



**JOINT SERVICES
COMMAND AND STAFF COLLEGE**

DEFENCE RESEARCH PAPER

By

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**ADVANCED COMMAND AND
STAFF COURSE**

NUMBER 17

SEP 13 – JUL 14

Defence Research Paper

Submission Cover Sheet

Student Name:	Wg Cdr GJM Littlechild
Student PIC Number:	13-02795
DRP Title:	How Influential was World War One in the Development of the Royal Air Force's Early Concepts and Doctrine?
Syndicate:	A5
Syndicate DS:	Lt Col J Rassaerts
DSD DRP Supervisor:	Dr I Gooderson
Essay submitted towards <u>psc(j) only</u> or <u>MA and psc(j)</u>?	MA and psc(j)

Sponsored/Proposed Topic?	Yes – DSD Proposed
Word Count:	14,960

I confirm that this Research Paper is all my own work, is properly referenced and in accordance with Standard Operating Procedure T10.

Signature: Original Signed

Date: 27 May 2014

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How Influential Was World War One in the Development of the Royal Air Force's Early Concepts and Doctrine?

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Word Count: 14,960

Abstract

The advent of the aeroplane over the battlefields of World War One marked a significant development in the history of warfare. The challenges faced by airmen and the proponents of air power were acute. Fledgling technology, a fundamental lack of understanding of air power's burgeoning utilities and a deep-rooted inter-service rivalry for scarce assets all served to threaten the long-term survival of this new capability. But the experience of the First World War was to have critical influences on post-war air power, its application and its development. This paper critically examines those influences, and those of the immediate post-war period, in assessing their impact on the development of the Royal Air Force's early Concepts and Doctrine.

How Influential was World War One in the Development of the Royal Air Force's Early Concepts and Doctrine?

Introduction

In July 1909 Louis Bleriot flew across the English Channel, from Calais to Dover. The significance of the event was that Bleriot was the first 'airman' to cross the English Channel in a 'heavier-than-air' craft,¹ marking a milestone in the development of 'manned' flight. Lord Northcliffe, the media magnate who had offered a £1000 cash prize for the Channel crossing competition, proclaimed that "England is no longer an Island".² The concept of Britain as an invulnerable island, protected from invaders by the seas that surrounded her and the immense power of the Royal Navy that patrolled them, had been permanently altered in the nation's psyche. For all her naval prowess, Britain could now be attacked and invaded via the newly conquered 'third dimension' – by 'air'. As exciting as the development of aviation was, it brought with it significant new challenges to Britain's national security. Those in charge of that security, however, were slow to recognise the inherent threat and military potential of Air Power.³

The advent of the aeroplane and its subsequent arrival over the battlefields of Flanders was one of the most significant developments in the conduct of Twentieth Century warfare. Its potential capabilities were enthusiastically espoused by its proponents⁴ but dismissed as fantasy and science fiction by its critics and sceptics.⁵ The influence of the First World War on the technical development of the aeroplane and its military capabilities was critical and laid the foundations for many of the attributes and utilities of air power we understand and apply today. As well as the development of aircraft, early air power doctrine was also fundamental to our contemporary understanding of air power. Scot Robertson offers a definition of doctrine as:

The action of teaching or instructing; instruction; a piece of instruction, a lesson precept. That which is taught. a) In the most general sense: instruction, teaching; a

¹ John H Morrow, *The Great War in the Air: Military Aviation from 1909 to 1921* (Washington: Smithsonian Institutional Press, 1993), 11.

² John Buckley, *Air Power in the Age of Total War* (London: UCL, 1999), 34.

³ Ibid., 35.

⁴ People such as: Lord Northcliffe, Geoffrey de Havilland and Frederick Handley-Page. Ibid., 34.

⁵ Including the Committee of Imperial Defence. Ibid.

body of instruction or teaching. b) That which is taught or laid down as true concerning a particular subject or departmental knowledge.⁶

Robertson states that, whilst this definition is straightforward and should cause no difficulty, it is how a particular doctrine is arrived at that is important; how to reduce the knowledge available so that it can be encapsulated into tenets suitable for teaching and indoctrination.⁷ This doctrinal context will be a key aspect of the analysis in this paper.

By critically examining the range of influences on the use of air power throughout the First World War, this paper will highlight those that were vital to the fostering of developing air power roles and their increasing value in warfare, ultimately leading to the formation of a dedicated service in April 1918. In highlighting these key influences and analysing their impact on the development of early RAF capabilities and tactics, this paper will then identify critical links to the immediate post-war era of air power. By analysing the post-war employment and continued development of air power, this paper will also highlight the significant influence that financial austerity, politics and inter-service rivalry had on the development of RAF concepts and doctrine through the early 1920s. Through identifying and analysing these critical influences and links, from pre and post the Armistice, this paper will conclude that the utility of air power and its roles were significantly influenced by its employment and development during the First World War and that post-war restrictions and atmospherics across the political, financial and military spectrum also heavily influenced the development of early RAF concepts and doctrine.

In order to lead the reader through the argument posed, this thesis will utilise a timeline approach, from Bleriot's Channel crossing of 1909 to the publication of the Manual of Operations in July 1922. The creation of the Royal Air Force Manual of Operations, CD 32, was the RAF's first attempt at codifying its early air power concepts and doctrine. In that context it is this Manual that is core to the analysis in this paper; the document by which the development of those early concepts and doctrine is assessed. Referencing contemporary and historical written works, related National Archive documents and Governmental papers, as well as some of Viscount Trenchard's⁸ lecture notes and personal diary entries, this paper will identify the critical path of air power development throughout the First World War. By identifying and analysing this critical path, chronologically, the key influences can be

⁶ Scot Robertson, *The Development of RAF Strategic Bombing Doctrine, 1919-1939* (Westport, CT: Praeger, 1995), 91.

⁷ Ibid.

⁸ The first Chief of the Air Staff, following the creation of the Royal Air Force in 1918.

highlighted and then related to conflicting or complementary post-war influences concluding, ultimately, with the contents of the 1922 Manual of Operations.

By the early 1900s, developments in 'heavier-than-air craft' (aeroplanes) had caught the attention of ordinary people around the globe. Written works of science fiction, such as Jules Verne's 'The Clipper of the Clouds', where electrically powered airships were used, and HG Wells' 'War of the Worlds' and 'Anticipations', which spoke of air forces crucial to future warfare,⁹ captured their imaginations. Bleriot's ground-breaking aviation achievement was tangible evidence that science fiction was fast becoming reality. The British public's fascination continued unabated throughout the pre-war years, but as of 1909, general public and industry interest in heavier-than-air flight was considerably greater than the British Government's.

By 1910 the Great Powers of mainland Europe were all investing in aeroplanes and in the development of their possible military utility. France's air arm deployed on army field manoeuvres that autumn, primarily for use in artillery 'spotting', observation and reconnaissance. Poor weather conditions meant their airships were unable to fly and so immediately enhanced the comparative potential of the aeroplane.¹⁰ By October 1910, France had established a dedicated Inspectorate of Military Aviation, to oversee all national aviation agencies, with the majority of allocated funds¹¹ focussed on aeroplane development.¹² Germany also began to invest heavily in aviation,¹³ although initially in airships (Zeppelins).¹⁴ The Italians, meanwhile, had opened an aviation school in 1910 and allocated enough funds to purchase Italian-made dirigibles and French aeroplanes. Unbeknown at the time, the Italians would soon become the first nation to use heavier-than-air craft in war.¹⁵

By contrast, Britain had invested relatively poorly. The January 1909 report of the Committee of Imperial Defence (CID) stated that "...it had yet to be shown whether aeroplanes are sufficiently reliable to be used under unfavourable weather conditions...and the committee has been unable to obtain any trustworthy evidence to show whether any great improvement was to be expected in the immediate future."¹⁶ The committee also concluded that "...large

⁹ Buckley, *Air Power*, 28.

¹⁰ Morrow, *The Great War in the Air*, 15.

¹¹ The equivalent of nearly one million British Pounds at the time. *Ibid.*, 20.

¹² *Ibid.*

¹³ The equivalent of nearly half a million British Pounds at the time. *Ibid.*

¹⁴ The payload capability and range of Zeppelins were seen as of greater utility. *Ibid.*

¹⁵ *Ibid.*, 25.

¹⁶ Denis Winter, *The First of the Few* (England, Harmondsworth: Penguin, 1982), 18.

scale aerial attack was not an imminent danger”.¹⁷ The decision, therefore, was to leave the funding allocation at £35,000 for naval airship development, £10,000 for army aeroplane development and to cancel the annual Farnborough aeroplane development fund of £25,000.¹⁸ There was, however, building pressure from the ruling class, in favour of greater investment in and development of aeroplanes. Both Lord Northcliffe and Lord Montague spoke openly in *The Times* in early 1909 about Britain’s vulnerability to possible enemy air attacks and enemy invasions being supported by air raids.¹⁹ In September 1911 Winston Churchill became First Lord of the Admiralty. His advocacy of aviation, love of flying (he was taking lessons that year) and the rigid airship ‘Mayfly’s’ recent accident²⁰ caused him to reverse the earlier decision on aviation investment, discontinuing the building of airships and concentrating on aeroplanes. Britain’s aviation budget rose from £9,000 in 1909 to £131,000 by 1911.²¹ The British Government was finally beginning to take aviation development seriously.

The Rise of Military Aviation

In 1911 the Italians became the first to test the military utility of the aeroplane. Following successful army manoeuvres in August 1911, the Italian military mobilized for conflict in Libya, against the Turks, the following month. They deployed 9 aeroplanes (French-built), 3 dirigibles and 11 pilots to Tripoli. This was followed by further deployments to Benghazi, Derna and Tobruk in 1912.²² The units all carried out the first ever tactical reconnaissance, artillery observation, propaganda leaflet dropping by heavier-than-air craft, as well as day and night bombardment missions.²³ The Turks had no air forces when the conflict began and the first ever use of aerial bombing on their lines made sensational news, widely reported in the Italian press – “Terrorised Turks Scatter Upon Unexpected Celestial Assault”.²⁴ The result of the bombing campaign, as reported by the Italian general staff, was of “modest material damage, but significant psychological effect”, and as having “...dampened the enemy’s ardour.”²⁵ This initial assessment of the effects aerial bombing could have, whilst potentially oversimplified by an Italian military that had no technological equivalent in

¹⁷ Ibid.

¹⁸ H Montgomery Hyde, *British Air Policy Between the Wars 1918-1939* (London: Heinemann, 1976), 18.

