

THE BRITISH AIR CAMPAIGN DURING THE BATTLE OF THE SOMME
APRIL-NOVEMBER, 1916: A PYRRHIC VICTORY

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ABSTRACT

The Battle of the Somme was Britain's first major offensive of the First World War. Just about every facet of the campaign has been analyzed and reexamined. However, one area of the battle that has been little explored is the second battle which took place simultaneously to the one on the ground. This second battle occurred in the skies above the Somme, where for the first time in the history of warfare a deliberate air campaign was planned and executed to support ground operations. The British Royal Flying Corps (RFC) was tasked with achieving air superiority over the Somme sector before the British Fourth Army attacked to start the ground offensive.

This study focuses on the Royal Flying Corps, its organization and leaders, as well as the strategy and doctrine it employed in its attempt to regain air superiority from the *German Army Air Service (GAAS)* in the spring of 1916. Prior to the start of the ground battle, the commander of the RFC, General Hugh Trenchard, directed his squadrons accomplish six tactical tasks in order for the RFC to achieve aerial superiority over the Somme. These tasks were: 1) aerial reconnaissance, 2) aerial photography, 3) observation and direction of artillery, 4) tactical bombing, 5) 'contact' patrols in support of the infantry and 6) air combat against the GAAS to enable achievement of the other five tasks. Critical to answering the question of whether or not the RFC accomplished its assigned tasks this study also examines the development of air power strategy by the RFC before and during the battle. Five factors are used to frame the analysis: strategy, organization, leadership, selection and training of aircrew.

Although the RFC suffered high losses because it rigidly adhered to an offensive strategy throughout the air campaign, when the battle ended, the RFC still controlled the skies above the Somme. While the ground campaign failed to accomplish most of its stated objectives, historians have argued that the air campaign was a victory for the RFC. This paper contends that because of the heavy aircrew casualties it in fact proved to be a Pyrrhic victory. The consequences of maintaining a continuous air offensive over the Somme led to nearly disastrous results for the RFC in its subsequent air campaign over Arras in April, 1917.

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Chapter One

INTRODUCTION

To Command the Sky

On the first morning of the Battle of the Somme, 1 July, 1916, an air engagement took place before the first British troops ever left their trenches to begin the attack. Just after 0600 hours, two single-seat de Havilland DH 2 pusher biplanes, the first true single-seat British fighter aircraft of the war, became engaged with ten German two-seater aircraft crossing the lines at Festubert on a bombing mission.¹ Flying the lead DH 2 was the squadron commander, Major Lionel W. B. Rees. A career soldier, Rees had transferred to the Royal Flying Corps (RFC) at the outbreak of the war in August, 1914 and was serving his second tour at the front with an operational squadron. He had won the Military Cross as a flight commander in 1915 flying an FB5 Gunbus with Number 11 Squadron.² The second aircraft in the flight was piloted by a Canadian, Lieutenant J. C. Simpson. While Simpson patrolled the lines from La Bassee, Loos, and Souchez, Rees patrolled the front line awaiting the return of a flight of DH 2s, he had sent out several hours earlier to escort aircraft from two other squadrons whose mission was to bomb the railway station at Don and disrupt German troop movements in the area.³

Now separated from his squadron commander by several miles of sky and though the odds were heavily against him, Lieutenant Simpson dove to attack the German formation. Within seconds, Simpson found himself attacked in turn. After a fierce exchange of machine-gun fire, Simpson's DH 2 was seen by observers on the ground to descend more than 5,000 feet, apparently under control. In fact Simpson had been killed instantly having been hit eight

¹ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, (London: William Kimber and Co., Limited, 1969), 170-173.

² Alex Revell, *Victoria Cross: WWI Airmen and Their Aircraft*, (Stratford, CT: Flying Machine Press, 1997), 77.

³Ibid., 78.

times in the head by the accurate fire from the German gunners. His aircraft crashed in no-man's land where the wreckage was almost immediately shelled by German artillery.⁴

Rees was too far away from the fight to have witnessed Simpson's demise but he did spot the cluster of aircraft crossing the British lines and assumed they were the returning British bombers he was to link up with. Flying to intercept them, it was not until he spotted the small crosses on their fuselages that he realized they were enemy machines. He was more than a little surprised that a flight of German aircraft was actually attempting to cross over the lines into British airspace, something they had not done in any strength for several weeks. Rees, replicating Simpson, attacked without hesitation. Holding his fire until he was less than one hundred yards from the leading aircraft, Rees fired thirty rounds from his Lewis machine-gun, causing damage to the fuselage between the pilot and the observer. Rees then attacked the second aircraft and fired fifteen rounds into it. In the span of a few seconds he had badly damaged two enemy aircraft. Both were seen to be trailing smoke and descending back towards the safety of the German lines. At least one of the bombers dropped its bombs on top of German positions.⁵

At 9,000 feet, Rees then proceeded to attack five more of the enemy aircraft and in the process broke up the integrity of their formation and effectively ended the Germans bombing mission. He was however, hit in the upper leg by a bullet from one of the bomber's observer-gunners but continued to attack as he came within range of another enemy aircraft. "I finished firing about ten yards away, and saw the observer sitting back firing straight up in the air. . .

⁴ Alex Revell, *Victoria Cross: WWI Airmen and Their Aircraft*, 78. See also H. A. Jones, *The War in the Air: Being the Story of the Part Played in the Great War by the Royal Air Force, Vol. 2*, (London: Oxford University Press, 1928), 332. Hereafter referred to as *WITA* followed by volume number.

⁵ W. Alister Williams, *Against the Odds: The Life of Group Captain Lionel Rees, VC*, (Clwyd, Wales: Bridge Books, 1989), 90-91,

He was firing an immense amount of ammunition. Just before he reached the lines I gave him one more drum. Having finished my ammunition I came home.”⁶

One British pilot had single-handedly prevented ten German bombers from crossing the British lines and accomplishing their mission. It was later confirmed that Rees had in fact shot down the first two aircraft he had attacked. Thousands of soldiers from both sides had been witnesses to this act of incredible bravery. As it turned out, Rees had killed the commander of the German flight of aircraft, Leutnant Erich Zimmermann, the *Staffelführer* of *Kaghol 3* and wounded his pilot with the aircraft crashing near a small village near La Bassee.⁷

The results of the air action between Rees and the German bombers would have no small impact on the *German Army Air Service's (GAAS)* bombing raids during the opening phase of the Battle of the Somme. The *Official Historian* of the Royal Air Force (RAF) later recorded that “The efficacy of his [Rees’s] attack impressed the enemy whose attempts at daylight raiding afterwards were few.”⁸ Lieutenant Gwilym Lewis, a pilot who served with Rees in Number 32 Squadron, wrote a letter to his parents describing his commanding officer’s actions that morning.

The Major [Rees] happened to be up at the same time on a DH. I told you he was the bravest man in the world. He came across them a little later, and the Archie [Anti-Aircraft] batteries say they have never seen anything so gallant or comic in their lives. The Huns were in a tight little bunch when he came along-after he had finished they were scattered in twos and ones all over the sky, not knowing which way to go. He sent the first one down out of control; the second one probably had a bullet through the engine. He turned to attack the third, whose observer was sitting with his head back and his gun aimed vertically upwards fairly blazing off bullets. I suppose he must have forgotten

⁶ W. Alister Williams, *Against the Odds: The Life of Group Captain Lionel Rees, VC*, 90-91. See also Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*. (London: Constable and Company Limited, 1994), 164-165.

⁷ Alex Revell, *Victoria Cross: WWI Airmen and Their Aircraft*, 76-79. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, (London: William Kimber and Co., Limited, 1969), 172.

⁸ H. A. Jones, *The War in the Air, Vol. II*. (London: Hamish Hamilton, 1928), 332. Hereafter referred to as *WITA*.

to take his hand off the trigger before he "pipped out." Just as the Major was going to get this machine as a trophy another fellow came and shot him in the leg from below. He was still going on but discovered he couldn't steer his machine so he came home.⁹

Rees was wounded worse than it first appeared. Upon landing he was taken to a Casualty Clearing Station and then spent six months in the hospital recovering from his wound. He was never able to fly on active operations again.¹⁰ His actions in leading his fighter squadron in June culminated with his one and only mission of the first day of the Somme offensive. For his courage and resolution in the face of overwhelming odds, Rees would later receive the Victoria Cross, Britain's most distinguished medal for valor.¹¹ Although the air battle over the Somme lasted nearly eight months, Rees was the only RFC pilot to receive the Victoria Cross during the arduous campaign.

Since the Battle of the Somme's eightieth anniversary in July, 1996, there has been much renewed interest by historians and laymen alike regarding Britain's first major offensive of the First World War. Just about every facet of the campaign has been analyzed and reexamined. Many of the works have focused on the senior commanders, the strategy and tactics that were used, the units involved and of course the soldiers that fought the campaign. There has also been much attention given to the social, cultural, and political aspects of the nations and armies that conducted the battle. An ever-increasing group of military historians have argued that the Somme campaign was a turning point in both the war and in military history because during this battle the tank was introduced to the battlefield and aerial warfare

⁹ Gwilym H. Lewis, *Wings Over the Somme, 1916-1918*. (Clwd, Wales: Bridge Books, 1976), 47-48.

¹⁰ Christopher Shores, Norman Franks & Russel Guest, *Above the Trenches: A Complete Record of the Fighter Aces and Units of the British Aces and Units of the British Empire Air Forces, 1914-1920*, (London: Grub Street, 1990), 316.

¹¹ Trevor Henshaw, *The Sky Their Battlefield: Air Fighting and the Complete List of Allied Air Casualties From Enemy Action in the First War*, (London, Grub Street, 1995), 90.

emerged as a factor to be considered in all future operations. In the last ten years alone more than three dozen books have been written about the events that took place in northern France between July and mid-November, 1916.¹² For almost five months, British, French, and German armies fought one of the costliest battles of the twentieth century and arguably, in all of recorded history. The result was well over a million casualties suffered by the three combatants and yet only a few miles of ground had been captured by the Allies when the titanic struggle concluded. Historians on both sides of the Atlantic continue to argue and debate whether or not the British actually achieved their stated purpose and whether the results justified the human cost.¹³

However, one area of the battle has been little explored and that is a second battle which occurred simultaneously to the one on the ground. This second battle took place in the skies above the Somme, where for the first time in the history of warfare a deliberate air campaign was planned and executed to support ground operations. The RFC was directed to achieve air superiority by its commander before General Sir Douglas Haig, commander of the British Expeditionary Force (BEF) launched Britain's first major ground offensive of the war.

The few historians who have written about the air campaign in the last three decades have argued that the RFC not only achieved air superiority during the Battle of the Somme but by doing so achieved a significant victory in the process.¹⁴ Prior to the start of the battle

¹² These books are listed in the bibliography.

¹³ Revisionist historians such as Gary Sheffield, Robin Prior, Trevor Wilson, Martin Gilbert, and Michael Chappell among a litany of others have provided strong arguments that the Somme was not the catastrophe that the 'traditionalist' historians made it out to be. They contend that not only did the British offensive relieve pressure from the French at Verdun but more importantly by inflicting enormous casualties on the German army the battle was a necessary pre-condition for the Allied victory in 1918.

¹⁴ The most recent works on the subject are Peter Hart's *Somme Success: The Royal Flying Corps and the Battle of the Somme, 1916*, (London: Pen & Sword Books, Limited, 2001); Nigel Steele and Peter Hart's *Tumult in the Clouds: The British Experience of the War in the Air 1914-1918*, (London: Hodder & Stoughton, 1997) and Ralph Barker's *The Royal Flying Corps in France: From Mons to the Somme*, (London: Constable and Company, Limited, 1994).

General Trenchard directed the RFC to accomplish six tactical tasks in order to achieve air superiority over the battlefield. These tasks were: 1) aerial reconnaissance, 2) aerial photography, 3) observation and directing artillery, 4) tactical bombing, 5) ‘contact’ patrols in support of the infantry, and 6) air combat against the German Army Air Service (GAAS). By accomplishing the six tactical tasks the RFC achieved air superiority before and during the battle but the relentless pursuit of a strategy of offensive operations at all cost by the RFC leadership jeopardized the organization’s ability to conduct future operations. The air campaign over the Somme resulted in a Pyrrhic victory for the RFC which led to its defeat by the *Luftstreitkräfte* during the subsequent air campaign at Arras in April, 1917.¹⁵

To support the contention that by gaining air superiority over the Somme the RFC earned a Pyrrhic victory which resulted in nearly disastrous air campaign that followed this study will focus on the British efforts to achieve air superiority in the spring of 1916 above the battlefield before and during the First Battle of the Somme. How did the RFC wrest control of the skies from the *German Army Air Service (GAAS)* which had gained and then maintained air superiority for nearly eight months before the battle began? If the RFC did accomplish its tactical tasks was it able to maintain control of the air throughout the duration of the battle? What impact, if any, did the RFC have on the ground campaign during the battle? By conducting a deliberate and well-planned air campaign, the RFC did in fact develop the operational framework that would be used by air forces in each of the conflicts that followed the First World War. Critical to answering the question of whether or not the RFC accomplished its assigned mission before the start of the battle is assessing the development

¹⁵ A Pyrrhic victory is defined as a victory won at staggering cost to the victor. The phrase is named after King Pyrrhus of Epirus, whose army was victorious against a Roman army at Asculum in 279 BC during the Pyrrhic War. Pyrrhus’ army sustained enormous casualties and he was reputed to have said after the battle “If we are victorious in one more battle against the Romans, we shall be utterly ruined.” See *Webster’s II New Riverside University Dictionary*, (New York: Riverside Publishing Company, 1988), 960.

and formulation of an air power strategy by the RFC prior to and during the battle itself. Just as important, the organization of the RFC and its leadership must also be examined to determine how these two critical elements shaped the planning and execution of the air campaign.

To answer the above stated questions, five factors will be used to frame the analysis. It will be argued that each of these five factors played a role, some more critical than the others, in the planning and execution of the air campaign, as well as the results achieved and the consequences of those results which occurred after the battle was over. The first factor is strategy, most especially the strategy that was formulated and used by the RFC prior to and during the battle as well as development of doctrine to support that strategy. Of particular interest will be the examination of whether or not the strategy was modified or changed during the eight month air campaign. Tied to strategy is the element of morale and its impact on the aircrew during the battle, especially when the RFC casualty rate exceeded acceptable standards during the last two months of the offensive. The end result of the aircrew's herculean efforts and sacrifice would call into question the chosen strategy used to conduct the air campaign. The second factor is the organization of the RFC. Analysis include how the RFC was created, developed and expanded to accomplish the missions assigned to it by the BEF's leadership. The third factor is leadership, in particular an analysis of the three most influential leaders within the RFC who shaped and led the force before and during the battle, and the decisions they made and the consequences of those decisions. The fourth factor is the selection process used to identify potential aircrew for entry into the RFC and the fifth and last factor is training, more specifically the training programs that were used to prepare the aircrew for their role in the air war over the Somme.¹⁶ To take each of these factors in turn:

¹⁶ For the purposes of this study the term *aircrew* will encompass pilots as well as observers and aerial gunners.

