Viewpoint

# UK Aerospace Power in Future Force 2020

By Professor Philip Sabin

## Introduction

At the end of 2014, I was asked to appear before the House of Commons Defence Select Committee to help with its enquiry into the current status of Future Force 2020 (the framework underpinning the UK's future force structure, as set out in the 2010 Strategic Defence and Security Review (SDSR)).[1] Having written articles recently in the *RUSI Journal*, the *JAPCC Journal* and *Air Power Review* itself about UK air power and about the strategic challenges facing western aerospace power more generally,[2] I agreed to brush up on the latest issues and to testify before the Committee. I also submitted a short paper of written evidence summarising the key considerations as I saw them, which here, I have developed into another Viewpoint for *Air Power Review*, in the run-up to the 2015 election and the ensuing SDSR process.[3] This contribution does not pretend to contain innovative in-depth analysis, but it may offer a useful *tour d'horizon* based on my long experience with aerospace matters.

Twenty-seven years ago, I edited a full length book on *The Future of UK Air Power*.[4] It is instructive to look back on that work to see the enormous gulf between the inertia of major procurement projects and the unpredictability of strategic requirements. Contributors were already preoccupied even then with the Typhoon (European Fighter Aircraft) programme and with ambitions for a new generation of larger aircraft carriers, but thoughts on the 21st Century strategic context extended little beyond an indefinite prolongation of the drawn out Cold War confrontation between NATO and the Warsaw Pact. If a time traveller had told us that Typhoon and the carriers would actually come into service in a world where NATO rather than the USSR was withdrawing from a prolonged and frustrating counter-insurgency campaign

in Afghanistan, and where the Typhoons would be defending a former province of the USSR itself (the Baltic States), he would have been dismissed as a madman! Even over much shorter timescales, the twists of world events are incredibly hard to predict. In mid-2013, when all the talk was of threatened air attacks against the Syrian and Iranian regimes, who would have thought that a year later we would instead end up launching an extended bombing campaign against some of the Sunni opponents of those regimes?

It is the thankless task of government and the Armed Services to plan defence capabilities years and decades in advance, despite such gaping uncertainties over the tasks which those forces will actually be called upon to undertake. Future Force 2020 is the latest incarnation of those plans, and the 2015 SDSR will try to adapt to such changed circumstances as have become apparent since the plan was first promulgated in the 2010 SDSR. I see three enduring factors which will shape this response. These factors are to some extent in tension with one another, and it is the resolution of those tensions and the difficult decisions on relative priorities which will help determine how effectively the UK addresses its security needs in the unpredictable world of the 2020s and beyond. I will now discuss each of the three factors in turn.

### 1) *The Prominence of Aerospace Capability*

Despite all of the unforeseen strategic twists and turns of the past few decades, aerospace capabilities have become an increasingly central pillar of the UK and wider Western response. Aerospace capability was already playing a growing role within the 'Air-Land Battle' concepts of the late Cold War, and the 1991 Gulf War showed the degree of aerospace dominance within high intensity conventional warfare. Modern aerospace power has the crucial benefits that it exploits the Western technological edge, minimises the risk of friendly casualties, and can be focused rapidly at distant points anywhere around the world. Hence, there have been numerous campaigns such as Kosovo in 1999, Afghanistan in 2001, Libya in 2011 and Iraq and Syria today, in which aerospace power has been by far the most important instrument of UK and Western strategy.[5] It has also been the main element of the UK response in other cases such as the recent crises in Mali and Nigeria and the deterrent support of the Falklands and the Baltic States.

Aerospace power is by no means omnipotent, and many have suggested that it takes 'boots on the ground' to achieve a lasting impact, especially in politically tangled counter-insurgency campaigns.[6] The Future Force 2020 plan reflects this perspective by discussing brigade-level operations 'with maritime and air support as required'.[7] However, bitter experience in Iraq and Afghanistan over the past decade (as well as Israeli experience in Lebanon and Gaza) shows that ground forces are not necessarily capable of achieving better long term strategic effects than aerospace forces. More importantly, even those campaigns in which land and maritime forces have played a key role would not have been undertaken at all without aerospace forces as an integral and equally important element of the joint campaign. The contribution of aerospace capabilities in terms of intelligence, communications, transport and firepower is so great in modern operations that Western forces no longer fight solely 'ground' or 'naval' wars. Without effective aerospace capabilities, hardly any military options would be available to the UK at all.