¹⁹ Morrow, *The Great War in the Air*, 20.

²⁰ The Mayfly’s ‘back’ broke while being towed to her mooring in September 1911.

²¹ Morrow, *The Great War in the Air*, 22.

²² Ibid, 25.

²³ Ibid.

²⁴ *Gazzetta del Popolo*, 2 November, 1911. Referenced by Lee Kennett, *A History of Strategic Bombing* (New York: Scribner, 1982), 13.

²⁵ Ibid., 14.

opposition, is interesting and significant. David Hall describes the result as having "...a negative effect on the morale of front-line Turkish troops wholly out of proportion to the damage caused and the threat presented."²⁶ These conclusions on the impact of aerial bombing on troops would pervade the use of airpower throughout the First World War.

As a combined result of growing industrial pressure and the increasing European use of aircraft in military roles, the CID was directed to convene in November 1911. With Lord Haldane, the War Minister, as its chairman, it was tasked to report on the entire subject of aviation. Also on the committee was General David Henderson, as a military advisor. Henderson is considered by many to be the unsung 'father of the RAF'.²⁷ The CID report was completed in February 1912 and approved in full by the Prime Minister, Herbert Asquith. Its primary recommendation was the formation of a formal military aviation establishment. On 13 April 1912 the Royal Flying Corps (RFC) was formed, with a Military wing, a Naval Wing and a Central Flying School (CFS).²⁸ Later that year a certain Captain Hugh Trenchard gained his pilots wings, before becoming an instructor at the CFS. Unhappy with the direction naval air power was subsequently taking as part of this new organisation and its lack of total control over its aviation assets, the Admiralty then created the Royal Naval Air Service (RNAS) in July of 1914.²⁹ The potential for inter-service rivalry over scarce personnel, assets and funding would soon be realised.

Into the Fray

In August 1914 the British Expeditionary Force (BEF) deployed to France, accompanied by four squadrons of the RFC. The RFC contingent, under the command of Henderson, consisted of 105 officers, 755 other ranks and 63 aeroplanes, leaving behind a reserve, commanded initially by Major Trenchard, of 41 officers and 116 aircraft, of which only 20 were fit for service.³⁰ At this early stage in the genesis of air power, the British Army largely viewed the purpose of its aviation as primarily for observation and reconnaissance, an 'airborne cavalry',³¹ despite a comment by General Sir Douglas Haig at the outbreak of war

²⁶ David Hall, *Strategy for Victory: The Development of British Tactical Air Power, 1919-1943* (Westport, CT: Praeger Security International, 2008), 2.

²⁷ Viscount Trenchard expressed the opinion in a letter to Lady Henderson dated 7 October 1954. Henderson Papers, referenced in: *Air Power Review Special Edition Spring 2013* (HQ Air Command: Air Media Centre, 2013), 16.

²⁸ Hyde, *British Air Policy*, 20.

²⁹ Tami Davis Biddle, *Rhetoric and Reality in Air Warfare: The Evolution of British and American Ideas about Strategic Bombing, 1914-1945* (Princeton, NJ: Princeton University Press, 2002), 20.

³⁰ Morrow, *The Great War in the Air*, 76.

³¹ Malcom Cooper, *The Birth of Independent Air Power: British Air Policy in the First World War* (London: Allen & Unwin, 1986), 18.

to the contrary “I hope none of you gentlemen is so foolish as to think that aeroplanes will be able to be usefully employed for reconnaissance in the air. There is only one way for a commander to get information and that is by the use of the cavalry!”³² Almost immediately upon deployment, the RFC were engaged in support of the land battle, being utilised initially during the retreat from Mons and subsequently in the Allied victory at Marne. Whilst able to provide accurate and timely intelligence of German troop movements, some praise for this early performance was perhaps a little over-zealous. Major General Sir Frederick Sykes spoke of how “...the reconnaissance of August 21-22 had saved the Army...” and “...that [action] of September 3 had directly led to the victory at Marne...”³³ The reality was a little less triumphant. The RFC had suffered four fatalities just transiting to Mons and only arrived just in time for the retreat.³⁴ The relative technological fragility of the aeroplane and the infancy of its utility in warfare were already being exposed. The risk of overselling the capability of air power so early on in its development was that these limitations would, at best, be misunderstood or misinterpreted or, worse, be further exposed as the war continued, used by critics and sceptics of air power against additional investment in it.

During this early period of the War, the RNAS were given responsibility for home defence.³⁵ This entailed defending strategic installations in Britain, such as ports and major cities, against the Zeppelin bomber threat. This direction indicated that Britain was considering the possibility of German air strikes against the homeland from the outset of hostilities, demonstrating an early commitment to devoting scarce air assets for home defence. The RNAS had serious concerns at the time about their ability to intercept and successfully engage the Zeppelin threat, primarily due to inadequate capabilities of their current aircraft and ‘rudimentary’ intercept techniques.³⁶ Of note, First Lord of the Admiralty, Winston Churchill, was supportive of pre-emptive air strikes against Zeppelin bases.³⁷ Churchill was convinced that passive defence was not the best way to combat air attack, believing in defence by offensive action.³⁸ This belief is something that would draw him closer in perspective to Trenchard’s view during the War. The RNAS bombing aircraft were based at Dunkirk, from where they achieved a degree of success in targeting German Zeppelins on the ground.³⁹ This relative success, compared to defensive air patrols, was the start of

³² Winter, *The First of the Few*, 11.

³³ Frederick Sykes, *From Many Angels; an Autobiography* (London: G.G. Harrap & Company, 1942), 138.

³⁴ Morrow, *The Great War in the Air*, 76.

³⁵ Biddle, *Rhetoric and Reality*, 21.

³⁶ Cooper, *The Birth of Independent Air Power*, 14.

³⁷ The Churchill Archive contains several examples of this support. The Churchill Archive, 13/41/104, Churchill Archives Centre, Cambridge (accessed online May 15 2014).

³⁸ Cooper, *The Birth of Independent Air Power*, 15.

³⁹ *Ibid.*

Churchill's long association with air power, the utility of bombing and defence by offensive action.⁴⁰

By the end of 1914 several distinct aspects of air power had begun to emerge. As expected, based on pre-war development, the British army had initially used their aviation, the RFC, mostly in support of ground units. Air assets were controlled by those units and in close proximity to them and their opposing ground forces. The RFC acquitted themselves well in early battles, flying over the enemy while under fire, in full view of the British lines, becoming a proven battlefield reconnaissance asset.⁴¹ Meanwhile, in addition to their tasks of home defence and bombing raids against the Zeppelin threat, the RNAS had developed maritime reconnaissance tactics and anti-shipping torpedo capabilities, including against the German U-boat threat,⁴² to assist in the protection of British and Allied shipping.⁴³ Technology was also playing its part in this early development of air power. Whilst the onset of war had impacted the production of aircraft and aero-engines, supporting technology managed to progress. Cameras and wireless telegraphy on-board RFC aircraft aided the accuracy and timeliness of air reconnaissance intelligence⁴⁴ and the advent of aircraft-mounted heavy machine guns introduced a new offensive capability. This allowed the RFC to develop early air-land integration techniques, including the 'harassing' of enemy troops using air-to-ground gunnery. Meanwhile, the development of larger aircraft and more powerful engines, directed by Churchill, enhanced a growing longer-range bomber capability within the RNAS. Another burgeoning aspect of this new 'air war' had also become apparent by the end of 1914 – aerial combat. Not content with merely observing and reporting, by mid-September RFC pilots were taking the fight to the enemy's air force, 'downing' five German aircraft in the process.⁴⁵ The arrival of air-to-air combat was to introduce a crucial new dimension to the use of air power over the battlefield – control of the air.

Whilst the first German bomb dropped on British soil was Christmas Eve 1914,⁴⁶ January 1915 saw the beginning of the German bombing offensive of Britain in earnest. The first

⁴⁰ Biddle, *Rhetoric and Reality*, 21.

⁴¹ Walter Raleigh, *War in the Air*, v.1: *Being the Story of the Part Played in the Great War by the Royal Air Force* (Oxford: Clarendon Press, 1922), 314.

⁴² Christina Goulter, "The Royal Naval Air Service: A Very Modern Force," in *Air Power History: Turning Points from Kitty Hawk to Kosovo*, eds Sebastian Cox and Peter Gray, (London: Frank Cass, 2002), 51.

⁴³ Morrow, *The Great War in the Air*, 119.

⁴⁴ *Ibid.*, 86.

⁴⁵ *Ibid.*, 77. Lacking on-board machine guns, this was largely achieved by harassing the German aircraft into landing.

⁴⁶ Neil Hanson, *The First Blitz: The Secret German Plan to Raze London to the Ground in 1918* (London: Doubleday, 2008), 3. The bomb from a single German seaplane destroyed the garden of a resident near Dover Castle.

strikes dropped 50kg high-explosives and 3kg incendiaries on King's Lynn, Great Yarmouth and other towns and villages across Norfolk.⁴⁷ The raid killed four civilians and injured a further 16.⁴⁸ Further raids took place on Tyneside, East Anglia and Bury St Edmunds but with no casualties and little damage. The first raids on London began in May 1915, killing more civilians, including several children, either by incendiaries or flying shrapnel. Although Zeppelin raids over Britain continued until 1918, by the end of 1916, with the introduction of faster and more capable British aircraft, the raids had decreased markedly.⁴⁹ The German objective, however, had been clear throughout – crush the British will to fight by breaking the will of the people at home. This lesson was perhaps taken from Italy's bombing of Turkish troops in 1911 and the sensational headlines about ensuing panic that followed. Indeed, Commander Peter Strasser, head of the German Airship Division, had notified his command that "...airships offer a certain means of victoriously ending the war."⁵⁰ The actual effects of this new 'terror' threat on the British public are still disputed. It is partly this lack of consensus that continues to divide opinion on the utility and development of strategic bombing throughout the War and into the 1920s. Neil Hanson argues in 'First Blitz' that the effect in bombed areas was of "...a population on the verge of nervous collapse, riven by fear..."⁵¹ Tami Biddle, however, argues that "...the British public held up quite well..." and that "...there is little evidence of persistent or widespread panic over the air raids...", stating that "Panic and anger are two different reactions, and ought not to be conflated."⁵²

The British Government had actually been paying close attention to any detrimental after-effects on national morale following German air raids. Whilst causing some disruption, the air raids appeared to instil a degree of frustration and anger in the population, as opposed to the desired panic. Biddle highlights, based on articles from the period and wartime letters, that a significant degree of the frustration was aimed at the Government, for not providing sufficient and capable defences to prevent such German action.⁵³ This is a valid perspective as the RNAS continued to be ineffective in countering a Zeppelin threat that flew out of range of ground-based air defence artillery and beyond the ceiling of RNAS aircraft.⁵⁴ Until the introduction of their newer aircraft in 1916, the RNAS were always at a disadvantage with regards home defence activity, as discussed previously. There was a strong sense of

⁴⁷ Ibid., 21.