First, *strategy*, which has been interpreted and defined to differing degrees of understanding throughout history by the great military theorists from Sun Tzu to Liddell Hart. Heinrich Dietrich von Bulow defined strategy as “all military movements out of the enemy’s cannon range or range of vision,” and tactics as “all movements within this range.”¹⁷ Carl von Clausewitz, renowned today as the father of modern strategic study, argued that von Bulow’s definitions were far too simplistic because they did not take into account the advancements to technology on the battlefield. Clausewitz presented a definition for military strategy that he believed would apply to all wars whether they had been fought in the past, those then being fought during his lifetime and those that would be fought in the future. “Tactics constitute the theory of the use of armed forces in battle; strategy forms the theory of using battle for the purposes of the war.”¹⁸

In his book, *Strategy*, Liddell Hart concluded that Clausewitz’ definition of strategy as "the art of the employment of battles as a means to gain the object of war" was seriously flawed because this view of strategy intruded upon policy and made battle the only means of achieving the strategic objectives that had been identified by the national or state government.¹⁹ Later in the same work, Liddell Hart acknowledged that Clausewitz recognized these shortcomings in his definition and had he not died at the relatively early age of fifty-one he would have clarified his statement. Liddell Hart defined strategy to be: "the art of distributing and applying military means to fulfil the ends of policy."²⁰

¹⁷ *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret, (Princeton, NJ: Princeton University Press, 1986), 190.

¹⁸ *Ibid.*

¹⁹ B. H. Liddell Hart. *Strategy*. (London: Faber & Faber, 1954), 319.

²⁰ *Ibid.*, 321.

For the purposes of this study strategy is defined as a set of ideas for employing military forces in a synchronized and integrated fashion to achieve national or multinational objectives. Strategy is also distinct from tactics. The latter's focus is concerned with the conduct of a battle or an engagement while strategy focuses on how the different battles and engagements are linked. Thus how a battle is fought deals with tactics and whether or not the battle should be fought at all is a matter of strategy. Furthermore, doctrine is not strategy but is in fact a sub-element of strategy and incorporates how technology, the capabilities of the adversary, and the capability of one's own organization will ensure mission accomplishment.²¹

In this study morale is tied inextricably to strategy. Morale is defined as the human dimension's most important intangible element, especially in combat. It is a measure of how people feel about themselves, their organization and their leaders. "High morale comes from good leadership, shared effort and mutual respect. . . High morale results in a cohesive team striving to achieve common goals. Competent leaders know that morale . . . holds the organization together and keeps it going in the face of terrifying and dispirited events that occur in war," the U.S. Army's most recent disquisition on the subject has avowed.²²

The second factor is *organization*. A simple definition of an organization, in this case a military organization is an entity that consists of a group of military personnel who belong to the armed forces of a state so as to provide a military capability that is required by the aims established by those setting a national security policy. All organizations, military or civilian, share three key characteristics. First, it must have a purpose; second it must contain people, and thirdly, it must have plans. Edwin Gerloff has written: "Organizations are goal-oriented associations of people which have identifiable plans, systems and structures that are designed

²¹ Robert F. Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907-1960*. (Maxwell Air Force Base, AL: Air University Press, 1989), 7-9.

²² Headquarters, Department of the Army, *FM 6-22: Army Leadership*, October, 2006, 7-8.

to accomplish their intended purposes.”²³ Goals and objectives are the center of gravity for a military organization and faced with complex situations such as combat operations, the leadership must make adjustments to achieve those goals and objectives. A military organization contains a leadership structure that is hierarchical in nature with a formalized rank structure. The leadership determines the relationships between functions and positions, delegate’s roles, responsibilities and authority to carry out identified tasks that will lead to attaining the organizations established objectives.

The third factor is *leadership*, which for our purposes is defined as “the process of influencing people by providing purpose, direction, and motivation while operating to accomplish the mission and improving the organization.”²⁴ Key elements of this definition of leadership include purpose and vision. “Purpose gives subordinates the reason to act in order to achieve a desired outcome” while vision is just another way leaders can provide an organizational purpose. Both in peacetime and in war, organizational-level leaders usually provide a statement to their units encompassing far-reaching objectives and goals as well as mission accomplishment.²⁵ Specifically, the focus will be on the three senior leaders of the RFC who were responsible for the planning, resourcing, and execution of the air campaign over the Somme.

The fourth factor is the *selection of aircrew* and specifically focuses on the human dimension of the air campaign: the pilots and observers who manned the RFC squadrons and were responsible for accomplishing the missions assigned them throughout the battle. Analysis will focus on the selection criteria for aircrew and whether or not the RFC had

²³ Edwin A. Gerloff, *Organizational Theory and Design: A Strategic Approach to Management*, (New York: McGraw-Hill Book Company, 1985), 6.

²⁴ Headquarters, Department of the Army, *FM 6-22: Army Leadership*, 1-2.

²⁵ *Ibid.*

developed an effective system for selecting potential aircrew and the strengths and weaknesses of that system prior to the air campaign over the Somme.

The fifth and last factor is the *training of aircrew*. Training, for our purposes, is defined as a process to make personnel proficient in accomplishing specific tasks with specialized instruction and practice and refers to the methodology and programs that the RFC used to train their aircrew to accomplish the assigned tasks required once they joined an operational squadron and then deployed to France to participate in the air battle.

To illustrate the five factors chosen for analysis and to also put a face on the RFC during the air campaign, the experiences of ten airmen will be incorporated into the narrative. They were selected for several reasons. First, they represent a cross-section of British society with various backgrounds, professions and classes, but of the RFC as well. Second, they represented the different nations that belonged to the British Empire at the time of the First World War. Four were from England, two from Wales, one each from Scotland, Ireland, Canada, as well as an American who was serving with a Canadian unit before volunteering for duty with the RFC. Thirdly and most importantly, each left either an autobiography, unpublished memoir or a detailed collection of letters that chronicles his experiences in the RFC during the air campaign on the Somme.

Each of these ten airmen had one thing in common-a fascination of being part of something new that offered both excitement and opportunity. How the men were selected, trained and what they witnessed as aircrew during the Battle of the Somme should illuminate what thousands of British and Dominion airmen experienced while executing the air campaign. Somewhat surprisingly, with the exceptionally high casualty rate that the RFC suffered during the battle, nine of the ten men highlighted survived not only the air campaign but the war as well.

Prior to any analysis of the air campaign itself it is necessary to briefly examine the development of air power theory in Britain prior to the outbreak of hostilities and, more importantly, the development of an aerial strategy for the RFC in France during the first two years of the war, including the Somme offensive. How was it that the RFC came to the conclusion that by conducting a continuous offensive strategy in the air they would be able to attain air superiority over the battlefield and by doing so ensure that the British forces on the ground would have a much greater chance of accomplishing their objectives? Achieving aerial superiority was only a means to an end for Haig and the commander of the RFC, General Sir Hugh Trenchard. Though there was always the argument within political and military channels before the war of making the RFC a separate service, the RFC was not a separate service but an auxiliary branch of the army and would remain so if Haig and Trenchard had anything to say about it.²⁶

The real benefit of attaining air superiority was to allow freedom of movement for those aircraft assigned to observe and direct artillery fire; conduct photographic reconnaissance of enemy positions, troop movements and logistics routes and centers; maintain observation of friendly troops in the attack and through the use of fighter aircraft, prevent the enemy from doing the same.²⁷ By accomplishing these missions the RFC should have been able to provide significant support to Haig's armies. At the same time, even if aerial superiority was achieved, the effort would be largely wasted if the ground forces could not capitalize on what the RFC provided it in the way of intelligence, artillery direction, and close support to the infantry.

²⁶ Malcolm Cooper, *The Birth of Independent Air Power*, (London: Allen & Unwin Publishers, Ltd., 1986), 72-73. See also Robert F. Grattan, *The Origins of Air War: The Development of Military Air Strategy in World War I*, (New York: I. B. Tauris & Co. Ltd., 2009), 186-187.

²⁷ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, (London: Oxford University Press, 1944), 88-90.

The actions of Simpson and Rees described previously epitomized the aerial strategy that the RFC had come to embrace since Trenchard took command of the RFC on 19 August, 1915. Even before the advent of fighter aircraft to the air war, Trenchard had begun to advocate for a doctrine of offensive operations against the GAAS.²⁸ As the commander of First Wing, RFC during the Battle of Neuve Chapelle (March, 1915) and the Battle of Loos (September, 1915), he worked diligently to identify the strengths and deficiencies of his organization and that of the RFC as a whole in its attempts to provide support to the British Army in France and Flanders.²⁹ The results of his analysis and assessments became the foundations for what would become his proscribed aerial strategy.

During the build-up to the Somme offensive as the BEF was expanding and incorporating hundreds of thousands of untrained men into newly formed divisions, the RFC was also expanding to provide support to each of the armies and corps on the Western Front. As more squadrons and the first aircraft designed to be fighters began to arrive in France in the winter and spring of 1916, the RFC's foremost priority was to end the GAAS's dominance of the skies over the battlefield.³⁰ To do this they had to defeat the 'Fokker Scrouge' so called because of the Fokker Eindecker monoplane that carried a synchronized machine-gun that fired through the rotating propeller. This revolutionary capability changed the face of all future air operations.³¹ From late summer 1915 to early spring 1916, the Fokker Eindecker dominated the skies over the French and British trenches. As noted aviation historian Norman Franks wrote, the Eindecker's became like "sharks flying amidst the allied minnows."³² Both

²⁸ Andrew Boyle, *Trenchard: Man of Vision*, (London: Collins, 1962), 154,

²⁹ Dan Divine, *The Broken Wing: A Study in the British Exercise of Air Power*, (London: Hutchinson & Co, Ltd., 1966), 80.

³⁰ Sir Robert Thompson, *The Royal Flying Corps*, (London: Hamish Hamilton Ltd., 1968), 58.

³¹ Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, (Baltimore: The Nautical & Aviation Publishing Company of America, Inc., 1984), 16.

³² Norman Franks, *Sharks Among Minnows: Germanys' First Fighter Pilots and the Fokker Eindecker Period, July 1915 to September 1916*. London: Grub Street, 2001), x. Franks presents a solid argument

the British and French had failed to approve or institute a synchronization gear for their aircraft in the first eighteen months of the war and thus the British concentrated on developing 'pusher' aircraft where the engine was behind the pilot in single-seater aircraft and the pilot and his observer/gunner in two-seater aircraft and thus pushed the aircraft through the sky. A major advantage of this type of aircraft was the fact that it allowed for unimpeded observation and more importantly a clear field of fire.³³

With the introduction of two 'pusher' fighters, the Farman Experimental 2B (FE 2b) and the de Havilland DH 2 (DH 2) aircraft, Trenchard was finally able to unleash his aircraft to take the air war deep behind enemy lines and carry out his offensive strategy unhindered for the most part by the enemy or so it seemed at first.³⁴ However, when casualties began to rise alarmingly in the first month of the Somme offensive there was both concern and debate not only within military channels but within Parliament as well. Questions were raised as to whether or not the strategy being used by the RFC was in fact the correct strategy to be followed. The debate had begun several months before the start of the air campaign when the Prime Minister, Herbert H. Asquith, expressed concern to Haig about Trenchard's abilities to command the RFC as well as the increasing number of aircrew casualties caused by the offensive strategy he was employing.³⁵

With the firm support of Haig, Trenchard was able to keep his inquisitors at bay and continued to advocate the critical importance of his offensive strategy against the Germans in

that the Germans were able to achieve near total air superiority with less than twenty of the machine gun equipped Fokker Eindecker aircraft.

³³ Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 16. See also John Batchelor and Bryan Cooper, *Fighter: A History of Fighter Aircraft*, (New York: Charles Scribner's Sons, 1973), 15-18.

³⁴ J. E. Johnson & P. B. Lucas, *Courage in the Skies: Great Air Battles From the Somme to Desert Storm*, (London: Random House UK, Ltd., 1996), 21-22.

³⁵ Letter from Asquith to Haig, 25 January, 1916, Asquith Papers, Bodleian Library. Haig's response to the Prime Minister endorsed Trenchard's offensive strategy without qualification. See Letter from Haig to Asquith, 26 January, 1916, quoted in *The Private Papers of Douglas Haig*, ed. Robert Blake, (London: Eyre & Spottiswoode, 1952), 126.

France. Eventually, though it wasn't published until nearly three months after the start of the ground offensive, Trenchard provided his strategy for the use of air power on the Western Front to the government for clarification. Though it was entitled 'Future Policy in the Air' it laid out the strategy the RFC had followed since Trenchard had taken command of the RFC.³⁶ Furthermore, it laid out the argument why Trenchard was convinced that an offensive strategy was the only strategy to follow. His argument and recommendations would prove to be one of the most powerful and critical documents in aviation history and would serve as the foundation for what would define the tenets of subsequent air power theory in the twentieth century and its use in all air campaigns that followed.³⁷

The strategy espoused by Trenchard was firmly in line with Haig's strategy for the conduct of the war on the Western Front and just like Haig's it was based largely on a doctrine of attrition.

The sound policy, then, which should guide all warfare in the air, would seem to be this: to exploit this moral effect of the aeroplane on the enemy, but not to let him exploit it on ourselves. Now this can only be done by attacking and continuing the attack.³⁸

In the same document Trenchard added "British aviation has been guided by a policy of relentless and incessant offensive" which referred to the strategy that he had advocated, even demanded be followed since taking command of the RFC.³⁹ He had convinced Haig and his aviation superior, Sir David Henderson, the Director General of Military Aeronautics

³⁶ RFC HQ Memorandum, 'Future Policy in the Air', 22 September, 1916, Air 1/522/16/12/5, NA. The document will be discussed in greater depth later in this paper. It is enclosed in Appendix B.

³⁷This is evident by examining air power doctrine as developed by the United States Army Air Force during the Second World War and United States Air Force doctrine from 1947 to the present day. See John Warden, *The Air Campaign: Planning for Combat*, (Washington, D.C.: Brassey's, 1989) and *Air Force Basic Doctrine Document 1*, (Maxwell Air Force Base, Alabama: Headquarters, Air Force Doctrine Center, 1997).

³⁸ RFC HQ memorandum, 'Future Policy in the Air,' 22 September 1916, AIR 1/522/16/12/5, NA. See also David Jordan and Gary Sheffield, "Douglas Haig and Airpower", *Airpower Leadership Theory and Practice*, (ed.) Peter W. Gray and Sebastian Cox, (London; The Stationary Office, 2002), 272-273.

³⁹ Ibid. See also Andrew Boyle, *Trenchard: Man of Vision*, 156.

(DGMA) that this was a valid strategy and they agreed, supporting him wholeheartedly.⁴⁰ This strategy had far-reaching effects on Britain's ability to carry out other air operations, not only on the Western Front but in the other theaters of operation as well because of the continuous demand to make good the heavy losses of aircraft and more importantly, trained aircrew.⁴¹

Trenchard's strategy for air warfare was built upon three basic principles: the first was that the RFC was a branch of the British Army along the lines of the Infantry, Artillery, and Cavalry.⁴² Because of the role the RFC had played in providing important operational intelligence during the battles of 1914 and 1915, one early British airpower theorist argued that the RFC had thus earned the right to be identified as the fourth critical arm of the British Army.⁴³ Secondly, The RFC's sole purpose was to provide whatever support the army required to enable it to accomplish its objectives on the ground.⁴⁴ Trenchard believed that without adequate air support the GAAS would be free to cause havoc to British ground operations through the use of unhindered artillery direction and observation, reconnaissance and photography operations and eventually the ability to provide close air support against

⁴⁰ Letter from Henderson to Trenchard, 1 February, 1916, Trenchard Papers, RAFM and *The Private Papers of Douglas Haig, 1914-1919*, ed. Robert Blake, (London: Eyre & Spottiswoode, 1952), 126. See also David Jordan and Gary Sheffield, "Douglas Haig and Airpower", *Airpower Leadership Theory and Practice*, ed. Peter W. Gray and Sebastian Cox, (London: The Stationary Office, 2002), 272-273.