### 2) *Balanced and Capable Forces*

As a former imperial superpower, the UK historically has tried to maintain a full range of national defence capabilities. There have been many suggestions over the decades that Britain should accommodate itself to its diminished status, and adopt a more focused and efficient defence effort through 'role specialisation', concentrating on some capabilities and tasks while leaving others to allies and partners.[8] However, as the Cold War confrontation gave way to more varied challenges such as the Falklands War and the many recent conflicts in the Balkans, Africa and the Middle East, the UK has resisted such role specialisation pressures, especially since it seemed risky to rely too much on any individual partner (even the USA) in the less politically predictable international environment. The result is that the UK (like France but unlike states such as Germany and Turkey) has retained the varied military trappings of a 'mini superpower'. Abandoning certain capabilities altogether has proved difficult and controversial for Britain, as with the aircraft carrier debate which has raged on and off since the 1960s,[9] and as with the recent disinvestment in maritime patrol aircraft (which has been criticised partly because it threatens the security of that supreme exemplar of the UK's superpower pretensions, the nuclear deterrent force).[10]

Another key consequence of the end of the Cold War has been that the UK's conventional defence capabilities are now intended much more for actual use than for deterrent posturing. There is a tendency for forces which are not routinely engaged to be 'hollowed out' through under-investment, as had happened to Britain's own forces by 1990, and as a recent leaked parliamentary report claims is still the case with much of Germany's military hardware.[11] Today's UK forces, by contrast, are employed repeatedly on active operations, and as a consequence their capabilities are honed by experience and practical investment. A particular focus in the aerospace domain has been on surveillance and precision engagement capabilities, to comply with the overriding importance in current operations of identifying elusive opponents and engaging them quickly and accurately without politically catastrophic collateral damage. Capabilities such as Sentinel, Rivet Joint, Sentry, Reaper, Raptor, Litening, Paveway and Brimstone have been critical in addressing this need and transforming UK air power from an attritional instrument of Cold War deterrence into a precision ISTAR and attack tool. Britain also maintains significant air transport and aerial refuelling assets which allow the deployment and support of its air power in distant expeditionary operations. The main capability shortfall exposed by the recent focus on extended operations in relatively unchallenging air defence environments is in the training and technology needed to supplement stand-off weapons such as cruise missiles and Storm Shadow and to allow UK air platforms to penetrate more capable air defence zones without undue risk.[12]

### 3) *Financial Constraints*

A constant preoccupation throughout the successive UK defence reviews since 1945 has been the need to accommodate increasingly severe budgetary constraints. Given the pressure to maintain a varied range of high quality defence capabilities, the main impact of these financial pressures has been the inexorable shrinkage of force numbers. The table below compares the

number of front line UK aircraft squadrons (across all three services) at the end of the Cold War to the number today.[13] The most striking contraction is in the fast jet force, which fell from 30 squadrons in 1990 to only 7 today. According to the latest IISS *Military Balance*, this compares to current strengths of 15 front line fast jet squadrons for France, 15 squadrons for Turkey, 11 squadrons for Italy, and 9 squadrons for Germany.[14] Although these comparisons significantly understate the UK's actual relative capability, it is undeniable that lack of mass has become a key weakness of Britain's otherwise impressive aerospace power.[15] In the words of the 2012 *Future Air and Space Operating Concept (FASOC)*, 'We will have to innovate to compensate for our lack of combat mass. Although a range of potential measures are available, ultimately it is unlikely that all the shortfall can be addressed, so mitigation will be necessary'.[16]

