>14</sup>

This was an era propitious to the development of European defence cooperation. In October 1987, for the first time, members of the Western European Union (WEU) signed a platform on common security interests, including the role of nuclear deterrence. And in 1989, London and Paris reportedly recognized that their doctrinal differences were less profound than previously thought.

### 4. Lessons learned

A few obvious lessons can be drawn. First, *it is pointless to attempt nuclear cooperation when the political conditions are not ripe*. Nothing serious was possible before the mid-1970s, when the United Kingdom became a member of the EEC, the Nixon administration accepted the existence of the French force, and Washington acknowledged the positive contribution the two European independent deterrents could make to Alliance security. Even then, it was completely unrealistic to envisage anything resembling a pooling of the two forces. Second, *the close existing US-UK relationship can be a serious political and legal impediment to concrete Anglo-French cooperation*.

The strength of the US-UK relationship and the divergence of schedules, however, meant the cooperation envisioned never materialised, especially the idea of a common SLBM (some British politicians had favoured a joint development of a future M5).

Cooperation had better prospects around the aircraft-delivered component of deterrence, with a coincidence of requirements, no US-UK existing cooperation (though Washington was pushing London to buy a US missile), and manageable differences in timelines. Paris had just put into service the Air-Sol Moyenne Portée (ASMP), and was interested in selling it to London, which was considering the replacement of its WE-177 gravity bombs. Though the United Kingdom had rejected the ASMP in 1988, two years later France offered a joint development of the successor missile, the Air-Sol Longue Portée (ASLP). Discussions over the missile then began in earnest. The nuclear warhead would have been left out of the cooperation, the payload treated as a black box by the joint industrial team had the project come to fruition.

Despite some initial differences in requirements (London urgently wanted a 600-km range missile, Paris was in less hurry but wanted a 1000-km range), it is quite possible that the air-launched missile project would have succeeded. However, the end of the Cold War and budget reductions eventually killed the Anglo-French plan. In October 1993, London announced its decision not to replace its WE-177 bombs and Paris developed a less ambitious missile, the ASMPA. Later in the 1990s an Anglo-French consortium, Matra-BAe – later MBDA – developed a common standoff, shorter range conventional missile, the SCALP-EG/Storm Shadow.

Third, *the convergence of timelines and requirements is necessary for considering concrete technical or industrial Anglo-French cooperation, just as it is for any other bilateral defence project*. These early lessons are still valid today.

As French expert Olivier Debouzy put it in his 1991 monograph, “cooperation does not work when it does not have a tangible interest in itself;... it does not work when the technological level of the two partners is too unequal;... it cannot work when it contradicts the existing patterns of cooperation, insofar as one of the parties is not entirely free, as was the case for the United Kingdom vis-à-vis the United States”.<sup>15</sup>

<sup>14</sup> Giovanni de Briganti, “France, Britain Agree to Closer Military Links”, *Defense News*, 8 February 1988.

<sup>15</sup> Debouzy, *op. cit.*, pp. 53-54.

## 5. Bilateral talks since the early 1990s

It is a paradox that the UK decision not to replace its WE-177 bombs happened at a time where there was an ever-growing interest for closer bilateral nuclear links. UK and French armed forces had begun operating again on the same theatres from 1991, from the Middle East to the Balkans, for the first time since the 1956 Suez Crisis. France became more actively involved in non-proliferation and joined the nuclear Non-Proliferation Treaty (NPT) in August 1992, gaining the same nuclear weapon state status as the United Kingdom. In 1992 too, a unilateral US moratorium on nuclear testing, followed by a 1993 decision to extend it indefinitely, triggered a new crisis of confidence between Washington and London.<sup>16</sup> France became keen on giving the newly-born (1992) European Union (EU) a strong security identity, and did not want to leave the nuclear dimension outside this new political construct (partly because differences on nuclear policy were seen as a possible obstacle to closer political integration).<sup>17</sup> But at the same time, Paris acknowledged NATO's emerging new role, and participated in Alliance operations in the Balkans; in 1994, its chief of defence staff became a regular participant to the Military Committee when common operations were discussed (before becoming a full member in 1995).

This context created a favourable atmosphere for a new era of bilateral nuclear conversations – all the more since the Clinton administration was generally amenable to European security cooperation. To be sure, there were policy differences. Unsurprisingly (and as in the 1960s), for France it was mostly about Europeanizing the UK deterrent; whereas for London it was about bringing Paris ever closer to NATO. But these differences were understood and seen as complementary by both countries.

In October 1992, French Prime Minister Pierre Bérégovoy stated that “a preliminary step [towards the adoption of a common European deterrence doctrine] would probably be to bring closer the points of view of the two Community's nuclear powers: Great Britain and France. It would be a useful first step”.<sup>18</sup>

16 See for instance Martin Walker, “President puts Britain's deterrent in melting pot”, *The Guardian*, 24 February 1993.

17 This had been recognized as early as May 1969 by then-presidential candidate Georges Pompidou: “The future of a common European nuclear defence policy lies in an agreement between France and Great Britain. I am quite ready to talk to the United Kingdom about such an agreement (...). But it will take time, and Europe must first develop a political conscience”. Quoted in Smart, *op. cit.*, p. 28.

18 Pierre Bérégovoy, Discours de clôture, Colloque «Un nouveau débat stratégique», Paris, 1 October 1992.

One month later, London and Paris decided to create the Joint Commission on Nuclear Policies and Doctrines (later informally abbreviated to Joint Nuclear Commission, JNC), upon an initiative by defence ministers Malcolm Rifkind and Pierre Joxe.<sup>19</sup> The two countries decided in July 1993 to make it a permanent body.

The UK decision in October 1993 to give up its air-based component gave additional impetus to carry on with the JNC's work, since it then became the only formal vehicle for bilateral nuclear talks. Domestic political changes on both sides of the Channel were fortuitous. In Paris, the Chirac administration had stopped emphasizing the desire for a European deterrent by late 1996 in response to the controversy that accompanied the final French testing campaign; separately, it had chosen to build the European security identity in conjunction with NATO, and no longer in opposition to the United States. Later in London the new Labour-led government in 1997 favoured increased European defence cooperation, including with France through the Saint-Malo initiative of 1998.

The JNC was initially modest in size (comprising one senior representative per ministry – foreign affairs and defence – each accompanied by one staffer) and in ambition (gaining knowledge and understanding of each other's nuclear policies). It formally met for the first time in early 1993, helped produce an in-depth mutual understanding of each country's policies and doctrines, and paved the ground for more concrete cooperation later on. It has led to thorough exchanges on crisis management and principles for nuclear planning (including through the informal consideration of fictitious scenarios), as well as the drafting of common policy papers.

At the July 1993 UK-French Summit, the JNC presented a substantial report to ministers covering issues such as nuclear doctrines, negative security assurances, the European dimension of deterrence, missile defence, nuclear disarmament and nuclear testing. Prime Minister Major and President Mitterrand took note of the fact that the JNC had “established a number of [common] concepts in the field of nuclear deterrence, of nuclear arms control, and non-proliferation”.<sup>20</sup>

19 Sir Michael Quinlan has confirmed that there was, when he left public office in 1992, “very little Franco-British exchange about our nuclear forces”. Michael Quinlan, *The Future of Deterrent Capability for Medium-Sized Western Powers in the New Environment*, Institut Français des Relations Internationales (IFRI), 2001, p. 15.

20 Statement by UK Prime Minister John Major, Press conference, London, 26 July 1993.

21 Malcom Rifkind, “UK Defence Strategy: A Continuing Role for Nuclear Weapons?”, speech at the Center for Defence Studies, King's College, London, 16 November 1993.

UK Defence Secretary Malcolm Rifkind stated that there was “no difference between France and the United Kingdom on the fundamental nuclear issues”.<sup>21</sup> In 1994, the JNC discussed, *inter alia*, the European contribution to deterrence.

One of the main visible products of the JNC’s work was the so-called Chequers Declaration of October 1995, in which president Chirac and Prime Minister Major declared:

*We have talked about nuclear co-operation, and noted considerable convergence between the two countries on nuclear doctrine and policy. We do not see situations arising in which the vital interests of either France or the United Kingdom could be threatened without the vital interests of the other being also threatened [our emphasis]. We have decided to pursue and deepen nuclear cooperation between our two countries. Our aim is mutually to strengthen deterrence, while retaining the independence of our nuclear forces. The deepening of co-operation between the two European members of the North Atlantic Alliance who are nuclear powers will therefore strengthen the European contribution to overall deterrence. We have instructed our Joint Nuclear Commission to take this forward.*<sup>22</sup>

***We do not see situations arising in which the vital interests of either France or the United Kingdom could be threatened without the vital interests of the other being also threatened.***

The expression of common vital interests has been reiterated at several occasions since then at various bilateral summits, in particular at Le Touquet (2003), London (2010) and Paris (2012).

