

CONTINGENCY: BACK TO THE FUTURE

Delivered by **Air Chief Marshal Sir Andrew Pulford KCB CBE ADC RAF**, Chief of the Air Staff, Ministry of Defence, at the Royal United Services Institute (RUSI) on 18th September 2014.

Admiral Forbes, thank you for your introduction. And also to you, the membership of RUSI, for supporting this Lord Trenchard Memorial Lecture.

I would like to think that were Lord Trenchard to be sitting in the audience today he would recognise the thinking behind what I will say this morning. For I believe there are similarities in the conceptual challenges that he faced at the conclusion of the First World War to those which I now consider. My talk is entitled - 'Contingency: Back to the Future'. Just as Trenchard was acutely aware of the significance of history then, when transforming his new Service for the challenges of the present, he did so – crucially – with a keen eye on the future. And that is what I intend to also do here today.

The cessation of NATO's combat operations in Afghanistan at the end of this year is significant. It marks the moment when transformation plans are activated to deliver the Future Force 2020 required by the Strategic Defence and Security Review (SDSR) of 2010; the now so-called 'Return to Contingency'. In this lecture, I intend to examine what this means for UK air power by offering you an insight into my thinking, explaining the challenges I face and how I might begin to address them for the benefit of the Nation.

My central argument is straightforward. Noting that the label 'return to contingency' is not generally well understood, I contend that the UK armed forces – and UK air power in particular – have never actually been 'away' from contingent operations. I further argue that UK air power has been at the forefront of that which has already occurred and, if the UK's strategic ambition remains undiminished, it will play an increasingly prominent role in such operations in the future.

I will present my thesis in 3 distinct parts. First, what does history tell us? I will argue that the analysis demonstrates air power's clear and consistent contingent utility to the Nation and that, in the future, demand for its use will grow, not shrink. Next I will examine the current state of UK air power. Here I will argue that its successful commitment to extensive enduring operations since 1991 has carried an operational cost and that now is the time for important restorative action. Finally, I will consider what action UK air power must take in the context of the likely future operating environment. I contend that our 'return to contingency' cannot simply be a return to what we used to do before and that now is the time for a conceptual redefinition of how we deliver UK air power.

First, a point of order. As the custodian of UK air power, I will speak for the most part about UK air power and signpost clearly when my comments refer solely to the Royal Air Force. But I would like to reassure you that my interaction with First Sea Lord – a naval aviator by profession – and the Chief of the General Staff on air power matters is frequent and detailed. I am confident that there is nothing I will say here that either of my colleagues would fail to endorse subsequently.

And by way of a lead-in, a few words on the definition of contingency operations. The phrase is firmly in the lexicon but is arguably also open to misinterpretation. In the US it has specific meaning¹ but the UK has not defined it with such clarity. In this lecture therefore, I consider contingency operations as those operations which are predominantly, but not exclusively, discretionary. In other words, those air operations which I **might be asked** to undertake, rather than those standing commitments which I **must be able** to do.

So with that done, to business.

As Shakespeare² and Williamson Murray³ have both told us 'Past is Prologue' and the challenges that lie ahead will be difficult enough without denying ourselves knowledge of the past. However, in studying previous campaigns we do so remembering Michael Howard's plea that officers study their history in 'Width', 'Depth' and most importantly 'Context.'⁴ History may not repeat itself, just historians,

but with context as king enduring lessons can be deciphered to aid UK airmen and airwomen in what are sure to be challenging times.

I believe that air power is not only synonymous with UK contingent operations, but that it has been in the vanguard of such affairs since air power's growth to adolescent maturity above the battlefields of the First World War. By 1918, its 4 key roles of: controlling what flies in the air; being able to observe the enemy on the ground from the sky above; dropping a weapon on what you can see from above; and, moving 'stuff' or people from A to B were largely set, and fundamentally remain unchanged today. Thus there has been plenty of opportunity for UK air power to undertake contingent operations in the intervening period. In short, if there is a UK contingent operation, air power is not only likely to be there, but it is also likely to be first on scene and to be well-represented thereafter.

