

A New Paradigm for British Air Power?

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This article presents an argument for a fundamental change in the organisation of British air power, calling for a new model that is an amalgam of those employed by the US Marine Corps and the Israel Defense Forces. It contends that British air power is not currently organised, commanded or controlled in a manner which truly optimises the benefits for the joint force as the current paradigm on which British military strategic planning is based is no longer valid. Moreover, this article will argue that we have collectively failed to recognise that paradigm shift. Our ends are defined by the government of the day and our means are similarly constrained, largely beyond military influence at all bar the strategic level. Therefore, it will be argued that only our ways of warfare are truly within the control of the nation's military leaders and these must, therefore, change to reflect the new defence and security paradigm.

Introduction

The only thing harder than getting a new idea into the military mind is to get an old one out.

- B.H. Liddell Hart

The (Fiscal) Problem

How should the UK make the most of its air power with limited resources to meet national interests?¹ This challenge is not one of change in threats to national security or in national perspective, nor is there a need to respond to a dramatic change in national circumstances. The challenge is how to balance the national economy while maintaining position in the world both today and in a future full of uncertainty. Fundamentally, the country cannot afford to keep organising for defence in the way it has been doing. From the military perspective, change is not through choice but necessity. No individual Service is calling for these changes; no one believes reduction in strength will improve overall capability, but change is nonetheless required. This is not about changes in equipment or, in many respects, personnel. Instead, the potential paradigmatic shift is in the way people and equipment are put together into a coherent package. For some this may represent unpalatable, radical change, but it is ever thus with a shift in paradigm. Fiscal pressure has put the UK military at the edge of chaos, where the old way of doing things may no longer provide the answers to the current and projected set of problems.² Fiscal pressure, rather than any new doctrinal reasoning or military development, is the driver.

In the past, attempts to resolve similar problems have resulted in decisions made with good intentions, but the necessary changes in thinking by military leaders have seldom followed suit. Inter-Service tensions and parochialism have prevented the good intentions from being implemented. However, the UK has now reached a time when the gradual reductions in force, culminating in those of the Strategic Defence and Security Review (SDSR), can no longer sustain single-Service thinking as far as the organisation of the UK military is concerned. The issue is not about existence of Services, but rather how they utilise the domains for which they are specialists and how the other domains can use their expertise, resources, and capabilities to obtain the very best capability to meet national requirements. The difficulty has not been how the UK has trained or, in most respects, what it has been equipped with, but rather how it has organised and employed the grand enabler of air power.

Difficulties with the Current Paradigm

In his discussion on scientific revolutions, Thomas Kuhn describes how individuals work to develop new ways of understanding while clinging to existing paradigms. Eventually, a better way of explaining observed phenomena is accepted by the wider body of experts and this idea or theory becomes the new paradigm. Over time, further research explores related areas using that paradigm as the reference point.³

The current paradigm in question is best understood from the aspects of ends, ways, and means. The *ends* are the national security requirements for which military action is desired. The *ways* have become entrenched, leading to three Services competing for resources for their particular ways of warfare. For the UK, as with the US, the accepted paradigm for its armed forces is for independent Service entities to organise themselves separately, while each uses organic air power to enhance the effects it seeks to produce. Cross-Service support can and does occur when requested to provide capabilities that cannot be implemented organically. The provision of fixed-wing close air support to the Army is a prime example. This paradigm leads to each Service pressing for its own way of winning conflicts, thus generating intense competition when resources are scarce. The existence of three separate future operating concepts, each considering the same strategic problem from three independent directions bears this out.⁴ This leaves the *means* as the principle method for governments to control spending. Provision of platforms becomes key to Service interests, albeit how those items should be employed together is of less interest; there is an innate Service drive and wish for Big Navy, Big Air Force, and Big Army. Some resource merging occurred under the Strategic Defence Review (SDR). The emergence of various Joint organisations such as Joint Force Harrier are examples, but these initiatives have been more administrative rather than an integration of air power effects.⁵ Nevertheless, when the means remain sufficient for the ways to meet the end, there is little need for change.

Paradigm Failure Through Lack of Means

Kuhn describes the crisis that occurs when the accepted paradigm no longer produces satisfactory answers to the circumstances presented to it. It is then no longer feasible to merely adjust the paradigm. Instead, it is time for a new one. Few in the scientific community actually look for the new theory; they merely come to the point where the old one no longer works.⁶ For the air power paradigm, and for the employment of the UK's armed forces in general, fiscal pressure has fundamentally changed the circumstances.

The SDSR has been significantly criticised. Many argued the review was accomplished too hastily, but this criticism tends to be motivated more by political bias than genuine substance.⁷ More effective criticism has raised doubts over the strategy contained in the strategic review. Paul Cornish in particular has been forthright in explaining why the SDSR failed to meet the requirements of the National Security Strategy (NSS).⁸ In trying to place air power described in the SDSR *within the way the UK military operates (the current paradigm)*, it is difficult to disagree. With the forces left after the SDSR, it would be challenging to retake the Falkland Islands should Argentina seek a decision by force of arms and it would not be possible to match the fast jet commitment made in support of operations in Iraq in 2003.⁹ The stated opinion of all the Chiefs of Staff is that the UK no longer possesses a full-spectrum capability.¹⁰ The UK armed forces are already assuming significant risk. The capability gaps in maritime surveillance and fixed-wing ASW announced in the SDSR reflect these issues. Everett Dolman claims that each Service should use air power to win the battle of its domain, but this is a very US perspective and the UK can no longer afford to do this.¹¹ US forces are unrivalled in their use of air power,

and are able to tap into a well of resources that has left all other nations behind; they retain the ability to excel within the current paradigm. Unfortunately, the UK has reached a point at which the accepted paradigm no longer produces effective results. It is now forced to look through a lens of reduced size and fiscal pressure.