The work of the JNC – which initially met twice a year, then once a year, not including staff level meetings – may also explain, at least partly, why the declaratory policies of the two countries have come to increasingly resemble each other.<sup>23</sup>

22 UK-French Joint Statement on Nuclear Co-operation, 30 October 1995.

23 The claim that the doctrinal convergence was made possible by the fact that after 1998, London relied, for a limited strike, on Trident only – thus limiting the number of warheads that would be available for initial and possible follow-on use – is largely incorrect. (The point is made in Beatrice Heuser, *NATO, Britain, France and the FRG. Nuclear Strategies and Forces for Europe, 1949-2000*, London, MacMillan Press, 1997, p. 166; and reiterated in Matthew Harries, “Britain and France as Nuclear Partners”, *Survival*, vol. 54, no. 1, February-March 2012, p. 13). The causal relationship, if any, would be the reverse: the UK analysis of what would be needed for restoring deterrence in a post-Cold War, post-flexible response environment (which converged with the French assessment) made it much easier for the United Kingdom to give up its air-based component.

24 HMS Victorious visited l’Île Longue in 2000 and 2007. The Inflexible visited Faslane twice.

The United Kingdom now uses the expression “vital interests” and recognizes that any use of a nuclear weapon could only be of a “strategic” nature (both classic features of French doctrine); France now acknowledges that nuclear weapons could only be used “in extreme circumstances of self-defence” (an expression taken from the 1996 International Court of Justice Advisory Opinion, but one which the United Kingdom embraced well before France did).

The Anglo-French rapprochement led to separate, official military-to-military biannual Nuclear Staff Talks (NST), which involved *inter alia* in-depth exchanges between the two navies on issues such as SSBN operations, force management and nuclear security. Nuclear accident response became a particularly fruitful area of cooperation. Also, since 2000, SSBNs have been making occasional port calls to the other country’s strategic submarine base.<sup>24</sup>

The political climate and common concerns of the early 1990s explain why London refrained from condemning the final French testing campaign of 1995-1996 after the United Kingdom itself had committed to a moratorium, which elsewhere triggered an international outcry. It also allowed for technical discussions and exchanges of views on stockpile stewardship, with frequent mutual visits by scientists to national laboratories.<sup>25</sup> However, concrete

cooperation on nuclear programs proved once again impossible. Cooperation between Paris and London over the development of their respective future nuclear-powered attack submarines (SSNs) was briefly discussed in 1991-1993, but proved impossible due to the US/UK agreements covering nuclear propulsion and a six-year difference in the two countries’ respective requirements.<sup>26</sup> Around 1997, a new attempt was made, at the staff level, to consider concrete projects on those same issues (naval propulsion and stockpile stewardship). However, again they ran into the constraints of existing US-UK agreements and US opposition, which some French officials described at the time as a “glass ceiling”.

25 There has been a considerable increase in bilateral visits over the past two decades: the number of French visits to the Atomic Weapons Establishment (AWE) was a handful per year in the 1990s, and more than 40 in the late 2000s; the number of UK visits to CEA/DAM (Commissariat à l’Energie Atomique et aux Energies Alternatives / Division des Applications Militaires) was a dozen per year in the 1990s, and skyrocketed to more than 70 in the late 2000s. See Martin Butcher *et al.*, *Nuclear Futures: Western European Options for Nuclear Risk Reduction*, BASIC research report 98.5, 1998, pp. 27-28; and *Hansard*, House of Commons Debate, 15 November 2010, c560w.

26 “US agreement blocks UK-French SSN talks”, *Jane’s Defence Weekly*, 24 July 1993.

# Part 2

## The current state of play

### 6. The convergence of UK and French nuclear policies

Today the UK and French nuclear policies and postures are largely similar, more so than they were during the Cold War, a product of convergent policy outlooks and of bilateral dialogue.

Both the United Kingdom and France, which are recognised Nuclear Weapons States (NWS) under the NPT definition, have longstanding policies of “minimum credible nuclear capability”.<sup>27</sup> They have given up ground-launched missiles and significantly reduced their arsenals in the past twenty years, by approximately 50%. They both maintain a four-SSBN force equipped with intercontinental-range Sea-Launched Ballistic Missiles (SLBMs), with variable numbers of warheads.<sup>28</sup> London and Paris both embrace Continuous At-Sea Deterrence (CASD), with at least one submarine on patrol at all times.

Both countries specify that their nuclear weapons are strictly for the protection of vital interests (including against State-based nuclear terrorism), and that a nuclear strike could only be of a strategic nature and would only be contemplated in extreme circumstances of self-defence. Both countries have given negative and positive security assurances to non-nuclear parties to the Non-Proliferation Treaty (NPT), but neither excludes the possibility of a limited strike to “restore deterrence”.

London and Paris both stopped nuclear testing and the production of weapon-usable fissile material in the 1990s (the last British test took place in 1991, the last French one in 1996). The contribution of the UK and French deterrent to the overall security of the Atlantic Alliance has been recognized by NATO members since 1974.

Both countries have announced their intention to maintain a nuclear deterrent in the coming decades, but also actively support the Comprehensive Test Ban Treaty (CTBT), a Fissile Material Cut-off Treaty (FMCT), new endeavours such as the Proliferation Security Initiative (PSI), and *ad hoc* efforts such as the EU3+3 negotiating process with Iran. They also have a policy of transparency: they are the only two nuclear powers which declare the total number of their nuclear weapons.

Since 1998, the United Kingdom has only one platform, consisting of *Vanguard*-class SSBNs. It has modernized its SSBN force much more quickly than France has: its four boats entered service between 1994 and 2001. It decided in 2010 to reduce the number of its operationally available warheads to 120, with no more than 40 warheads on each boat; and the total number of its nuclear weapon stockpile will be no more than 180 by the mid-2020s. London has purchased title to 58 American Trident-II D5 ballistic missiles (taking into account test firings, this amounts to about 32 operationally available missiles).<sup>29</sup> Each boat will now carry no more than eight operationally-available missiles and generally remains at several days’ notice to fire. The United Kingdom participates in the missile’s life extension programme, enabling them to be operational into the early 2040s.

All UK nuclear weapons are available or “assigned” to NATO.<sup>30</sup> Since the 1962 Nassau Agreement, London has assumed they would be used by default in an Alliance context (though it is hard to imagine that nuclear weapons today could be used in other circumstances than those where supreme national interests were at stake).

27 This expression appears in the preamble to the Treaty between the United Kingdom of Great Britain and Northern Ireland and the French Republic relating to Joint Radiographic/Hydrodynamic Facilities, 2 November 2010. France traditionally uses the expression [stricte] suffisance (*[strict] sufficiency*). The United Kingdom uses the expression “minimum effective” deterrence.

28 The abbreviation SSBN refers to Submarine (SS), Ballistic Missiles (B), Nuclear-powered (N).

29 Nick Ritchie, *Continuity/Change: Rethinking Options for Trident Replacement*, Bradford Disarmament Research Center, University of Bradford, June 2010, p. 40.

30 “the United Kingdom Trident II force will be assigned to the North Atlantic Treaty Organisation” (exchange of letters between Prime Minister Thatcher and President Carter, March 1982, Cmnd 8517).

The United Kingdom has operational control and has always maintained the option of using nuclear weapons in a national context if need be. It reinforced its negative security assurances (NSAs) in 2010 by announcing that it would not use nuclear weapons against any Non-Nuclear Weapon State party to and in good standing with the Non-Proliferation Treaty (NPT), though caveats remain. Finally, the United Kingdom has always been more relaxed than France, at least in public rhetoric, when it comes to supporting general and complete global nuclear disarmament.

In addition to its Triomphant-class SSBNs, France maintains two squadrons, and a small flotilla on its carrier, of aircraft carrying the ASMPA missiles armed with TNA (Tête Nucléaire Aéroportée) warheads, for a total of less than 300 weapons since 2011. Reasons given to maintain this additional component include the complementarities of the two systems in terms of accuracy, penetration modes, flexibility in planning, and a hedge against a strategic or technological surprise. Paris began equipping each of its SSBNs with 16 M51 missiles in 2010 (M51.1), with a maximum of six TN75 warheads per missile. A second version equipped with the TNO (Tête Nucléaire Océanique) warhead will begin entering service in 2015 (M51.2). Like the TNA, the TNO is a robust warhead based on a design concept tested in 1996.

Paris has publicly announced adaptation of some of its warheads to facilitate flexibility in planning. Unlike the United States and United Kingdom, France has not limited the scope of its nuclear doctrine. In line with its strict definition of nuclear independence, Paris has made massive investments covering all aspects of its nuclear programme (including, in the past 15 years, for stockpile stewardship). Even though exact comparisons are difficult to make, the average cost of its programme during the Cold War was at least double the British budget both in terms of expenditure and share of Gross National Product (GNP).<sup>31</sup> French nuclear forces are not committed to NATO and Paris is not a member of the Alliance's nuclear institutions such as the Nuclear Planning Group (NPG).