⁴⁸ H.A. Jones, *The War in the Air, v.III: Being the Story of the Part Played in the Great War by the Royal Air Force* (Oxford: Clarendon, 1935), 90.

⁴⁹ Hanson, *The First Blitz*, 30.

⁵⁰ Biddle, *Rhetoric and Reality*, 22.

⁵¹ Hanson, *The First Blitz*, 342.

⁵² Tami Biddle, "Learning in Real Time: The Development and Implementation of Air Power in the First World War," in *Air Power History*, eds Cox and Gray 10.

⁵³ Biddle, *Rhetoric and Reality*, 22.

⁵⁴ Hanson, *The First Blitz*, 28.

injustice and anger amongst the British population over the indiscriminate targeting of women and children.⁵⁵ This isn't the response that Commander Strasser had predicted would lead to the downfall of Britain and the end of the War. But this was not the end of German air raids over Britain. The desire to shatter the will of the British people through aerial bombing remained a German objective, despite contradictory evidence on its effects. It could be argued that, by this stage of the War, some commanders and politicians, on both sides, already believed that bombing had an intrinsic morale damaging capability.

Diversifying Utility

By late 1915 and into 1916, an Allied change of tactics in the use of air power on the Western Front became apparent. The French, utilising new larger and more powerful longer-range bombing aircraft, had begun to target beyond the enemy front-lines and trenches. They began to attack airfields, railways and industrial targets in the Rhine and Saar valleys, well into enemy territory.⁵⁶ The British, also believing in the utility of striking at the enemy's industrial base and infrastructure, directed the RNAS to conduct similar missions, sometimes in cooperation with the French.⁵⁷ This latest development created several issues for Britain's air forces. First, as Britain's now de-facto 'bombing force' the RNAS were partially relieved of the responsibility for home defence, to be supplemented by the RFC. The RNAS would deal with enemy aircraft approaching Britain, while the RFC would defend against those aircraft over British soil.⁵⁸ An underlying issue was that neither air wing had sufficient resources to provide effective home defence.⁵⁹ More importantly, they both felt they had higher priorities for their limited resources on the front-line, going against political judgement that home defence was vital to maintaining public support for the war effort. Such friction, lack of activity coherence and poor prioritisation of assets and equipment would later become significant factors in the creation of a single air service. Second, persuaded by Trenchard that the RFC could offer a valuable contribution to the forthcoming Somme offensive, Haig had requested every available aircraft in support.⁶⁰ The addition of the home defence task did not reconcile well with the RFC's available assets. Third, the realisation that "neither side could afford to concede uncontested observation by aircraft if it hoped to be successful on the ground"⁶¹ as the fighter threat, with the advent of forward-facing machine guns and more manoeuvrable aircraft, became a significant obstacle to achieving air missions. Valuable

⁵⁵ Biddle, *Rhetoric and Reality*, 22.

⁵⁶ *Ibid.*, 25.

⁵⁷ *Ibid.*, 26.

⁵⁸ Cooper, *The Birth of Independent Air Power*, 43.

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*, 71.

⁶¹ Colin Gray, *Air Power for Strategic Effect* (S.I:C Hurst & Co Publishers, 2011), 96.

assets had to be diverted from other roles to provide dedicated 'cover' for the mission essential aircraft. The expansion of new and the development of existing air power roles was quickly overtaking the capacity of the disparate air wings to support every aspect in meaningful numbers – an issue that would become critical in the final months of the War.

Several crucial factors and key personalities were now influencing the development of air power and its use in the War. Churchill, although no longer First Lord of the Admiralty, had significantly influenced the RNAS over the utility of long-range bombing and the force now saw such operations as one of their critical roles, alongside anti-submarine operations. This was despite the limited success achieved to date, although this could arguably be attributed to the relative infancy of the technology. The RFC, heavily influenced by Trenchard and his cordial relationship with Haig, remained focussed on support to the tactical arena. This support had, however, expanded from just reconnaissance to include tactical bombing of enemy front-lines and immediate support infrastructure, although equally with limited success.⁶² Trenchard had expanded the RFC's remit to include the bombing of critical infrastructure such as airfields, railways and logistic areas. In doing so, Trenchard reinforced his belief in defence through offensive action – strike the enemy's assets at source. This belief became critical during Trenchard's command of the Independent Force that this paper will examine in due course.

The increased threat of fighters intercepting long-range bombers, Trenchard's tactics of aggressive offensive action with significant losses (exceeding, in some cases, ground troop losses), the relative paucity of assets and growing inter-service rivalries all became significant enough issues for the Government to eventually intervene. Malcom Cooper discusses the inter-service rivalry in-depth in 'The Birth of Independent Air Power'. Whilst specifically outside of the scope of this paper, the seriousness of the issue is relevant. The differences in perceptions of air power's role, conflicting priorities and the constant need for technological solutions to evolving issues in the air caused the Government, and more specifically the Joint Air War Committee (JAWC), to ask and attempt to resolve some significant questions: What were the immediate duties of the RNAS and RFC; what was the order of importance of these duties; and, in view of these decision, what was the best attribution of available materiel?⁶³ The critical negative factor in this process, and with the proposed solutions, was that the JAWC, subsequently the Air Board, had no executive authority to enforce resolution on either service. The positive was that, for the first time at Governmental level, the requirement for cooperation, coherence and combined control of all

⁶² Cooper, *The Birth of Independent Air Power*, 29.

⁶³ *Ibid.*, 46.

air activity and assets was openly discussed. The issue of amalgamating the two air wings was also discussed, but deemed too complicated an undertaking during war.⁶⁴ There was, however, an absolute recognition that air power, its utility and its application was becoming too diverse and complex to be managed by competing entities.

Air Power across the Empire

Adding to the complexity of providing air power over the battlefields of Europe was the British, and Commonwealth, requirement to defend the rest of the Empire against Germany and her allies. The RNAS initially held the responsibility for the majority of this task, the Royal Navy being Britain's de-facto global police force at the outbreak of war. As the War progressed, operations in southern Africa, Mesopotamia, Egypt and Arabia placed further demands on already scarce air resources, whose defined roles and capabilities had far exceeded those anticipated in August 1914. With the advent of seaplanes prior to 1914 the RNAS had purchased several, using them for reconnaissance and the locating of enemy naval forces across the Mediterranean, Africa and the Middle East. They soon adopted anti-shipping bombing techniques, having learned from their counterparts in Europe, developing the ability to disrupt and destroy enemy shipping, as opposed to just locating it. As land operations intensified, RFC and Commonwealth air units were also deployed throughout the wider operational theatres.

Initially used for observation of enemy troop movements, as with the Western Front, the RFC aircraft soon proved their ubiquitous value in such environmental life-saving activities as directing friendly troop columns to watering holes unseen to the enemy. The developments in the use of air power on the Western Front and the lessons learned were not ignored in these far-flung battlefields of the Empire. The harassing of enemy ground troops, using the air-to-ground machine gun techniques developed on the Western Front, were used to good effect. The tactics of offensive defence by bombing enemy airfields, railways and logistic supplies were also widely utilised.⁶⁵ Whilst on a smaller scale and more dispersed than operations in Europe, this wider, colonial activity would become a critical capability of air power in the post-war era. The adaptation of Western Front tactics and procedures to cope with the demanding operating environments, for both man and machine, specific to Africa,

⁶⁴ Ibid., 47.

⁶⁵ Jones, *The War in the Air*, v.III, 1. Jones discusses specific case studies across southern Africa in-depth in chapter 1 of v.III. Whilst the detailed reports are not relevant to this paper, the development and use of tactics and capabilities in-line with those in the European theatre, tailored for colonial operating environments, is significant.

the Middle East and Central Asia demonstrated the true flexibility of the aeroplane and became crucially influential in the development of the post-war air service.

An example of such air power activity, although for the purposes of this argument it is out of chronological order, involved a critical air-land cooperation operation that utilised many of the aspects of air power that had been developed since 1914 – Palestine, September 1918. General Sir Edmund Allenby had taken control of Jerusalem by the end of 1917, against Turkish and German forces, and wanted a ‘knockout blow’ to complete the conquest of Palestine.⁶⁶ The recently formed RAF, supported by the Australian Flying Corps, asserted regional control of the air in order to deny German reconnaissance aircraft of intelligence. The air units also harassed enemy troops, by bombing and strafing their ground positions, conducted wide-ranging tactical and strategic air strikes against enemy airfields and railways and, critically, they disrupted, harassed and destroyed elements of the defeated, retreating enemy army. The damage caused by the air campaign was devastating. Hundreds of Turkish troops were killed and wounded along with many vehicles and much armour destroyed.⁶⁷ The effects produced by air power were a significant factor in the delivery of the ‘knockout blow’ that Allenby desired.⁶⁸ The terrain across the region had provided the air forces the ideal ability to cover difficult ground quickly and easily, trapping columns of enemy troops in ravines and valleys, exploiting fast changing situations to their advantage. The ‘third dimension’ had been fully exploited to the Allies advantage and the operation had demonstrated the vital utility of battlefield air interdiction and close air support.

The Gotha Bombings

The German bombing campaign against Britain resumed in late May 1917, with the introduction of the new Gotha and Giant bomber aircraft. While able to carry less of a payload than Zeppelins, these new bombers were faster, more manoeuvrable and able to operate by day, at least initially, with the element of surprise on their side.⁶⁹ Between May 1917 and May 1918, when the German bombing of Britain ceased, 105,000 kg of high explosives and 6,500 kg of incendiaries were dropped killing 836 people, injuring 1,965 more and causing damages of around £1.5 million.⁷⁰ To put these statistics in perspective, 836 deaths was less than a single day’s losses on the Western Front and £1.5 million was a

⁶⁶ Richard Hallion, *Strike from the Sky: The History of Battlefield Air Attack, 1911-1945* (Washington: Smithsonian Institutional Press, 1999), 29.

⁶⁷ *Ibid.*, 32.

⁶⁸ *Ibid.*, 35.