⁴¹ Malcolm Cooper. *The Birth of Independent Air Power*. (London: Allen & Unwin, 1986), 71-72. Cooper argues that because Trenchard was allowed to dictate Britain's overall air strategy and his focus was singularly on winning the air war on the Western Front that when German bombers began to raid England, most especially London, in 1917, there were few operational squadrons in England that could deal with the threat and thus the ability for the RFC to provide any semblance of home air defense and or "retaliatory strikes against enemy cities" was totally inadequate.

⁴² F. W. Lanchester, *Aircraft in Warfare: The Dawn of the Fourth*. (London: Constable & Co., 1916), 1-2.

⁴³ *Ibid.*, 1-8. Lanchester played a major role in the development of British air power theory before the First World War and his work *Aircraft in Warfare: The Dawn of the Fourth Arm* put many of his ideas and theories into one volume. Robin Higham, in his *The Military Intellectuals in Britain, 1918-1939*, (New Brunswick, NJ: Rutgers University Press, 1966) credits Lanchester with establishing the "basic theory of air warfare" in England before the First World War.

⁴⁴ Malcolm Cooper. *The Birth of Independent Air Power*, 72.

British units.⁴⁵ To prevent this from occurring he proposed that the RFC follow an offensive strategy to interdict enemy air assets at all times and the further behind the enemy lines the better. Thus the third principle, air superiority, had to be achieved, regardless of the cost.⁴⁶

Critical to the development of Trenchard's strategy was his relationship with the BEF commander, General Sir Douglas Haig. Trenchard had first come into contact with Haig during the September, 1912 army maneuvers in which Trenchard had participated as an aerial observer for the "northern force" against Haig's "southern force."⁴⁷ Trenchard and the other RFC pilots he worked with were able to locate and identify Haig's forces and thus secured the initiative for the "northern force." Though still convinced that the cavalry would be responsible for battlefield reconnaissance, it was after this exercise that Haig began to develop an appreciation for the capabilities of aircraft.⁴⁸

Trenchard had then served as Haig's principal air advisor when he commanded the First Wing, RFC when Haig commanded First Army in 1915. It was during this time that the two were able to develop a close, working relationship.⁴⁹ The two were similar in many ways. Both lacked good verbal communication skills and disliked speaking freely among those they did not know well or trust. Both were seen as silent and aloof to their staffs but could be very direct when they observed a problem that needed addressing. Both had been considered strong athletes with Haig playing golf, polo, and tennis and Trenchard hunting, polo, and tennis.

⁴⁵ Andrew Boyle, *Trenchard: Man of Vision*, 162. According to Boyle, Trenchard believed that the GAAS had "failed to exploit the Fokker [Eindecker]'s enormous technical superiority" during the Fokker Scrounge from August 1915-March, 1916. Had they done so he believed that the RFC and the French *Aviation Militaire* may have been destroyed during that period.

⁴⁶ Eric and Jane Lawson, *The First Air Campaign: August 1914-November 1918*, (Cambridge, MA: Da Capo Press, 1996), 92-94. See also Walter J. Boyne, *The Influence of Air Power Upon History*, (New York: Pelican Publishing Company, 2003), 82.

⁴⁷ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, (London: Frank Cass, Publishers, 1999), 29.

⁴⁸ David Jordan and Gary Sheffield, "Douglas Haig and Airpower", *Airpower Leadership Theory and Practice*, ed. Peter W. Gray and Sebastian Cox, (London: The Stationary Office, 2002), 272-273.

⁴⁹ Andrew Boyle, *Trenchard: Man of Vision*, 128.

Mutual strengths included indomitable leadership skills which included a fierce drive to accomplish any mission assigned to them. These similarities and the trust they developed with working with one another during the Battles of Neuve Chapelle and Loos enabled them to build a respectful and professional relationship that in turn became friendship.⁵⁰ Trenchard was promoted to command the RFC just four months before Haig was promoted to command the entire BEF.⁵¹ Haig came to rely totally on Trenchard's technical expertise on the use of air power to the point where almost all of the official documents concerning the RFC and its air strategy issued by Haig's headquarters were in fact written by Trenchard and his staff.⁵²

Just as Haig's strategy of the offense almost guaranteed an enormous casualty rate when massed formations of men were pitted against the modern technology of long-range artillery and machine-guns, the results were similar but even more drastic for the RFC because of its small numbers. Whereas the BEF could and did absorb the enormous losses of thousands of casualties per week during the Somme offensive, the RFC, totaling less than six hundred aircrew when the Battle of the Somme began, had difficulty replacing with adequately trained personnel the growing number of casualties it suffered.⁵³ Thus, Trenchard's pursuit of a strategy "of relentless and incessant offensive" garnered not only controversy but criticism as well. Several senior RFC leader's who disagreed with the offensive strategy would wait until after the war to criticize Trenchard.⁵⁴ Not all waited till after the war however to voice their

⁵⁰ David Devine, *The Broken Wing: A Study in the British Exercise of Air Power*, (London: Hutchinson & Co., Ltd., 1966), 75-80.

⁵¹ Ibid.

⁵² Malcolm Cooper. *The Birth of Independent Air Power*, 72-73.

⁵³ This assertion will be covered in detail in Chapter 6.

⁵⁴ Three of the more well known critics of the offensive strategy formulated and used by Trenchard were L. E. O. Charlton, who served as Trenchard's Operations Officer in 1916, author of *War from the Air: Past, Present, Future* (London: Thomas Nelson and Sons, Ltd., 1935); Frederick Sykes, a contemporary and bitter rival of Trenchard's was most harsh of the strategy in his work *From Many Angles: An Autobiography*. (London: Harrap, 1942); and P. R. C. Groves, who had served with Sykes on the Air Staff in 1918, *Behind the Smoke Screen* (London: Faber, 1934). Each of their criticisms will be covered in greater detail in Chapter 7.

issues. During the second month of the battle, one of Trenchard's subordinate commander's recommended one of his squadrons be removed from operations to rest and train replacement pilots after sustaining nearly fifty percent casualties over a four week period. Trenchard approved the request but for indirectly questioning the offensive strategy that Trenchard advocated, the subordinate commander was removed from command and sent back to England, banished from all combat theaters for the remainder of the war.⁵⁵

From April through June, 1916, the RFC strongly pursued the directed strategy of the air offensive and suffered an increasingly high number of aircrew casualties in the process. That said, the ground commanders whose forces were supported by the RFC, praised their efforts to both the BEF commander and governmental leaders. Six weeks before the start of the Somme offensive the commander of the Fourth Army, General Sir Henry Rawlinson, asserted:

[It] clearly shows that for the moment at any rate we have command of the air by day on the Fourth Army front. I cannot speak too highly of the work of these young pilots, most of whom have recently come out from England, and the de Havilland machine has unquestionably proved itself superior to the Fokker in speed, maneuver, climbing, and general fighting efficiency.⁵⁶

By directing that his fighter aircraft operate deep behind enemy lines to interdict their German counterparts before they could interfere with the RFC aircraft assigned to artillery direction, photography and reconnaissance, Trenchard was convinced that the RFC would attain air superiority and thus be able to provide any support requested by the army.⁵⁷ It was this

⁵⁵ Lieutenant Colonel Hugh Dowding, commander of Ninth (Headquarters) Wing, RFC, was the commander sent home. This incident will be covered in some detail in Chapter 8.

⁵⁶ Letter from General Sir Henry Rawlinson, commander of the British Fourth Army, to General Sir Douglas Haig, 23 May 1916 quoted in H.A. Jones, *WITA*, Vol. 2, 161.

⁵⁷ Michael Paris, *Winged Warfare: The Literature and Theory of Aerial Warfare in Britain, 1859-1917*, (Manchester, England: Manchester University Press, 1992), 236-238.

concept that would serve as the cornerstone for Trenchard's strategy throughout the Somme air campaign and for the remainder of the war.⁵⁸

In the years before the First World War much of the discussion on the development of air power theory in Britain (and for that matter in France and Germany as well), revolved around the concept of achieving 'Command of the Air.' It was thus logical that the air power theorists would start with the terms and definitions used by naval strategists to describe gaining command of the seas. Two of the more prominent naval strategists before the war were the American naval officer and historian, Alfred Thayer Mahan and Britain's own, Sir Julian S. Corbett. Mahan's doctrine for naval warfare can be summarized into two prerequisites for gaining command of the sea. The first was that one must use the navy to destroy the enemy's main battle fleet and second, if the enemy navy refuses battle then blockade his fleets in their harbors.⁵⁹ Corbett on the other hand, though he agreed that command of the sea was the main objective of the war at sea he also believed it was not the only objective. He argued that opportunities to engage in a battle with the enemy fleet were never an assured thing nor was it always required. He emphasized the advantages of defense and proposed that the strategic offensive combined with tactical defense was the most effective form of warfare. Unlike Mahan, Corbett believed the use of a lengthy blockade was detrimental to the morale of the forcing conducting it as it reduced its "effective aggression."⁶⁰ It is evident that the writings of Mahan and Corbett provided the framework for both the civilian and military

⁵⁸ Michael Paris, *Winged Warfare: The Literature and Theory of Aerial Warfare in Britain, 1859-1917*, 236-238.

⁵⁹ Alfred T. Mahan, *Naval Strategy, Compared and Contrasted with the Principles and Practice of Military Operations on Land*. (Boston: Little, Brown, and Company, 1911), 1-21. See also Azar Gat, *A History of Military Thought*, 457-458. Mahan was strongly influenced in both the development of his ideas and his writing by Commodore Stephen B. Luce, the first president of the U.S. Navy War College.

⁶⁰ James S. Corbett. *Principles of Maritime Strategy*. (London: Longmans, Green and Co., 1911), 28-37. See also Gat, *A History of Military Thought*, 484-489.

theorists to identify what the concept of the command of the air really meant. Attempting to define 'command of the air' for the government, British army officer, Captain Bertram Dickson, presented a memorandum to the 1911 Sub-Committee of the Committee of Imperial Defence (CID).

In the case of a European war between two countries, both sides would be equipped with large corps of aeroplanes, each trying to obtain information on the other, and to hide its own movements. The efforts which each side would exert in order to hinder or prevent the enemy from obtaining information . . . would lead to the inevitable result of a war in the air, for the supremacy of the air, by armed aeroplanes against each other. *This fight for the supremacy of the air in future wars will be of the first and greatest importance* (italics from original).⁶¹

Three years later on the eve of war, Sir George Ashton wrote a more subdued description of command of the air by arguing that only when aircraft were more capable of conducting aerial warfare would there be a fight for 'local command of the air.'⁶² He was one of many in both government and military channels that believed that the primary purpose of aircraft was to conduct reconnaissance operations in support of the army or the navy and should avoid aerial combat to ensure accomplishment of the mission.⁶³ Lanchester agreed that aerial reconnaissance would be an important mission for the flying service but more importantly, he believed that once war began "capturing the enemy's air will be the prime task of the aeronautical service."⁶⁴

By 1913, J. E. B. Seely, the Secretary of State for War, concurred with both Ashton and Lanchester when he stated "We should concentrate on obtaining mastery of the air in any theatre of war by means of a fighting aeroplane and secure monopoly of reconnaissance by

⁶¹ *WITA, Vol. I*, 175-176.

⁶² George Ashton, *The Study of War*. (London: Constable, 1927), 264.

⁶³ *Ibid.*

⁶⁴ F. W. Lanchester, *Aircraft in Warfare*, 189-197.

advantage.”⁶⁵ It was one thing to make this pronouncement, which pleased many within Britain’s small military aviation community, but it would have meant much more had he advocated the funding to ensure his comments became a reality. When the war started the RFC did not have the aircraft, the manpower, or the doctrine to achieve command of the air. The Royal Navy’s air wing, The Royal Naval Air Service (RNAS) on the other hand had been conducting experiments with armed aircraft and was intent on developing a more offensive style of air warfare before the war began.⁶⁶

One of the few military aviators who believed that command of the air was not possible was the Military Wing’s first commander, Major Frederick H. Sykes. He argued that though the function of reconnaissance would be an important task for the air service, air power was in fact a strategic weapon and thus should be used for strategic purposes.⁶⁷ He believed that the true value of the aircraft was its ability to strike deep behind the enemy’s lines, at critical targets such as logistics’ bases, communication centers and the industry that provided the weapons for the soldiers at the front.⁶⁸ Sykes influence of the development of air power theory in Britain before the war has been largely ignored by many aviation historians.⁶⁹ He would play a major role in translating theory into the strategy that the RFC would adopt after

⁶⁵ Peter Mead, *The Eyes in the Air: History of Air Observation and Reconnaissance for the Army, 1785-1945*. (London: HMSO, 1983), 46.

⁶⁶ *WITA, Vol. 1*, 263-273. See also Lee Kennett, *The First Air War, 1914-1918*, (New York: The Free Press, 1991), 189-190.

⁶⁷ Frederick Sykes, *From Many Angles*, 90.

⁶⁸ Frederick Sykes, ‘Military Aviation,’ *Army Review*, Vol. V, No. 3 (July, 1913), 138-139.

⁶⁹ Those historians who have focused on Syke’s role in the development of air power in Britain include David Divine, *The Broken Wing: A Study in the British Exercise of Air Power* (London: Hutchinson & Co., Ltd., 1966); Malcolm Cooper. *The Birth of Independent Air Power*, (London: Allen & Unwin Publishers, Ltd., 1986); Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, (London: Franck Cass Publishers, 1999); and more recently Steven Budiansky, *Air Power: The Men, Machines, and Ideas that Revolutionized War, From Kitty Hawk to Gulf War II*, (New York: Viking, 2004).

the First World War began as well as the development of the roles and missions for the air service as well.⁷⁰

In the years between the Wright Brothers first successful flight and the start of the First World War, British air power theorists led by Lanchester and Sykes identified five fundamental concepts of air power that had been proposed for further study and had been presented to and discussed by the senior political and military leaders at the time for consideration and action. The first principle was that by conducting reconnaissance missions, air power could make significant contributions to both land and naval operations; the second was that command of the air was as essential to Britain as was command of the sea; the third, to achieve command of the air an independent service needed to be established; the fourth, air power could reach out far beyond the front lines of the battlefield and could strike targets deep into the enemy's homeland; and the fifth, by such offensive action the enemy would be forced to divert essential resources to his own air defense. Though these concepts might have been known by Britain's senior military and civilian leaders it in no way meant that they were agreed upon by either the air power advocates or the decision-makers.⁷¹

In early 1912, a technical subcommittee of the Committee of Imperial Defense (CID) met to review the five fundamentals of British air power that had been submitted by Lanchester and the Advisory Committee for Aeronautics for a policy decision. The CID declared that it was their learned opinion that the major contribution of both military and naval aircraft in future wars would primarily be in the role of reconnaissance. They made no

⁷⁰ Sykes developed and wrote the RFC's pre-war doctrine for the War Office. In 1913, he posited that the aircraft had three functions: tactical reconnaissance, strategic reconnaissance and inter-communication, but later in that same year he added long range, strategic bombing as a viable mission once the technology was available to support such missions. See Frederick Sykes, 'Military Aviation,' *Army Review*, Vol. V, No. 3 (July, 1913), 138-139 and Sykes, *From Many Angles*, 110. For a detailed analysis of Sykes involvement with the RFC, see Eric Ash's excellent biography *Sir Fredrick Sykes and the Air Revolution, 1912-1918*, (London: Frank Cass Publishers, 1999).