31 As a rule of thumb, it is possible to say that the difference in size and diversity of the French arsenal has accounted for one quarter to half of this extra cost, and that the technical independence premium has accounted for the remainder. Differences between UK and French annual nuclear expenses can vary considerably, the French programme being more stable in financial terms (about 10% of the total defence budget or 20% of the equipment budget) due to a different modernization cycle. Note also that the budgetary difference between the two countries has been reduced.

However, since the mid-1990s, Paris has stated, in various forms, that its deterrent takes into account the evolution of the European integration process: it does not cover only strictly French vital interests. Paris will have fully completed its current modernization cycle, which began in the mid-1990s, by 2018, when its fourth SSBN will receive the M51.2 missile. It has not sought to reinforce its existing NSAs, insists that nuclear disarmament cannot be considered in isolation from the broader security context, and does not necessarily contribute to non-proliferation.

France is, however, the only nuclear weapon state to have dismantled its testing sites and fissile materials production facilities.

There remains a significant difference between the UK and French total nuclear arsenals, notable if one assumes that the two countries have, broadly speaking, similar basic deterrence requirements (to have the ability to inflict unacceptable damage on any country attacking its vital interests), France believes it needs somewhere

between 1.66 and 1.80 times more weapons than the United Kingdom does.<sup>32</sup> Two sets of factors may account for this difference, political and technical. British and French leaders may give different answers to the question, "how much is enough?", influenced by the British judgement that it is highly unlikely that they may end up facing a threat on their own. There may also be differences in the characteristics of the respective forces which lead the French to require a higher number of weapons for the same result. For instance, the Trident-II D5 SLBM is widely considered as being more accurate than the M45 SLBM.

Finally, the nuclear consensus remains stronger in France – as it has always been – than it is in the United Kingdom. For instance, Socialist candidate to the presidential elections François Hollande announced in January 2012 his plans if he was elected president, which include keeping and modernizing the two components of the French deterrent, maintaining CASD, and no visible difference with Sarkozy's policies.<sup>33</sup>

32 1.80 is the ratio between 540 French weapons and 300 UK weapons (1992 numbers from Natural Resources Defence Council, Table of Global Nuclear Weapons Stockpiles, 1945-2002, 25 November 2002). 1.66 is the ratio between 300 and 180.

33 François Hollande, "Dissuasion nucléaire: je maintiendrai", *Le Nouvel Observateur*, 20 December 2011; and statement by François Hollande at the occasion of his visit to Brest, 30 January 2012.

*The average cost of [France's] programme during the Cold War was at least double the British budget.*

## 7. The Lancaster House Treaty and the Teutates Project

New opportunities for cooperation opened when Nicolas Sarkozy was elected President (2007). He and his staff were decisively in favour of closer defence cooperation in all areas, both with the United States and the United Kingdom. In 2008, Sarkozy instructed his administration to explore all avenues of possible nuclear cooperation with London, without any taboo.<sup>34</sup> In addition, a little-noticed doctrinal adjustment brought French nuclear doctrine further in sync with the United Kingdom: France stopped referring to the “final” nature of a nuclear warning, thus in theory opening the possibility of a follow-on strike. Sarkozy’s decision to rejoin NATO’s military structure, which was formalized in the Summer of 2008, also helped build trust between the two countries. Conversely, Paris noted with appreciation the increased UK willingness to lead EU military operations (Althea in Bosnia in 2004, Atalanta in the Indian Ocean in 2008). These developments allowed for the signature of two landmark treaties at the Lancaster House Summit of 2010, one on general defence and security cooperation and one on nuclear cooperation.

The Lancaster House nuclear treaty signed in November 2010 established a high-level legal framework for in-depth nuclear cooperation between the two countries. It succeeded where previous attempts failed because it built on the mutual trust accumulated over nearly twenty years, and enshrined nuclear cooperation in a broader bilateral defence partnership, itself being the object of a separate, framework treaty.

The treaty opens the door to cooperation on three different areas: (1) safety and security of nuclear weapons, (2) stockpile certification, and (3) counter nuclear or radiological terrorism.<sup>35</sup>

The Teutates project, which is the most visible concrete embodiment of this new cooperation, is based on a coincidence of timelines and requirements – and, not less importantly these days, will allow for financial savings. Teutates is about pooling the instruments of one key part of stockpile stewardship, X-ray radiography.<sup>36</sup> It was initiated by the two laboratories in January 2009, just as AWE – which already had very significant radiographic/hydrodynamics experience – was starting its Hydrus project, and does not directly interfere with the US-UK (or US-French) agreements.<sup>37</sup> There was initially some frowning about the project in one segment of the US administration, but at the same time, the strong US push for nuclear disarmament under the Obama administration may have played a role in AWE enthusiasm for the project. In fact, one reason why the project was so easily agreed upon is that it was a relatively new area, in which one of the partners (the United Kingdom) had not yet significantly invested, and where there was no known in-depth cooperation with the United States.

It is a very symbolic milestone for London and Paris, agreeing interdependence on a non-trivial component of their nuclear programmes for half a century. Two UK observers suggest that it was even more important for France given that the United Kingdom already had a tradition of nuclear interdependence (vis-à-vis the United States). Though true to some extent, the move was not seen in France as the “monumental shift” suggested, because Paris also has a long tradition of technical nuclear cooperation with Washington.<sup>38</sup>

*The Lancaster House nuclear treaty ... succeeded where previous attempts failed because it built on the mutual trust accumulated over nearly twenty years.*

34 Jean-Dominique Merchet, “Dissuasion: peu d’atomes crochus”, *Libération*, 6 May 2010.

35 Treaty between the United Kingdom..., *op. cit.*, article 1.

36 Paris already operates a single-axis machine called AIRIX (Accélérateur à Induction pour la Radiographie et l’Imagerie X) located at Moronvilliers.

37 “The provisions of this Treaty shall not affect the rights and obligations of each Party under other nuclear agreements to which they are a Party” (Treaty between the United Kingdom..., *op. cit.*, article 9).

38 Matthew Moran & Matthew Cottee, “Bound by History? Exploring Challenges to French Nuclear Disarmament”, *Defence & Security Analysis*, vol. 27, no. 4, December 2011, p. 348.

Teutates involves two different but closely related endeavours:

- EPURE (Expérimentations de Physique Utilisant la Radiographie Eclair), a radiographic/hydrodynamic facility, which will allow AWE and CEA/DAM separately to experiment on warhead materials and equipment (in different areas of the facility).<sup>39</sup> They will also share results as needed and conduct joint experiments.<sup>40</sup> EPURE will be located in Valduc (France) on CEA/DAM grounds, and completed in two phases over ten years. Phase one comprises the installation of a first firing point, and of the French radiographic machine and experiences hall (2014).<sup>41</sup> Phase 2 will see the installation of the UK experiences hall (2016), the installation of the UK radiographic machine at the first firing point (2019), the installation of a second firing point (2022), and the installation of the third, commonly-designed radiographic machine at the first firing point (2022).

- A Technology Development Center (TDC), whose role will include, inter alia, the joint conception and development of the third axis of EPURE. The TDC will be located at AWE Aldermaston and will be commissioned by 2014.

Costs will be divided, saving hundreds of millions of Euros for each country.<sup>42</sup> France will cover initial outlay for EPURE (i.e., Phase 1), the United Kingdom will meet the costs of the TDC. By 2015, all additional funds for common Teutates-related projects will be split equally.

A French parliamentary report mentions that the number of cold tests conducted at Valduc will be about ten a year.<sup>43</sup>

Details of the agreement between two laboratories had been hammered out several months before the signing of the treaty, thus the first concrete of the EPURE facility was poured only two weeks after the Lancaster House summit, on 19 November 2010. A number of French scientists are now working full time at AWE Aldermaston, and UK scientists are working at CEA/DAM (a rugby field has been set up at the Valduc facility).

## 8. Drivers and constraints for further cooperation

There are today important drivers for bilateral UK-French nuclear cooperation, more so than during the Cold War.

Benefits from collaboration in any scientific or industrial cooperation enterprise are to be had: such as peer reviewing and learning from how others manage or solve a problem. As US Adm. (Ret.) Ron Lehman put it a few years ago at an informal US-UK-French meeting devoted to nuclear issues,

*“We Americans benefit from cooperation with the UK and France, sometimes because we think alike and sometimes because we don’t.”*

“we Americans benefit from cooperation with the UK and France, sometimes because we think alike and sometimes because we don’t.”<sup>44</sup>

For instance, the United States benefitted from the UK Chevaline program; its value in the eyes of Washington “was the insight it gave US engineers into an entirely different approach to solving the Soviet ABM problem”.<sup>45</sup> Today, the Teutates project is seen as providing for a healthy competition between AWE and the CEA/DAM (not unlike, one is tempted to say, competition between the US national laboratories).

39 The literal translation is “Physics Experimentations Using Flash Radiography”.

40 The possibility for the two to share results is implicit in the text of the treaty (see Article 2.5). The NPT does not prohibit the transfer of nuclear weapons-related technology between Nuclear Weapons States; Article 1 of the NPT prohibits the transfer to any State of “nuclear weapons or other nuclear explosive devices”; it goes on to prohibit assistance to Non-Nuclear Weapons States.