⁶⁹ Tami Biddle, “*Learning in Real Time*,” in *Air Power History*, 9.

⁷⁰ Hanson, *The First Blitz*, 341.

fraction of the annual cost of crop damage caused by rats. The reaction of the British public and press, however, was vitriolic, with public reaction out of proportion to the actual damage inflicted. On 13 June 1917 the Times reported that the attacks ‘...made Britain quiver, not with fear but with sorrow and anger’. The Daily Mail a few days later went as far as publishing photographs of child victims and a ‘reprisal map’ of German towns.⁷¹ In the first Gotha raid over London 92 British defence aircraft failed to achieve a single kill. In a subsequent raid 95 defenders achieved just a single successful intercept.⁷² The continued ineffectiveness of British air defence in the face of this new German threat was devastating and brought back memories of earlier RNAS impotence against the Zeppelins. Like the Zeppelin raids before them, however, the Gotha and Giant raids had failed to instil the desired widespread panic in the population, but fostered anger, frustration and resentment instead.⁷³

Hanson argues that had the German bombings been more concentrated over a sustained period then things could, and probably would, have been very different. Should thousands of Londoners have been killed or displaced as a result of a concerted German bombing campaign, the British will to fight would have faltered or even totally collapsed.⁷⁴ It is debatable, being unable to prove a negative, as to how long British public resolve would have held out if faced with higher death tolls, greater disruption to normal life and more extensive infrastructure damage. What is known is how the public dealt with such a threat in the Second World War, during which public resolve remained remarkably robust under sustained enemy bombardment. Equally, the effects of growing political focus and increasing investment on home defence are unknown, as the Germans had begun to redirect their bombing campaign elsewhere by early 1918. What can be assessed is that the German plan to destroy London, and with it the will of the British people, failed. The secondary effects of industrial and domestic disruption, whilst undeniably present, are also debateable, with personal accounts varying on the impacts.⁷⁵ The debate over the effectiveness of strategic bombing, either in destruction of primary infrastructure or by deliberately targeting enemy morale causing disruption and panic, continued until the end of the war and beyond.

The result of the renewed German bombing campaign and resurgent public anger was that the British Government took direct action to try and resolve the issue. Haig was instructed to

⁷¹ Tami Biddle, “*Learning in Real Time*,” in *Air Power History*, 10.

⁷² Biddle, *Rhetoric and Reality*, 30.

⁷³ Tami Biddle, “*Learning in Real Time*,” in *Air Power History*, 10.

⁷⁴ Hanson, *The First Blitz*, 342.

⁷⁵ *Ibid.*, Epilogue. Hanson discusses at great length personal accounts of German bombings and the effects. The accounts vary regards actual impacts with some describing nothing but passing fear as raids subsided with return to normal life occurring almost immediately.

release fighter squadrons from the front, against his will, and aircraft and aero-engine production were made the top industrial priority, aiming to roughly double the number of RNAS and RFC squadrons over the following 12 months, with a focus on 40 new squadrons to reinforce home defence.⁷⁶ Trenchard had proposed an aerial counter offensive to destroy the enemy's aircraft and airfields.⁷⁷ The concepts of defence by offensive action and attrition warfare were entirely coherent with Trenchard's own priorities in support of the front-line. Significantly, however, he was against any reprisal attacks on German cities, as sought by the British press and public and proposed by the Prime Minister.⁷⁸ Trenchard saw long-range bombing as a lower priority, diverting valuable assets that should be supporting the front-line in more tactical offensive action, thereby potentially risking land operations. The War Cabinet disagreed with Trenchard, ordered the withdrawal of the front-line squadrons and a reprisal attack on the Mannheim poison gas works as soon as possible. Most significantly, however, four days later, on 11 July 1917, the War Cabinet appointed Jan Smuts, a highly regarded South African General and diplomat, to re-evaluate the entire British air policy. The report would address two concerns: the first being home defence against German air raids; and the second, the general air organisation and the direction of air operations.

The Birth of the Air Service

The Smuts Report, as it would become known, was a milestone in the transformation of the British military structure and of air power organisation and development. The first report, dealing with home defence, was completed in eight days and submitted to the War Cabinet for approval, outlining the forces required for defending, primarily, London.⁷⁹ Smuts highlighted the requirement for a unified command of the various allocated fighter squadrons, observer posts, search lights and gun batteries, confirming existing opinion by some that coordination, consolidation and strengthening was what was required to improve home defence.⁸⁰ Six weeks later, Smuts presented his second report. He spoke of the use of an air force as an 'independent means of war operations' and that aircraft production was due to exceed RNAS and RFC requirements in the coming 12 months. He also spoke of the Air Board's lack of executive authority and how the Admiralty and the War Office should not expect to retain its own air arms, potentially undermining any new, independent service and complicating the very issue his report sought to address. There was, therefore, a pressing

⁷⁶ Biddle, *Rhetoric and Reality*, 32.

⁷⁷ George Williams, *Biplanes and Bombsights: British Bombing in World War 1* (Maxwell Air Force Base, Ala.: Air UP, 1999), 38.

⁷⁸ *Ibid.*

⁷⁹ *Ibid.*, 39.

⁸⁰ Cooper, *The Birth of Independent Air Power*, 99.

need for an Air Ministry and an Air Staff to be created, requiring the transfer of officers and non-commissioned officers from the existing services.⁸¹ On 24 August 1917 the War Cabinet accepted Smuts' second report in principle, with a promise that the new Service would provide the army and navy with the air strength they required for operations.⁸² The creation of a new Service would ultimately serve to address the issues over incoherent strategies, tactical developments, manufacturing priorities and technological innovation.

In the context of this study, several points of interest regarding the possible future direction of air power development arise from the acceptance of the Smuts reports. The divisions and frictions between the RNAS and RFC were clear and had been since the opening of hostilities in 1914, despite the best efforts of the Air Board to mediate.⁸³ The RNAS had focussed on long-range bombing and anti-submarine warfare whilst also being politically committed to provide home defence. They had integrated with the French air divisions in north-west France, cooperating in attempting to strike deep into enemy territory (as far as the technology would allow) targeting strategic industrial sites and infrastructure. Trenchard and the RFC, however, were more focussed on the tactical arena, using air power to observe, harass and strike enemy troops and equipment. Then there was the requirement to defend against enemy fighters for control of the air above the trenches and, only if suitable air assets were available from other tasks, carry out behind-enemy-lines bombing missions in support of the operational aims – troop marshalling areas, airfields, railways and more localised infrastructure. These differences of opinion regarding air power priorities and the division of scarce air assets, spares and trained personnel were critical factors in the inter-service frictions about their air arms. Whilst the new service would have to provide the army and navy with the air assets they required for operations, it was going to have to prioritise and arbitrate. The new service would inevitably become embroiled in the inter-service rivalry and probably become the focus of the other two services' frustrations.

In addition, public disquiet over poor air defences against the German bomber threat, the subsequent British Government's decision for retaliatory long-range bombing operations in Germany and the re-focus of industry to produce longer-range bomber-type aircraft all concerned Trenchard. The first Smuts report was specifically designed to address the issue of home defence, something that Trenchard and the RFC still considered a waste of valuable assets when the primary method of defence should be offensive action.

⁸¹ Taken from an RAF Centre for Air Power Studies transcript of the original report held by the RAF Air Historical Branch, published in: *Air Power Review Special Edition 2013*, 143.

⁸² Biddle, *Rhetoric and Reality*, 33.

⁸³ Cooper, *The Birth of Independent Air Power*, 44.

Government action and several influential political personalities, including Churchill, all seemed to be favouring home defence as a key attribute of air power moving forward into the age of an independent air service. Also of concern was the significant support of long-range bombing tactics by Henderson, Sykes and the RNAS.⁸⁴ The critical issue was over would control the new service and have a fundamental influence over the development of air power. Trenchard was about to discover exactly what the future held, for him personally and for air power development.

The Royal Air Force (RAF) was inaugurated on 1 April 1918. The amalgamation of the RFC and the RNAS was generally well received by the press and the public, especially in light of the focus on improved home defence. The RFC had been instrumental in the development of the Smuts report, with Henderson's advice, and the RNAS had largely distanced itself from the process.⁸⁵ At its inception, the RAF inherited a high proportion of fighter aircraft over bombers. This was largely due to the RFC's, and Trenchard's, continued desire for smaller, lighter aircraft to carry out offensive patrols over enemy lines and for use in the air-to-ground interdiction role.⁸⁶ The bombing role was of a lower and more opportunistic priority. The aircraft now in development and production, however, were mostly bombers. Of interest, the French had chosen to not develop their long-range bombers beyond their limited operations alongside the RNAS earlier in the war; while the Germans had continued to develop a long-range capability, ultimately producing the Gothas and Giants that had been bombing Britain since mid-1917. Germany believed in the theory of strategic bombing disrupting industrial production, damaging enemy morale and drawing valuable resources away from the front.⁸⁷ Although it had never sustained a strategic bombing campaign against Germany (the early RNAS raids were not deemed a constituted campaign and they had few capable assets at the time), some British politicians and military commanders also believed in this theory. Sir William Weir, a Scottish industrialist, had been tasked with handling the ongoing issues over aircraft procurement by the Government. Weir believed in destroying Germany's industrial heartland through long-range bombing.⁸⁸ Sykes was also a supporter of strategic bombing and spoke to the War Cabinet of how 'long-range air offensives' could achieve 'dislocation of German industry' and have 'far-reaching morale and political effects'.⁸⁹

⁸⁴ Cooper, *The Birth of Independent Air Power*, 101.

⁸⁵ *Ibid.*

⁸⁶ Morrow, *The Great War in the Air*, 362.

⁸⁷ *Ibid.*, 364.

⁸⁸ Robin Higham, *The Military Intellectuals of Britain: 1918-1939* (New Brunswick, NJ: Rutgers University Press, 1966), 145.

⁸⁹ *Ibid.*, 159.