Returning to the ends, ways, and means described above, if the ends and ways remain the same, the reduction in means puts pressure on the use of the ways to meet the ends. Although the SDSR was merely one of a series of reductions over time, it signalled the point at which the *means* can no longer support the extant *ways* of meeting the desired *ends*. With the *means* now the limiting factor, it is necessary for either or both the *ways* and *ends* to be adjusted in order to balance the ends, ways, and means equation. The categorical statements of intent for balancing the UK defence budget within the NSS, SDSR and other statements by the government, make it very clear that there is no chance of an increase in spending in the foreseeable future.¹² Kuhn's description of a point at which the old way of explaining things no longer seems to marry with empirical observation has arrived for the UK armed forces.

Changing the Ends?

The SDSR and NSS straightforwardly describe the UK's national ends. They both call for a proactive approach to ensure the UK's interests are met in an uncertain world, and they discount the option for the country to retire from its historical role as a leader in international affairs. The national *ends* are summed up as: "Our country has always had global responsibilities and global ambitions. We have a proud history of standing up for the values we believe in and we should have no less ambition for our country in the decades to come."¹³

Although these statements appear to signify no change from the past, a close examination of the background documents that drove them reveals the potential for change. In effect, the threat previously facing the UK is no longer there. During the Cold War, the UK understood that being able to contribute to the collective NATO response to invasion of Western Europe was its biggest and most important priority. However, as partly recognised in the SDR, and fully articulated in the SDSR and NSS, the most dangerous possibility today - inter-state warfare involving peer-level, force-on-force combat - is highly unlikely. Any rise of a threat in this category should be identified sufficiently early to allow for a change in force levels.¹⁴ Any involvement in a conflict of choice involving this degree of force and commitment will most likely be undertaken with the US, as happened in Iraq and Afghanistan. The advantage of choosing to fight in these situations is the ability to match one's contribution with one's own way of operating. If the UK is to maintain its prestige and influence, it will be expected to deploy and be effective in smaller-scale influence operations. The potential for large-scale conflict with a peer-competitor may still exist, but it has now become remote. *Strategic Trends*, *The Defence Green Paper*, and *the Future Character of Conflict (FCOC)* suggest that the actual priority for the future force is to be coherent at small and medium efforts against either

non-state or state actors in limited conflict.¹⁵ The recent intervention in Libya serves as a useful model of the scale and type of activities envisaged. It would thus seem productive to change the dominant requirement for military activity from the most dangerous to the most likely conflict scenarios. While this may appear to be a high risk approach, it remains a logical extension of Gen Richards "Trading the Perfect for the Acceptable" speech.¹⁶ To remain secure in a world of uncertain and unpredictable threats requires the Services to operate, train and organise accordingly. With the means as limited as they are, a new understanding of what the ends actually represent gives greater latitude to changing the ways.

Changing the Ways - Changing the Paradigm

The current paradigm creates a way of thinking in peacetime that divides assets into particular environments. On operations it is wasteful of air resources because it restricts the ability to shift assets across the battlespace to where they are most needed. Considering platforms as either "ours" or "theirs" prevents a holistic utilisation of increasingly scarce air power capabilities. It also tends to restrict capabilities to particular environments. If we were to look for alternatives then there are two extant organisations available for immediate comparison. The US Marine Corps (USMC) and the Israeli Defence Force/Israeli Air Force (IDF/IAF) reverse the paradigm by bringing all air power capabilities under the control of a single entity which, in a way that emulates the thinking of Jan Smuts in 1917, puts air power capabilities in the hands of an air power specialist for the common good.¹⁷ From a UK perspective, both models have pros and cons.

The USMC and the UK Model

The Marine Air Ground Task Force (MAGTF) construct makes the Marine Corps different from any other military force. It brings a coherent, balanced entity under a single commander.¹⁸ Scaleable in size and equipment it consists of four parts: the Command Element (CE), the Ground Combat Element (GCE), the Aviation Combat Element (ACE) and the Combat Service Support Element (CSSE). The CE provides the C2 support to the MAGTF commander and his force. The GCE is organised to conduct ground operations, project combat power, and contribute to battlespace dominance in support of the MAGTF's mission. It is formed around an infantry organisation reinforced with artillery, reconnaissance, assault amphibian, tank, and engineer forces. The ACE is organised to conduct air operations, project combat power, and contribute to battlespace dominance in support of the MAGTF's mission. It performs some or all of the six functions of Marine aviation: anti-air warfare, assault support, electronic warfare, offensive air support, air reconnaissance, and control of aircraft and missiles. It is formed around an aviation headquarters with air control agencies, aircraft squadrons or groups, and Combat Service Support units. The ACE and GCE are co-equal within this organisation; both exist to provide effects to fulfill the commander's intent. The CSSE provides the logistic support for the whole force linking the deployed MAGTF with national logistic support systems.¹⁹ When viewed as a wiring diagram, the MAGTF appears to be a mini version of the classic Joint Task Force structure; the CE is the JTF command HQ with the ACE, GCE and CSSE the air, land and logistics components respectively.²⁰ However, the four

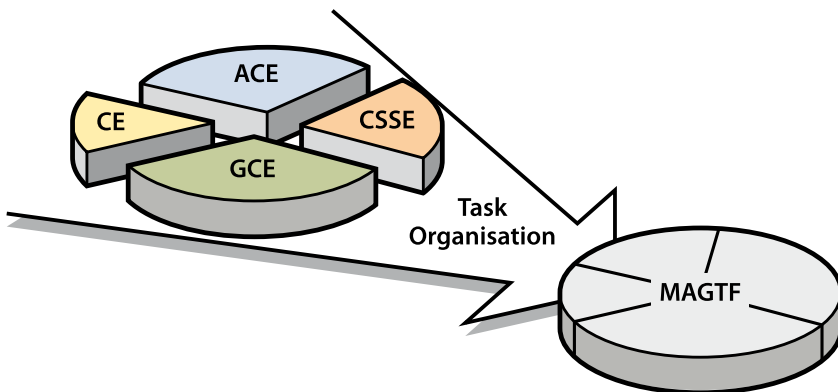


Fig 1: MAGTF Organisation

Source: MCDP1-0p3-13

elements are far more integrated than any components in their outlook and function, as shown above in Fig 1.