⁷¹ R.A. Mason, "The British Dimension", *Air Power: Promise and Reality*, ed. Mark Wells, (Chicago: Imprint Publications, 2000), 8-9. See also F. W. Lanchester, *Aircraft in Warfare*, 22-29.

recommendations on the other four fundamentals and did not address the likely needs of home defense or offensive operations.⁷² That same year however, the RFC was established on 13 May, 1912 with a Naval Wing, Military Wing, and a Central Flying School to train both army and naval pilots. An air committee was formed to coordinate with the Army and the Navy, but almost immediately the two wings began to develop “more in isolation than in harmony” until eventually the Royal Naval Air Service (RNAS) was formed on 1 July, 1914 out of the Naval Wing. When war broke out there were in fact two British air forces: the RFC was sent to France to provide long-range reconnaissance for the army; and the RNAS was split between Britain and Belgium and given the ill-defined mission of providing air defense for the fleet and for the United Kingdom.⁷³

Fortunately for the British some of those who formulated the early ideas on air power also became some of the first to put those ideas into practice. Brigadier-General David Henderson and Major Frederick Sykes were just two of the first members of the RFC who would apply their beliefs on air power upon the newest branch of the British army. The major problem that these advocates for air power encountered was that they did not have the rank or the influence required to convince either the military or political leadership to begin the implementation of more than one of the five fundamental ideas of air power that had been identified. To make matters worse, they encountered senior British military leaders who had not been convinced of the need or value that aircraft would provide them on the battlefield. Two notable examples are provided by Sykes:

The opposition by senior officers to air experiments amounted almost to a mania. General Nicolson, the Chief of the Imperial General Staff, was of the opinion that aviation was a useless and expensive fad advocated by a few cranks whose ideas were unworthy of attention.⁷⁴

⁷²R.A. Mason, “The British Dimension”, *Air Power: Promise and Reality*, ed. Mark Wells, (Chicago: Imprint Publications, 2000), 8-9.

⁷³ *Ibid.*, 9-10.

⁷⁴ Frederick Sykes, *From Many Angles*, 91.

And in July, 1914, a month before hostilities broke out, General Douglas Haig was purported to say:

I hope none of you gentlemen is so foolish as to think that aeroplanes will be able to be usefully employed for reconnaissance purposes in war. There is only one way for a commander to get information by reconnaissance, and that is by the use of cavalry.⁷⁵

Haig's perspective would change drastically in the first major campaign of the war.

Regardless of the support attained or lack thereof, by the outbreak of war in August, 1914 there was in fact a set of fundamental tenets of air power theory established in Britain. Not all were accepted by the decision-makers at the strategic level and of course none of these tenets had yet been tested in conflict.

It should be noted that there were more than a handful of retired and senior active duty officers who strongly supported the potential of air power before the war. The most senior retired officer who favored both experimentation and application of air power was Field Marshal the Earl Roberts, VC, commander-in-chief of the British Army before the position was abolished in 1904. Those on active duty such as General's Sir Henry Wilson and Horace Smith-Dorrien as well as Field Marshal Earl Kitchener and General Sir John French, Secretary

⁷⁵ This much used quote of Haig had its origins with Sir Frederick Sykes in his autobiography *From Many Angles*, 105. It is hard to reconcile Haig's quote with his experience of aircraft during both the 1912 and 1913 Army maneuvers. During the 1912 maneuvers his division's movements were identified and reported on by aircraft from Number 3 Squadron, RFC to the defending force commanded by General James M. Grierson, who subsequently defeated Haig's forces in large part because of the information supplied by the RFC. In describing the role of the RFC aircraft during the autumn maneuvers the RAF Official History states that "In the course of a few days the aeroplanes rose into such esteem that they were asked to verify information which had been brought in by the cavalry." (*WITA, Vol. I, 243-244*). During the 1913 maneuvers, the aircraft assigned to Haig's 'Northern Force' flew nearly 5,000 miles conducting reconnaissance missions and attained excellent results by providing him with accurate troop strengths and locations of the Southern Army commanded by General Rawlinson. When the Sykes-Trenchard debates over the expansion and role of the RFC occurred in late 1914 and through most of 1915, Haig gave his support to Trenchard and it is therefore plausible that Sykes never forgave the BEF commander for his support of his rival. If in fact Haig did state this, once the war began and aircraft began to prove their worth under actual combat conditions, he professed a much deeper appreciation for them and became a major supporter of air power for the remainder of the war.

of State for War and commander of the BEF in 1914 had also championed the aircraft but until war broke out their voices were for the most part ignored. Lieutenant General Sir James Grierson, commander of the BEF's Second Corps, became a convert of air power after his experience with aircraft during the Army maneuvers convinced him that the senior commander in future wars would not be able to deploy his forces until he had gained mastery of the air.⁷⁶

Still facing opposition, the advocates persisted and several of them rose to prominence once the RFC was formed and served even more influential roles during the First World War. Captain Burke was first a pilot in the Air Battalion of the Royal Engineers before joining the RFC where he commanded Number 2 Squadron at the beginning of the war and later commanded the Second Wing. Major Sykes as has been previously identified was the first commander of the Military Wing when it was formed. As a respected aviation theorist and flyer, Sykes ideas on air power brought him to the attention of the First Lord of the Admiralty, Winston Churchill. The two spent several weekends together discussing the potential of aircraft and the future roles of air power.⁷⁷ Sykes was also the key planner and organizer for the RFC's role in the Army Maneuvers of 1912 and 1913, which in both years performed admirably in providing intelligence to the two divisions involved. It was prior to the 1912 maneuvers that he served as the main author of the RFC *Training Manual* (which the War Office approved). In it he identified the three primary roles for the RFC: strategic reconnaissance, tactical reconnaissance, and the service of intercommunication.⁷⁸ In effect the

⁷⁶ Frederick Sykes, *From Many Angles*, 106.

⁷⁷ Ibid.

⁷⁸ Ibid., 104. Once trench warfare began in November 1914, these definitions were refined. Tactical reconnaissance applied to action in and along the British and enemy trenches. Strategic reconnaissance applied to sorties conducted deeper into enemy territory, usually twenty miles or more beyond the British front-line trenches. Strategic reconnaissance operations were initiated by General Headquarters through RFC Headquarters whereas Tactical reconnaissance was requested by the Army Corps,

RFC was to serve as the ‘eyes of the Army.’ He also authored the aviation section of the British Army’s *Field Service Regulations*. A year later Sykes authored the *RFC Training Manual Part II*. In it he provided detailed guidance on the standardization of training for all squadrons. As Sykes lone biographer noted “It was a typical Sykes product-massive in size, detailed and focused entirely on the goal of achieving organizational efficiency.”⁷⁹ Of critical note, by addressing both the strategic and tactical concepts that the RFC would use in war, the *Training Manual, Parts I and II* became the RFC’s first doctrinal manuals. They would be revised based on the lessons learned from the ‘Netheravon Concentration Camp’ that Sykes conducted two months before the war began. More importantly, RFC commanders and aircrew went to war with ‘established guidance’ on the missions and roles they were to conduct to support the army.

In late June, 1914 Sykes, having convinced the War Office that it was prudent to conduct a practice mobilization of the RFC, directed that all units within the Military Wing deploy to Netheravon on Salisbury Plain for a four-week training exercise in which “experimental night flying across country, observation, signalling, air fighting, bomb-dropping, photography, wireless and the rapid packing up and moving of transport by night” were practiced. For most of these tasks there was no guidance or doctrine. In his memoirs Sykes is quick to point out that “our only guide was the knowledge gained by our own experience and past mistakes. There were no rules except those we made as we went on.”⁸⁰ All four operational squadrons, along with all of their aircraft, personnel and equipment, gathered together to train on the many varied tasks they expected to conduct to support the army if and when hostilities took place. More importantly the exercise allowed both aircrew

approved by the supporting RFC Wing commander and flown by a squadron within the corps area. The Wing Headquarters had to notify RFC Headquarters of all tactical reconnaissance missions it flew.

⁷⁹ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 40.

⁸⁰ Frederick Sykes, *From Many Angles*, 111-112.

and ground personnel to share ideas, techniques, and procedures so that when the RFC was alerted they were better prepared to deploy to war. The benefits of the June-July exercise were most valuable and the lessons learned were quickly put into practice when the RFC was deployed to France less than six weeks later.

Having been promoted to lieutenant-colonel in January 1913, Sykes was serving as chief of staff to the RFC's commander, Brigadier-General David Henderson when the war began. It was Sykes who was largely responsible for designing the organizational structure of the RFC before it came into being but once war was declared he planned the RFC's mobilization and deployment.⁸¹ In was shortly before his departure for France that Sykes had his first of several disagreements with the man who would eventually command the RFC during the Battle of the Somme, Hugh Trenchard.

Major Hugh Trenchard had become enamored with aviation late in his career after having been encouraged by a junior officer who had served with him in Nigeria to take up flying. With his career at a standstill Trenchard decided to earn his pilot's certificate and faced several hurdles in doing so but in August 1912, at the age of 39, he soloed after having only one hour and four minutes flying time.⁸² By doing so he became one of the first twenty pilots in the RFC since it had become an official organization within the British Army. Due to his age and late start at flight training, he only met the entrance requirements by less than ten days. Upon earning his wings he was assigned to be the Adjutant of the Central Flying School (CFS) where he quickly developed standing orders and procedures that combined both army and navy regulations since both services were represented at the CFS. His experience as an aerial observer in the 1912 Army maneuvers convinced him of the potential for aircraft in war but even more so he was convinced that it was the human dimension and not the numerous

⁸¹ The details on the organization of the RFC will be analyzed in Chapter 3.

⁸² Although Trenchard was considered quite old at 39 to be a pilot, the senior army officer to gain his flying certificate was in fact Henderson who learned to fly at the age of 49 in 1911.

theories of air power that were being argued that was the critical factor in making the aircraft a valuable tool for the ground commander. The Army maneuvers:

brought home to Trenchard as no amount of theorizing could have done the value of the Central Flying School and the importance of his own place in it. Arguments between specialists about the superior merits of the monoplane over the slower, stabler biplane seemed of small significance compared with the elaborate human problem of producing first-class pilots and technicians for a Military Wing which hardly existed yet except on paper.⁸³

Trenchard also became involved in the development of the CFS curriculum and created written examinations on the subjects of map-reading, signaling, and the theory of aerial reconnaissance among others. When the war began he was not happy to learn that he would replace Lieutenant Colonel Frederick Sykes as the commander of the Military Wing and remain in England while Henderson assumed command of the RFC with Sykes as his Chief of Staff.

The initial confrontation between Sykes and Trenchard is supposed to have taken place the day before Sykes deployed to France. Sykes met with Trenchard to brief the latter on his duties and responsibilities as commander of the Military Wing. All went well until Sykes informed Trenchard that the Military Wing's new purpose would be to provide replacement aircrew and aircraft for the RFC in France and that he did not foresee any requirement for new squadrons to be organized. Trenchard is reported to have said "Don't talk damned rubbish. My job here, as you should know, is to produce squadrons. You'll get reinforcements but not at their expense."⁸⁴ The argument was heated and would result in a rift between the two officers

⁸³ Andrew Boyle, *Trenchard: Man of Vision*, 104.

⁸⁴ *Ibid.*, 116-117. According to Boyle the argument took place on 15 August, 1914 but according to Sykes he deployed with Henderson to France on 13 August. It stands to reason that sometime before Sykes deployed, most likely on 12 August, he would have met with his replacement to discuss roles, assignments and other important issues, such as replacements. Trenchard had served at the Central Flying School for nearly two years when the war began and with Sykes spending that same period as the commander of the Military Wing the two of them would have come into contact with one another quite often. It was known within the RFC that the two did not get along with one another; Trenchard

that would only intensify as the war and their careers progressed. Trenchard argued that he had been given verbal orders by Henderson that his first priority was to build new squadrons. If this were true why did Henderson not inform his chief of staff of this? Perhaps this important topic was overlooked or forgotten in the confusion to mobilize and deploy the RFC to France. The closest reference to this argument from Sykes is contained within his autobiography in which he states that Trenchard had “differed fundamentally with me on the policy of taking the maximum number of machines fit for active service [to France].”⁸⁵ If Trenchard’s statement is accurate then why did Sykes believe that the RFC would not require more squadrons in the short term? The answer can be found in the fact that the War Office, believing the war would be of short duration and would be over in a manner of a few months, had approved the mobilization plan that directed all operational squadrons with their assigned aircraft and their crews be sent to France within six days after completing mobilization.⁸⁶ The four operational squadrons within the RFC did deploy to France on 13 August with 44 aircraft flying across the English Channel without loss. Another nineteen aircraft arrived several days later by air or by ship. In the previous years leading up to the war, the CID had approved a plan that called for seven RFC squadrons (a total of 91 aircraft) with its attached Aircraft Park, that contained both a reserve of aircraft and personnel, be sent to France to support the BEF but the war began before the plan could be properly resourced.⁸⁷ Meanwhile, Trenchard was

believed that Sykes was the “most conceited and indecisive staff officer” he knew and Sykes impression of his rival were simply that Trenchard was “a man with a forceful personality and great drive . . . I thought his conception of the higher issues involved to be fundamentally wrong.”

⁸⁵ Frederick Sykes, *From Many Angles*, 144. In his book *The Broken Wing: A Study in the Exercise of British Air Power*, David Divine argues that Sykes and Trenchard supported opposing theories on the duration of the war and that this may have been the source of their argument. Sykes, like Henderson, the RFC commander, believed the war would be of short duration and thus all aircraft were to be involved as soon as possible but there is no evidence that places Trenchard in the opposing theory camp, led by Lord Kitchener who believed that the war would in fact last year’s not months. Divine concludes that Trenchard’s “personal antagonism towards Sykes” was the primary reason for the disagreement (*The Broken Wing*, 49).

⁸⁶ *WITA, Vol. I.*, 283.

⁸⁷ Frederick Sykes, *From Many Angles*, 124.

left in England with forty-one officers and 116 aircraft, of which only twenty were fit for use by the CFS for instructional purposes.⁸⁸

With the majority of RFC personnel and equipment deployed to France, Trenchard immediately went to work on carrying out the directive he received from Henderson: Expanding the RFC.⁸⁹ It was during these first few hectic days after the RFC's deployment that Trenchard developed a strong working relationship with the man who did much to build the new foundations for the rapid expansion of the RFC that followed: Major William Sefton Brancker, Assistant Director General of Military Aeronautics at the War Office.⁹⁰ Brancker was an experienced artilleryman who had earned his pilot's certificate in 1913 and had served under General Henderson when he was the DGMA. With Henderson assuming command of the RFC, Brancker became the Deputy Director. Diligent, hard working, and with much foresight, Brancker worked behind the scenes dealing with the numerous administrative and logistical problems the RFC encountered in the first year of the war.⁹¹ He would become a staunch supporter of Trenchard and his development of the aerial strategy that the RFC would follow before and during the Battle of the Somme.