41 This involves the transfer to Valduc the first axis of the existing French AIRIX machine.

42 A French official source mentions a total of €400-450 million for France over several decades (€200 million for 2015-2020, €200 million to €250 million for post-2020). François Cornut-Gentille, Avis présenté au nom de la Commission de la Défense nationale et des forces armées sur le projet de loi de finances pour 2012, tome VII, Défense : Equipement des forces – Dissuasion, no. 3809, 25 October 2011, p. 129.

43 Texte de la Commission des affaires étrangères, annex to Jean-Michel Boucheron, Rapport fait au nom de la commission des affaires étrangères sur le projet de loi, adopté par le Sénat, après engagement de la procédure accélérée, autorisant la ratification du traité entre la République française et le Royaume-Uni de Grande Bretagne et d’Irlande du nord relatif à des installations radiographiques et hydrodynamiques communes, no. 3386, 4 May 2011, p.19.

44 Ron Lehman, “Re-examining US, UK and French Nuclear Deterrent Cooperation”, Trilateral Nuclear Seminar, Ditchley Park, 31 March 2007.

45 Nick Cook, “Sharing Strategic Secrets”, *Jane’s Defence Weekly*, 3 September 1994, p. 51.

Another potential benefit is cost-saving – a key incentive in particular for London. To be sure, defence cooperation projects can sometimes place a premium on politics to the point of limiting cost-savings considerably (and even sometimes negating them when countries try to accommodate very different national requirements).<sup>46</sup>

However, when there is clear a common requirement, cooperation can generate important savings. That is what is happening with the Teutates project.<sup>47</sup>

Such advantages are well-known. But they are more likely to act as stronger incentives in the coming two decades than they have done in the past, for two reasons. First, the current dim financial and budgetary outlook in European countries will encourage cost-saving cooperation.<sup>48</sup> Second and most importantly, the two countries now enjoy a closer political, security and industrial relationship. The Lancaster House treaties stand on the shoulders of several decades of cooperation and dialogue on defence and security issues. Another important factor is the mutual recognition that it is valuable in itself and is not necessarily part of a grand strategic design. Paris has stopped emphasizing the need to build an EU strategic identity, and London has stopped talking of further integrating France into the Atlantic Alliance (no longer apt since France's return to the NATO military structure in 2008). Finally, since November 2010, other factors have cemented the relationship: the joint leadership of the NATO operation in Libya (2011), and the signing of a civilian industrial nuclear cooperation agreement (2012).

In fact, the politics of UK-French nuclear cooperation are perhaps now more likely to act as incentives than as obstacles: London can hope to lessen its own dependence vis-à-vis the United States; and Paris is interested in contributing to the continued existence, solidity and independence of another European nuclear power.

<sup>46</sup> It is likely that the M4 missile would have been a much cheaper choice than the US Trident II D5. See Conze, *op. cit.*, p. 235.

<sup>47</sup> In other circumstances, budgetary constraints can be an indirect obstacle to cooperation: an unfavourable cost-benefit assessment of the UK air component modernization program led to the cancellation of the common air-launched missile project in the early 1990s (see above).

<sup>48</sup> A hypothetical additional incentive would be an unfavourable change in the strategic environment conducive to additional financial and technical efforts to maintain the credibility of their respective deterrents (which might prove difficult to obtain in a constrained budgetary environment). Such a scenario was already envisioned in 1971 by a UK analyst; see Smart, *op. cit.*, p. 22.

<sup>49</sup> UK-France declaration on security and defence, 17 February 2012.

<sup>50</sup> The current version of the agreement runs until 31 December 2014.

Today, all the building blocks of a solid nuclear relationship exist:

- A common vision of the importance of the UK-French defence and security relationship for the Atlantic Alliance and for Europe,
- Deepening habits of cooperation between the defence and military establishments of the two countries,
- A legal framework for closer defence cooperation (the overall Lancaster House treaty),
- A longstanding industry partnership in the fields of missiles (MBDA) and sonar (Thales Underwater Systems),
- A convergent approach to nuclear policies and doctrines,
- An institutional framework for political-military nuclear discussions (the JNC),
- An institutional framework for military nuclear staff discussions (the NST),
- A legal framework for military nuclear cooperation (the nuclear Lancaster House treaty),
- A concrete joint military nuclear project (Teutates),
- A growing partnership in the area of civilian nuclear energy (the Cardiff treaty on uranium enrichment, 2005; the UK-France declaration on energy, 2012).

It should therefore come as no surprise that the February 2012 UK-French Summit communiqué stated: “Building on last year’s successful cooperation on a joint facility at Valduc that will assist both countries in underwriting the safety and reliability of our respective nuclear weapons stockpiles, we have decided to explore opportunities for further collaboration in the nuclear field.”<sup>49</sup> In sum, *cooperation begets cooperation*: since Teutates is judged, at this point, to be a success, other avenues are likely to be explored.

There remain, however, three significant constraints on the road to a tighter or broader UK-French nuclear cooperation.

A traditional one is the close US/UK nuclear partnership. This partnership, which was formally initiated by the 1943 Québec Agreement, rests on two pillars. One is the 1958 Mutual Defence Agreement (MDA, as amended in 1959 and 1982), which includes provisions (Article IIIbis, Transfer of Materials and Equipment) with an expiry date and thus have to be renewed every five or ten years.<sup>50</sup> The other is the 1962 Nassau Agreement and the subsequent 1963 Polaris Sales Agreement (PSA, as modified in 1982 to provide for Trident missiles).

The US/UK partnership is a potential obstacle to UK/French cooperation in three ways. First, it limits the options for give-and-take cooperation between London and Paris: elements of US origin are legally protected and therefore off-limits, unless explicitly authorized by Washington. Second, it makes cooperation more difficult given that the US elements are not always clearly separated from those of UK origin. The UK programme was described in 1971 as an “alloy” of UK and US data which would be “almost beyond the wit of man to re-divide”.<sup>51</sup> That conclusion is probably at least still broadly valid four decades later.

Take the three main components of the UK Trident program. SSBNs include major US contributions (nuclear propulsion, missile compartment) which make them off-limits to cooperation or even any French visit.<sup>52</sup> The next generation is likely to include even more US inputs because the United Kingdom seems to have lost some of its SSBN-building capability as a result of an important time-lag between the launch of the last SSBN (HMS Vengeance) and the conception of a new one.

The Trident SLBMs are entirely US-made and offer no immediate prospect for cooperation. As for UK warheads, they are assumed to be adaptations of US ones, thus limiting here too the possibilities of cooperation.<sup>53</sup>

But *quid pro quos* do not have to happen only in the nuclear domain. If London sought a particular scientific technical input from Paris it could return the favour in another area.

There are, however, two other constraints. Nuclear weapons, systems and installations are among those defence programmes with the longest lead-times and lifespans. The windows of opportunity are rare, and the timelines of procurement have generally not coincided on both sides of the Channel. The United Kingdom launched its current generation of SSBNs earlier than the French did, and replaced its four boats in rapid succession. To be sure, the 2010 UK decision to delay renewal has moved the modernization timeline closer to the French one, but it might now be too late for considering in-depth cooperation on common systems (see below).

**Table 1**  
SSBN replacements: initial timeline (circa. 2006)

	UK <sup>54</sup>	France <sup>55</sup>	US
<i>Launch last SSBN</i>	1998	2008	1997
<b>Conception new SSBN</b>	2009 [Initial Gate]	2014	2014
<b>Construction new SSBN</b>	2014	2019	2019 (Fiscal Year)
<i>Withdrawal first SSBN</i>	2022?	2029?	2027
<b>In service first new SSBN</b>	2024	2031?	2029 (Fiscal Year)

**Table 2**  
SSBN replacements: revised timeline (2012)  
(post 2010 UK decisions and 2012 US decisions)

	UK <sup>56</sup>	France <sup>57</sup>	US
<i>Launch last SSBN</i>	1998	2008	1997
<b>Conception new SSBN</b>	2011 [Initial Gate]	2014	2017 (Fiscal Year)
<b>Construction new SSBN</b>	2018	2019	2021 (Fiscal Year)
<i>Withdrawal first SSBN</i>	2024?	2029?	2027
<b>In service first new SSBN</b>	2028	2031?	2031 (Fiscal Year)

51 Smart, *op. cit.*, p. 34.

52 Merchet, *op. cit.*

53 Nicola Butler & Mark Bromley, *Secrecy and Dependence: The UK Trident System in the 21st Century*, British American Security Council (BASIC) 2001.3, November 2001 [no page number].

54 The date 2022 for the withdrawal of HMS Vanguard assumes a 30-year lifetime. The date 2024 for the launch of a new SSBN assumes that HMS Victorious retires by 2024 and the United Kingdom wants to retain CASD.

55 There is no publicly available timeline for the possible French SSBN replacement program. The date 2029 for the withdrawal of the Triomphant assumes a 35-year lifetime. The date 2031 for the launch of a first new SSBN is also hypothetical.