Marine Corps manuals describe air power as a capability supporting the whole of the Force's task as an integrated player.²¹ The ACE commander is the MAGTF commander's principal adviser and subject-matter expert on all aviation matters. In effect, the ACE Commander acts as an all-encompassing environmentally specific air component commander (ACC) for the MAGTF and controls the aviation assets using similar processes and tools as a theatre Joint or Combined ACC (JFACC/CFACC).²²

As a single, fully integrated force, the USMC model represents the more significant departure from the current paradigm. The benefit of integrating air assets into the deployed MAGTF is its potential to fully utilise what is available. Such integration focuses all effort on achieving effects rather than on any particular way of accomplishing the mission. All elements are part of one team.²³ This way of thinking, inherent in the USMC psyche, means elements are integrated doctrinally and conceptually. The result is that equipment and systems are considered, procured, and introduced under a construct of operating together. Interoperability across the force ensures the MAGTF scalable concept works at short notice to meet any challenge. Fig 2 (page 38) depicts how the USMC model for its total force can be brought together for different scales of mission within different readiness states:

The USMC concept for air power similarly avoids duplication of resources and effort. Equipment is procured to meet the requirements of the mission and operated by the pertinent element, ground or air; there is no competition between the two as they are both part of a single team. The MAGTF ensures the most is made of what is available.²⁴

The description above depicts a deployable force achieving expeditionary effect. The Marine Corps has spent many years enhancing how to harness all capabilities to meet its mission.

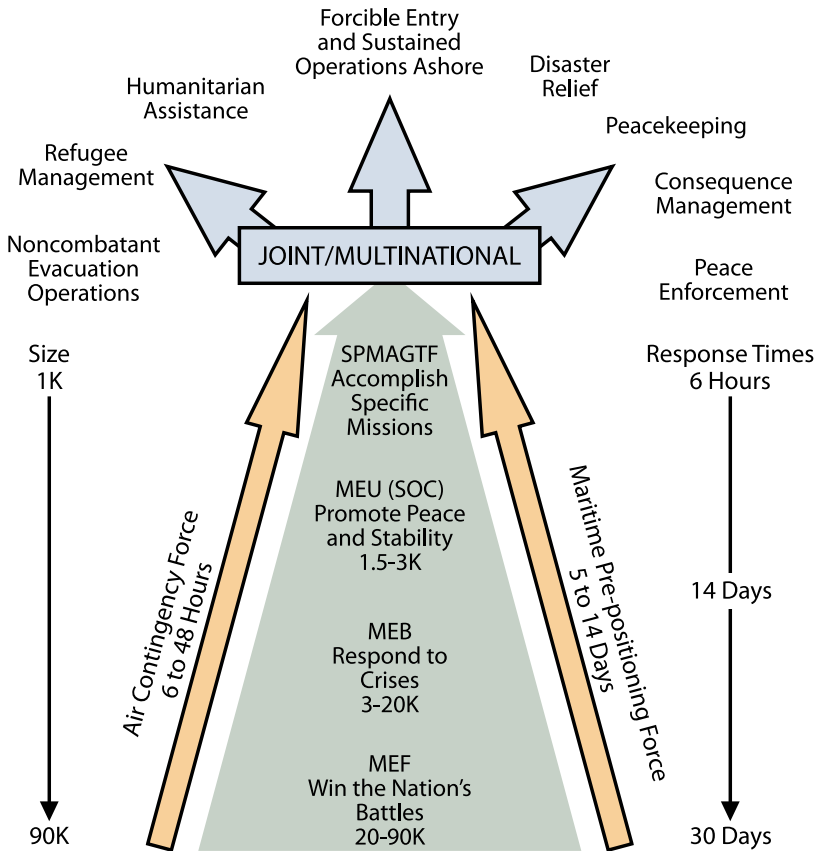


Fig 2: USMC Scales of Effort and Response Times for Deployment
 Source: MCDP 1-0 p2-12

But, in considering this model as a new paradigm for the UK armed forces, there are other issues which must be addressed.

Firstly, the MAGTF is tactically focused on a single area of operations. This is not a problem for the US as the Army, the Navy, and the Air Force operate on a broader scale.²⁵ A MAGTF is configured to meet an operational mission, which may not represent the entire strategic requirement. As an example, Marine aviation is required to provide air superiority over the MAGTF but it is not capable of doing so over an entire theatre. Similarly, the MAGTF exists to project power from the sea, but it still requires the Navy to secure the sea itself and transport it to the scene of action. The MAGTF can operate in its own part of any conflict, but it does so as part of a wider and larger military system. Furthermore, UK Services have single-environment prescribed tasks that the USMC will never be called upon to provide, to include the air defence of the UK and the submarine-based nuclear deterrent.²⁶ These missions could perhaps be incorporated within a USMC concept of air power, but doing so would require

independence for certain areas. While not insurmountable, the situation would probably lead to the development of independent forces and the subsequent degradation of the coherence of a USMC-type model.

Secondly, the USMC has no inherent inter-Service rivalry or environmental prejudice, because it is effectively a single-Service operating within its own carefully defended and nurtured niche of the current paradigm. It has no history of its constituent parts being separate entities. The only Western nation that has tried to unify its armed forces is Canada in 1968. This move was not made to bring the Canadian Forces into a single operating unit but rather as a way for the Minister of Defence Paul Hellyer to gain control over three very independent Services. The benefits Canada had hoped to achieve through unification are already in place within the UK system. The policy change was unpopular in Canada at the time and, although still officially part of a single structure, Service-specific uniforms were reintroduced in 1986, and single-Service chiefs appointed in 1997.²⁷ For a country like the UK, whose Services have very proud and long traditions, unification would be badly received and offer little benefit. The UK would appear to be better served by a single defence structure with separate elements responsible for different aspects of military capability. The USMC works within the wider US military structure rather than representing how the whole military organisation should or could be modelled.