Let's briefly consider the 'firsts' in UK air power's use for contingent response. First use and first Joint use was arguably in late 1918, in support of White Russian forces against the Bolsheviks in the aftermath of the First World War. First RAF-led Joint use was in 1919, when HMS Ark Royal transported DH9 aircraft to British Somaliland for use in support of the British Army as part of 'Z Force'. First carrier enabled power projection was in 1922, when Fairy 3D and Nieuport Nightjar aircraft launched from Ark Royal and Argus respectively during the Chanak Crisis in the Dardanelles. And, arguably, the first independent use of air power was in 1928 to cover the evacuation of Kabul when Victoria and DH9 aircraft deployed to Kabul from Iraq.

And contingent operations have not stopped during those periods of our history where UK has been strategically focused on enduring operations. The Cold War, arguably the UK's most significant enduring operation, saw 37 contingent operations involving UK air power. And I suggest that it played the major role in 28 of them.⁵ A good example is the UK's contingent response to the insurgency into Oman beginning in 1952. Most often remembered for the fighting on the ground but much less so for the UK air power contribution across all 4 of its core roles. A more recent example is UK air power's leading role in support of NATO's campaign in Libya while

UK Main Effort was in Afghanistan. I believe this was a landmark contingency operation with strategic significance for UK and European air power.

Contingency also comes in non-warfighting forms. There are many examples of UK air power contributing to humanitarian assistance or disaster relief contingent operations worldwide. It has worked successfully alongside not only other armed forces but other UK government departments, International Institutions and Non-governmental Organisations. Recent events on Mount Sinjar in Iraq for example saw UK air power supporting the Department for International Development as the UK-lead to the wider United Nations effort in the region. It also showed how adaptable your UK air power can be with Tornado aircraft utilising their advanced sensors to ensure that Hercules airdrop locations were clear of the Yazidi people we were trying to help.

Such activity is also likely at home. For example, the Royal Air Force's response to flooding across the South of England during early 2014 where the sensors of Sentinel and Tornado provided timely, accurate and high resolution imagery to support the crisis response led by DEFRA. People understandably think more about using air power abroad rather than at home. But there is much the RAF can offer in the UK and part of my role is to make sure that those responsible for managing such crises within the UK are aware of what we can offer.

I do not wish to labour the point. UK air power has conducted a great deal of contingency since 1918 – something in the region of 100 contingent operations in that 96 year timeframe – and the trend evidence shows its use has increased significantly since the end of the Cold War, with arguably 47 undertaken since 1989. And I only see that trend increasing. So how has UK air power been able to do this and why has it been used so often? And herein lies those enduring lessons.

The answer to the 'how' lies in organisational agility, adaptable equipment and innovative people. This is the strength of the UK air power community and it does not happen by accident. It is borne from the culture of the airmen and airwomen of the Service and begins with recruiting the right people who are prepared to challenge

what they see and have the flexibility of mind to adapt to the mission at hand, something I will return to at the end of my lecture. As a Nation, we should be proud that it is a general attitude of mind that permeates all of the UK's armed forces.

And if one accepts this point, then the answer to the 'why' logically flows. Attributes of air power such as - speed, reach and flexibility - are natural bedfellows with contingent operations. Essentially, they match perfectly the pressing need to 'act quickly'. Of course I am not suggesting that UK air power is the only answer. But, I do believe that it frequently offers the Nation's leaders an affordable choice in times of crisis. In choosing air power, not only can its effects be brought to bear quickly on the situation but it is sometimes equally as important just how rapidly they can be removed. What is now unfolding in the Middle East as the international community pursues fighters from the ISIL is a good example of just this. And it is air power's innate ability to hold potential adversaries at risk from distance that is a key part of this crisis response calculus. When enacted it can buy decision takers time, allowing further assessment of the crisis as it unfolds. Overlay this with a proven track record of success and it is clear why air power is an attractive choice.