The Independent Force

The answer, as the War Cabinet saw it, was the creation of the Independent Force (IF) in France, on 6 June 1918. Its purpose would be to utilise a predicted surplus of bomber aircraft, that Smuts had highlighted in his second report, and take the fight to the Germans, partly in retaliation, by instigating a strategic bombing campaign targeting the enemy will to fight. The critical issue was that whilst new replacement aircraft arrived, the predicted surplus never materialised, leaving the IF deprived of enough suitable aircraft to achieve the aim.⁹⁰ The details of personal disagreements between Lord Rothermere, the then Secretary of State, and Trenchard⁹¹ are not relevant to this study but it is worth noting that having commanded the RFC in France, Trenchard spent a brief period in early 1918 as the first Chief of the Air Staff (CAS), initially against his wishes as he wanted to remain in a field command.⁹² The disagreement with Rothermere, Trenchard's subsequent resignation, Sykes' promotion to CAS and then Rothermere's replacement by Sir William Weir all occurred in rapid succession.⁹³ The significant result was that Trenchard found himself in command of the new IF under Weir and Sykes, both advocates of strategic bombing. Just as Sykes had been overly positive about the RFC performance at Mons and Marne, he came into post stating that "Victory was not to be won by armies and fleets alone...but it could be won with the assistance of an overwhelming strategical bombing force."⁹⁴ Despite his own brief opportunity, as CAS, Trenchard's concerns for the direction that air power development would take were now crystallised in the form of Sykes.

The results of the IF's actions in 1918 were far less significant than Sykes had hoped for. Trenchard continued, as he had with the RFC, to attack more tactical targets and focus on the tactical offensive – a predilection Sykes was well aware of.⁹⁵ The German spring offensives of 1918 had led to a dramatic increase in air activity with their defences taking a heavy toll on Trenchard's forces, requiring the diversion of valuable long-range bombing assets into attacking enemy airfields close to the front.⁹⁶ Whilst he also tried to maintain a semblance of a strategic bombing offensive, Trenchard's efforts were further hampered by

⁹⁰ Morrow, *The Great War in the Air*, 364.

⁹¹ Christopher Luck, "The Smuts Report: Interpreting and Misinterpreting the Promise of Air Power," in *Changing War: The British Army, the Hundred Days Campaign and the Birth of the Royal Air Force, 1918*, eds Gary Sheffield and Peter Gray, (London: Bloomsbury Academic, 2013), 160.

⁹² Higham, *The Military Intellectuals of Britain*, 154.

⁹³ Peter Gray, "The Air Ministry and the Formation of the Royal Air Force," in *Changing War*, 140.

⁹⁴ Sykes, *From Many Angels*, 227.

⁹⁵ *Ibid.*, 226.

⁹⁶ Peter Gray, "The Air Ministry and the Formation of the Royal Air Force," in *Changing War*, 141.

poor aircraft serviceability, ill-defined objectives from the Air Ministry⁹⁷ and continuing inadequate resources.⁹⁸ Trenchard openly discussed the issue in his last dispatch as commander of the IF, published in *The London Gazette* of January 1919. He mentions his continued belief that the bombing of Germany was a luxury until sufficient aircraft to defeat the enemy air forces over the Western Front could be provided.⁹⁹ Trenchard also discusses his bombing options of: sustained attacks on one enemy industrial centre at a time; or scattering the attacks across many centres.¹⁰⁰ In the end, Trenchard chose the policy of 'attacking as many industrial centres as it was possible to reach with the machines at his disposal'.¹⁰¹

Trenchard's 'scatter-gun' approach to targeting was borne out by the statistical breakdown of the June, July and August attacks. They showed that chemical industrial targets had only received 14%, 9.5% and 8% of the IF's focus respectively, while airfields had received 13.3%, 28% and 49% and railways most of the rest.¹⁰² The achievements of the IF were measured by a post-war commission and gave an assessment of the fledgling bomber force's capacity to damage and destroy its targets. It observed that even the intensive raids against railways failed to inflict much damage. It is therefore interesting that the commission concluded that the strategic bombing campaign had made 'real inroads into the morale of Germany's industrial population' despite its modest size.¹⁰³ The true picture of the assets devoted to the IF were that it had received only 427 of the 1,817 bomber aircraft delivered to France and that by the Armistice only 10 of the 99 RAF squadrons on the Western Front were under the IF's control.¹⁰⁴ Trenchard himself remarked "Thus the Independent Force comes to an end. A more gigantic waste of effort and personnel there has never been in any war."¹⁰⁵ Trenchard had been placed in command of the British military's first dedicated bombing force. The expectations of those that chose to create it, including Weir and Sykes, had not been met. The failure of the expected surplus aircraft to materialise and his own beliefs in securing the Western Front before committing assets to long-range bombing operations, ensured that Trenchard's influence on the new service and its employment of air power was not diminished by his resignation as CAS.

⁹⁷ It was 3 May 1918 before any definite plans for the year were put forward. Cooper, *The Birth of Independent Air Power*, 133.

⁹⁸ Ibid.

⁹⁹ Hugh Trenchard, *Tenth Supplement to the London Gazette*, December 31, 1918 (London: HMSO, 1919), 134.

¹⁰⁰ Ibid.

¹⁰¹ Peter Gray, "The Air Ministry and the Formation of the Royal Air Force," in *Changing War*, 141.

¹⁰² Cooper, *The Birth of Independent Air Power*, 134.

¹⁰³ Ibid., 135.

¹⁰⁴ Ibid., 136.

¹⁰⁵ Hugh Trenchard, *The Trenchard Papers*, MFC 76/1/32, Royal Air Force Museum Hendon, London.

In going forward, the influence of the First World War experience on air power had been far-reaching and fundamental. As inexperienced airmen flew over the battlefields of the War in 1914, the military commanders grappled with an increasing demand on scarce assets, fought amongst themselves over priorities and disagreed about the utility of air power. By 1918 the war's influence had resulted in capabilities developed and delivered across a far broader remit of air activity than even its greatest exponents had predicted: armed reconnaissance and intelligence gathering; harassing of enemy troops through air-ground interdiction; pursuit of enemy aircraft; air defence against enemy aircraft; tactical bombing of enemy airfields, communications and infrastructure; and strategic bombing of vital enemy industrial installations centres. The actual physical and morale effects of these capabilities remains contested. Academic studies argue for effects ranging from profound to merely supportive to negligible. John Buckley argues that enthusiasm for air power has resulted in an '...overestimation of bombing...with too little consideration given to the impact of air power on the Great War itself.'¹⁰⁶ Buckley's point is well made and this study concerns itself with the influences on air power development and the Great War, not the effects it achieved. What air power did add that was unique was the third dimension. The ability to rise above the trenches, spot the enemy at range, target them from above and strike behind the front-line, at the very heart of a nation's psyche, was a capability that, now it existed, no nation would be able to forgo or refuse to defend against. In a few cases, such as Palestine, air power had proved decisive. Vital to the continuing success of air power development in peacetime would be the ability to focus on these more decisive capabilities and apply them in a contemporary, post-war context. What air power had lacked before 1914 was the vision to look beyond the battlefield and see other potential utilities. Air power's issue in Britain after the War was that its more debateable battle-winning potential was being extolled by 'experts' before the actual effects had been analysed and understood. The RAF had the reputation of air power to defend, its contribution to war-winning capability to develop and the two other armed services to convince that these tasks required a dedicated, professional single service.

The Age of Austerity

Following the armistice in November 1918, two critical factors and two crucial personality changes in Whitehall would significantly influence the development of post-war air power strategy and, ultimately, the survival of the Royal Air Force as an independent service:

¹⁰⁶ John Buckley, *Air Power in the Age of Total War* (London: UCL Press, 1999), 66.

severe financial austerity; inter-service rivalry; the reinstatement of Trenchard as Chief of the Air Staff; and the appointment of Winston Churchill as Minister of War and Air. During his December 1918 Cabinet reshuffle, after the General Election returned him to power as head of a new, Coalition Government, Lloyd George offered Churchill the role as head of either the War Office or the Admiralty – Churchill’s choice. The offer came with an acceptance that the office of Minister for Air would be attached to whichever role Churchill selected.¹⁰⁷ The specific reason for the coupling of two armed Ministries is not absolutely clear and has led to debate amongst historians and academics. The answer from the Leader of the House of Commons at the time, Bonar Law, when asked the question, was to turn it around. He stated that the dual appointment was not intended to be a permanent one, merely one of economy for the time being, and that this was more about Mr Churchill’s absolute ability to fulfil both roles simultaneously.¹⁰⁸ H. Montgomery Hyde contends that, despite the Leader’s protestations, it might be reasonable to assume that Lloyd George may have intended for the RAF to merge back into the other two services, but later changed his mind.¹⁰⁹ Given the state of the national economy at the time, this assessment seems reasonable when considered alongside possible economies of scale across the military commands and staffs.

By allocating Minister of Air to Churchill, irrespective of which other office he chose, Lloyd George was attaching a portfolio that was of personal interest to the new incumbent, possibly giving the RAF the ‘fighting chance’ it needed to survive as a fledgling single service. Once he had taken up post in his chosen role as Minister for War (and Air), Churchill wrote to Parliament on 8 February 1919 in order to reassure Conservative Ministers that he held no personal ambitions to merge the two Ministries under him and that his dual role would assist in ensuring coherence during the difficult and complex process post-war of demobilisation.¹¹⁰ Churchill himself enacted the re-appointment of Trenchard as CAS, probably with the support of other Cabinet Members. The specific reasons for Sykes’ ‘movement on’ to become the newly created Controller of Civil Aviation are somewhat debated, but here Hyde again offers a reasonable assessment of the most likely scenario. Whilst Rothermere and Sykes had previously been agreement on the direction the newly formed Air Service should take, Weir was much less impressed. It is suggested that he preferred Trenchard’s force of character and that he urged Churchill to make the change.¹¹¹ Sykes merely refers to the episode in his autobiography as having initially the “...impulse to reject Churchill’s offer...” but that “...given financial and moral support by the Government, it

¹⁰⁷ Hyde, *British Air Policy Between the Wars*, 49.

¹⁰⁸ *Ibid.*, 50.

¹⁰⁹ *Ibid.*

¹¹⁰ *Ibid.*, 51.

¹¹¹ *Ibid.*, 52.

might yet be possible to build up civil aviation on a lasting basis.”¹¹² He saw potential in the new post.

The underlying significance of this change of personnel is that Sykes had recently submitted a paper¹¹³ to Weir proposing an Imperial Strategic Air Force. This force would utilise the attributes of air power, as Sykes saw them, of range, speed and surprise from a series of permanent strategic air bases, spread throughout the Empire. In total, Sykes’ plan would require roughly 154 squadrons (including several allocated to Home Defence) at an estimated cost of £21 million.¹¹⁴ The Cabinet rejected the hugely ambitious expansion plan outright and even a subsequent more modest plan requiring just 62 RAF squadrons. Churchill, especially in the prevailing economic climate, considered the plans still too expensive.¹¹⁵ What Sykes had suggested was a complete war-winning package of capabilities provided by the RAF, the majority of which were a direct translation of those demonstrated during the previous four years of war: a home defence force; an imperial police force; specialised forces to cooperate with the Army and Royal Navy; and, significantly, a large strategic striking force. He also foresaw domestic roles that the RAF could take ownership of, to its advantage, including mail distribution, other Government departmental work (surveying) and the establishment of strategic and commercial air routes.¹¹⁶ Sykes had not suggested anything that was tactically unproven or technologically beyond a modern air force funded to achieve the proposed aims. He had, perhaps, been overly optimistic in a time of increasing financial austerity and decreasing perceptions of significant threats to national security.