Third, and most significantly, the root problem with the USMC model is that it addresses a tactical-, and perhaps operational-, level need. The NSS and SDSR reiterate the UK stance that it regards itself as being able to operate at both the operational and strategic-levels of war.²⁸ The USMC MAGTF does not provide this capability. When viewed from these higher levels of war, it becomes apparent that the MAGTF fits within the current paradigm of separate Services operating in their own environments rather than any new paradigm that is plausibly applicable to the UK. There may be some benefits for the UK in incorporating some of these ideas, but the USMC model does not really meet national security requirements.

The IDF/IAF and the UK model

With a defence establishment slightly larger than the UK's, the IDF illustrates another way of using air, ground and maritime forces.²⁹ Israel's armed forces were created 65 years ago from virtually nothing. Without the heavy weight of tradition to hamper them, they became highly respected and capable forces organised along environmental lines. The IAF operates all air platforms on behalf of the IDF, including those operating in the maritime environment and all UAVs other than the very small platoon-level vehicles. Despite degeneration when the IDF's focus became blurred from the late 1990s and through to 2006, the IAF successfully developed the use of all aspects of air power as a coherent Service meeting the nation's requirements. Threats to the nation are considered holistically, and the responses co-ordinated to use the benefits of air, land, and sea power within resource constraints. As noted in the policy adjustments recommended by their own defence plan, the Teffen 2012 plan, Israel cuts its financial cloth to meet the desired capability. The ability of the IDF as a whole, rather than any particular environment, to meet its objectives is the key.³⁰

In contrast to the USMC, the IDF/IAF presents a national level methodology which has proven capable across all levels of war, to meet all of Israel's national security and air power needs. The deep-strike raids against nuclear facilities in Iraq and Syria exemplified classic independent air operations, while fixed/rotary wing aircraft and multiple forms of ISTAR platforms provided support to land manoeuvres in the Gaza Strip in 2009. Each activity demonstrated fully integrated thinking on the role of air power. Environmental, rather than Service-oriented, thinking means the IAF focuses upon best utilisation and development of all air power potential rather than on just a few elements. Air Forces across the world have tended to concentrate primarily on kinetic delivery by fast jets as the principal way of delivering air power. This mission has also bolstered arguments for Service independence. The IAF sheds that way of thinking, seeing itself as provider of capability rather than an alternative air power user. The Israeli's integrated development of airborne ISTAR capabilities is a prime example of what can be achieved through environmental rather than Service thinking. The lack of inter-Service friction over ownership of assets also ensures flexibility in command and control arrangements, exemplified in the use of attack helicopters (AH). The IAF can shift this helicopter capability from devolved to centralised command, and from integrated land support to deep strike, without issue.³¹ In contrast, the UK has neither the doctrine nor the capacity to use its AH in other than tactical roles. Finally, the IDF's military domination of the Middle East is testament to the success the IDF/IAF have had with this way of thinking. It is thus a potentially viable concept for the UK.

The IDF/IAF may not be as integrated as the USMC in the tactical arena, but development through failure has honed a very capable entity. Furthermore, Israeli perceptions of most likely and most dangerous foes would appear to match those of the UK.³² However, from a UK perspective, the marked difference with its requirements and those of Israel is the absence of the latter's expeditionary role as it concentrates on the various regional threats to the state.³³ It may be required to undertake action at some distance from home bases but for the most part it operates close to home.³⁴ It does not necessarily follow that the model would be unable to cope with expeditionary operations, but the capability is untested. More significantly from the UK perspective, the IAF have no history of operating with allies or coalition partners. It is unclear, whether it can successfully incorporate other forces that are used to operating in a more traditional manner, nor how it would manage within a wider operation using the current paradigm.

A New Way, A New Paradigm - A New Look for UK Air Power

These two models described demonstrate that UK defence forces operating under a different paradigm can plausibly achieve success. Furthermore, they demonstrate that success is best achieved when adapting ideas to suit the conditions and circumstances of the force. Israel's failure in Lebanon in 2006 has been blamed on a number of causes, but it would be fairer to state that it was caused by a move away from what had been important to defeating its enemies. When the IDF had graduated to using air power as an independent striking element, it neglected the requirement for co-operative action with the Army.³⁵ The obvious

lesson for the UK is to shape its forces to meet its own needs in its own way, and it is worth noting the value of maintaining some level of tradition. The individual Services in return must develop environmental understanding and capability. Development of joint understanding and operating models is important to operational command in the future, but environmental knowledge must also be retained. This paradigm is not about experimenting with the creation of a single Service, thus removing inter-Service rivalry on the USMC model, but about benefiting from personnel competent in integrating their individual environmental skills to meet national objectives.

The New Paradigm

The new look for air power in a possible new paradigm would be a combination of IDF and USMC thinking with a UK theme. The actual requirements would derive from the UK organising and employing its forces as an integrated and balanced package. The force would be designed to operate independently for UK-only operations or as the lead nation for a small coalition of like-minded countries. This would represent an expeditionary force with the support, but not necessarily the involvement, of the US. Thus, the UK defence establishment would resemble an expeditionary version of the IDF. The Services would be the specialists responsible for the provision of effect from their own environment in order to meet the UK's military requirement. Therefore, the RAF would take environmental responsibility for all air matters and develop the air environment's ability to meet the UK armed forces' *collective* needs. As with the IAF, this would include anything that flies larger than a hand-held UAV. It would become a genuine air-minded force with the responsibility to meet the air superiority, attack, mobility and ISTAR needs of UK armed forces.³⁶ For large-scale operations, the UK would offer a coherent capability in support of US-led operations in a similar role to that of a USMC MAGTF. This capability would seek to operate in and control its own battlespace as part of the wider campaign plan. However, unlike a MAGTF, this force would also be able to operate within separate environmental areas if the situation required. This structure would be able to fight a tactical battle, but the UK version would probably be closer to the IDF model of integrating empowered air liaison where required.