In coordination with Trenchard, Brancker identified three major requirements that he believed were necessary for the expansion of the RFC. The first was the design and development of aircraft and aircraft engines. The second was the recruitment and training of pilots, mechanics and administrative personnel to support the air and grounds crew. The third was the establishment of more airfields and the expansion of the training programs and facilities.⁹² All three requirements had to be addressed simultaneously. When war was

⁸⁸ *WITA, Vol. I*, 411.

⁸⁹ *Ibid.*, 419-421. See also Andrew Boyle, *Trenchard: Man of Vision*, 116-117.

⁹⁰ Andrew Boyle, *Trenchard: Man of Vision*, 117.

⁹¹ *Ibid.* See also *Sir Sefton Brancker*, ed. Norman Macmillan, (London: William Heinemann, Ltd., 1935), 64-69.

⁹² Brancker Papers, 73/183/1, Department of Documents, IWM.

declared the decision had been made for the Royal Aircraft Factory to manufacture the BE 2c in large quantities but in reality it was only able to produce a small number of aircraft per month.⁹³ Therefore Brancker began to purchase aircraft from private manufacturers, the most notable being Sopwith and Avro.⁹⁴ French aircraft under license for construction in Britain included Maurice Farman, Henri Farman and Bleriot.⁹⁵ At least five new types of aircraft were still being tested and were months away from production. These included the FE 2 pusher biplane, the RE 5 tractor two-seat bomber and the SE 2 single-seat tractor scout. Both Vickers and Bristol were developing an aircraft whose primary mission was to serve as a fighter but they too were many months away from fielding a serviceable machine as well.⁹⁶

In the period before the war the British had spent little time and capital on the development of an aircraft engine. Instead they had relied on the French for supplying the small number of engines the RFC required.⁹⁷ Just the week before the war started the British had ordered a large number of 70 horse-power Renault and 80 horse-power Gnome engines but Britain's failure to develop a reliable aircraft engine, and more importantly the manufacturing capacity to provide its air service with reliable engines, would cause even greater problems for the RFC in the first two years of the war.⁹⁸

To address the requirement for personnel, Brancker established a recruiting office in the West End of London. Using his own initiative and without authority he advertised that trained civilian mechanics would be paid at the rates authorized for the Army Service Corps

⁹³Kenneth Munson, *Bombers, 1914-1919*, (London: Blandford Press, Ltd., 1968), 129-132. See also Michael Paris, *Winged Warfare: The Literature and Theory of Aerial Warfare in Britain, 1857-1917*, (Manchester, England: Manchester University Press, 1992), 231-232.

⁹⁴*WITA*, Vol. I, 429.

⁹⁵*Ibid.*

⁹⁶*Ibid.*

⁹⁷*Sir Sefton Brancker*, ed. Norman Macmillan, 71

⁹⁸*Ibid.*

which was substantially higher than most of the other branches within the army.⁹⁹ In less than thirty days 1100 men had signed up and it was these men who would serve as the mechanics, fitters, and riggers for the new squadrons that Trenchard was directed to build.¹⁰⁰

The procurement of trained pilots posed quite different issues. The RFC and the RNAS were in competition for the few civilian pilots then available. The RFC planned on making the civilian pilots non-commissioned officers but when the RNAS made the decision to award them commissions, the RFC was forced to follow suit.¹⁰¹ The RFC shelved the idea of non-commissioned officers as pilots but only temporarily.¹⁰² The civilian pilots would be augmented in September when General Henderson directed a group of pilots from the RFC in France to return to England to serve as the cadre for the new squadrons.¹⁰³

The enlargement of the facilities and the capabilities of the Central Flying School seemed to be a Herculean task but under Trenchard's leadership and with the support of Brancker and more importantly the support of Lord Horatio H. Kitchener, Secretary of State for War, the task was found to be not insurmountable.¹⁰⁴ Netheravon was selected to serve as an annex to Farnborough where the CFS was located and Brooklands, a civilian airfield, was purchased complete with hangars, aircraft, and civilian flying instructors. Five new airfields were identified at Norwich, Castle Bromwich, Beaulieu, Catterick, and Northolt where reserve squadrons would be organized and trained.¹⁰⁵ Ultimately these reserve squadrons would

⁹⁹WITA, Vol. I, 424.

¹⁰⁰Ibid. See also Andrew Boyle, *Trenchard: Man of Vision*, 118; *Sir Sefton Brancker*, ed. Norman Macmillan, 71; and Nigel Steele & Peter Hart, *Tumult in the Clouds*, (London: Hodder & Stoughton, 1997), 41.

¹⁰¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 79.

¹⁰² The issue of Non-Commissioned Officers (NCOs) serving as pilots in the RFC will be examined in greater detail in Chapter 6.

¹⁰³ Maurice Baring, *Flying Corps Headquarters, 1914-1918*, (London: Buchan & Enright Publishers, Limited, 1985), 45-46.

¹⁰⁴ *Sir Sefton Brancker*, ed. Norman Macmillan, 68-70.

¹⁰⁵ Andrew Boyle, *Trenchard: Man of Vision*, 118.

augment or replace the squadrons then in France. Trenchard also directed that a reserve squadron be established at Farnborough.¹⁰⁶

With guidance from Henderson, Trenchard was planning on building twelve new squadrons only to be chastised by Brancker for thinking so small.¹⁰⁷ Brancker had the advantage of meeting with Lord Kitchener daily and learned in one of their first meetings that the Secretary of State for War believed that Britain needed to be prepared to conduct a long war.¹⁰⁸ Brancker therefore recommended that Trenchard think on a grander scale. Trenchard recorded that Brancker told him he “should try to raise thirty squadrons.”¹⁰⁹ Both soon realized that this would be no easy task, especially since all of the serviceable machines, pilots and mechanics had been sent to France and it would be many months before the new squadrons received their full complement of aircraft and trained personnel. In fact, it was not until August, 1916 that the RFC attained Brancker’s suggested total of thirty operational squadrons.¹¹⁰ The difficulties of building and acquiring engines and airframes and, as well, the training of aircrew would remain a problem for the RFC until 1918, the last year of the war.

¹⁰⁶ Andrew Boyle, *Trenchard: Man of Vision*, 118.

¹⁰⁷ Autobiographical Notes, Trenchard Papers, RAFM.

¹⁰⁸ Kitchener was serving as the Consul General of Egypt in 1914 and was on leave in England when war was declared. He was appointed Secretary of State for War on 5 August and at the first ad hoc council of war held that afternoon announced his belief that the war with Germany would last three years. He further stated that to defeat Germany, Britain would need to raise an enormous new army of at least one million men with 100,000 being required immediately. He also directed that each division within the BEF leave behind a cadre of officers and NCOs to train the new recruits. Haig fully supported Kitchener’s views and proposals but there were other military and political leaders (Field Marshal Sir John French among them) who were convinced it would be a short war and there would be no requirement for a large army. For more details see John Pollock’s excellent biography *Kitchener: Architect of Victory, Artisan of Peace*. (New York: Carroll & Graf Publishers, 2001), 373-376.

¹⁰⁹ Autobiographical Notes, Trenchard Papers, RAFM. See also Andrew Boyle, *Trenchard: Man of Vision*, 118.

¹¹⁰ Gerald Gliddon, *The Battle of the Somme: A Topographical History*, (Gloucestershire, England: Sutton Publishing Limited, 1998), 428. See also *WITA, Vol. II*, Appendix V, 460.



Royal Flying Corps BE 2c conducts a contact patrol during the Battle of Aubers Ridge on 9 May, 1915. (Authors Collection)

Chapter Two

The Royal Flying Corps Goes to War:

The Development of the Offensive Air Strategy

RFC aircraft from Number 3 and Number 4 Squadrons had the distinction of conducting the first reconnaissance missions of the war over Belgium territory on 19 August.¹¹¹ Three days later twelve reconnaissance flights were flown and were able to provide the BEF commander, General Sir John French, information that a large German force was moving westwards towards the British sector of the front.¹¹² This proved to be Von Kluck's Second Corps and the reports gave every indication that the Germans were attempting to conduct an envelopment of the Allied forces.¹¹³ The RFC also suffered its first combat casualties that day with an observer being wounded by rifle fire and a pilot and observer killed when their aircraft was shot down by ground fire.¹¹⁴

It was during the BEF's subsequent retreat from Mons that the RFC truly received its baptism of fire. First and foremost, it needed to earn the trust of the commanders and staffs that the squadrons supported. Mistakes seemed plentiful during the first week of operations. Not only were the ground commanders confused as to what the Germans were doing but to add to this confusion were some of the reports they received from RFC aircrews.¹¹⁵ Accurate reporting of the size and composition of enemy units was difficult as many of the RFC's pilots and observers had little or no experience in observing and identifying objects on the ground from several thousand feet in the air.¹¹⁶ One reconnaissance crew mistook long patches of macadam road for a column of troops on the move while another reported a German unit

¹¹¹ Sir Philip Joubert de la Ferte, *The Fated Sky: An Autobiography*, (London: Hutchinson & Co., Ltd., 1952), 43-44.

¹¹² Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power*, (London: Oxford University Press, 1944), 34-35.

¹¹³ Ibid.

¹¹⁴ Sir Robert Thompson, *The Royal Flying Corps*, (London: Hamish Hamilton, Ltd., 1968), 40-41. See also Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, (London: Constable and Company Limited, 1994), 35. Sergeant Major D. S. Jillings, Number 2 Squadron, was serving as an observer when he was wounded in the leg. Lieutenants V. Waterfall and C. G. G. Bayly of Number 5 Squadron were the two fatal casualties.

¹¹⁵ David Devine, *The Broken Wing*, 51-52.

¹¹⁶ Ibid.

encamped in a shaded field when in reality they had flown over a cemetery and the shadows were cast by gravestones.¹¹⁷

The RFC made its share of mistakes during the opening weeks of the conflict but it was during the retreat from Mons that the army's air service did provide or confirm critical information to allow the BEF commander to make several key decisions which in turn led to the Allied offensive on the Marne in early September.¹¹⁸ Aerial reconnaissance reports had warned General French of Von Kluck's attempted envelopment and throughout the retreat kept the British commander informed of the direction and locations of the German units pursuing the BEF.¹¹⁹ It was also during this opening phase of the war that the RFC began experimenting with what would eventually become tactical bombing. Done on a very small scale and with no effective bomb-release or sighting mechanisms, individual RFC crews dropped hand-held bombs or grenades onto German columns.¹²⁰

During the First Battle of the Marne the RFC provided valuable service to both the British and French forces. Daily reconnaissance reports kept the BEF commander informed of both German and French movements. What role they played in assisting with the BEF commander's decision to eventually counter-attack at the Marne is still debated today.¹²¹

¹¹⁷ *WITA, Vol. I*, 303-304.

¹¹⁸ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power*, 38-39.

¹¹⁹ *Ibid.*, 37. See also Frederick Sykes, *From Many Angles*, 136-138.

¹²⁰ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power*, 39.

¹²¹ The subject of the role played by the RFC during the fighting in late August and early September, 1914 has been hotly debated by aviation historians. Both Cooper and Divine contend that the RFC's role in providing reconnaissance information to the BEF commander during the retreat from Mons and the First Battle of the Marne has been over-exaggerated. Cooper argued that "There is little justification for believing that the air arm 'had saved the army' at Mons, or 'directly led to the victory of the [First Battle of the] Marne.' Malcolm Cooper, *Birth of Independent Air Power*, 18. Divine agreed, stating that the BEF did not act on the RFC's reports and that Sir John French's decision not to attack was based solely on the French retreat. Furthermore, the GHQ staff found the RFC reports "to be somewhat exaggerated." He further argued that "The RFC had not exaggerated; it had in reality, totally misinterpreted the advance along the Brussels/Ninove road." David Divine, *The Broken Wing*, 50-52. Basil Collier has argued that though the army did not rely on the RFC reports primarily, the reports "provided vital confirmation." Basil Collier, *A History of Air Power*. (London: Macmillan, 1974), 50. Both Eric Ash and John Morrow, Jr., tend to support the conclusion that the RFC reconnaissance

During the battle General French sent a message to the British War Council that stressed the work of the RFC squadrons:

I wish particularly to bring to your Lordship's notice the admirable work done by the RFC . . . Their skill, energy and perseverance have been beyond all praise. They have furnished me with the most complete and accurate information which has been of incalculable value in the conduct of operations. Fired at constantly both by friend and foe, and not hesitating to fly in every kind of weather, they have remained undaunted throughout. Further, by actually fighting in the air, they have succeeded in destroying five of the enemy's machines.¹²²

As General French's last sentence states, the first air combats between British and German aircraft also took place during this period. Though armed only with rifles, pistols and hand grenades, RFC crews were able to force down several enemy aircraft. In fact the first two confirmed RFC victories were caused by British pilots whose 'bold maneuvers' panicked the German pilots into making forced landings to avoid collision.¹²³

It was also during the Battle of the Marne that the RFC squadrons began to provide tactical reconnaissance support directly to the two British corps of the BEF.¹²⁴ Number 5 Squadron was tasked to provide three aircraft to the First Corps commanded by General Haig and Number 3 Squadron was tasked to provide three aircraft to Second Corps commanded by General Smith-Dorrien who had replaced General Grierson after he had suffered a heart attack and died while enroute to France.¹²⁵ Each flight of aircraft was also provided with a wireless-equipped aircraft from Number 4 Squadron to maintain contact with RFC headquarters.¹²⁶ These flights operated solely within the assigned zone of the ground force and had three primary tasks. First, the aircrews were tasked with identifying the location of enemy troop movements and dispositions to a depth of twenty miles behind the German front lines. Second,

reports were used by the BEF Intelligence section in a confirmatory role instead of as the primary information source that Sykes and Raleigh, the Official Historian, imply.

¹²² French dispatch to War Council, 7 September 1914, quoted in *WITA, Vol. I*, 329.

¹²³ *WITA, Vol. I*, 329.

¹²⁴ Frederick Sykes, *From Many Angles*, 139.

¹²⁵ *WITA, Vol. I*, 331.

¹²⁶ Frederick Sykes, *From Many Angles*, 139.

they were to identify which bridges remained intact and which had been destroyed and third, locate the positions of the forward British infantry units.¹²⁷ With this information the pilot would land his aircraft near the corps headquarters where he and his observer would brief the commander and his staff on what they had seen. During the first four days of the battle (5-9 September) the RFC was in the air continuously and it was only after the German forces began their withdrawal to the River Aisne that poor weather set in forcing most of the British aircraft to remain on the ground.¹²⁸ The following account by a British artillery officer highlights the impact the RFC seemed to be having on the ground forces they supported.