56 The date 2024 for the withdrawal of HMS Vanguard assumes a 32-year lifetime. The date 2028 for the launch of a new SSBN assumes that HMS Victorious retires by 2028 and the United Kingdom wants to retain CASD.

57 See previous notes.

Simply put, there seem to be very few opportunities to reproduce the Teutates model elsewhere.

A second constraint is force of habit, deeply ingrained in any institution or bureaucracy involved in highly sensitive areas such as nuclear deterrence, which makes them novelty- and risk-adverse. And there are good sound management reasons for this.<sup>58</sup> If a nuclear policy choice between Paris and Washington appeared a zero-sum game, London would always choose the latter, a preference grounded in history.<sup>59</sup> In Paris, the default will always be doing things independently. *It takes a strong political will to break the routine.* But here lies the rub. Beneath the surface, lingering suspicions still exist on both sides of the Channel.

In London, anything that resembles a reorientation of defence policies away from the United States and towards the continent is still unpopular in many segments of the UK political elite; likewise in Paris for anything that resembles a closer partnership with Anglo-Saxon countries (read: the United Kingdom and the United States). And such reluctance may be, occasionally, heightened by divergent choices on key aspects of EU policy (the financial crisis being an obvious case in point). This is not a major problem for any pragmatic, limited cooperation with tangible benefits such as the Teutates project. But it remains a potential obstacle for more ambitious cooperation.<sup>60</sup>

Thus while the context and framework of UK-French cooperation is much more solid and conducive to a closer nuclear relationship, important psychological, political and legal obstacles nevertheless remain, potentially limiting the scope of common projects.

58 As the late Sir Michael Quinlan, who had an unrivalled way in summarising nuclear policy issues in pithy turns of phrases, put it in 2001: "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]." Quinlan, *op. cit.*, p. 15.

59 As UK expert puts Matthew Harries puts it: "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". Harries, *op. cit.*, p. 22.

60 That said, Matthew Harries notes that political will can quickly overcome years of government debates: "Skybolt was once nearly solved by Kennedy and Ormby-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". Harries, *op. cit.*, p. 27.

# Part 3

## Options for future nuclear cooperation

### 9. Options for technical and industrial cooperation

Cooperative work could be considered on stockpile stewardship and the question of robustness of warheads (i.e. their reliability and safety in a no-hot-test environment), if only in the form of peer reviewing. UK scientists might benefit from access to the new Laser Mega-Joule (LMJ) installation, which will come on line in 2014 and is much bigger than the UK Orion facility.<sup>61</sup> They do already benefit from the US National Ignition Facility (NIF),<sup>62</sup> but given that emerging desire to encourage cooperation between AWE and the CEA/DAM, London could value dividing its investment between the NIF and the LMJ. The two countries could also begin to think about the conception of future warheads for the second part of the 2030s (a rare example of convergent timelines). This may, or may not, require a *nihil obstat* from Washington, depending on the exact nature of the work and of possible US interest.

61 Orion is a 12-beam instrument, the LMJ a 240-beam instrument.

62 US Adm. (Ret.) Ron Lehman characterized Orion as using “a novel heating technique that may complement NIF” (Lehman, op. cit.). According to a journalist, “If the NIF is a thermonuclear hammer, then Orion is a scalpel” (Geoff Brumfiel, “Nuclear weapons physics: welcome to the Atomic Weapons Establishment”, *Nature*, vol. 464, 10 March 2010).

63 Patrick Wintour & Allegra Stratton, “UK and France should build nuclear deterrent together”, *The Guardian*, 1 April 2011.

64 “We plan to develop jointly some of the equipment and technologies for the next generation of nuclear submarines. To that end, we will launch a joint study and agree arrangements in 2011. Co-operation will help to sustain and rationalize our combined industrial base and will also generate savings through the sharing of development activities, procurement methods and technical expertise.” Declaration on Defence and Security Cooperation, London, 2 November 2010. In May 2011, UK Minister for Defence Equipment, Support and Technology, Peter Luff told Parliament: “We have, with our French colleagues, identified a number of potential areas for cooperation around submarine enterprise management and some specific equipment and technologies. Detailed proposals will be put to national authorities for consideration and agreement, taking account of extant international agreements and obligations”. *Hansard*, Commons Debates, 17 May 2011, Column 112W.

Other avenues of technical and industrial cooperation have a lower salience:

- **SSBNs.** The revised UK timeline for procurement of a successor to its Vanguard SSBNs brings it closer to the French one (see above), and UK armed forces minister Nick Harvey suggested in 2011 that the two countries “work together on research and development of replacement submarines”, with the purported prospect of “nearly halving the development costs”<sup>63</sup> However, there remain tough obstacles even with the new timeline, despite the November 2010 agreement to cooperate on “submarine technologies and systems”.<sup>64</sup>

Today France has barely gone beyond conceptual thinking about what its successor generation could look like, and the first political decisions (Initial Gate-like) are not expected before 2014.<sup>65</sup> But the UK momentum is such that over half of the design will have been completed by that time.<sup>66</sup> There will be no cooperation on the propulsion system after the UK decision in 2010 that it would procure the Rolls-Royce Pressurized Water Reactor (PRW) 3, based on a US design. The United States is extremely protective of its reactor technology and would likely oppose any programme that threatens technology leakage. Joint work on the architecture of the SSBN is also unlikely given the UK 2008 choice of the US-designed Common Missile Compartment (CMC) and its 2010 decision to equip its future SSBNs with only eight missile tubes. In early 2012, the head of the French MoD procurement office declared that discussions on future SSBNs had been unfruitful.<sup>67</sup> Still, some parts of future SSBNs could be open to cooperation (for instance their sonar). And mid-life overhauls could offer some other opportunities.

65 The French Ministry of Defence has been studying a possible “Futur Moyen Océanique de Dissuasion (FMOD)” (Future Ocean-Based Deterrent) for several years.

66 By 2016, about 70% of the design for the UK SSBN is expected to be complete (*The United Kingdom’s Future Nuclear Deterrent: The Submarine – Initial Gate Parliamentary Report*, May 2011, p. 7).

67 Philippe Chapleau, “Coopération militaire franco-britannique: à petits pas”, *Lignes de défense*, 16 February 2012.

- **Ballistic missiles.** Assuming the United Kingdom will commence construction of new SSBNs around 2017-8, it is difficult to imagine circumstances under which it would not equip them with the current Trident-II D5 missiles, especially given the UK decision to go forward with the definition of the CMC, which was confirmed in 2010. In the extremely unlikely event that London later decided to opt for the French M51 missile instead of carrying on with the Trident-II D5, technical considerations would probably make such an option unrealistic: the M51 is slightly wider than the Trident-II D5 (not by much, but a launch tube is by definition a constrained space). The only realistic avenue of cooperation would be opened in the 2020s, when the long-term future of both countries' ballistic missiles will be considered. At that point in time, the option of a common missile could be considered *if* France was willing and able to adapt its own launch tubes for a narrower missile. This could be an option for the 2030s if the United States decided to opt to develop a new Trident missile earlier than the current planned retirement of the extended-life Trident-II D5.<sup>68</sup> The M51's service life is currently envisioned to be 20-25 years.

*In the very hypothetical scenario where London was to choose such an option and decided to procure a new missile to that effect, the option of co-operating with France could be attractive.*

- **Cruise missiles.** The UK debate on Trident replacement has led to a rejuvenation of a cruise missile option, a longstanding favourite of some UK politicians, notably among the Liberal-Democrats. Some costs estimates compare very favourably such an option to a like-for-like Trident replacement.<sup>69</sup> It remains unlikely that London will end up making such a choice. It would be a break with a fifty-year old entrenched tradition and involve important technical and transition risks. It would incur a significant degradation of the UK capability: its shorter range may sometimes force the submarine to travel several days or even weeks before reaching the appropriate its firing distance; and it would be more vulnerable in flight than an SLBM.<sup>70</sup> And the only option that would make a significant cost difference, placing such nuclear-tipped cruise missiles on dual-use Astute-class SSNs, would also mean accepting a higher vulnerability in time of crisis involving a major power (SSNs being much less discreet than SSBNs), and raise some significant credibility issues. In the very hypothetical scenario where London was to choose such an option *and* decided to procure a new missile to that effect, the option of co-operating with France could be attractive. Paris is set to deploy its SCALP-Naval missiles – which use some of the technologies developed for the MBDA-built SCALP-EG – on its new Barracuda-class SSNs starting in 2017.

## 10. Options for strategic and operational cooperation

Separately from their cooperation on weapons systems, the two countries could consider making a stronger *joint public commitment* to the effect that they guarantee the protection of the vital interests of the European Union (EU). London and Paris already acknowledge that their independent nuclear forces contribute to the protection of NATO (which includes most EU members).

France has stated on several occasions since the mid-1990s that it considers its vital interests to be closely intertwined with those of the other EU countries. And the Lisbon Treaty, which entered into force in December 2009 and to which both countries are parties, includes a mutual defence clause (Article 42.7).<sup>71</sup>

<sup>68</sup> The question of costs would of course be a key issue. For US-UK cooperation, costs are a function of the number of UK systems (SSBNs and SLBMs) in proportion to the number of planned US systems, both being variables. Another factor is the difference in US and French SLBMs: the former are much costlier but have better performance.