Other Considerations

Coalition Operations. Change from the current paradigm to another has implications for coalition warfare. Coalition operations are assumed for most future UK military operations.³⁷ There are three possible scenarios: a UK-led coalition; support to a non-US led operation; and support to a US-led operation. The first scenario would be the easiest to execute. A paradigm change in the way of UK operations would have most impact at the operational and strategic levels in this situation, as the new paradigm is a way of thinking rather than application of tactics. The keys to success will be the ability to include any partners within the command and control architecture, as well as the provision of capable liaison staff. A trickier prospect may be the provision of UK assets in support of a small operation led by a nation other than the US, such as France. Beyond developing co-ordination measures

during peacetime, the best way to resolve any difficulties would be to deploy a coherent UK force while complementing the lead country's operational methods and capabilities.

US Opinion. Although the relationship with the US is always a concern in politician's minds, the new paradigm has the potential to be of real benefit to the US. First, the US focus of concern is moving away from its eastern seaboard and toward the Asia-Pacific region. Nevertheless, it remains concerned over the stability of Europe and the Middle East.³⁸ The implication is the US would like Europe to be able to take greater responsibility for resolving problems in its near-abroad, allowing the US to redirect some of its resources to the Pacific. The US hand-over of lead operations in Libya to a UK and France-led NATO force could be indicative of the future. A capable UK with capacity to lead others would help satisfy such US requirements. For US-led coalitions, even though the US defence structure will itself be reduced over the next decade, coalition partners are required more for their political than combat support. In those circumstances, provision of a self-contained, coherent UK force would likely be welcomed as it reduces the requirement for US help.³⁹ The inclusion of a British Army division within the USMC's area of operations during the 2003 invasion of Iraq caused difficulties for both sides of the coalition because of the inability of the UK contingent to support itself with air power.⁴⁰ The new paradigm would enhance the capability of the deployed UK force.

Making the New Paradigm Work

Education

The proposed change in paradigm requires a change in thought process. Making the new paradigm work will demand education across a number of areas. First, there will have to be a change in political thinking. The SDR was undermined because the UK committed its forces beyond its planning assumptions.⁴¹ With the SDSR there are no spare forces available to commit other than within the planning assumptions. The proposed paradigm provides a means to enhance available capability, but it does not provide a means for developing additional forces. Politicians will have to fully understand that wars of choice may have to be chosen more carefully than previously.

The second area of education will be among the UK armed forces. The old paradigm has led to deeply ingrained wariness of the commitment of other Services to a joint way of operating, with a perpetual fear that the other Services are playing a zero-sum game over resources. For many, any suggestion of bringing all air power once again under the responsibility of the RAF may be the most difficult part of enhancing capability within the new paradigm.⁴² However, with air power being the one element that can be shifted from one environment to another, the new construct represents the most beneficial way of using scarce air power assets. Air power will probably offer the single asymmetric advantage the UK will have over most of its future foes, and the country cannot afford to dilute its effects.⁴³ Air power must be flexibly used to offer its best advantage. As the IAF demonstrates, provision of assets is not an issue as long as each Service is working within an integrated framework. For the UK, the forces this

proposed change will mostly affect have already started this journey. Battlefield helicopters of all three Services are operated by a single Joint Helicopter Command within Land Command, although each Service's contribution remains under Full Command of their respective Service. Putting all rotary wing resources under the control of the traditionally air-minded Service would make the most of shifting the entire air package to achieve desired effects. This would include those helicopters not currently within JHC, such as those on Royal Navy (RN) ships. This is not to denude ships of part of their weapon system, but rather to provide a way of flexing capability where best needed as and when the joint commander needs it. The most significant effect of this decision is for the planned RN aircraft carriers. Much has been written about the need for the RN to have a significant role in the operation of fixed-wing aircraft flying from the new carriers. Most of this has been based upon historical conflicts fought within the old paradigm, but what is not apparent is the imperative for these aircraft to be controlled by the RN in the future operating environment. The UK purchase of Joint Strike Fighter (JSF) is predicated on operating any part of the whole fleet either from land or sea, dependent upon the operational requirement.⁴⁴ Furthermore, these aircraft are not being procured for "Blue Water" operations. That scenario plays no part in short or even mid-term forecasts of conflict. The aircraft will be used instead for operating over land. Therefore, the only difference is the location of the take-off and landing point. Issues remain over maintenance of deck crews and aviation roles on board ship but these can be resolved. Pilots and ground crews may well be provided by the RN initially, but the new paradigm provides the benefit of keeping operational command under a single air commander. The same arrangement should follow with the Army Air Corps (AAC) assets, particularly AH. Implementing the new paradigm would place assets in the position where all capabilities can be best used and considered.

However, the new paradigm requires trust that the effects required from the other environments will be available when and where required. This will be critical for the RAF if it is to become responsible for the provision and co-ordination of air power for the UK. The failure to support the maritime and land environments resulted in the re-formation of the Royal Navy Air Service (RNAS) in 1937 and effectively the Royal Flying Corps (RFC) in the guise of the AAC.⁴⁵ The same was true over the intense ill feeling caused between the US Army and the USAF over the provision of close air support and small air transport aircraft in the 1960s.⁴⁶ The new paradigm could help the development of closer Joint working as each Service takes on the mantle of environmental primacy, demanding that all three become involved in mission accomplishment. This leads to the third area of education, among the Service chiefs. To make the most of the paradigm, they need to agree, and most importantly be seen and heard to agree, on fully implementing it. There can be no secret agendas if the scheme is to work.

The final area of education will be explaining the new paradigm to the nation. Defence may not be a vote winner in any modern British General Election, but it has the potential to be a vote loser as the British public remains very interested in "Our Boys".⁴⁷ For the paradigm to be

accepted, the nation will have to be persuaded that the legacy of the 20th Century is of little relevance to the national security issues of today and tomorrow. It will be difficult for many to accept that the UK can no longer operate as the US does, but the US way of war simply demands resources and technology the UK can no longer emulate. The new paradigm will, however, allow international prestige to be maintained and perhaps even enhanced as the UK perfects its new way of operating and employing military force.