I saw the bravest thing I ever saw yesterday. One of our airmen flew down the length of the German position. He was fired at all the way by anti-aircraft guns, of which they have apparently any number. They wreathed him in haloes of smoke. Still he held on and disappeared from our sight. Five or ten minutes later he reappeared, returning down their line, and was again greeted by the same fusillade. We held our breath and thought every moment to see him brought down, but he held on quite unconcerned and finally wheeled and flew over us.¹²⁹

After the battle, the French commander-in-chief, General Joseph Joffre also paid tribute to the contributions made by the RFC.

Please express most particularly to Marshal French my thanks for the services rendered to us every day by the English Flying Corps. The precision, exactitude, and regularity of the news brought in by them are evidence of their perfect organization and also of the perfect training of pilots and observers.¹³⁰

Though Joffre's praise grossly over-exaggerated the skills and ability of the RFC, it is evident by his tone that the RFC did in fact provide some valuable support to the senior leaders of

¹²⁷Frederick Sykes, *From Many Angles*, 139.

¹²⁸Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power*, 37-39.

¹²⁹Letter from Brigadier-General H. Lewin to his wife, quoted in Frederick Sykes, *From Many Angles*, 137.

¹³⁰*WITA*, Vol. I., 335.

both armies and assisted them in their decision-making during the battle which ended with an allied victory on the Marne.¹³¹

As encounters between British and German aircraft grew in number Henderson came to the conclusion that the RFC would soon have to fight to gain information just as several of the air power theorists had predicted.¹³² When Colonel J. E. B. Seely, Secretary of State for War from 1912-1914 and eventually the Under-Secretary for Air by the end of the war, witnessed one of these first air combats Henderson informed him that he believed that “This is the beginning of a fight which will ultimately end in great battles in the air, in which hundreds, and possibly thousands, of men may be engaged at heights varying from 10,000 to 20,000 feet.”¹³³ During the Battle of the Marne, Henderson notified Brancker at the War Office:

There are no airplanes with the Royal Flying Corps really suitable for carrying machine guns; grenades or bombs are, therefore, at present more suitable. If suitable aeroplanes are available, machine guns are better undoubtedly. Request you endeavor to supply sufficient fighting machines as soon as possible.¹³⁴

Henderson was well aware that his request was totally unrealistic. Though the War Office had approved the purchase of fifty Vickers FB 5 ‘Gun Bus’ aircraft, it would be many months

¹³¹ Anthony Livesey, *Great Battles of World War I*, (New York: Macmillan Publishing Company, 1989), 20-25.

¹³² Henderson is referring to such pre-war British air power theorists as Major J. D. Fullerton, Captain Bertram Dickson, Captain C. J. Burke, as well as his own subordinate at the time, Frederick Sykes and his friend F. W. Lanchester, all of whom had forecasted the probabilities of air warfare in the not-too-distant future. Henderson Papers, RAFM. See also *Training Manual, Royal Flying Corps, Part II*, Air Publication 144, RAFM. The manual was written by Sykes in the spring of 1914 and published in June, 1914. Both Henderson and the War Office approved the manual’s contents. It specifically identified that “It is probable that one phase of the struggle for the command of the air will resolve itself into a series of combats between individual aeroplanes or pairs of aeroplanes.”

¹³³ *WITA, Vol. I*, 412.

¹³⁴ Henderson to Brancker, 4 September 1914, Henderson Papers, RAFM. See also *WITA, Vol. I*, 412.

before they were built and delivered to Trenchard's reserve squadrons for the crews to train with them before they were sent to France.¹³⁵

Though more experimentation took place with mounting machine guns on aircraft Trenchard and Brancker's main focus was on the continued expansion of the RFC.¹³⁶ The two formulated that one artillery reconnaissance squadron should support each new division raised, and two or three fighting and reconnaissance squadrons should be established to support each corps.¹³⁷ Trenchard also focused on the training program for the new pilots and developed a staggered schedule to train two course-loads of student pilots using the same few machines available for both classes. When the first squadron completed its training, Trenchard split it into three distinct flights and made each flight the nucleus to form three more squadrons.¹³⁸ He proved to be a hard task-master to instructors and students alike. His incentive to them was simple: "The harder you work, the sooner you'll be in action."¹³⁹

As the opening campaign in France and Belgium progressed and the RFC began to suffer casualties, Henderson requested replacements for both aircraft and their crews. On 18 August he requested two replacement pilots and four days later directed Trenchard to send out five pilots with five aircraft.¹⁴⁰ It would not be the first time that Trenchard objected to his commander, reminding him that at this rate it would be impossible to build new squadrons per

¹³⁵ *WITA, Vol. 1*, 429.

¹³⁶ *Sir Sefton Brancker*, ed. Norman Macmillan, 72-73.

¹³⁷ Andrew Boyle, *Trenchard: Man of Vision*, 118. The term 'fighter aircraft' was not used by the RFC/RAF during the First World War. Instead the British identified their single-seater aircraft as 'Scouts' whose original purpose was to 'scout out' what the enemy was doing behind his lines. The Bristol 'Scout' was the RFC's first machine gun equipped aircraft and after its introduction, any pilot trained in armed single-seater aircraft was referred to as 'Scout' pilot. The French would identify their single-seater airmen as 'pilotes de chasse' literally 'pursuit pilots' which the American Air Service would later emulate. For the purposes of clarity and simplicity I will use the term 'fighter' instead of 'scout' and 'fighter pilot' instead of 'scout pilot' in this study.

¹³⁸ *Ibid.*, 119.

¹³⁹ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM. See also Trenchard quoted in Andrew Boyle, *Trenchard: Man of Vision*, 119.

¹⁴⁰ Andrew Boyle, *Trenchard: Man of Vision*, 119.

both the RFC commander's own orders as well as those of Lord Kitchener.¹⁴¹ Brancker supported Trenchard. "Lord Kitchener wishes to give you all the replacements possible" he wired Henderson.¹⁴² "At the same time he wishes to continue organising new squadrons at home for use with the divisions of the New Army. Please say if you want flights of R. E. 5's and Maurice Farman's, but if they go other pilots must be sent home to keep things going here."¹⁴³ The call for reinforcements continued unabated until the end of the Battle of the Marne and Trenchard and Brancker juggled the dual tasks of providing replacements to Henderson and organizing new squadrons. It was thus quite an accomplishment that by the end of October five reserve squadrons had been formed and by mid-November that number had doubled.¹⁴⁴

At the end of October, General Henderson returned to England and visited Trenchard at Farnborough. Henderson was in the process of informing his subordinate how the RFC had so far performed in France and Belgium when Trenchard interrupted his commander and stated that "the battle for command of the air had still to be fought for" and he requested to be posted to France.¹⁴⁵ Henderson ignored his subordinate's impudence and went on to explain that he had proposed to decentralize the squadrons to provide the best support possible for the expansion of Kitchener's New Army formations.¹⁴⁶ His plan called for three operational wings, one for each Army Corps and he wanted Trenchard to command the First Wing.

¹⁴¹ Andrew Boyle, *Trenchard: Man of Vision*, 119.

¹⁴² Letter from Brancker to Henderson, 25 August 1914, AIR1/876/204/5/574, NA..

¹⁴³ Ibid.

¹⁴⁴ *WITA, Vol. I*,

¹⁴⁵ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM.

¹⁴⁶ In his autobiography, Sykes states that Henderson tasked him to draft a plan for the RFC's expansion and reorganization to support Kitchener's New Army. He proposed that the RFC should be grouped in wings of two or three squadrons with one of the squadrons remaining with G.H.Q. and one attached to each army. The squadrons with the H.Q. Wing would provide strategic reconnaissance to a depth of sixty miles and would also include a Wireless Squadron. The squadrons assigned to support the army would provide both strategic and tactical reconnaissance to a depth of twenty miles and also provide artillery observation. See *From Many Angles*, 143-146. This organizational change of the RFC will be covered in greater detail in Chapter 3.

Trenchard was most eager to accept the offer but before doing so he inquired about what role his rival and antagonist, Sykes would have in the expansion.¹⁴⁷ His greatest fear was that if and when Henderson left command that Sykes would be his replacement. Trenchard knew he could work with Sykes as long as Sykes was on the RFC staff but because of their past differences he would not work for him if Sykes became the RFC commander. Henderson assured him that Sykes would remain his chief of staff and would have no operational control over the flying elements within the organization. With this assurance Trenchard accepted the offer and deployed to France on 18 November.¹⁴⁸

Trenchard's worst fears almost came to pass as soon as he arrived in France. During the final phase of the First Battle of Ypres, the 1st Division commander was wounded by artillery fire.¹⁴⁹ The BEF commander identified General Henderson to be the new division commander and Sykes would then assume command of the RFC in France. This was totally unacceptable to Trenchard who sent a telegram to the War Office requesting he be returned to his regiment and explained his rationale before leaving for Merville where the First Wing Headquarters was located.¹⁵⁰ It is assumed that Kitchener saw the telegram for he immediately countermanded General French's orders informing him that he "would not sanction Syke's being in command" of the RFC as he was too inexperienced.¹⁵¹ More than a month passed before the matter was settled with Henderson and Sykes remaining in their previous assignments. Several weeks later, Trenchard was promoted to brevet lieutenant colonel, a tribute to his efforts at expanding the RFC and the fact that he had been promoted to command

¹⁴⁷ Andrew Boyle, *Trenchard: Man of Vision*, 123. See also Frederick Sykes, *From Many Angles*, 143-146.

¹⁴⁸ *Ibid.*

¹⁴⁹ Maurice Baring, *Flying Corps Headquarters, 1914-1918*, (London: Buchan & Enright Publishers, Limited, 1985), 65. See also Frederick Sykes, *From Many Angles*, 146.

¹⁵⁰ Andrew Boyle, *Trenchard: Man of Vision*, 125.

¹⁵¹ *Ibid.*

the First Wing.¹⁵² Trenchard's lack of professional decorum in dealing with Sykes as well as Henderson seemed to have been overlooked by all of those in a position of influence over him.

By the time Trenchard assumed command of First Wing, the war of movement was over and trench warfare had set in along the entire Western Front.¹⁵³ Although the RFC had experimented with tactical bombing and its airmen had been involved in several air combats with German aircraft, its principal mission was still tactical reconnaissance in support of the BEF's corps and divisions.¹⁵⁴

During the First Battles of the Marne and Aisne, the RFC had experimented with aerial photography and the use of wireless equipped aircraft to observe and direct artillery fire.¹⁵⁵ Initially, some aircraft were equipped with Klaxon horns and after observing artillery fire would turn in the direction of the artillery battery and provide corrections in Morse code with the signal greatly amplified by the horn. This was quickly proven to be both inefficient and sometimes inaccurate as the noise of the battlefield often covered up the sound of the horn.¹⁵⁶ Colored flags, electric signal lamps, and Very lights were also used with some success but during the fighting on the Aisne River in September, 1914 the RFC began to seriously experiment with using aircraft equipped with a wireless set to direct artillery fire.¹⁵⁷

Lieutenants Donald S. Lewis and Baron T. James had transferred from the Royal Engineers to the RFC in 1913 and had done much work before the war on adapting a wireless

¹⁵² Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM. See also Boyle, 126.

¹⁵³ John Keegan, *The First World War*, (New York: Alfred A. Knopf, 1999), 131-135. See also Daniel David, *The 1914 Campaign: August-October, 1914*, (New York: The Military Press, 1987), 178-180.

¹⁵⁴ Geoffrey Norris, *The Royal Flying Corps: A History*, (London: Frederick Muller Limited, 1965), 59. See also Peter Mead, *The Eye in the Air: A History of Air Observation and Reconnaissance for the Army, 1785-1945*, (London: Her Majesty's Stationary Office, 1983), 56.

¹⁵⁵ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 42-43. See also Walter J. Boyne, *The Influence of Air Power upon History*, (New York: Pelican Publishing Company, 2003), 65.

¹⁵⁶ *Ibid.*, 24.

¹⁵⁷ Geoffrey Norris, *The Royal Flying Corps: A History*, 112.

set to operate in an aircraft.¹⁵⁸ The pair was assigned to Number 4 Squadron under the command of Major H. Musgrave whose squadron provided wireless support to each of the British corps.¹⁵⁹ To improve the coordination between the flying corps and the artillery, the RFC also used artillery officers as observers on loan from their parent unit.¹⁶⁰ Because of this arrangement a close and professional partnership was formed between the two branches that lasted for the remainder of the war.¹⁶¹ It was also during a conference between artillery officers and airmen in January, 1915 where the newly promoted Captain James presented his idea for a more efficient and accurate means of directing artillery fire from the air. His recommendation became known as the 'Clock-Code' and was first used at the battle of Neuve Chapelle two months later. It was so successful that it became official doctrine and was used for the remainder of the war on all fronts.¹⁶² Because of the innovative minds of men like Lieutenants Lewis and James, it was evident to both army and RFC leadership by the end of the Battle of Aisne that the observation and directing of artillery via wireless was now a viable mission for the RFC.¹⁶³ By the summer of 1915 every squadron in France and Flanders had at least a flight of two wireless equipped aircraft.¹⁶⁴

A lull in ground activity during the winter of 1914-1915 allowed the RFC to develop and improve the techniques and procedures for the directing of artillery fire and aerial

¹⁵⁸ Peter Mead, *The Eye in the Air: A History of Air Observation and Reconnaissance for the Army, 1785-1945*, 67. See also Geoffrey Norris, *The Royal Flying Corps: A History*, 112-113.

¹⁵⁹ Frederick Sykes, *From Many Angles*, 148-149.

¹⁶⁰ Peter Mead, *The Eye in the Air: A History of Air Observation and Reconnaissance for the Army, 1785-1945*, 66. See also C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS, and RAF*, (London: Airlife Publishing, Ltd., 2001), 10-11.

¹⁶¹ *Ibid.*

¹⁶² *WITA, Vol. II*, 86-87.

¹⁶³ Sir Martin Farndale, *History of the Royal Regiment of Artillery: Western Front, 1914-1918*, (Dorchester, England: Henry Ling Limited, The Dorset Press, 1986), 61-66. See also C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS, and RAF*, 6-7.

¹⁶⁴ *WITA, Vol. II*, 84.

photography. These techniques and procedures were put to the test during the battle for the French village of Neuve Chapelle in March, 1915.¹⁶⁵

The BEF staff began the planning for the battle in January and one of the first requirements that arose was the need for accurate maps of the area in and around the village. To solve this problem the RFC was tasked to photograph the area of operations around Neuve Chapelle.¹⁶⁶ It was largely due to Sykes foresight in the fall of 1914 that the RFC was able to accept this request. Sykes had previously directed Major W. G. H. Salmond to liaison with the French Air Service and analyze their aerial photography section which had provided excellent results to the French ground commanders during the Battle of the Marne.¹⁶⁷ After reading Salmond's report Henderson directed that the RFC develop a photographic section of its own. The four man section led by Major J. T. C. Moore-Brabazon and using newly developed cameras and French aerial photography techniques, ensured that the RFC was able to accomplish this mission.¹⁶⁸ The aircraft conducting the photography missions experienced heavy anti-aircraft fire during each operation but at no time did the GAAS make any attempt to prevent the RFC from carrying out its photographic missions. The photographs provided detailed information on the location of many of the German fortified positions and also confirmed the location of many enemy artillery batteries in the area to be attacked.¹⁶⁹

By the end of February, Sir John French and his staff had been provided aerial photographs of the entire German trench system in front of the British First Army to a depth of 700 to 1,500 yards.¹⁷⁰ The trenches were clearly identified on the photographs, were then

¹⁶⁵ Walter J. Boyne, *The Influence of Air Power upon History*, 67-68.