<sup>69</sup> See Ritchie, *op. cit.*

<sup>70</sup> To be sure, UK SSBNs are already at several days notice to fire (though this notice is at times reduced during a standard patrol). A situation where UK SSBNs are not physically able to target the adversary surely amounts to a loss in deterrence value.

<sup>71</sup> The Treaty also includes a mutual security assistance commitment in case of a terrorist attack (Article 222), which theoretically could be the legal basis for nuclear retaliation by London or Paris after an act of nuclear terrorism (provided that it was conducted by a State). For a pre-Lisbon in-depth discussion of options and difficulties of a European deterrent see Bruno Tertrais, *Nuclear Policies in Europe*, *Adelphi Paper* no. 327, IISS, Oxford, Oxford University Press, 1999.

The idea of a European role for the UK and French forces together has a surprisingly long history. Already in 1970, UK Prime Minister Edward Heath already suggested that the two forces combined could be “held in trusteeship for Europe as a whole” (a proposal reiterated by UK foreign minister Lord Carrington in 1972).<sup>72</sup> In 1995, the two countries stated that their cooperation would “strengthen the European contribution to overall deterrence”.<sup>73</sup> In 2009, they declared that “our nuclear forces contribute to European security as a whole”.<sup>74</sup> At a time of a reduced US military presence on the continent, a solemn bilateral statement to the effect that both countries consider that their deterrent forces also protect the EU as a whole could be seen as an important contribution to the European security and defence identity and of the protection of the EU members of NATO.<sup>75</sup> For this to be politically feasible in London, it would need to make clear that it does not alter the primacy of NATO. Such a statement would go a long way to enhance the image of London as a major contributor to EU security, in France and probably in some other countries too.

Alternatively, such a statement might be part of a UK-French deal whereas Paris would make available to NATO a number of nuclear weapons, seriously considered in 1996 when Paris was reviewing its relationship to the NATO military command structure.<sup>76</sup> Given that its logic of sufficiency suggests that it needs all of its nuclear weapons for national planning, it would have to include a supreme national interests-type clause. Even so, such an option remains politically taboo in Paris today. Things might be different, perhaps, if US nuclear weapons were withdrawn from Europe *and* there was an explicit allied interest for a stronger French nuclear commitment to the Alliance. Of course several EU members could object to, or at least voice their lack of interest in, a stronger and more explicit UK-French nuclear guarantee to the security of the Union.

In addition, or separately, the two countries could increase cooperation on nuclear planning. This is a sensitive issue and whatever the two countries have already discussed (or not discussed) in this domain is not publicly known. But it would be the logical conclusion of their recognition of common vital interests for London and Paris to consider *scenario planning and procedures for joint nuclear options*, for instance for a limited or warning strike against a regional adversary which has encroached on their vital interests. Ultimately, if the United States nuclear guarantee to Europe was one day to wane – or simply if it was perceived to be weaker than it used to – then the idea of joint planning vis-à-vis *major powers* could be considered a mutual interest. This would not be exclusive of national planning: it is already what the United Kingdom is assumed to do with the United States in a NATO framework.

A different (though compatible) option would be to consider the pooling of the two countries’ forces by accepting that one country could exercise deterrence on behalf of the other. This seemingly sensible proposal, which has been floated from time to time on one side of the Channel or the other, would be in fact a formidable change in the way both countries have exercised deterrence in the past fifty years.<sup>77</sup> From a political standpoint, London and Paris would have to agree that there is a *complete coincidence* between their respective vital interests. As seen above, London and Paris have stated several times since 1995 that they could not imagine a situation where the vital interests of one of the two countries were at stake without those of the other to be at stake too. But this is a case where going from 99% to 100% is a change in nature, for the carefully crafted vital interests statement deliberately leaves a margin of manoeuvre to both countries. The 2008 French White Paper on Defence and National Security has a slightly stronger formulation.<sup>78</sup>

72 Edward Heath, *Old World, New Horizons: Britain, the Common Market and the Atlantic Alliance*, London, Oxford University Press, 1970, p. 73.

73 UK-French Joint Statement on Nuclear Co-operation, *op. cit.*

74 Declaration on Defence and Security, Evian, 6 July 2009.

75 During the Cold War, the two independent nuclear forces represented some 10-15% of all Western nuclear weapons in Europe. Today, the proportion is difficult to evaluate with authority (the number of US nuclear weapons on the continent is classified), but it is almost certainly around 70-80%.

76 Recent expert suggestions to that effect include Jean-Loup Samaan and David C. Gompert, “French Nuclear Weapons, Euro-Deterrence, and NATO”, *Contemporary Security Policy*, vol. 30, no. 3, November 2009, p. 497.

77 This is another idea with a long history. In 1971, UK expert Ian Smart had proposed a coordination of patrols tempo as to ensure that the two countries together would have at least three SSBNs on patrol at all times, as well as joint targeting and agreements “making the defence of Britain and France ‘indivisible’”. Smart, *op. cit.*, p. 17.

78 The White Paper states: “Together with the other European power, the United Kingdom, France notes that there is no situation in which the vital interests of one may be threatened without the interests of the other being threatened also”. French White Paper on Defence and National Security [official translation], Paris, Odile Jacob, 2008, p. 65.

There is more. It would be one thing to consider that, *as an insurance policy*, the other country would be ready to exercise deterrence on its behalf (and bank on the fact that a potential adversary would recognize that) in case its forces were unavailable for one reason or another. This argument is used by UK expert Nick Ritchie to propose that the United Kingdom could abandon CASD. He suggests to “(..) develop and subsequently activate emergency plans to coordinate SSBN patrols with France for the duration of a crisis to complicate an adversary’s cost-benefit calculus (..).”<sup>79</sup> But it would be quite another to consider a real mutualisation of nuclear assets. Consider the following two scenarios:

- **A common deterrent.** In this scenario, the two countries would declare that any of them is ready to exercise deterrence on behalf of the other (and would presumably mean some joint nuclear planning). The benefit would be that they each operate three or fewer SSBNs only – thus *ipso facto* putting an end, on both sides of the Channel, to guaranteed CASD at the national level, and having from now on a form of shared CASD, where patrols tempo would be coordinated.<sup>80</sup> This is what UK armed forces minister Nick Harvey publicly suggested in 2011 and is popular in Lib-Dem circles.<sup>81</sup> Former Foreign Secretary David Owen wrote in 2009, “it may be that France and the UK will decide to run their nuclear deterrence in harness, still remaining the decision-makers as two sovereign nations (..).”<sup>82</sup> This kind of scenario has also attracted some interest in French political circles.<sup>83</sup> Whether it would be politically realistic would depend largely on each country’s conception of sovereignty: if sovereignty is about *retaining the authority to use one’s own nuclear weapons*, then the answer could be positive; but if it is about *having at all times the means to protect one’s vital interests*, the answer would be negative.<sup>84</sup> The overall balance of the costs and benefits (politically, strategically, financially, and diplomatically) of this scenario remains to be evaluated.

79 Ritchie, *op. cit.*, p. 46.

80 Coordinating patrols tempo is sometimes confused with coordinating patrols zones. It is not clear why the latter would make sense outside the scenario where each have one SSBN each on patrol at all times, do not exclude to rely on each other’s forces, and there is a significant severe (i.e. Russian) Anti-Submarine Warfare (ASW) threat. This despite being suggested from time to time by UK or French officials (see for instance Julian Borger & Richard Norton-Taylor, “France offers to join forces with UK’s nuclear submarine fleet”, *The Guardian*, 19 March 2010). The only real merit of patrol zones coordination would be to avoid collisions, rare as they are; after the February 2009 accident, the two governments announced that they had taken unspecified measures to avoid another accident of the same nature; it would be surprising if they amounted to a real coordination of patrol zones.

- **A single deterrent.** In this scenario, the two countries would declare that they would *only* exercise deterrence together. There would only be joint national planning – no more national plans. Such a scenario is today extraordinarily improbable. It assumes that both London and Paris agree to setting up dual-key arrangements. There would be a cost not only in terms of giving up full national sovereignty on nuclear operations, and possibly in terms of deterrence itself as potential adversaries could bank on the fact that a joint decision on nuclear use would be more difficult than a single country decision. The difficulties involved in the implementation of such a plan were identified as early as 1987 by the UK MoD: “Our two countries would need to agree on the criteria the force would have to meet, the targets that would be put at risk, the details of complementary refits and patrol cycles and, by no means last, the process of consultation leading to the launch of a nuclear weapon and the authority for actual firing of a weapon”<sup>85</sup> There would also need to be dedicated communications and chain-of-command arrangements. Financial benefits would only exist if the two countries took this as an opportunity to reduce their forces. For instance, on paper at least, there could be a situation where one of them would bring SSBNs and the other would bring either an air component (France), or a sea-launched cruise missile (the United Kingdom). But there is no realistic scenario today where France would give up its SSBN force.