Sykes refers to the ability in ensuring peace and stability across Palestine, Mesopotamia, Persia and Afghanistan from these strategic bases, continuing his support to the idea of striking the opponent’s “...national moral (morale), and the industries, without which he cannot wage war.”¹¹⁷ But the concept of attacking an opponent’s morale was still lacking in any hard evidence proving its utility and value, especially as the basis for such a considerable investment of scarce public funds. Even evidence from the German bombing of British industrial and population centres had not necessarily supported the concept, as discussed earlier. The only objective evidence gathered, by the post-war independent commission working in Germany, was that little physical damage had been inflicted on most

¹¹² Sykes, *From Many Angels*, 273.

¹¹³ Memorandum by CAS on Air Power Requirements of the Empire, dated 9 December 1918. *Ibid.*, 558.

¹¹⁴ Hyde, *British Air Policy Between the Wars*, 53.

¹¹⁵ *Ibid.*, 55.

¹¹⁶ Sykes, *From Many Angels*, 559.

¹¹⁷ *Ibid.*, 561.

of the industrial targets (airfields, railways and factories). The subjective element of the commission's findings was the perception of damage to enemy morale. Whilst Sykes was a strong proponent of long-range bombing and its supposed psychological effects, Trenchard had also subsequently assessed bombing as having a negative impact on morale, in excess of materiel damage caused, but to a less ardent degree.¹¹⁸ Although not based on any formal or mathematical research, Trenchard's opinion differed subtly from Sykes' by relating this 'moral[e] effect' to the location of industrial targets to be struck. He felt that the morale impact would be far greater if attacking a factory in sight of a populous, so as to multiply the probable minimal materiel damage in morale damage, by about 20.¹¹⁹ Whilst both men believed in the utility of offensive bombing, Trenchard's firm belief was that it should not be at the expense of other operations, such as air-to-ground interdiction of enemy troops or tactical bombing of key enemy support infrastructure (airfields, railways, communications). Sykes believed, despite the lack of objective evidence, in the effects on morale of long-range bombing as a priority and an end in itself. It is arguable that Trenchard's opinion is the better informed, more measured view, due to the lack of effects evidence to support Sykes'.

Trenchard also fundamentally differed from Sykes in his political approach to commanding the new Service. Once in post, Churchill asked Trenchard to write a memorandum on the primary purposes of the RAF. He would write one also, and they would compare notes.¹²⁰ Trenchard completed it the same day, 11 September 1919, in less than 3,000 words. Absolutely critical to how Trenchard approached the drafting of his memorandum was the prevailing austere economic environment that post-war Britain found herself in. The introduction of the 'Ten Year Rule' in August 1919 by Lloyd George would have a profound effect on the finances of all three military services, not to mention the rest of the Country. The impact for the military was translated by Weir into direction to Ministers of "It should be assumed for framing revised estimates, that the British Empire will not be engaged in any great war during the next ten years, and that no Expeditionary Force is required for this purpose."¹²¹ The financial burden placed upon the military was a significantly reduced affordable estimate, some 20 per cent less than its overall real expenditure had been in 1914.¹²² For Trenchard this represented a challenge that Sykes had perhaps not fully realised. The memorandum had to outline the future roles of the RAF in a way that would demonstrate it was affordable in providing capabilities that would ensure its survival as an

¹¹⁸ Cooper, *The Birth of Independent Air Power*, 136.

¹¹⁹ Kennett, *A History of Strategic Bombing*, 51.

¹²⁰ Churchill never wrote his note.

¹²¹ Robertson, *The Development of RAF Strategic Bombing Doctrine*, 29.

¹²² John R Ferris, *The Evolution of British Strategic Policy: 1919-1926* (Basingstoke U.a.: Macmillan, 1989), 17.

independent service. In it Trenchard summarised the necessity for the RAF to remain an independent service and proposed how the building of what would become the historic foundations of the RAF could be achieved economically.¹²³ Supported by Churchill, the memorandum was converted into a White Paper and introduced to Parliament on 11 December 1919.¹²⁴ In influencing the development of the RAF, the Ten Year Rule and Trenchard's approach to working within its limitations were absolutely crucial. It is arguable that had Sykes, for all the positives in his vision for the RAF's future, been allowed to continue as CAS, it is unlikely the RAF would have survived this period.

Inter-service rivalry had, by this point, reached a zenith. The individual department's demands for funding under the extreme fiscal restraints had enhanced feelings across Whitehall that the RAF should be re-brigaded into the other two services. Both the War Office and the Admiralty, who had their political supporters, were openly hostile towards plans to enhance the standing of the new Service.¹²⁵ So in the face of fiscal challenges, open hostility towards his Service, but with the tacit support of his Minister, Trenchard developed an approach that would cement the RAF in Britain's national psyche, ensure its independence by being affordable and develop its capabilities. Key to the direction of this development of capabilities is that it was not necessarily in-line with where Trenchard thought it should go, in developing the most highly capable all-round RAF possible, but where it had to go in assuring the first two points. He started by committing a significant amount of the scarce resource to building the RAF three vital, historic training units – RAF Cranwell (for officer and flying training), RAF Andover (as an Air Staff College for senior officers) and RAF Halton (for apprentice technical training). Trenchard also committed to providing the Army and Navy with a small number of cooperation squadrons, creating a small strike force and developing the home defence capability.¹²⁶ Trenchard's primary aim, as stated in the 'Governing Principles' paragraph of his memorandum, was to reduce the number of squadrons to the minimum required, allocating the majority to overseas duties while maintaining a very small reserve force in Britain; to maintain a number of core skills in the officers and airmen through the foundations of high quality training, resulting in an efficient force that could be expanded for war when required.¹²⁷ This attitude was highly laudable, especially considering the external pressures upon him, and the desire to invest in

¹²³ Chaz Bowyer, *RAF Operations 1918-1938* (London: W. Kimber, 1988), 19.

¹²⁴ Hyde, *British Air Policy Between the Wars*, 72.

¹²⁵ *Ibid.*

¹²⁶ Hugh Trenchard, 25 November Memorandum, published in: *Air Power Review Special Edition 2013*, 258.

¹²⁷ *Ibid.*, 259.

infrastructure and training showed immense foresight, when the easy answer may have been more aircraft, more squadrons and more pilots.

Imperial Policing

Trenchard had secured the immediate survival of the RAF by making it affordable. And he had achieved this while investing heavily in foundations and training – by imperial policing, or Air Control. As previously mentioned, Trenchard proposed in his memorandum to base over three quarters of his squadrons overseas, in India, Egypt and Mesopotamia, as well as seaplanes in Malta and Alexandria.¹²⁸ The purpose was to be able to provide imperial policing at vastly reduced costs to those of the Army and Navy contending, "... that a few RAF squadrons were perfectly capable of controlling vast areas of desert and mountain kingdoms without need for physical occupation of such territories..."¹²⁹ Trenchard's advocacy of such a capability came directly from RFC, RNAS and, latterly, RAF successes in Africa, the Middle East and Central Asia during the War.¹³⁰ The influence of successful wartime imperial air operations on the post-war role of air power was critical, not just to its continued development but to the survival of the RAF.

The idea of 'Air Control' has latterly been attributed to Churchill, but the provision of an imperial policing capability as a cheaper alternative to the Army was actually an ingenious and politically astute move by Trenchard, alluded to in his September 1919 memorandum:

"Recent events have shown the value of aircraft in dealing with frontier troubles, and it is not perhaps too much to hope that before long it may prove possible to regard the Royal Air Force units not as an addition to the military garrison but as a substitute for part of it. One great advantage of aircraft in the class of warfare approximating to police work is their power of acting at once...within a comparatively few hours of the receipt of news. To organise a military expedition takes time...and delay may result in trouble spreading. The cost is also much greater, and very many more lives involved."¹³¹

The 'recent events' Trenchard spoke of were the RAF operations conducted in Afghanistan during May of 1919. Again, air power capabilities developed throughout the War were used

¹²⁸ Ibid., 268.

¹²⁹ Bowyer, *RAF Operations*, 21.

¹³⁰ Consider the earlier example of Palestine.

¹³¹ Hugh Trenchard, 25 November Memorandum, published in: *Air Power Review Special Edition 2013*, 259.

to good effect by the RAF. The long-range bombing of Government buildings and palaces in Kabul, by one of very few Handley Page 4-engine bombers that the RAF owned, caused great damage.¹³² The propaganda value of the raid was even more significant. No longer would Kabul be protected from the British by the mountains. The Air Ministry now had its peacetime evidence of the value that air power had in the imperial policing role.

Trenchard's belief in the ability of Air Power to effectively conduct imperial policing, and to do this cheaper than the Army, was put to the test again in Somaliland during early 1920. Mohammed bin Abdulla Hassan, the 'Mad Mullah', and his Dervish religious followers had been a source of troubles for the British Government since the late 1890s. In late 1918, the Army proposed a two or three-month campaign that would require an extra four battalions of troops.¹³³ Trenchard was privately asked, in 1919, if could find a way of achieving the aim without the need and cost for a land campaign. By January 1920, eight RAF aircraft were based at Berbera disguised as prospecting aircraft. The independent air action lasted just five days, with the opening air-land interdiction and harassing missions successfully scattering and defeating the Dervish troops.¹³⁴ The follow-up actions were in support of the Protectorate's military units, who succeeded in pursuing the Dervish and defeating the last of any resistance. The Governor of the Protectorate believed the victory to be entirely due to the RAF, others disagreed.¹³⁵ David Omissi discusses both views and correctly highlights that the final stages of the campaign were carried out by land troops, supported by the RAF. There is no doubt that the initial raids on the Dervish had the desired effect and achieved what had been asked of Trenchard (the air component cost less than £70,000¹³⁶), but there is equally little doubt that the overall operation had been delivered as a 'joint' campaign.¹³⁷

As Britain entered a new decade, Trenchard had succeeded in securing the RAF's future as an independent service, both by promoting the necessity of a dedicated service to develop and employ air power and by utilising capabilities developed in the War to create a Governmental 'service' providing economical imperial policing. The translation of capabilities developed during 1914 to 1918, however, had already been somewhat compromised. A lack of post-war evidence regarding the utility of attacking an enemy's morale through strategic bombing had not dissuaded Sykes from promoting the possibility. There was now a risk,

¹³² David Omissi, *Air Power and Colonial Control: The Royal Air Force, 1919-1939* (Manchester: Manchester University Press, 1990), 10.