¹⁶⁶ Peter Mead, *The Eye in the Air: A History of Air Observation and Reconnaissance for the Army, 1785-1945*, 66

¹⁶⁷ Frederick Sykes, *From Many Angles*, 148-149.

¹⁶⁸ Aaron Norman, *The Great Air War: The Men, The Planes, The Saga of Military Aviation: 1914-1918*, (New York: The Macmillan Company, 1968), 68.

¹⁶⁹ *WITA*, Vol. II, 91

¹⁷⁰ *Ibid.*

traced onto map overlays to a scale of one to eight thousand. Some 1500 copies of the map were issued to each army corps in preparation for the attack.¹⁷¹ As the Official History notes, it was the first time the British army went to battle with a complete picture of the enemy's defensive positions.¹⁷²

French had selected General Sir Douglas Haig's First Army to be the main effort for the attack and it was during this battle that Haig, with Trenchard's First Wing providing aerial support, formed a professional bond with the man who would command the RFC during the Battle of the Somme.¹⁷³ Trenchard split his squadrons into flights so that they could work directly with the two artillery groups, the attacking corps and First Army headquarters. On the opening day of the battle, 10 March, 1915, Trenchard visited with the squadrons within the First Wing.¹⁷⁴ In what would become his trademark for de-briefing crews immediately upon return from missions, Trenchard spent hours questioning the pilots and observers to enable him to form a picture of what was taking place on the battlefield.¹⁷⁵ From the interviews he learned that many of the artillery batteries were either deliberately ignoring or had misread the wireless messages sent by the RFC observers who were attempting to observe and direct the British artillery fire.¹⁷⁶ Trenchard was furious. If this was accurate then weeks of coordination, discussion and rehearsal prior to the start of the attack had been wasted. He then paid visits to the senior artillery commanders within First Army and in several short discussions he was

¹⁷¹ *WITA, Vol. II*, 91.

¹⁷² *Ibid.*

¹⁷³ Robin Higham, *The Military Intellectuals in Britain, 1914-1939*, 136. Trenchard's first meeting with Haig took place in early January, 1915 several weeks after Haig assumed command of the First Army. After the meeting Trenchard was asked to brief his new ground commander on the capabilities and roles of the RFC. It was at this meeting that Haig informed Trenchard that he was considering conducting an offensive at Neuve Chappelle in March. They had a subsequent meeting to discuss reconnaissance and artillery observation on 16 February. See Trenchard Autobiographical Notes, RAFM; Andrew Boyle, *Trenchard: Man of Vision*, 128; and *Douglas Haig: War Diaries and Letters, 1914-1918*, ed. Gary Sheffield and John Bourne, 101.

¹⁷⁴ Andrew Boyle, *Trenchard: Man of Vision*, 135.

¹⁷⁵ Robin Higham, *The Military Intellectuals in Britain, 1914-1939*, 136. See also Andrew Boyle, *Trenchard: Man of Vision*, 135

¹⁷⁶ *WITA, Vol. II*, 96.

convinced that his aircrews had not been exaggerating the level of non-cooperation on the part of most of the artillery units. "I could not get these gentlemen to take any interest. In fact, one of them said to me: "Don't you see Colonel Trenchard, that I am far too busy fighting to have time for playing with your toys in the air?"¹⁷⁷ But at least one artillery formation did seem to obtain satisfactory results by working with their assigned squadron. The war diary of Number 1 Group Artillery recorded that

In fulfilling their mission as counter batteries, the Group artillery received the utmost assistance from the section of wireless aeroplanes under the command of Captain Lewis, DSO. These aeroplanes were invaluable in sending information as to the positions of hostile batteries which were active. As regards the observation and correction of fire by the wireless aeroplanes the observers stated that very little correction was necessary on any targets, and that the shooting of the Group appeared to be very effective.¹⁷⁸

There was more good news for the RFC in the fact that the commander and staff of the First Army's Royal Artillery did recognize that the observation and direction of artillery fire as well as communications from the airmen enabled the artillery commanders to "direct the fire of their batteries on to hostile active batteries and other targets that were at the time important tactical objectives."¹⁷⁹

When the weather got worse and hampered the RFC's ability to fly continuously more bad news followed. Trenchard had hoped that the tactical bombing missions, planned against several key command and control and logistics centers, would provide valuable support to Haig's army and although the building a German brigade headquarters occupied was destroyed and several trains carrying reinforcements were hit, the majority of the bombing

¹⁷⁷ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM. Also see Trenchard quote in Boyle, 136.

¹⁷⁸ War Diary entry, No. 1 Group Artillery, quoted in *WITA, Vol. II*, 93.

¹⁷⁹ *Command and Control of the Western Front: The British Army's Experience, 1914-1918*, ed. Gary Sheffield and Dan Todman, (Kent, England: Spellmount Limited, 2004), 33.

raids were ineffective.¹⁸⁰ On one mission conducted after dusk, all three aircraft that attempted to attack a rail junction at Lille were shot down or crashed before reaching the target.¹⁸¹

Trenchard realized that without resources the RFC's attempt to pursue tactical bombing would be limited at best and have no bearing or influence on the ground battle.¹⁸²

There was one task that the RFC had conducted on a limited basis that the ground commanders had found particular useful and that was the 'contact patrol.' Designed to keep the infantry and artillery commanders informed of the location of friendly units during an attack, the intent of the 'contact patrols' was for aircraft to fly low enough over the battlefield, usually under 1,000 feet, to be able to spot the locations of the most forward advancing troops and then inform the ground commander.¹⁸³ The ground commander could then assess the progress, or lack thereof, and make an informed decision.¹⁸⁴ At the same time British artillery fire could be called for and directed to support any units that had been stopped by an enemy fortified position that had escaped the preliminary bombardment. Two months later at the Battle of Aubers Ridge, British troops were issued with cloth panels and directed to lay them out in front of their forward positions. Aircraft flying overhead as high as 5,000 feet were able to report the positions back to corps headquarters via wireless.¹⁸⁵ Once again, the British made little territorial gains during the offensive operation, but both the ground and air commanders

¹⁸⁰ Of 141 bombing attacks conducted during the battle, RFC Headquarters assessed only three as having been successful. See John H. Morrow, Jr., *The Great War in the Air: Military Aviation from 1909 to 1921*, (Washington, D.C.: Smithsonian Institution Press, 1993), 113. See also Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-19139*, 54. See also *WITA*, Vol. II, 94-96.

¹⁸¹ *WITA*, Vol. II, 96.

¹⁸² Andrew Boyle, *Trenchard: Man of Vision*, 135-136. See also Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM.

¹⁸³ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, (London: Constable and Company Limited, 1994), 157. See also Peter Mead, *The Eye in the Air: History of Air Observation and Reconnaissance for the Army, 1785-1945*, (London: Her Majesty's Stationary Office, 1983), 62.

¹⁸⁴ Lee Kennett, *The First Air War, 1914-1918*, (New York: The Free Press, 1991), 38.

¹⁸⁵ Peter Mead, *The Eye in the Air: History of Air Observation and Reconnaissance for the Army, 1785-1945*, 67.

believed the use of contact patrols had provided some valuable information as to what was taking place during the initial, first chaotic hours of the attack.¹⁸⁶

Though the winter and spring operations at Neuve Chapelle (10-12 March, 1915), Aubers Ridge (9-10 May, 1915), and Festubert (15-25 May, 1915) failed to successfully penetrate the German defensive positions and Haig's First Army suffered more than 39,000 casualties during these attacks, both the BEF and the RFC were learning and developing new techniques and procedures to advance air-ground cooperation during the crucible of combat.¹⁸⁷ The experience the squadrons gained in carrying out tactical reconnaissance, aerial photography, direction and observation of artillery, contact patrols as well as working with the division and corps staffs, demonstrated to Haig that the newest branch of the army was in fact able to provide assistance to the ground forces.¹⁸⁸ The planning and coordination that took place between the RFC and First Army at Neuve Chapelle would prove significant to the future developments of British ground operations on the Western Front.¹⁸⁹ Not only was it the first time that air power was fully integrated with ground forces in combat but many of the lessons learned would become doctrine within the RFC.¹⁹⁰ But it was a single event which occurred in the skies above Ypres during the fighting at Aubers Ridge that would serve as the catalyst for the strategy the RFC would develop and use for its air campaign during the Battle of the Somme in 1916.

¹⁸⁶ *Command and Control of the Western Front: The British Army's Experience, 1914-1918*, ed. Gary Sheffield and Dan Todman, (Kent, England: Spellmount Limited, 2004), 122.

¹⁸⁷ Trevor Wilson, *The Myriad Faces of War: Britain and the Great War, 1914-1918*. (Cambridge: Polity Press, 1986), 144. The First Army suffered 13,000 casualties during the three days fighting at Neuve Chapelle; 9,500 casualties from the twenty-four hour fight for Aubers Ridge and 16,500 for the ten day struggle for Festubert.

¹⁸⁸ David Jordan and Gary Sheffield, "Douglas Haig and Airpower", *Airpower Leadership: Theory and Practice*, ed. Peter W. Gray and Sebastian Cox, (London: The Stationary Office, 2002), 271.

¹⁸⁹ *Ibid.*

¹⁹⁰ The methodologies developed in the areas of artillery observation and direction, photographic reconnaissance, contact patrols as well as tactical bombing and air fighting, before and during the Battle of Neuve Chapelle, were captured in such doctrinal pamphlets such as "Fighting Hostile Aeroplanes in the Air" (February, 1915), "Co-Operation of Aeroplanes with Other Arms" (August, 1915), and "Some Notes on Bombing Attacks", (December, 1915).

On 10 May, 1915, A Vickers FB 5 ‘Gunbus’ from Number 5 Squadron, Britain’s first true fighter aircraft, attacked a German aircraft and shot it down near Lille.¹⁹¹ Though one aerial victory would seem to be small and inconsequential as compared to what was taking place along the Western Front at the time, this incident was in fact a harbinger that air warfare was about to intensify in a way few military commanders could have predicted.

Two critical events occurred during the summer of 1915 that would have a major impact on the future of the RFC. The first occurred in late July when the GAAS introduced the Fokker Eindecker monoplane to the Western Front.¹⁹² The Eindecker was equipped with a synchronization mechanism that enabled a fixed machine gun to fire through the propeller. The synchronization mechanism was deemed so secret that the German pilots were given specific orders not to fly across the Allied lines in fear that if they were forced down the British or French would learn the secrets of the synchronization gear.¹⁹³ Though it had several major shortcomings as a fighter aircraft, what made the Fokker Eindecker a deadly weapon of war was its synchronized machine gun and the few, well-trained pilots that flew them.¹⁹⁴ It did not take long before the German pilots demonstrated that the slow, poorly armed RFC aircraft were no match for the agile monoplanes.¹⁹⁵

¹⁹¹ WITA, *Vol. II*, 140.

¹⁹² Norman Franks, *Sharks Among Minnows: Germany’s First Fighter Pilots and the Fokker Eindecker Period, July, 1915 to September, 1916*, (London: Grub Street, 2001), 8.

¹⁹³ In late January, 1915, Roland Garros, a French aviator flying with *Escadrille MS23*, attached metal plates to the blades of his propeller of his Morane-Saulnier monoplane. He proved successfully that any bullet that did not pass safely through the moving propeller would be deflected away from the machine. In just over three weeks he was able to shoot down five German aircraft. His success was short-lived however. On 18 April he was forced to land behind the German lines when his engine was damaged by ground fire and before he could set his aircraft on fire, he and his machine were captured and his secret of the deflector plates became known. Dutch aircraft designer Anthony Fokker, working for the German Air Service, and his team of designers used Garros’ deflector plates as inspiration for the development of a synchronization mechanism which he then applied to the Fokker Eindecker.

¹⁹⁴ Norman Franks, *Sharks Among Minnows: Germany’s First Fighter Pilots and the Fokker Eindecker Period, July, 1915 to September, 1916*, 8.

¹⁹⁵ The renowned First World War aviation historian Norman Franks has identified that between July 1915 and the end of the year, nine German pilots flying the Eindecker accounted for 28 aerial victories over French and British aircrews. See Norman Franks, *Sharks Among Minnows*, 41.

On 29 July, an RFC BE 2c was conducting a photographic reconnaissance sortie and had the first encounter with an armed Fokker Eindecker. Though the air fight that ensued was inconclusive for both sides what was significant was that the RFC crew reported that the enemy aircraft had a machine gun that fired through the propeller.¹⁹⁶ In August what would become known as the Fokker ‘Scrouge’ began. The GAAS was quick to realize that two of its young pilots, Leutenants Oswald Boelcke and Max Immelmann, of *Flieger-Abteilung Nr. 62* (Flying Section or FA62) were becoming most proficient in the art of air fighting and during the months of August and September the pair began to shoot down British aircraft almost at will.¹⁹⁷ RFC Headquarters soon realized that the increase in the number of air combats signaled a change many of its leaders had expected but few could predict the impact on the RFC and its development of an air strategy. Lieutenant Colonel H. R. M. Brooke-Popham, having previously commanded the Third Wing recorded in late July that “The German aeroplanes are becoming far more active, and are making a regular habit of attacking our machines when on reconnaissance, and we are having to fight for all our information.”¹⁹⁸

The second critical event occurred when Trenchard replaced Henderson as commander of the RFC on 19 August, 1915.¹⁹⁹ Kitchener, having already directed a massive expansion in order that the RFC would be ready to provide support to the dozens of divisions then being formed in the United Kingdom, was quick to realize that a more senior officer was required within the War Office to oversee both the expansion of the army’s air arm and deal with the plethora of administrative and logistical issues that had to be dealt with on a daily basis.²⁰⁰ Brancker had done a commendable job as Deputy Director of Military Aeronautics (DDMA) but through no fault of his own he held little influence within the War Office and

¹⁹⁶ Norman Franks, *Sharks Among Minnows*, 14.

¹⁹⁷ Peter Kilduff, *Germany’s First Air Force, 1914-1918*, (London: Arms and Armour Press, 1991), 37.

¹⁹⁸ Norman Franks, *Sharks Among Minnows*, 11.

¹⁹⁹ *WITA*, Vol. II, 124. See also Andrew Boyle, *Trenchard: Man of Vision*, 141.

²⁰⁰ *Sir Sefton Brancker*, ed. Norman Macmillan, 68.

was outranked by his naval counterpart, Captain Murray Sueter, who also had the support of the First Lord of the Admiralty, Sir Winston Churchill, and the vast resources of the Royal Navy behind him.²⁰¹ Henderson had been the DGMA until war was declared but had turned over his duties to Major Brancker when he took command of the RFC and then deployed to France. It is more than understandable that he would want to command the organization he helped to create when it was sent into combat. The question must be asked why Kitchener, Henderson, or the War Office had not realized or demanded earlier that a more senior aviation-minded officer oversee and coordinate the resources and requirements required by the RFC? The answer can only be that with war declared these leaders were focused on getting the army to France as quickly as possible and as had happened so often in the years leading up to the war, aviation matters were not as critical or urgent as the many other defense issues that they were dealing with.²⁰²

As chief of staff of the RFC in early 1914, Sykes had written in a memorandum that did broach the subject and he argued that the DGMA was more critical to the overall welfare and development of the flying corps than was the commander of the RFC. Sykes argument was logical, especially when the war of movement ended on the Western Front in November, 1914 and trench warfare set in but it had not been acted on.²⁰³ Brancker himself had sent several letters to Henderson that pointed out the critical importance of the DGMA and why it needed to be held by a senior officer with aviation experience.