Any such scheme would imply agreeing a common nuclear *doctrine*, with its consequences on the conditions (and restraints) of a nuclear strike, its purpose, scope, and type of targets.<sup>86</sup> At present, as mentioned above, there is a slight doctrinal divergence (due to the more stringent nature of the UK NSAs) which could make it complex, though not impossible given the very small number of scenarios where it would make a difference.

81 Wintour & Stratton, *op. cit.*

82 He added that in his view, it would be for the purpose of “serving the general interest of the European Union – a concept easier to contemplate now that France has again become a full member of NATO”. David Owen, *Nuclear Papers*, Liverpool, Liverpool University Press, 2009, p. 18.

83 See “Paris et Londres pourraient coopérer en matière de sous-marins nucléaires”, Agence France-Presse, 13 September 2010.

84 UK Prime Minister David Cameron argued that the Lancaster House treaties did not amount to “a weakening or pooling [of] British or French sovereignty”. UK-France Summit press conference, 2 November 2010.

85 “Why not an alternative?”, Statement on the Defence Estimates 1987, vol. 1, Ministry of Defence, Cmd 101-1, London, Her Majesty’s Stationery Office (HMSO), 1987, pp. 41-42.

86 For an early recognition of such conditions see, again, Smart, *op. cit.*, p. 27.

Finally, there might be a downside in terms of the European contribution to the security of the Atlantic Alliance. As French analyst Olivier Debouzy put it in 1991, “the argument that the independence of British and French forces complicate the planning of any aggressor would see its value reduced”.<sup>87</sup> In particular, in the second scenario there would no longer be three, but only two nuclear centres of decision in the Alliance.

None of these arguments is overriding, and it is quite possible that London and Paris could agree on taking such a major step forward in their cooperation in the coming years – again, this would be mostly a question of political will. But the two aforementioned scenarios would be revolutionary (especially the second one) and require extraordinary circumstances to materialise.

## Continuous at-sea deterrence and a three-SSBN force

Does effective deterrence require continuous at-sea deterrence (CASD)? Does a 3-SSBN force still allow for CASD? These questions go beyond the immediate scope of this paper, but they are or will be raised in both countries as they consider their future nuclear deterrence options, and may impinge on their future cooperation options.

Major arguments in favour of retaining CASD include: the level of motivation and training of the crews (abandoning CASD could have negative security or readiness repercussions); the escalatory nature of going back to CASD if needed in a time of crisis (deciding to do so could be misinterpreted by an adversary); the difficulty of doing so quickly (as shown, for instance, by the Russian experience of the past 20 years<sup>88</sup>); and, finally, the very principle of an intermittent deterrent (not to mention the fact that the abandonment of CASD could be the beginning of a slippery slope of unplanned disarmament).

A separate issue is whether CASD can be maintained with a 3-SSBN force. It is true that lifetime cores (such as the Core H developed for the future PWR3 reactors) will reduce the immobilisation time of SSBNs during their major overhauls, therefore increasing their operational availability.

However, as shown – ironically enough – by the 2009 collision between a British and a French SSBN, the risks of an act of God (*fortune de mer*) is non-trivial, and increases over time as boats age. Only a 4-boat force provides full insurance of maintaining CASD in all foreseeable circumstances. It is not necessarily true that the risks are lower today than it was “during the Cold War with 1960s SSBN technology”.<sup>89</sup> To put things in perspective, broadly speaking the fourth boat costs about 10% of the force (and not 25%, because of economies of scale), but that 10% is what brings the confidence of being able to maintaining CASD from 90% to 100%.

None of these arguments is in itself enough to end the debate, and all of them can be discussed and challenged.<sup>90</sup> However, their sum leads to the conclusion that giving up CASD or attempting to maintain CASD with only a 3-SSBN force might turn out to be risky strategies in an area where political authorities traditionally request ironclad assurances of credibility, effectiveness, safety and security.

87 Debouzy, *op. cit.*, p. 61.

88 On this point, a seasoned UK observer argues that “the academic papers arguing for this option have not taken into account operational and engineering reality such that it would take a much longer time to regenerate the deterrent capability than has been assumed”. Evidence submitted by Commodore Tim Hare, Trident Commission, June 2011.

89 Ritchie, *op. cit.*, p. 39.

90 For a good example of a detailed discussion of most of them see Ritchie, *op. cit.*

## 11. Trilateral cooperation with the United States?

The three countries which informally call themselves the P3 (as in permanent members of the UN Security Council) are also Nuclear Weapons States (NWS) in the sense of the NPT and are the nuclear members of the Atlantic Alliance. It should thus come as no surprise that they regularly meet in one form or another to exchange views on nuclear policy or coordinate diplomatic positions. Moreover, there is, since 2008, a track 1½ Trilateral Nuclear Dialogues convened by the Washington-based Center for Strategic and International Studies (CSIS), which meets three times a year, and involves both experts and officials, the latter being observers.<sup>91</sup>

Trilateral nuclear cooperation per se is a different matter. It is a sensitive topic – in France in particular – and it seems that very few official meetings have ever taken place in that format, even at staff level.<sup>92</sup> To be sure, General de Gaulle himself had proposed in 1958 to London and Washington creating a formal *directoire* which would have been the *de facto* ruling committee of the Atlantic Alliance.<sup>93</sup> He also proposed coordination of the three nuclear forces after France had become a mature nuclear power.<sup>94</sup> The fact that such ideas were launched by de Gaulle himself is evidence that, at least in principle, there should be no taboo in France to consider trilateral nuclear cooperation. In addition, the existence of a longstanding French-American cooperation on ballistic missile technology (in the 1970s), on nuclear safety and security (beginning in the 1980s), and on stockpile stewardship (since the 1990s), is also well-known. France has even upgraded it over time, and made it much less one-sided than it was early on.<sup>95</sup> Thus the Western nuclear stool stands on three legs, each of them an existing channel of extensive technical bilateral cooperation.

91 An initial meeting organized by CSIS had taken place at Ditchley Park (United Kingdom) in March 2007.

92 There was at least one devoted to procurement issues (the air-launched missile) in 1988, one devoted to political-military issues in 2000, and one devoted to consultations on the US Nuclear Posture Review in 2009.

93 According to de Gaulle, the mandate of such a new organisation would have included “the establishment, and if necessary the implementation of strategic action plans, in particular as far as the employment of nuclear weapons is concerned”. Memorandum of General de Gaulle to General Eisenhower, 17 September 1958.

94 For details see Bruno Tertrais, “‘Destruction Assurée’: The Origins and Development of French Nuclear Doctrine, 1945-1981” in Henry D. Sokolski, *Getting MAD: Nuclear Mutual Assured Destruction, Its Origins and Practice*, Carlisle, Strategic Studies Institute (SSI), 2004.

The problem with trilateral cooperation is twofold. First, any form of technical cooperation is generally simpler to manage at two than it is at three, unless there is a common project among the three; but there is no evidence that the three countries could find such a common project today. Second, trilateral cooperation would almost inevitably create a supplementary level of cooperation, since the three partners – especially the United States and the United Kingdom because of the depth and scope of their own arrangements and habits – would want to retain their bilateral channels.<sup>96</sup> So for all its

hypothetical benefits, the management of trilateral cooperation might have the complexity (and the risks) of a *ménage à trois*.<sup>97</sup>

Only in the area of safety, security and reliability of warheads in a no-hot-test environment could trilateral cooperation have strong merits that would overcome these obstacles. In particular, given that the

United States only operates a dual-axis machine for its radiographic / hydrodynamics experiments, the coming into service of the third axis of EPURE by 2022 could be of interest to Washington.

Trilateral cooperation is more immediately relevant on issues of deterrence and crisis management. Beyond their common commitment to the defence of NATO countries in Europe and the Atlantic region (through Article V of the Washington Treaty), the three countries also have important security commitments in the Gulf region.<sup>98</sup> They share concerns about nuclear proliferation and the expansion of nuclear arsenals in Asia. If one assumes that the probability of a major crisis involving a nuclear dimension in Europe, the Middle East or Asia is non-trivial, it would be logical for the three countries at least to exchange views on how best to exercise deterrence and avoid escalation in such contingencies.

95 France has signed four nuclear cooperation agreements with the United States: a July 1961 agreement essentially geared towards NATO nuclear systems operations; a July 1971 memorandum of understanding between the two defence ministries allowing for cooperation on ballistic missiles (essentially, US assistance); a July 1985 agreement updating the July 1961 one and enlarging the scope of cooperation; and a June 1996 memorandum of agreement covering nuclear safety and security after the cessation of hot tests (for instance, Paris and Washington cooperate and exchange views on their respective laser programs).

96 For an account of early US reluctance to consider trilateral arrangements or cooperation, see Parr, *op. cit.*

# Part 4

## Conclusions

### 12. This time it's different?

For a long time, the history of UK-French nuclear cooperation was a litany of failure, disappointment and unrealistic proposals. It seems that today's political, strategic and financial context is more conducive to common endeavours in the nuclear domain than it has ever been in the past, and the launching of the Teutates project is a concrete proof of this.