| 1990 | | 2014 | |
|---|---|---|---|
| Tornado GR1: | 10 squadrons | Tornado GR4: | 3 squadrons |
| Buccaneer: | 2 squadrons | | |
| Harrier: | 3 squadrons | | |
| Jaguar: | 3 squadrons | | |
| | | Apache: | 3 squadrons |
| Tornado F3: | 5 squadrons | Typhoon: | 4 squadrons |
| Phantom: | 4 squadrons | | |
| Sea Harrier: | 3 squadrons | | |
| Nimrod: | 5 squadrons | | |
| Shackleton: | 1 squadron | Sentry: | 1 squadron |
| | | Sentinel: | 1 squadron |
| | | Shadow: | 1 squadron |
| | | Rivet Joint: | 1 squadron |
| | | Reaper: | 2 squadrons |
| Sea King: | 10 squadrons | Sea King: | 5 squadrons |
| | | Merlin: | 5 squadrons |
| VC10: | 2 squadrons | Voyager: | 1 squadron |
| Victor: | 1 squadron | Globemaster: | 1 squadron |
| Tristar: | 1 squadron | Tristar: | 1 squadron |
| | | Atlas: | 1 squadron |
| Hercules: | 4 squadrons | Hercules: | 3 squadrons |
| Chinook: | 2 squadrons | Chinook: | 3 squadrons |
| Puma: | 2 squadrons | Puma: | 2 squadrons |

Just as important as the diminishing numbers of aircraft is the continuing fall in personnel strength. It takes a 2:1 or even 3:1 ratio of aircrew to deployed aircraft to maximise their operational utility, and skilled ground crews are another scarce and limiting resource. With all three of the remaining Tornado squadrons at one stage deployed concurrently on active operations over Nigeria, Iraq and Afghanistan, it is not hard to imagine the unsustainable strain on the personnel involved, and the disruption to normal patterns of rotation and training. Retasking of skilled personnel from less vital roles can provide a 'surge' capability in emergencies, but the more enduring and drawn-out the operations, the more that sustainability needs to be built into the active force structure itself. 'Unmanned' systems do not offer much relief from this personnel constraint, since they still need the same overhead of ground crew and in-flight operators, and they are even more reliant on a costly infrastructure of networked communications.[17]

## Choices

It is hard to gauge how the 2015 SDSR will adjust the balance among these three enduring factors shaping UK aerospace forces. On the one hand, the revival of tensions with Russia and the new mission of defeating ISIS may trigger re-investment in defence, and in aerospace power in particular. On the other hand, the continuing challenge of reducing the budget deficit will keep defence spending under severe pressure, especially given the priority given to NHS spending and the political toxicity of tax increases in a still fragile economic situation. Much will depend on how international events and the economic climate evolve over the next few months, and on the effectiveness of lobbying by the competing interest groups. The period from 2016-22 is currently planned to see a shift in equipment investment priority from air systems towards land systems, submarines and the nuclear deterrent, so calls for increased funding of aerospace forces are likely to fuel inter-service tensions like those experienced during the 2010 SDSR.

With new platforms such as Typhoon, Lightning, Voyager, Atlas and Wildcat, the planned UK aircraft fleet is actually more modern than that of some other Western nations (including the USA). Transition of capability from the ageing Tornado force to the newly multi-role Typhoon force and on to Lightning does raise some challenges of training and systems integration. Given the likelihood that operations against ISIS will continue for the foreseeable future, there may be calls for further delays to the pace of Tornado retirement while the other platforms come on stream. The unfortunate and costly flip-flop on shifting to catapult-launched Lightning C variants leaves the UK with some difficult consequential choices.[18] The Prime Minister announced at the NATO Summit in Wales in September 2014 that the second new aircraft carrier would be brought into service after all, but should SDSR 2015 follow through on this so as to enhance Britain's 'belt and braces' access to land and carrier bases, or is it more important to maintain or increase the number of aircraft themselves beyond the current plan for just 48 Lightnings? Should the UK remain committed to the B model throughout its Lightning fleet, or is there a case for acquiring some more capable A models which would be limited to land bases? At what point should spending on further manned platforms be

reconsidered in favour of investing in the various advanced unmanned alternatives currently under development? How feasible is it for such unmanned craft to operate off the new aircraft carriers, thereby helping to mitigate the current difficulties in affording both the carriers themselves and the aircraft needed to employ them to maximum effect?[19]