I will now turn to my second point – the current state of UK air power.

My starting point is that UK air power is simultaneously in a good place but challenges remain. Since Gulf War 1 in 1991, UK air power has been active continuously on deployed operations. First there were the enduring Air Policing operations over Northern and Southern Iraq, then the enduring stabilisation operations in Iraq and Afghanistan. These operations, particularly the stabilisation operations, have been Defence 'Main Effort, and rightly so. Contingency operations – even though a few have shone brightly – have been pushed to the background. Furthermore, it is the enduring, not the contingency, which the majority of personnel have experienced. The inevitable consequence of focusing on some roles and capabilities is that there has been less attention on others. That is what we need to address as we 'return to contingency'.

'Cadreisation' was a term coined in the early 2000s which describes the adjustments the Royal Air Force made to prioritise investment in key areas for the challenges of the day, accepting reduced levels of focus in others to preserve, or even enhance those capabilities required for the Service to meet its operational commitments at that time. The other 2 Services will have done something similar. It was, in essence, no different to the strategic decisions the Board of a leading multi-national company might take as it responds to new market challenges. Such prioritisation decisions, often difficult, are the same as those found by any large organisation. And, as in other fields, such decisions have a longer term impact – and have shaped today's Air Force.

So what does this mean for today's Royal Air Force. My predecessors identified where we could sensibly reduce our investment in particular capabilities give the operational priorities of the day. For example, where previously every squadron of an aircraft type was fully trained in a particular skill set, we have specialised within a single squadron, thus preserving a contingent response capability. Many of you will have heard the current Vice Chief of the Defence Staff speak regularly⁶ of the need for UK Defence to reinvigorate its intellectual investment in the Electro-magnetic environment (EME) – I agree. What I am describing of course is management of risk at the Strategic level informed by the requirements of the Operational level.

You may have already assumed that 'cadreisation' was financially driven - it wasn't. Of course it was a factor but, in the main, 'cadreisation' was driven by the need to concentrate more closely on one activity at the expense of another. An example is our increased focus on Air Land Integration skill-sets since 2003 to the detriment of those for, say, Offensive Counter Air. Therefore it was the inability to maintain historic training levels during enduring operations because of either a lack of time, equipment, opportunity, or any combination thereof, that drove these difficult command decisions. For ensuring military success on current operations is always going to be the Defence's highest priority, but it does not come without some cost.

I want to briefly consider the impact on UK air power of the post-Cold War peace dividend and the financial crisis since 2007. But I want to be clear here, I have no

difficulty in accepting, or implementing fully, the decisions which have resulted from a changed strategic context and a period of austerity. I strongly believe that UK air power can only be relevant to the Nation if it is ultimately affordable.

But air power is successful because it exploits high-end technology for decisive effect. It is the nature of our business and the margins between winning and losing are small, but preserving that technological advantage is, on the face of it, expensive. However I would argue that the expenditure is cost effective when you consider the totality of what that equipment can be used for in support of the strategic ambition of the Nation. The Nation chooses to invest in air power and recognises that to retain our edge investment must be continuous through good times and bad, recognising the strategic value for money it offers.

My key concern for UK air power is actually one of strategic communication with the general public. Collectively airmen are very good at describing what they do - we fly aircraft - but we are much less adept in explaining why. In the Second World War the British public had a good understanding of what their air power was doing and why, across all of its roles. That is much less true today even though those same roles, such as protecting the nation's airspace, remain just as vital. Everyone in the military aviation business has a responsibility to address this lack of public awareness.

I will close this section by looking at the men and women of the Royal Air Force.

RUSI has an under-35s forum but let's consider my own under-35s. If you are in this age group – whether a supplier, engineer, administrator or aircrew – you will likely have a considerable amount of combat experience. But for most this will be in the relatively limited context of stabilisation activities in Iraq and Afghanistan. Only a small minority will have experience in contingent operations over that period. This presents me with something of a generational 'double-edged' sword as I consider the force development challenge that now lies ahead.