Understanding and Applying Air Power

The proposed new paradigm emphasises a new mentality. Making this new paradigm work requires airmen at all levels to fully apply all aspects of air power. For senior leaders this demands an ability to develop air strategy. Colin S. Gray calls for the US to understand the need for, and implementation of, strategy if it is to take full advantage of air power.⁴⁸ For UK airmen, whose resources are heavily restricted in comparison to the US, the need for strategy is even more important. Such a grasp involves being part of the planning and execution process. This demands not only educating airmen in the wider aspects of developing and applying strategy, but also involving them in cross-environment training exercises. The new paradigm changes Service expectations from operating separately to operating together. With the means fixed, the Services must work collectively to use the available assets to meet desired ends. Maximum benefit is achieved from intimate understanding of each other's needs. As the Israelis have demonstrated, this can only come through regular exercises.⁴⁹ Existing training schedules for the different Services have not been developed for the benefit of the coherent force. The new Joint Forces Commander requires full support from the individual Services in following his joint training programmes.⁵⁰

Procurement

The new paradigm is based on the assumption that no new money will be available. However, new systems will be procured at some point in the future; and the paradigm will change the requirements. With inter-Service competition for resources replaced by collective agreement upon coherent capability, the emphasis in procurement changes from platforms to the glue that binds them together. As demonstrated by the USMC, there is significant benefit from ensuring all systems become part of an integrated package. Ownership also starts to become less of an issue when the focus is on collective success. For example, the Israelis are at the forefront in the development and utilisation in the use of unmanned air systems to meet IDF needs in the land, maritime, and air environments. This need is understood to be for the benefit of mutual victory; the IAF operates it on everyone's behalf. In a similar manner, the Teffen 2012 plan accepts that land elements require the most resource to meet the current way the IDF operates; IAF and Israeli Navy resources have been reduced accordingly.⁵¹

Difficulty of Implementation

The Chiefs of Staff appear to have become convinced that major changes are now required.⁵² The real danger to success will be if the Chiefs only half-way implement the paradigm shift, thus creating an organisation unable to do anything well. The best outcome in this case would

be embarrassment in the eyes of allies; the worst would be defeat and a retreat from influence. As with Kuhn's description of the scientists who refuse to accept the new paradigm, the UK could be in danger of being left behind only to become irrelevant.⁵³ Additionally, a significant element of the armed forces failing to accept the new paradigm could degrade successful transition. The difficulty here will be in the perception of winners and losers, most likely made worse by partisan media coverage. As already discussed, the most obvious area of contention will be in the perception that the RAF is stealing the RNAS for a second time, just at the point of a return of a genuine aircraft carrier capability. The Army may have similar difficulties with the change in direct command of helicopters, and even more so its unmanned air systems. The answer goes back to education. Defence leaders must emphasise the new paradigm helps to ensure the provision of effect as and where the joint force requires it. This will not be an easy transition but the option to do nothing may be worse. The possibility of the UK becoming "Belgium with nukes" has not gone away.⁵⁴

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Fiscal pressure poses the question: how should one make the most out of air power? The question is being asked because the old way of doing things can no longer meet the requirement. The proposal is to inverse the way the UK looks at its measure of requirement for its armed forces, for them to organise, train and equip as a coherent unit rather than as separate entities. After this leap is taken, the second step is to organise all air power within a single Service, charged with meeting all the air power needs of the force. The IDF already use this model, and have a fearsome reputation. Adopting the IDF as a model requires modification to meet the expeditionary requirement of UK operations, but such adjustment is not insurmountable. This shift in paradigm seeks to rectify the strains evident in the old paradigm's way of balancing means and ways to achieve the ends. The shift has occurred because the world has changed; the difficulty for many will be in accepting the new paradigm because they would prefer to cling to the old ways. There is no expectation of fighting large-scale operations as in the past; the new paradigm meets the criteria for the new world not the old. It could be that Jan Smuts was far more prescient 96 years ago than even the RAF give him credit for being.

Notes

¹ Throughout, the term "air power" will refer to any flying machine, piloted or otherwise, producing an effect. The term will not reflect ownership of the machine, a flying machine owned by an army, navy or air force will still be generating air power. This reflects the UK definition of Air and Space power: "Air and space power is the capability to project power from the air and space in order to influence the behavior of people or the course of events." *Air Publication (AP) 3000. British Air Power Doctrine*. 4th Ed. 2009, 7. http://www.raf.mod.uk/rafcms/mediafiles/9E435312_5056_A318_A88F14CF6F4FC6CE.pdf.

The UK describes four fundamental roles of air power: control of the air; mobility and lift; intelligence and situational awareness; and attack. *Future Air and Space Operational Concept*

(FASOC) 2009. Development, Concepts, and Doctrine Centre, 2-2 – 2-5. <http://www.mod.uk/DefenceInternet/MicroSite/DCDC/OurPublications/Concepts/>.

² M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos*, (NY: Simon & Schuster, 1992), 12. "The edge of chaos is where new ideas and innovative genotypes are forever nibbling away at the edges of the status quo, and where even the most entrenched old guard will eventually be overthrown."

³ Thomas S. Kuhn, *The Structure of Scientific Revolutions*. 3rd Ed. (1962; repr., Chicago: Chicago University Press, 1996), 10-22.

⁴ These consist of the Future air and Space Operational Concept (FASOC), the Future Land Operational Concept (FLOC), and Future Maritime Operational Concept (FMOC).

⁵ Ministry of Defence, *Strategic Defence Review Supporting Essay Eight – Joint Operations*, (London: HMSO, 1998). Joint Force 2000 did morph into a far more integrated organisation as Joint Force Harrier with the early demise of the Sea Harrier as a cost saving measure by the Royal Navy. However, the intent remained to consider this as two separate entities working very closely together through necessity rather than choice.

⁶ Kuhn, *The Structure of Scientific Revolutions*, 66-76.