One needs to remain cautious. As long as the United Kingdom and France will want to retain independent deterrent forces, and the United States remains interested in maintaining strong nuclear links with London, cooperation will always remain limited. The deepening of cooperation will continue to require three major conditions: *strong and continued political will on both sides; a common interest at cooperating; and the absence of US opposition.* Successful cooperation on programmes will require three additional conditions: *convergent timelines; compatible requirements; and prospects for cost-savings.*

*The deepening of cooperation will continue to require three major conditions: strong and continued political will on both sides; a common interest at cooperating; and the absence of US opposition.*

With those caveats in mind, several avenues could realistically be explored in the years to come: a deepening of the scientific and technical cooperation on stockpile stewardship, robustness and future warheads; a limited technical and industrial cooperation on parts of the respective UK and French SSBNs (provided they both confirm that choice), for instance on the sonar; and joint nuclear planning and exercises. Separately, if politically appropriate and useful, the two countries could consider a solemn joint public statement to the effect that the forces of the United Kingdom and France guarantee the vital interests of the European Union. Finally, they could examine together the political, strategic, operational and financial feasibility of a future common deterrent force.

The United States should embrace such cooperation. From a technical standpoint, Washington could benefit from the experience and know how that the United Kingdom will develop with France, and more generally from the fact that London would lessen its dependence on the United States, thus making it a more valuable partner. From a political standpoint, it should welcome closer links between Paris and London, as well as any increased joint contribution to the security of the European continent.

97 Indeed, UK Defence Secretary Liam Fox told the House of Commons that, "there has been discussion for some time about whether the relationship should be trilateral, given the cost of the programmes, but the decision has been taken that for the moment the double bilateral relationship will continue". *Hansard*, Commons Debate, 2 November 2010, Column 786.

98 Since the 1991 Gulf War, the United Kingdom and France have signed several defence and security partnerships with countries of the Arabian peninsula, notably with the United Arab Emirates.

*A good reference point or window of opportunity for future UK-French nuclear choices is the year 2014.* Major orientations will probably have to wait until at least the summer of 2013: it is likely that newly-elected French President François Hollande will soon want to conduct a nuclear policy review.<sup>99</sup> 2014 is the year when the first phase of Teutates will have been completed, and when the French Laser Mégajoule will become operational, potentially opening new possibilities of cooperation on stockpile stewardship. Also in 2014, the United Kingdom and the United States will have to consider the renewal of Article IIIbis of the MDA; this could be an opportunity to amend it as needed either to allow for some new UK-French projects, or perhaps for trilateral cooperation. The annual bilateral summit (which usually takes place at the end of the year) of 2014 would be a good target for any new announcement – though the UK elections calendar could alter this timeline one way or the other.<sup>100</sup>

In 2016 the United Kingdom will probably take a major decision (Main Gate) regarding the successor SSBN; around that time, France may have taken initial decisions for the procurement of its future SSBN, as well as decisions regarding mid-life renovation and possible modernization of the M51 and ASMPA missiles. Some avenues of cooperation might then be closed.

Later, in the 2020s, the United Kingdom and France – assuming they have both decided by that time to maintain a nuclear deterrent force for the long run – could consider the joint development of a common successor to their respective SLBMs, assuming it proves financially productive, technically feasible, and politically convenient.

A final word: there is a potential paradox in the development of UK-French nuclear cooperation. The more they cooperate, the more they will be able to reduce their nuclear expenses and even, perhaps (in some of the scenarios described above), their respective nuclear forces or stockpiles. But *the more the two countries will tie the future of their respective nuclear futures with one another, the more it may be difficult for them to make unilateral decisions on concrete disarmament steps.*

This is not true yet. As UK analyst Matthew Harries rightly puts it, “the 2010 agreement would hardly stand in the way” of a political decision by one party or the other to give up nuclear weapons.<sup>101</sup> He adds that “to the extent that Anglo-French collaboration is problematic for disarmament, it is as a symptom rather than a cause”.<sup>102</sup> And certainly neither London nor Paris would feel restrained by their existing bilateral cooperation if they were to envision changes in their nuclear policy such as doctrine, confidence-building measures, etc. But things might be different if the two countries made their respective programmes much more interdependent. At the extreme, a complete pooling of UK and French nuclear forces might make it impossible for one of the two to give up nuclear weapons without the other doing so as well.

99 As stated above, Hollande has clearly announced his preference for continuity in nuclear policy. Though he might be more Europe-minded than his predecessor, and less instinctively geared towards cooperation with the United States and the United Kingdom, there is no reason to believe that he would be less inclined to consider options for further UK-French nuclear cooperation if it benefitted both countries.

100 2014 is also the year when the referendum on the status of Scotland is expected to take place. The consequences of a hypothetical Scottish independence for the UK nuclear programme are a subject of speculation and remain unclear at this time, but will be addressed by the Trident Commission later in its deliberations.

101 Harries, *op. cit.* p. 21.

102 Note that regarding EPURE, a legal mechanism has been set up to ensure that “conflicting future treaty obligations which may arise for one of the Parties” will allow said party to give only one year’s notice of withdrawal (as opposed to ten years for a simple unilateral decision). Treaty between the United Kingdom..., *op. cit.*, Article 18.

# Appendix

## UK-French nuclear cooperation areas

Category	Nature	Goal	Example
<b>Political/Strategic</b>	Common statements	Symbolism Enhance deterrence	Chequers Declaration (1995)
<b>Political/Strategic</b>	Common positions	Get political leverage	UK-French Summit declarations
<b>Political/Strategic</b>	Dialogue	Gain better understanding	Joint Nuclear Commission
<b>Technical /Industrial</b>	Exchanges Peer review	Improve own programme	AWE/CEA-DAM visits
<b>Technical/Industrial</b>	Common programme	Save money	Common missile (1980s) Teutates project (2010s)
<b>Military/Operational</b>	Exchanges	Improve own programme	Nuclear Staff Talks
<b>Military/Operational</b>	Mutualised deterrent Joint deterrent	Save money and/or enhance deterrence	Hypothetical
<b>Military/Operational</b>	Joint planning	Enhance deterrence	Hypothetical

# Entente Nucleaire

## Options for UK-French Nuclear Cooperation

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Discussion Paper 3 of the **BASIC Trident Commission**

*An independent, cross-party commission to examine UK nuclear weapons policy*

### The BASIC Trident Commission

BASIC has set up an independent, cross-party commission to examine the United Kingdom's nuclear weapons policy and the issue of Trident renewal. The Commission is operating under the chairmanship of:

**Lord Browne of Ladyton** (Des Browne), former Labour Secretary of State for Defence;

**Sir Malcolm Rifkind**, former Conservative Defence and Foreign Secretary; and

**Sir Menzies Campbell**, former leader of the Liberal Democrats and Shadow Foreign Secretary.

Other members of the Trident Commission are:

**Professor Alyson Bailes**, Former Head of the Security Policy Department at the Foreign and Commonwealth Office

**Sir Jeremy Greenstock**, former UK Ambassador to the UN

**Lord Guthrie of Craigiebank**, former Chief of the Defence Staff

**Professor Lord Hennessy of Nympsfield**, Queen Mary, University College London

**Lord Rees of Ludlow**, Astronomer Royal and recent President of the Royal Society

**Dr Ian Kearns**, Chief Executive of the European Leadership Network.

It was launched on 9 February 2011 in Parliament. The Commission is:

- Examining the international context within which the decision on Trident renewal now sits;
- Assessing current UK nuclear weapons policy and the policy of the United Kingdom in efforts to promote multilateral nuclear disarmament and non-proliferation;
- Examining the costs associated with Trident renewal and any potential consequences for non-nuclear portions of the defence budget;
- Considering all possible future policy options with the potential to maintain UK national security while further strengthening efforts at multilateral nuclear disarmament and non-proliferation.

The Commission will report in early 2013.

### Why the Commission is sitting

The last Labour Government committed to renewing Britain's nuclear deterrent in 2006-07. The current coalition government recommitted to this decision in principle in its October 2010 Strategic Defence and Security Review (SDSR), but also decided to delay the timetable for the construction of the replacement submarines until after the next election (which must take place by May 2015). This has created a window of opportunity for further deliberation. The Commission was convened to make the most of this opportunity.

We are living through a period of dramatic change in international affairs with new powers emerging, increasing nuclear proliferation risks within both the community of states and terrorist groups, and growing financial pressure on western defence budgets. There is a strong case, in the national context as well the international, for conducting a fundamental review of UK nuclear weapons policy. BASIC Trident Commission is filling the gap left by Government, by facilitating, hosting and delivering a credible cross-party expert Commission to examine this issue in depth.

The logo for the BASIC Trident Commission features a red square on the left containing the word "BASIC" in white, bold, sans-serif capital letters. To the right of the square, the words "Trident Commission" are written in a black, sans-serif font.