On the one hand, I have a body of airmen and airwomen with over a decade of hard-earned combat experience. But on the other, this is a generation that has been conditioned solely by counter insurgency operations during their formative professional years. This can drive certain expectations and behaviours which will be unhelpful when the challenges that will confront UK air power in the future are considered. My objective therefore is to nurture the contingent experience of the minority and grow this into a new understanding across the majority, to enable them to adapt to whatever the future may hold. I will return to this conceptual component of fighting power in my final section.

To summarise, I face a mixed situation – some good, but with some real challenges. Combat experienced – yes, but 100% contingency ready today – no. There is much benefit to take from our current state but it would be wrong to assume that this period of sustained operations has been cost-free. As a Chief I will always have to make difficult choices, and revisit some of those from the past to ensure we can continue to meet today's and tomorrow's challenges. There is much work to be done if UK air power is to remain credible and affordable to the Nation.

In my final section I will examine what that future is and highlight the path that UK air power is already starting to tread.

First, predicting the future. The 5th Edition of Global Strategic Trends published by UK Defence earlier this year can be summarised as 'trending' greater complexity, increased uncertainty and accelerating change, which all suggests an increased likelihood of conflict by 2045. Our analysis of the future operating environment suggests that access to the global commons – the high seas and the air and space above it – will increasingly be challenged by actors who will pursue competition, not cooperation. So a difficult time ahead is foreseen by Defence.

The refreshed National Security Strategy, Comprehensive Spending Review and SDSR anticipated in 2015 will of course set out the UK's strategic ambition, set the ends to be achieved and make provision for allocation of the means by which to

deliver them. My job then is to support the Ministry of Defence in identifying the ways in which this can be done.

I want to now consider that future for UK air power across the 3 elements of capability – people, equipment and training. I will start with training.

Reversing the impact of 'cadreisation' shrinkage is simply not a case of restoring training to the *status quo ante*; this is unnecessary and unaffordable. A new approach is now required, one that exploits advances in technology to train more effectively and efficiently, and which offers the possibility for rapid capability growth should the need arise. And it is on this new approach I want to briefly focus.

The future is, without any doubt, less live flying and greater use of smart simulation devices. I see this as increasingly the only way to generate the complex, uncertain environment within which UK air power must execute its most demanding mission sets. Live flying will, of course, still be a part of this training but now it will solely provide the minimum number of physical touch-points necessary to complete the training requirement. And these simulators will be linked globally with partners and allies, allowing simultaneous co-operative training in the virtual world, just as air power will need to fight in the real one.

When we do fly, I envisage much greater use of emulation devices, where electronic wizardry provides part of a realistic representation of potential threats for training purposes. Emulation is therefore a training force multiplier, without which, I will not be able to meet my future training requirements.

Simulation and emulation also offer a way to train in peacetime to our full wartime potential without highlighting to an interested party what that capability might be. In the future, space and cyber activities will increasingly interact with activities in the Air environment. Therefore, maintaining operational security in this way is important in a business where fine margins do count.

The Defence Operational Training Capability for the Air environment, due in 2019,⁷ must therefore offer a step-change in training capability – the future of UK air power depends on it. I envisage a mix of tools and methodologies which can be synchronised when required for scalable training outcomes. It will span the live, virtual and constructive environments – the latter a methodology which inserts the live into the virtual. It must offer high levels of training capacity at home and when deployed, including on-board the new Queen Elizabeth Class carriers.

And it is to equipment that I will next turn. The Royal Air Force is going through an exciting period of recapitalisation. In Combat Air, at the fast and pointy end, the Typhoon Force continues to grow in numbers and capability, with Number II (AC) Squadron due to stand up to complete the Force early next year. In the US, Royal Air Force and Royal Navy pilots are fully integrated into the development programme of the LIGHTENING II which will bring this hugely capable 5th generation fighter into UK service towards the end of the decade.