⁷ For example, Defence Committee Proceedings, Session 2010-11, First Report, Conclusions and recommendations, 7 Sep 2010. <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmdfence/345/34503.htm> . Also, The Phoenix Think Tank, <http://www.phoenixthinktank.org/analysis/defence-review-policy/>

⁸ Paul Cornish, "UK Defence: A Test Case," *The World Today* 67, no. 5, (May 2011): 4-6. Also Paul Cornish and Andrew M. Dorman, "Dr Fox and the Philosopher's Stone: the alchemy of national defence in the age of austerity," *International Affairs* 87, Issue 2 (March 2011): 335-353, and Trevor Taylor, "What's New? UK Defence Policy Before and After the SDSR," *The RUSI Journal* 155, no. 6 (December 2010): 10-14. http://www.chathamhouse.org/sites/default/files/public/International%20Affairs/2011/87_2cornish_dorman.pdf.

⁹ For example, in 1982, the UK utilised 23 frigates and destroyers in direct support to the Falkland Islands conflict (Falklands Campaign: The Lessons), post-SDSR the UK will have 19 frigates and destroyers in total (Lee Willett, RUSI, <http://www.rusi.org/analysis/commentary/ref:C4D4C20CB26473/>). During the initial operations in Iraq in 2003, the RAF deployed 30 Tornado and 18 Harrier ground attack aircraft plus 14 Tornado air defence fighters and 6 Nimrod maritime patrol aircraft (http://en.wikipedia.org/wiki/Operation_Telic_order_of_battle), post-SDSR the UK has 30 Tornado ground attack aircraft and 16 Typhoon fighter/ground attack aircraft available to deploy, it has no maritime patrol aircraft.

¹⁰ In *Examination of Witnesses*, Defence Committee Proceedings, Session 2010-11, Sixth Report, 20 July 2011. The Strategic Defence and Security Review. <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmdfence/761/11051102.htm> .

¹¹ Everett C. Dolman, *Pure Strategy: Power and Principle in the Space and Information Age*, (Abingdon, UK: Frank Cass, 2005), 34-35.

¹² *A Strong Britain in an Age of Uncertainty: The National Security Strategy*. Oct 2010, 5. http://www.direct.gov.uk/prod_consum_dg/groups/dg_digitalassets/@dg/@en/documents/digitalasset/dg_191639.pdf?CID=PDF&PLA=furl&CRE=nationalsecuritystrategy.

Also *The Strategic Defence and Security Review*, 9; and Prime Minister David Cameron's statement to the House of Commons on the Strategic Defence and Security Review, 19 October 2010. <http://www.number10.gov.uk/news/sdsr/>.

¹³ The Strategic Defence and Security Review, 3; see also The National Security Strategy, 21.

¹⁴ *Strategic Defence Review*. July 1998 para 22-31. http://www.mod.uk/NR/rdonlyres/65F3D7AC-4340-4119-93A2-20825848E50E/0/sdr1998_complete.pdf. Also the *National Security Strategy*, 18, and *The Strategic Defence and Security Review*, 37, 43-44.

¹⁵ *Global Strategic Trends – Out to 2040*. 4th Ed. Strategic Trends Programme. 2 Feb 2010, 13-14.

<http://www.mod.uk/DefenceInternet/MicroSite/DCDC/OurPublications/StrategicTrends+Programme/>. Also "Adaptability and Partnership: Issues for a Strategic Defence Review," *The Defence Green Paper*. 3 Feb 2010, 14. <http://www.mod.uk/DefenceInternet/AboutDefence/CorporatePublications/ConsultationsandCommunications/PublicConsultations/TheDefenceGreenPaper2010Discussion.htm>, and Future Character of Conflict. Strategic Trends Programme, 3 Feb 2010, 14. <http://www.mod.uk/DefenceInternet/MicroSite/DCDC/OurPublications/Concepts/FutureCharacterOfConflict.htm>.

¹⁶ Gen David Richards, "Securing Britain in an Age of Uncertainty," (Speech, Policy Exchange, London, 22 November 2010). <http://www.mod.uk/DefenceInternet/AboutDefence/People/Speeches/ChiefStaff/20101122SecuringBritainInAnAgeOfUncertainty.htm>.

¹⁷ Second Report of the Committee on Air Organisation and Home Defence Against Air Raids. 17 Aug 1917. The UK National Archives CAB/24/22, 5-6.

¹⁸ *Policy for the Organization of Fleet Marine Forces for Combat*. Marine Corps Order 3120.8A, 26 June 1992, 3. <http://www.marines.mil/news/publications/Documents/MCO%203120.8A.pdf>.

¹⁹ Marine Corps Doctrinal Publication (MCDP 1-0. *Marine Corps Operations*. 27 September 2001, 3-11 – 3-15. http://www.fs.fed.us/fire/doctrine/genesis_and_evolution/source_materials/MCDP-1-0_marine_corps_operations.pdf.

²⁰ Joint Doctrine Publication (JDP) 1-0 *Campaigning*. 2nd Ed. December 2008, 3-1. http://www.mod.uk/NR/rdonlyres/B875F5EC-B17F-4CA3-BB2D-B418B7B284C0/0/20090219JDP_01_2EdUDCDCIMAPPS.pdf. UK doctrine can include a separate Logistics Component providing the in theatre co-ordination of logistics support across a deployed force. When involved in wider coalitions, as is the case currently in Afghanistan, this element co-ordinates all UK national logistics rather than each Service operating separately.

²¹ MCDP 1-0, 2-3. Further described in Marine Corps Warfighting Publication (MCWP) 3-2. *Aviation Operations*. 9 May 2000, 1-2 – 2-6. <http://www.marines.mil/news/publications/Documents/MCWP%203-2%20Aviation%20Operations.pdf>.

²² MCWP 3-2, 4-1 – 4-12, 5-1 – 5-10.

²³ *Marine Corps Operating Concepts: Assuring Littoral Access... Proven Crisis Response*. 3rd Ed. June 2010, 3-4. <http://defensetech.org/wp-content/uploads/2010/06/usmcooperatingconcept.pdf>.