¹³³ *Ibid.*, 14.

¹³⁴ *Ibid.*, 15.

¹³⁵ *Ibid.*

¹³⁶ *Ibid.*

¹³⁷ Colonel H. L. Ismay, Commander of the Somali Field Force, believes combined operations from the start would have been more effective. *Ibid.*

following the successful bombing of Kabul, that the wrong lessons would be learned. Learning the wrong lessons and concomitantly promoting the wrong capabilities would now be a risk across all facets of air power: air reconnaissance and intelligence; air-to-ground interdiction; tactical bombing; and strategic bombing. As Trenchard, the Air Staff and the RAF progressed towards its first written concepts and doctrine document, there was a compelling danger of ignoring the objective lessons from the First World War in favour of those from the poorly-contested, sparsely populated battlefields of the Empire. In order to avoid this trap, Trenchard and the Air Staff would have to focus on the critical influences on air power development from the War, tailoring those relevant objective lessons to current operations so as not to make false claims and assumptions regarding the RAF's capabilities.

Fighting over Funding

Three critical influences continued to shape the development of the RAF and air power capabilities into the 1920s: ongoing economic austerity; continuing, vociferous inter-service rivalry; and even greater focus on imperial Air Control. There is no doubt that the latter was clearly influenced by the two former atmospheric failures failing to improve. The background of the significant challenge facing all three services was that having had their budgets severely cut over financial year 1919/1920,¹³⁸ there was even worse to come. In 1921 Lloyd George sought to refresh and rebuild his political standing. With several senior resignations, Lloyd George's influence over the Cabinet had weakened and it was proving politically more difficult for him to continue pressing for increased reductions in military spending. Churchill had moved to Colonial Secretary, a move that would only add to his advocacy of 'Air Control', and Frederick Guest became Minister for Air, having now been created as a distinct ministerial role. Although a supporter of the RAF as an independent service and of Trenchard, Guest's position was not a Cabinet post. Crucially, Churchill maintained this representation at Cabinet level. The development of the RAF, at the highest levels, would remain with those that had seen it through the immediate post-war years. Despite the continuing support of Churchill for the RAF and the development of its capabilities, Lloyd George's financial cuts still came.

¹³⁸ Military estimates had totaled around £502 million, of which the gross public expenditure on the RAF totaled £52.5 million, by far the smallest of the three services. Robertson, *The Development of RAF Strategic Bombing Doctrine*, 37. Hall, *Strategy for Victory*, 17.

In August of 1921 Lloyd George directed Sir Eric Geddes, of the Committee on National Expenditure,¹³⁹ to examine the programmes proposed by all three services, which would require each service to justify them individually. One of the main areas of tension had been between Trenchard and the First Sea Lord, Earl Beatty, over the debate between capital ship expenditure and the need to develop the RAF's Control of the Air capability, a capability Trenchard argued was to be of greater national strategic importance.¹⁴⁰ Crucially for the Navy, the Committee, including Churchill, favoured the investment in capital ships as being of greater national strategic priority. The Army were also determined to seek the dissolution of the RAF. As of 1921, 75 percent of RAF squadrons were effectively under Army operational control.¹⁴¹ The General Staff questioned the financial expense of maintaining a separate Air Ministry, calling for an enquiry into air administration and expenditure.¹⁴² The Geddes Committee did not agree, however. The RAF would retain its independence and any proposed estimate cuts would be directed at all three services.¹⁴³ A critical issue at this point was that Trenchard has lost his argument for RAF strategic air power utility over naval capital ships in the defence of national security but the Government committee had given the RAF a huge vote of support in the face of significant opposition by the other two services. The key now would be for Trenchard to continue focusing on what utilities of air power the Government did see as advantageous to Britain's survival – Air Control and Home Defence.

Trenchard, meanwhile, had detected an important sub-text of the Navy's argument during the Geddes Committee process - a desire to establish and develop a separate Fleet Air Arm, along the lines of the former RNAS.¹⁴⁴ Of relevance to the influence on the RAF's development was that Trenchard then immediately drafted a paper for Churchill entitled 'The Role of the Air Force in the System of Imperial Defence'. In the paper Trenchard put forward the suggestions that the primary role of the RAF was "...the defence of the British Isles from invasion by air from the continent of Europe..." and that "...certain responsibilities assigned to the Army and Navy could be more economically...carried out by air units..." including "...certain areas of unrest in the Middle East...coastal defence, and the protection of merchant shipping...". Trenchard continued "Under present conditions the strength of the RAF at home was absorbed by its functions as an auxiliary to the Navy and Army, and...there should be more use made of the Air Force as an independent arm...as a

¹³⁹ The Committee was responsible for assessing cuts in all areas of Government spending, not just the military.

¹⁴⁰ Hyde, *British Air Policy Between the Wars*, 99.

¹⁴¹ By their being attached to Army garrisons as part of the imperial air policing force. Ferris, *The Evolution of British Strategic Policy*, 83.

¹⁴² Hall, *Strategy for Victory*, 21.

¹⁴³ Ibid.

¹⁴⁴ Hyde, *British Air Policy Between the Wars*, 99.

substitute for naval and military forces.”¹⁴⁵ The paper impressed Churchill, who then circulated it as an official Cabinet Paper. In writing the paper, Trenchard had opined that invasion of Britain would not come from mass landings, hence his argument against huge expenditure on capital ships, but from repeated, large-scale incursions by hostile strategic bombing aircraft.¹⁴⁶ Whilst reiterating the RAF’s capabilities in imperial policing, and not just as an adjunct to the other two services but as a direct replacement, Trenchard also refocused the argument around the fundamental capabilities that required the creation of the Service in 1918, as laid down in the Smuts report - home defence against an enemy strike force and an RAF strike force capable of delivering offensive effect.

The inter-service and cross-Government arguments over military policy and where to allocate scarce resource did not impact the overall outcome, however; the ‘Geddes Axe’ fell particularly hard on military estimates.¹⁴⁷ In 1921 the RAF gross budget was more than halved to £22.3 million. Further cuts would reduce that to £13.6 million in 1922 and a low of £9.4 million by 1923.¹⁴⁸ In espousing the ability of the RAF as the only feasible counter to a strategic enemy air attack on Britain, Trenchard had also hinted at the transfer of responsibility for coastal defence, a capability he alluded to in his paper to Churchill. Scot Robertson rightly questions the wisdom of Trenchard’s actions, expanding the RAF’s remit in a climate of significantly reducing budgets.¹⁴⁹ Robertson maintains that the diversion of scarce finances, and of Air Staff time and intellectual effort, was counter-productive to the focus on doctrine development for strategic air power and a strategic bombing force.¹⁵⁰ This paper contends that Trenchard’s priority at the time, considering the ferocity of the inter-service rivalry and steeply declining financial resources, was the mere survival of the RAF, without which the arguments over the utility of strategic air power would become lost in the spending priorities of the other two services. This is also why Trenchard’s focus on allocating a significant proportion of the RAF’s meagre budget on building Cranwell, Halton and Andover was also fundamental to the future of the Service.

The application of Air Control, meanwhile, was progressing quickly and with some significant successes. Churchill requested that Trenchard accompany him to the March 1921 Colonial Conference, in Cairo. It was here that Churchill imposed his positive opinions on the gathered audience regards the principle of RAF squadrons replacing large Army units, in the

¹⁴⁵ Ibid., 100.

¹⁴⁶ Ibid.

¹⁴⁷ Hall, *Strategy for Victory*, 17.

¹⁴⁸ Ibid.

¹⁴⁹ Robertson, *The Development of RAF Strategic Bombing Doctrine*, 38.

¹⁵⁰ Ibid.

Middle East especially.¹⁵¹ Trenchard's acceptance of the air-policing role and the home defence priority were to become the two primary tenets of the post-war RAF's *raison d'être*. David Hall discusses this point concluding, "By accepting new imperial policing responsibilities the CAS had wisely elected to operate within the government's new guidelines of economy. Success in this role to a large degree preserved the RAF's independence during the early twenties."¹⁵² Churchill's specific focus was Mesopotamia.¹⁵³ By early 1920 the military garrison included 14,000 British troops and costs had risen to £18 million per annum. Churchill believed the garrison could be reduced to 4,000 or less British troops, if supported by air units. Trenchard was asked to submit a plan for consideration.¹⁵⁴

During the War, Britain, with an Anglo-Indian force, had fought the Turkish army for control of much of Mesopotamia. The significant costs in 'blood and treasure' served to highlight the critical importance of the region to Britain, an increasingly 'oil-burning' nation. Civil unrest, tribal disputes and rebellion against the occupying force could not be allowed to undermine British control and risk the loss of such vital natural resources. But the British Government was increasingly concerned over the costs of maintaining order.¹⁵⁵ Trenchard's proposal was to base eight RAF squadrons in there by early 1922. By October 1922, full control of the policing campaign was held by the RAF, with the arrival of Air Vice-Marshal John Salmond as General Officer Commanding all forces in theatre.¹⁵⁶ By this time, the RAF had proved its ability to quell uprisings merely by presence. This deterrent effect was often achieved without having to resort to the use of bombs or strafing. Trenchard had actually strictly forbidden the bombing of tribal villages, unless 24 hours notice was given.¹⁵⁷ The success of the RAF in Iraq during late 1921 and 1922 served to confirm Churchill's opinion and Trenchard's assertion that air power could provide imperial policing far more economically than land forces alone.

The risk to the development of air power was that the majority of RAF pilots and intellectuals were now focussed on this capability. It was largely unopposed, with an element of fear in the rebellious tribesmen that was extremely unlikely to exist in a European opponent. The lessons potentially being identified and translated into tactics, then developed into formal concepts and doctrine, could have proven disastrous against an enemy of similar military capability to the British. David Omissi contends that the RAF experience in Iraq, and

¹⁵¹ Bowyer, *RAF Operations*, 23.

¹⁵² Hall, *Strategy for Victory*, 19.

¹⁵³ Mesopotamia was renamed Iraq in September 1921.