In the ISTAR space, AIRSEEKER is now in service and on operations, we have secured the future of REAPER and will keep SHADOW and SENTINEL in service. Our Air Mobility fleet has changed out of all recognition, with HERCULES C130K, VC10 and TRISTAR all retired and C-17, VOYAGER, C-130J delivering unheard of levels of availability, and soon to be joined by the A400M ATLAS, which arrives at Brize Norton early next month. And finally, in the Helicopter Force, the CHINOOK Mk6, the first of 14 additional aircraft is now in service and the PUMA is now flying at Benson in its new PUMA Mk2 form. Impressive change, I am sure you will agree, and certainly an Air Force that we can be proud of.

But the challenge I have set the UK aerospace industry is to provide me with equipment that is: cheaper to procure; more reliable; easier to operate and maintain; and, which offers better survivability. We simply cannot continue on the current vector with unit costs rising year-on-year, because UK air power would become unaffordable, and therefore irrelevant.

A strong and viable UK aerospace industry is vitally important to the future of UK air power, and the Nation. Over 80% of the UK's Defence sales come from the aerospace sector and this was worth around £9 Billion to the UK economy in 2012.⁸ However, the Industry's contribution to UK prosperity is much more than pounds on the National balance sheet. It's just that its intangible nature makes it both difficult to recognise and therefore fully appreciate. But it is what sets UK apart from others.

I want to make a brief point about how we consider the efficacy of air power. The 'traditional' view is that platform numbers to deliver the same mission outcome reduce through multi-role and advances in weapons. This is true. But consider this view of efficacy in 15-20 years from now. New technologies such as: engines giving hypersonic cruise; multi-spectral sensors; directed energy weapons, advanced automation; and, nano-technologies will all be maturing⁹. The 'normalisation' of integrating space and cyber effects will have occurred – what the US Air Force now calls a 'multi-domain' approach¹⁰. Combined they provide a powerful admixture of options for military planners. It is indeed feasible that a few remote key-strokes might reduce the number of aircraft required for a particular mission to zero – should we choose to do so. It is also possible that the number of 'platforms' will rise significantly as nano-platforms contribute to the mission, perhaps through offensive 'swarming' techniques. The point is the method for considering the efficacy of air power also needs to be redefined. The 'traditional' view will no longer be relevant and a new way of considering this issue, perhaps in terms of the number of options now available to decision-takers, will need to be found.

I will close this final thread of my argument by expanding on the people who make UK air power what it is.

The Whole Force construct, which encompasses regular, reserve, civil servant and contractor, is not new to the Royal Air Force. But what follows next, if not new, is going to be different. The most significant change will be conceptual, for I need one Royal Air Force, not a Whole Force made up of 4 constituent parts. This is the conceptual leap I require so that those who deliver the UK's air power are unified in their shared goal. The different clothes we wear, and terms and conditions of

service we serve under must be 'invisible' to the Royal Air Force. This cultural shift is already underway, at Brize Norton, at Coningsby, but I will pursue it even more aggressively as we reconfigure post Afghanistan.

Unlocking the full intellectual capital of the Royal Air Force is my key challenge. This is important because it is the people who will deliver the organisational agility that I need going forward. Flexibility of mind, a willingness to seek out and listen to alternative views, and a preparedness to challenge the conventional wisdom are the attributes of successful contingent airmen and airwomen. You could argue it has always been thus, and to an extent this is true. Our future – as did our past – demands people who are conceptually ready and can respond rapidly and adapt to new circumstances. I will therefore continue to invest in education – our institutional insurance policy against uncertainty. One aspect of this – the Chief of the Air Staff's Fellowship scheme – is now well established and I will continue to support it strongly. Indeed, I note my first Visiting Fellow is shortly to take up temporary residence here in this Institution¹¹. In short, I need people who can continue to make a difference through their ability to think. This requirement has arguably not changed since Trenchard first considered such matters.

Consequently, there is work to be done. But in doing so it is vitally important that this work proceeds in balance across people, equipment and training. Failure to achieve the right balance, at best, represents an increased operational risk. But if miscalculated significantly, it represents no real capability at all. And that is something, as the custodian of UK air power, I am determined will not happen.