²⁴ Expeditionary Maneuver From the Sea: The Capstone Operational Concept. USMC, 25 Jun 2008, 2-4. http://www.google.com/url?sa=t&rct=j&q=expeditionary%20maneuver%20from%20the%20sea&source=web&cd=1&ved=0CCMQFjAA&url=http%3A%2F%2Fwww.quantico.usmc.mil%2Fdownload.aspx%3FPath%3D.%2FUploads%2FFiles%2FSVG_002_

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²⁵ Rob Weighill, "Air/Land Integration – *The View from Mars*," *Royal United Services Institute Defence Systems*, February 2009, 53-56.

²⁶ The Strategic Defence and Security Review, 21, and 25.

²⁷ The Canadian Encyclopedia, <http://www.thecanadianencyclopedia.com/articles/armed-forces> .

²⁸ *The National Security Strategy*, 4. Also the Strategic Defence and Security Review, 11-12.

²⁹ In 2011, UK forces regular strength 175,000, the IDF 187,000, the USMC 200,827.

³⁰ Alon Ben-David, "IDF Unveils 5 Year Plan to Boost Capabilities," *Jane's Defence Weekly*, 12 Sep 2007. http://www4.janes.com/subscribe/jdw/doc_view.jsp?K2DocKey=/content1/janesdata/mags/jdw/history/jdw2007/jdw34069.htm@current&Prod_Name=JDW&QueryText=%3CAND%3E%28%3COR%3E%28%28%5B80%5D%28+teffen+%3CAND%3E+2012%29+%3CIN%3E+body%29%2C+%28%5B100%5D+%28%5B100%5D%28+teffen+%3CAND%3E+2012%29+%3CIN%3E+title%29+%3CAND%3E+%28%5B100%5D%28+teffen+%3CAND%3E+2012%29+%3CIN%3E+body%29%29%29%29 . Also Anthony H. Cordesman, Aram Nerguizian and Ionut C. Popescu. *Israel and Syria: The Military Balance and Prospects of War* (Westport, CT: Praeger, 2008), 90-91.

³¹ Benjamin S. Lambeth, *Air Operations in Israel's War Against Hezbollah: Learning From Lebanon and Getting it Right in Gaza*, (Santa Monica, CA: RAND, 2011), 228-229.

³² Ben-David, "IDF Unveils 5 Year Plan to Boost Capabilities."

³³ Ben-David, "IDF Unveils 5 Year Plan to Boost Capabilities," Also Cordesman, Nerguizian and Popescu, *Israel and Syria*, 90-91.

³⁴ Perhaps the most famous long-range operation was the hostage rescue at Entebbe airfield. Eliezer Cohen, *Israel's Best Defense: The First full Story of the Israeli Air Force*. (NY: Orion Books, 1993), 404-411.

³⁵ Cordesman, Nerguizian and Popescu, *Israel and Syria*, 90-91.

³⁶ FASOC defines these as the core roles of air and space power.

³⁷ The Strategic Defence and Security Review, 12.

³⁸ *Sustaining US Global Leadership: Priorities for 21st Century Defense*, 3 January 2012, 2-3.

<http://graphics8.nytimes.com/packages/pdf/us/20120106-PENTAGON.PDF>.

³⁹ The Future Character of Conflict, 33.

⁴⁰ *Lessons of Iraq*. House of Commons Defence Committee Third Report of Session 2003-04, Vol 1: Report, 16 March 2004, 63. <http://www.publications.parliament.uk/pa/cm200304/cmselect/cmdfence/57/57.pdf>.

⁴¹ Michael Clarke, "The Overdue Defence Review: Old Questions, New Answers," *RUSI* 153, No 6, December 2008, 6-7.

⁴² For example, the sentiment expressed on the RN Fleet Air Arm web page, <http://www.royalnavy.mod.uk/About-the-Royal-Navy/The-Navy-and-the-Environment/In-the-Air> (accessed 5 May 12) and more vociferously in the views expressed by the Phoenix Think Tank, <http://www.phoenixthinktank.org/> (accessed 3 May 12).

⁴³ Strategic Trends Document, 71.

⁴⁴ The Strategic Defence and Security Review, 23, 26.

⁴⁵ Air Publication (AP) 3003. *A Brief History of the Royal Air Force*. 2004, 58-59. The Army Air Corps was formed in 1942 to administer the new airborne division which combined parachute and glider insertion. <http://www.army.mod.uk/aviation/320.aspx>.

⁴⁶ Ian Horwood, *Interservice Rivalry and Airpower in the Vietnam War*, (Fort Leavenworth, KA: Combat Studies Institute Press, 2009), 103-137.

⁴⁷ For example, http://www.thesun.co.uk/sol/homepage/news/campaigns/our_boys/. Other newspapers have similar sites including <http://www.telegraph.co.uk/news/uknews/defence/> and <http://www.thetimes.co.uk/tto/news/uk/defence/>.

⁴⁸ Colin S. Gray, "The Airpower Advantage in Future Warfare: The Need for Strategy," Research Paper 2007-2, (Airpower Research Institute, December 2007) 1-3.

⁴⁹ Lambeth, Air Operations in Israel's War Against Hezbollah, 263-268.

⁵⁰ *Defence Reform: An independent report into the structure and management of the Ministry of Defence*. The Levene Report, MoD, June 2011, 44-47. http://www.mod.uk/NR/rdoonlyres/B4BA14C0-0F2E-4B92-BCC7-8ABFCFE7E000/0/defence_reform_report_struct_mgt_mod_27june2011.pdf.

⁵¹ Ben-David, "IDF Unveils 5 Year Plan to Boost Capabilities." Also Cordesman, Nerguizian and Popescu, *Israel and Syria*, 90-91.

⁵² Open letter to *The Times* by the Chiefs of Staff, 12 November 2010. <http://www.mod.uk/DefenceInternet/DefenceNews/DefencePolicyAndBusiness/ChiefsOfStaffStandBySdsr.htm>.

⁵³ Kuhn, *The Structure of Scientific Revolutions*, 18-19.

⁵⁴ Douglas Carswell, Conservative Member of Parliament, comments reported in a number of UK newspapers including *The Independent*, 20 October 2010. <http://www.independent.co.uk/news/uk/politics/forces-left-unable-to-launch-Isquomajorrssquo-missions-overseas-2111341.html>.

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