¹⁵⁴ Omissi, *Air Power and Colonial Control*, 21.

¹⁵⁵ *Ibid.*, 22.

¹⁵⁶ Bowyer, *RAF Operations*, 24.

¹⁵⁷ *Ibid.*

subsequently in India, may have had more applicable lessons than given credit. Omissi's point is that throughout the era of Air Control, not just during the early 1920s that this study concerns itself with, tribal forces learned to adapt to the air threat.¹⁵⁸ This required the RAF to counter-adapt in order to remain effective against its enemy. He also alludes to a tribal 'mental adjustment to bombing', so reducing its material and psychological impacts.¹⁵⁹ Omissi highlights valid areas of conceptual and doctrinal development throughout the Empire during the period, assessing the RAF's active service on 'small wars' as potentially misleading for any European conflict, but having genuine developmental value.¹⁶⁰ The question remains then as to whether relevant lessons were identified as applicable to the wider RAF's employment of air power, or if they remained internal developments to the Air Control force, seen as applicable only against a less capable enemy and operating an ageing fleet of aircraft.

Following the Geddes Committee, the RAF's home defence proposal had been the creation of a Home Defence Air Force (HDAF). Many of the savings achieved in the early 1920s had been from ancillary areas.¹⁶¹ This had enabled the RAF to grow its squadron strength to 31½ by 1921. The Cabinet, favouring the HDAF concept, allocated 5 of these squadrons to home defence. By 1922 the HDAF became the RAF's priority in Europe.¹⁶² In December 1921, the Standing Defence Sub-Committee of the Committee of Imperial Defence directed that a special sub-committee investigate the question of British vulnerability to air attack and the requirements for meeting such an attack.¹⁶³ It held the title 'Sub-Committee on the Continental Air Menace' and was to report on: the nature and strength of air attacks that a continental power could deliver; the morale effect on the population of air attacks on the scale considered possible; and retaliatory measures that could immediately be directed against a continental power by the Navy and Air Force.¹⁶⁴ Strangely, France became the subject of the 'Air Menace' enquiry. Following the War, France emerged the preeminent European air power.¹⁶⁵ By 1921, despite no tangible threat of war between the two powers, the British Government was concerned enough to instigate an enquiry.¹⁶⁶ Britain had only

¹⁵⁸ Omissi, *Air Power and Colonial Control*, 132.

¹⁵⁹ *Ibid.*, 133.

¹⁶⁰ *Ibid.*, 149.

¹⁶¹ Ferris, *The Evolution of British Strategic Policy*, 116.

¹⁶² The HDAF was to be augmented by Trenchard's unique Auxiliary Air Force creation. But this did not become law until 1924, beyond the scope of this study. Bowyer, *RAF Operations*, 25.

¹⁶³ Robertson, *The Development of RAF Strategic Bombing Doctrine*, 43.

¹⁶⁴ There were additional questions the Committee was expected to report back on, but these three relate most closely to this paper. *Ibid.*, 44.

¹⁶⁵ Whilst Britain had quickly demobilized across all three services, France had continued to invest in air power and its associated technology. Kennett, *A History of Strategic Bombing*, 72.

¹⁶⁶ Part of the paranoia stemmed from the fact that French aircraft could be over London quickly, with little notice, whereas Paris was beyond the reach of almost all of the RAF's current types.

five squadrons based at home and would have no way to counter a massive aerial threat from the continent.¹⁶⁷ The Air Ministry estimated, based on monthly bombing figures by Germany on London in 1917 and IF bombing statistics of 1918, that France could sustain a strategic bombing campaign of over 130 times that of the Gotha raids and over fourteen times that of the IF. The Air Ministry then focused on London being the prime target. The results of which were assessed as: the greatest morale effect; significant material effect; dislocation of Government; and disruption to communications across the country with concomitant mobilization consequences. Of note, H. Montgomery Hyde argues that Trenchard did not take this potential threat very seriously and that Balfour, the architect of the investigation and study, was merely being alarmist.¹⁶⁸

Early Concepts & Doctrine

And so the RAF approached the drafting of its first doctrine manual with two distinct pillars of RAF activity, Home Defence and Air Control, and some well-defined, though not necessarily objective, thoughts on other utilities of air power. The document itself was the 'Operations Manual, Royal Air Force', dated July 1922. It was fundamentally a well-balanced representation of RAF air power capabilities at the time, whether operational, aspirational or theoretical.¹⁶⁹ The majority of the document actually concerns itself with the 'domestics' of an independent service. It discusses quarters, field report formats, discipline and training and was largely designed around existing doctrinal formats. It, therefore, resembles the War Ministry's other doctrine manuals of the time in that it begins with: The Principles of War; Policy and Plans; and Fighting Troops and Their Characteristics. Critically, it also covers Aerial Operations and Aerial Fighting in great depth and it is here that Trenchard's views are obvious.

Offensive action over defence is highlighted from the start. The bombing of enemy military infrastructure, for example railways and airfields, is described as 'the most effective method of attaining the main object',¹⁷⁰ with munitions factories and more industrial targets being a lower priority. This goes right back to Trenchard's key principles as head of the RFC on the Western Front and, latterly, the IF. The subject of targeting enemy morale is only briefly covered, highlighting that the bombing of population centres with no greater justification

¹⁶⁷ Ibid.

¹⁶⁸ Hyde, *British Air Policy Between the Wars*, 110.

¹⁶⁹ The Operations Manual focusses on the air power requirements of all three services, not just the RAF. It also gives a balanced weight to all aspects of air power and does not specifically focus on the two pillars of Air Control and Home Defence alone. Air Ministry, *Operations Manual, Royal Air Force* (London: HMSO, 1922).

¹⁷⁰ Ibid., 54.

would be against internationally agreed rules. The Manual goes further in stating that legitimate bombing of such areas must still take into consideration hospitals and other privileged buildings protected under the Geneva and Hague Conventions. This passage alludes to Trenchard's belief that the morale effect of bombing on the populous can have a much greater effect when a justifiable target is struck within their view, as opposed to indiscriminate bombing that may anger the populous, strengthening its will to survive.

The Manual also, necessarily at the time, covered Home Defence. In another acknowledgement of Trenchard's beliefs, it reiterates that defence is not as effective as offence but concedes that where required, concentration of force and defence in depth is vital to achieving success, something the RNAS were unable to achieve against the German bombers. The Manual acknowledges many other attributes and utilities of air power: aerial fighting (Control of the Air); army cooperation including reconnaissance, harassing, pursuit and bombing; and naval cooperation including observation, anti-ship and anti-submarine torpedo work and attacks against enemy naval bases. In doing so the Manual specifically acknowledges the requirements for air power by the other services, in detail, requirements that the Navy and Army found so difficult to accept during the Geddes Committee. Whilst some of the capabilities of air power had obviously been developed since November 1918, the core concepts and doctrine of its utilities expressed in the Operations Manual remained those influenced by and developed during the First World War.

Conclusion

Despite the scepticism surrounding the arrival of lighter-than-air craft in the military inventory and its potential utility in war, the aeroplane not only survived the opening salvos of the First World War but quickly became accepted and even relied upon. As air power began to extend its remit beyond just observing and reconnoitring for front-line troops, so the demand for these additional capabilities increased. This paper has sought to highlight and critically analyse the influence of wartime events, personalities and politics on that increasing utility of air power. The rapid development of the RFC's battlefield tactics was directly influenced by ground commanders' requirements and was achievable because of the adaptability of the fledgling aeroplane and the flexibility of its crews. The RNAS' initial requirements to provide home defence and execute long-range attacks against Zeppelin bases were directed by a more political requirement, but equally reliant on the adaptability of its aircraft and crews. Whilst the relative military successes of these tasks are debateable, the ability of air power

to quickly develop tactics in tackling emerging threats¹⁷¹ became a key tenet of its utility. By 1918 these capabilities had been developed, honed, countered and exported to imperial battlefields across the Empire. Significantly, these capabilities included long-range bombing and it's perceived, by some, ability to influence fighting will and morale of the people, despite a lack of hard evidence. Critically, although perceptions would change in the 1930s, other aspects of air power would become the backbone of the RAF's immediate post-war remit. What is absolutely clear is that the First World War had a profound and fundamental influence on the development of air power, aircraft technology, tactics and capabilities. How these developments were then influenced and utilised in a post-war Britain would be as critical, in the end, to the development of the RAF's early Concepts and Doctrine as the War experience itself.

The greatest threats, and therefore influences, in the post-war era were undoubtedly financial austerity and inter-service rivalry. Trenchard tackled both threats with a high degree of political comprehension and a profound desire not to be seen usurping the other services. Had the other services developed the same levels of political astuteness, or had Sykes been allowed to create his Imperial Air Force, it is arguable that the RAF would have been unlikely to have survived the period as an independent service. Trenchard took battle-proven aspects of air power and developed them into capabilities that appealed to the Government, both financially and politically. The use of the wartime air-policing role, in what became Imperial Air Control, and the development of the HDAF, as the British Government's insecurities over potential continental air threats increased, was an insightful approach by Trenchard, one which undoubtedly helped secure the future of air power, under the RAF. The subsequent development of its first Concepts and Doctrine was a strategic moment in the RAF's history. It confirmed the idea that an independent air Service now controlled air power development and implementation, on behalf of the military, for the Government. Trenchard had not only succeeded proving the utility of air power during peacetime operations but had done so in a manner that proved it to be financially preferable to Whitehall.

The critical influence of wartime developments on the RAF's first Concepts and Doctrine document is clear, as is their progression through time, across the Empire and into peace. Trenchard's selection of Home Defence and Air Control, while undoubtedly political and financially focussed, as the two pillars of air power extolled by the document are direct translations of developments fundamentally influenced by and battle-proven during the First

¹⁷¹ Such as the 'harassing' tactics developed by the RFC to counter enemy aircraft over Allied trenches or the ability for Palestine aircrews to direct ground troops to hard-to-find watering holes.

World War. The Air Ministry Operations Manual of the Royal Air Force 1922 is a balanced document, encompassing all the capabilities that air power demonstrated between 1914 and its publication. The First World War played an absolutely crucial role in influencing the creation and development of those capabilities and, as a direct result, the basis of the Concepts and Doctrine stated in the 1922 Manual. Following the Armistice, Trenchard and the RAF were faced by more politically challenging yet equally influential factors. Between them, the influences of these events and the significantly foresighted leadership of Trenchard fundamentally shaped this first manual of RAF Concepts and Doctrine.

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