The balance between expenditure on combat platforms and on key enablers such as advanced munitions, tankers, transports, ISTAR capability, deployability and maintainability is a further key decision area for the UK. It is through its strengths in such enablers and support areas that Britain has been able to maintain more effective and potent air power than other Western nations with apparently larger combat air fleets. An important 'quality vs quantity' choice concerns how far to re-invest in penetrating and defeating increasingly potent air defences, and how far to focus instead on more efficiently finding and tackling elusive insurgent forces such as ISIS. Space and cyber warfare capabilities are further areas where difficult resource choices must be made within the limited funding available, and the current gap in maritime surveillance needs to be reviewed within the context of a holistic approach to future surveillance capabilities as a whole. Above all, the UK must decide how to retain and take best advantage of the skilled military and civilian personnel on which its aerospace power fundamentally depends. There are plenty of nations around the world which are less constrained financially than the UK in their acquisition of aerospace technology, but which fall short with regard to the capable, committed and resourceful human element which money cannot buy. Investing in its precious asymmetric advantage of defence personnel is a key priority which the UK neglects at its peril.

## Notes

[1] *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review*, Cm 7948 (London: The Stationery Office, 2010); http://www.parliament.uk/business/committees/committees-a-z/commons-select/defence-committee/inquiries/parliament-2010/future-force-2020/

[2] Philip Sabin, 'The Future of UK Air Power', *RUSI Journal*, 154/5, October 2009, pp.6-12; Philip Sabin, 'The Current and Future Utility of Air and Space Power', *RAF Air Power Review*, 13/3, Autumn/Winter 2010, pp.155-173; Philip Sabin, 'Air Power's Second Century: Growing Dominance or Faded Glory?', *Journal of the JAPCC*, 15, Spring 2012, pp.55-61.

[3] House of Commons Defence Committee, *Towards the next Defence and Security Review*, HC 197 (London: The Stationery Office, 2014).

[4] Philip Sabin (ed.), *The Future of UK Air Power* (London: Brassey's, 1988).

[5] John Olsen (ed.), *A History of Air Warfare* (Nebraska: Potomac Books, 2009).

[6] Martin van Creveld, *The Age of Airpower* (New York: Public Affairs, 2011).

[7] *Securing Britain in an Age of Uncertainty: The Strategic Defence and Security Review*, Cm 7948 (London: The Stationery Office, 2010), para 2.15.

[8] Philip Sabin & Michael Clarke (eds), *British Defence Choices for the Twenty-First Century* (London: Brassey's, 1993).

[9] Christopher Parry, 'The United Kingdom's Future Carriers: what are they good for?', *RUSI*

*Journal*, 157/6, December 2012, pp.4-9.
[10] House of Commons Defence Committee, *Future Maritime Surveillance*, HC 110 (London: The Stationery Office, 2012); House of Commons Defence Committee, *Deterrence in the Twenty-First Century*, HC 1066 (London: The Stationery Office, 2014).
[11] Anthony Faiola, 'The German military faces a major challenge from disrepair', *Washington Post*, October 1st 2014.
[12] Dave Sloggett, *The RAF's Air War in Libya* (Barnsley: Pen & Sword, 2012).
[13] *Statement on the Defence Estimates*, *1990*, Cm 1022-I (London: HMSO, 1990), Annexes A-C.
[14] International Institute for Strategic Studies, *The Military Balance*, 2014 (London: Routledge, 2014).
[15] John Olsen (ed.), *European Air Power: Challenges and Opportunities* (Nebraska: Potomac Books, 2014).
[16] Development, Concepts and Doctrine Centre, *Future Air and Space Operating Concept*, Joint Concept Note 3/12 (Shrivenham: Ministry of Defence, 2012), p.3-29
[17] House of Commons Defence Committee, *Remote Control: Remotely Piloted Air Systems - current and future UK use*, HC 772 (London: The Stationery Office, 2014).
[18] National Audit Office, *Carrier Strike: the 2012 reversion decision*, HC 63 (London: The Stationery Office, 2013).
[19] Ian Shields & James Spencer, 'An Unmanned Future for Naval Aviation', *RUSI Journal*, 156/6, December 2011, pp.48-54.