In conclusion.

The character of air power makes it a valuable option at times of contingency. It can react quickly, over great distance and bring influence to bear – with or without the need to drop weapons. History shows clearly its timeless utility and, now, firm evidence of an increasing trend in its use.

The combat experience UK airmen and airwomen have gained in Iraq and Afghanistan will be beneficial, but a prolonged focus on one narrow mission set has come with a capability cost. There now lies important restorative work ahead.

Air power's fundamental roles will not change but the way I train UK airmen and airwomen to deliver them will. The maturation of new technologies, including those in the space and cyber environments, will demand a more synthetic approach be taken, at home and abroad. And how we think about the efficacy of air power in the future will need to change as a result.

The future operating environment will be challenging. This demands airmen and airwomen who have mental agility and sufficient education to cope. This is why the emphasis on the doctrinal components of UK fighting power – the physical, moral and conceptual – will need to be turned on its head post Afghanistan. I believe that a technological advantage will remain into the future; however, it is this conceptual component that will increasingly provide the UK's comparative advantage. And for that we need people who can think and adapt quickly.

In his annual lecture to RUSI last year, Chief of the Defence Staff referred to what the US calls the 'spectre of the hollow force'¹². Do I recognise its potential to strike UK air power – yes, I do – but I am also confident that if the UK carefully nurtures its people and builds on the experiences of the last 2 decades then it will avoid such an eventuality.

So what UK air power is returning to is not 'contingency' *per se*, but rather its normal *modus operandi*, evident since its formative years over the battlefields of the First World War and instantly recognisable by the man who we remember in this lecture. And my final word brings me back to my title - 'Contingency: Back to the Future' - and the words of that innovative scientist Dr Emmitt Brown, who once said quite confidently: '*where we're going, we don't need roads*'.

Thank you for your attention.

The Lord Trenchard Memorial Lecture 2014 (Final - Edited)

¹ A contingency operation is a condition formally designated by the US Secretary of Defense and has specific legal and financial meaning in the US. See:

http://www.acq.osd.mil/dpap/pacc/cc/definition_of_contingency_operation.html.

² Shakespeare's: *The Tempest*, Act 2, Scene 1.

³ Williamson Murray's 'The Past is Prologue: The Importance of History to the Military Profession'.

http://assets.cambridge.org/97805218/53774/frontmatter/9780521853774_frontmatter.pdf accessed 19 Aug 14.

⁴ M Howard's 'The Use and Abuse of Military History', p195-197,

http://books.google.co.uk/books?id=qxa1zLcXMd0C&pg=PA188&source=gbs_toc_r&cad=2#v=onepage&q&f=false accessed 19 Aug 14.

⁵ Figures derived by the author from analysis of data provided by the Head Librarian of the Joint Services Command and Staff College and the Head of the Air Historical Branch (RAF). The definition of contingency operations used in this speech has been used in this analysis.

⁶ For example, during CAS' Air Power Conference 2013.

⁷ See <http://www.raf.mod.uk/rafwaddington/aboutus/wwwrafmodukairbattlespacetrainingcentre.cfm> for a short description of DOTC (Air) and its predecessor, the Air Battlespace Training Centre (ABTC) at RAF Waddington.

⁸ <https://www.gov.uk/government/news/defence-exports-largest-increase-in-5-years> accessed 28 Aug 14.

⁹ For a fuller description of these technologies and their potential impact see FOE35 2* Study Draft circulation (Aug 2014) and, *America's Air Force: A Call to the Future* (Jul 2014),

¹⁰ *America's Air Force: A Call to the Future* (Jul 2014), p17 (note: US doctrine refers to space and cyber as domains, whereas UK doctrine considers them to be environments).

¹¹ Squadron Leader Andrew Payne will commence a Trenchard Fellowship for 6 months in Oct 14.

¹² CDS, Annual Lecture to RUSI (Dec 13).