The Director General of Military Aeronautics must be a Major-General at least, have a loud voice in the War Office, and if possible, be on terms of

²⁰¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 105-107. See also David Devine, *The Broken Wing*, 77.

²⁰² Much of this urgency was based on the belief by the majority of Britain's senior military leaders that the war would be over in a matter of months. Within the RFC both Henderson and Sykes were among this group that thought the war would be over by Christmas, 1914. See Eric Ash, *Sir Frederick Sykes and the Air Revolution*, 51.

²⁰³ Memorandum from Sykes to Henderson, 30 October 1914, Sykes Papers, RAFM.

equality with the Army Council. It is obviously the appointment for you, and if you hold it, it would also imply the command of the whole Flying Corps.²⁰⁴

After commanding the RFC in combat for twelve months, Henderson had to agree that the flying service would be better served if he were back in the War Office in London where strategic policy and decisions were made.²⁰⁵ His technical expertise, combined with his seniority and operational command experience in the field would provide the RFC the wherewithal to deal with both the nation's political leadership and the Admiralty on the critical issues of personnel, training and most especially aircraft production.²⁰⁶ Before leaving for England, Henderson had to recommend a replacement to take command of the RFC. The obvious choice was the commander of First Wing, Hugh Trenchard.²⁰⁷

Though Frederick Sykes had been the commander of the Military Wing and had served as his chief of staff the entire time he was in command, Henderson realized that he was not a viable option. Kitchener had already disapproved Sykes taking command of the RFC the previous December when Henderson had been ordered to take command of the 1st Division. Furthermore, while Henderson was on sick leave earlier in the year there had been some discussion among the BEF and RFC staff that a younger man should command the RFC and upon his return Henderson seemed convinced that the topic had originated with Sykes.²⁰⁸ In

²⁰⁴ Letter from Brancker to Henderson, 28 July and August, 1915, *Sir Sefton Brancker*, ed. Norman Macmillan, 106-109.

²⁰⁵ Letter from Henderson to Trenchard, 25 February, 1916, Henderson Papers, RAFM. See also David Devine, *The Broken Wing*, 76-77.

²⁰⁶ David Devine, *The Broken Wing*, 77.

²⁰⁷ Letter from Henderson to Trenchard, 25 February, 1916, Henderson Papers, RAFM.

²⁰⁸ Andrew Boyle, in his biography of Trenchard, states that according to Trenchard, Henderson visited Trenchard at First Wing headquarters at Merville on 17 May 1915, and in private conversation informed him that he was going to replace Sykes. Henderson purportedly stated that Sykes 'had been actively scheming to replace him [Henderson] in his absence. Damaging insinuations had come back from the highest quarters. It was said for instance, that the Flying Corps would be better off under a commander with youth as well as robust health on his side.' Henderson had confronted Sykes who did not deny that he was the source. Henderson then offered Trenchard the position which Trenchard refused wishing to remain in command of First Wing. He did recommend that Brooke-Popham would be make an excellent chief of staff as he was more than capable and would serve Henderson and the

addition Henderson knew that two of his most trusted subordinates, Brancker and Trenchard had issues with Sykes, and though his chief of staff was hard-working, intelligent, and innovative, he could also be abrasive and hard to work with. Henderson had replaced Sykes in May with Brooke Popham and had sent Sykes back to the Directorate of Military Aeronautics but within days Sykes appointment was changed and instead he was sent to the Dardanelles to assist the Royal Navy in the use of aircraft for the upcoming Gallipoli campaign.²⁰⁹ Thus when Henderson prepared to return to London in August it was not a hard decision in recommending Trenchard be his replacement. Based on his overall performance since joining the RFC, Henderson realized it was both a sound and logical decision. Trenchard had proven himself in the field as Haig's air advisor and the two had formed a mutual respectful relationship. It also helped that Trenchard had impressed Kitchener during his few months as the commander of the RFC's Military Wing and his efforts to expand the RFC during the first quarter of the war. In little over a year Trenchard had gone from being an army major and serving as the adjutant of the Central Flying School to being selected to be the commander of the RFC in France. On 19 August, 1915, Trenchard's appointment as General Officer Commanding (GOC), RFC was published in the *London Gazette* and a week later he was promoted to brigadier general.²¹⁰ Besides Trenchard assuming command of the RFC there was

RFC well. Neither Henderson, Sykes nor Trenchard left anything in writing to corroborate Trenchard's statement. As expected, both the *The War in the Air* and *The Official History of the Royal Air Force in the Great War*, had little to say about the change of command only stating that Henderson returned to London because a more senior officer was needed to address aviation matters within the War Office. In his autobiography Sykes states that the reason he left the position of chief of staff was because he was asked by the Admiralty to go to the Dardanelles and "report on aircraft requirements in the Eastern Mediterranean." What we do know is that Henderson was aware that Kitchener did not believe that Sykes was the man for the job and several of his most senior subordinate officers had issues with Sykes. Add to the fact that Sykes had lost Henderson's loyalty and it is easy to see why Sykes, though he had done much for the RFC, was the odd man out. See also Geoffrey Norris, *The Royal Flying Corps in France: A History*. (London: Frederick Muller Limited, 1965), 140; and David Divine, *The Broken Wing*, (London: Hutchinson & Co, Ltd., 1966), 76-77.

²⁰⁹ Frederick Sykes, *From Many Angles*, 155.

²¹⁰ Andrew Boyle, *Trenchard: Man of Vision*, 141. See also *WITA, Vol, II*, 124; Air Historical Branch,

another notable addition to the leadership of the RFC in France. With Henderson resuming his role as DGMA, Brancker was selected to take command of the recently created Third Wing.²¹¹

When Trenchard assumed command of the RFC there were twelve squadrons operating in France and Belgium.²¹² Just weeks before on 25 July, the first homogenous fighter squadron, Number 11, equipped with Vickers FB 5 aircraft, arrived in France.²¹³ Though its primary duty was to seek out and attack German aircraft it would also conduct long-range reconnaissance, photography and artillery observation as required.²¹⁴ This squadron and its subsequent performance against the GAAS would set the stage for the final development of the RFC's strategy on air power in the months before the opening of the Somme campaign.²¹⁵

Within just weeks of taking command Trenchard was hard at work planning the RFC's role in the upcoming attack at Loos. Though Lieutenant Colonel Eric B. Ashmore, an artillery expert, had succeeded Trenchard in command of First Wing, the new RFC commander continued to work closely with Haig and the First Army.²¹⁶ Haig's army was once again designated to be the main effort for the attack.²¹⁷ The British effort was to be a supporting attack for the French autumn offensive which was to occur simultaneously further

The Royal Air Force in the Great War, (London: Imperial War Museum, Department of Printed Books, n.d.), 62.

²¹¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 109.

²¹² Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 105. See also Andrew Boyle, *Trenchard: Man of Vision*, 149.

²¹³ *WITA, Vol. II*, 123.

²¹⁴ *Ibid.*

²¹⁵ Jon Guttman, *Pusher Aces of World War I*, (Oxford, England: Osprey Publishing Limited, 2009), 18. See also *Sir Sefton Brancker*, ed. Norman Macmillan, 110-111; John Batchelor and Bryan Cooper, *Fighter: A History of Fighter Aircraft*, 10; *WITA, Vol. II*, 139.

²¹⁶ Andrew Boyle, *Trenchard: Man of Vision*, 147.

²¹⁷ Robin Neillands, *The Great War Generals on the Western Front, 1914-1918*, (London: Constable & Robinson Ltd., 2004), 200.

south in the Champagne area.²¹⁸ The First Army, like the rest of the BEF was still experiencing a shortage of artillery ammunition and thus it was critical that the RFC be as accurate as possible when providing adjustments and corrections to the artillery to save on the limited ammunition then available.²¹⁹ First Wing divided up the area to be attacked into four zones and then proceeded to work from before dawn to after dusk communicating the results of their observations to at least forty wireless stations that were co-located with the artillery batteries within First Army.²²⁰

Trenchard and Ashmore's coordination and planning with the First Army staff and their assigned and attached artillery units was both elaborate and meticulous.²²¹ Coordination between the RFC and the artillery had progressed much since the clumsy attempts that took place before and during the spring offensives at Neuve Chapelle, Aubers Ridge, and Festubert. A second coordination conference between the RFC and the artillery had taken place in June to reinforce the lessons learned from the spring fighting.²²² The RFC staff had produced a pamphlet that laid out the procedures recommended for artillery coordination between aircraft and artillery batteries. The pamphlet was approved by BEF headquarters and issued to all units within the army in July. It was the first of several documents on the use of aviation that became doctrine within the army before the Somme campaign in 1916.²²³ The Battle of Loos

²¹⁸ John Terraine, *Ordeal of Victory*, (Philadelphia: J. P. Lippincott Company, 1963), 154-155. See also *Douglas Haig: War Diaries and Letters, 1914-1918*, ed. Gary Sheffield & John Bourne, 25-26.

²¹⁹ J. H. Johnson, *Stalmate: The Real Story of Trench Warfare*, (London: Orion Publishing Group Ltd., 1995), 37. See also *WITA, Vol. II*, 125.

²²⁰ *WITA, Vol. II*, 125-126.

²²¹ Andrew Boyle, *Trenchard: Man of Vision*, 148-150. See also David Devine, *The Broken Wing*, 80.

²²² *WITA, Vol II*, 121. The conference was chaired by Major General J. P. du Crane, The BEF's Chief Artillery officer and the results included the publication of *Instructions Regarding the Co-Operation of Aeroplanes with Other Arms* the following month by RFC Headquarters.

²²³ *Instructions Regarding the Co-Operation of Aeroplanes with Other Arms, (Provisional)*, July, 1915, RAFM. This twenty-six page document also included the first formalized procedures for using the Clock Code in correcting artillery fire from the air. Prior to its publication the commanders of artillery batteries could make modifications to the system in concert with the aircrews that provided direct support to them. Confusion ensued however when new personnel or aircrew that were not habitually associated with that particular battery attempted to direct fire from the air. Thus the procedures were

would demonstrate that there was still much work to be done in the areas of cooperation and coordination between the two branches to ensure that optimal results were gained on the battlefield.

Several days before the British troops attacked on the morning of 25 September, all targets had been identified, photographed, and coordinated with the artillery.²²⁴ Trenchard also placed much emphasis on the tactical bombing raids that he directed take place and for three days the squadrons within the Second and Third Wings attacked the German's main supply route and the logistic infrastructure in the area around Douai, Valenciennes and Lille.²²⁵ More than forty aircraft bombed numerous ammunition trains, motor vehicle columns carrying reinforcements and ammunition, railway marshalling yards, wireless centers, and several bridges. Though small in both size and scope in comparison to the bombing raids conducted by the RAF in the last six months of 1918, for the first time in the war the results were encouraging. At least five trains were derailed or damaged, at least two of which were ammunition trains, and at least twenty trucks loaded with ammunition were destroyed before or during the battle.²²⁶ The RFCs deepest penetration was thirty-six miles behind the Germans lines and a total of five and half tons were dropped on fifteen targets.²²⁷ RFC aircraft conducting observation and direction of artillery were also doing their share to assist the army on the ground. A captured diary from a German artillery battery provided some evidence of the effectiveness of the RFC's before the battle. An entry dated 18 September recorded "Enemy has worked hard all the morning at communication trench. The presence of hostile

standardized so that all were using the same process and the Clock Code became doctrine throughout the army. The Clock Code will be covered in greater detail in Chapter 4.

²²⁴ Peter Mead, *The Eye in the Air*, 68-69.

²²⁵ *WITA, Vol. II*, 127.

²²⁶ *Ibid.*, 127-128. See also Air Historical Branch, *The Royal Air Force in the Great War*, (London: Imperial War Museum, Department of Printed Books, n.d.), 64.

²²⁷ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*. (London: Oxford University Press, 1944), 80-81.

aeroplanes near the battery has prevented it from effectively doing its work.” Another entry dated five days later stated “The enemy fire on our trenches cannot be replied to immediately as enemy aeroplanes, little or not fired at, are flying over the battery.”²²⁸

Though Loos proved to be no more successful than the limited spring offensives and sixty thousand more British soldiers had become casualties, Sir John French was pleased with the effort of the RFC and issued a special order of the day after the battle’s conclusion.

The Command[er]-in-Chief desires to express . . . his appreciation of the valuable work they have performed during the battle which commenced on the 25th of September. He recognizes the extremely adverse weather conditions which entailed flying under heavy fire at very low altitudes. He desires especially to thank pilots and observers for their plucky work in co-operation with the artillery, in photography and the bomb attacks on the enemy’s railways, which were of great value in interrupting his communications. Throughout these operations the Royal Flying Corps has gallantly maintained the splendid record they have achieved since the commencement of the campaign.²²⁹

Trenchard realized that the message was for morale purposes only.²³⁰ He more than anyone knew what he asked of his airmen to do but regardless of their Herculean efforts the battle had still been lost and the RFC’s ability to influence the fighting had been negligible.²³¹ As David Devine correctly concluded “The Flying Corps had, in fact, been asked to do the impossible-to carry out roles for which it had neither the experience, the aircraft, nor the techniques.”²³² Even more troubling was the fact that during the Battle of Loos the number and intensity of air combats with the GAAS had greatly increased over what had previously been experienced. Though overall RFC casualties from the five day battle had been light with only four aircrew wounded and another seven missing, presumed killed or taken prisoner, there had been

²²⁸ *WITA, Vol. II, 129.*

²²⁹ *Special Order of the Day, 4 October 1915*, as quoted in *WITA, Vol. II, 134.*

²³⁰ Andrew Boyle, *Trenchard: Man of Vision*, 150.

²³¹ *Ibid.*

²³² David Devine, *The Broken Wing*, 81.

seventeen reported air combats.²³³ It was now becoming evident to the wing commanders and to Trenchard himself that the RFC would have to gain some form of aerial superiority over the GAAS if it was to be able to provide the support to the BEF that Trenchard had convinced Haig they were capable of providing. Trenchard's chief of staff, Brooke-Popham had written just before Loos that

If the enemy brings troops over from the Eastern Front and resumes his offensive, he will doubtless make a determined effort to prevent our discovering his movements. Then will commence the real struggle for air supremacy where numbers will be one of the essentials for success.²³⁴

What was of greatest concern to Trenchard was the impact that one German aircraft, the Fokker Eindecker, armed with a synchronized machine-gun, was having on both the RFC and the French *Service d' Aviation Militaire*.²³⁵ Though the Eindecker had first appeared in late July it was not until October that it began to demonstrate a gradual dominance of both the British and French aircraft it came into contact with. Within weeks both allied air services found themselves at a tactical disadvantage of the GAAS.²³⁶ Aside from the lone squadron of Vickers 'Gunbus' fighters, the RFC was for the most part still equipped with the aircraft that it had started the war with fourteen months previously.²³⁷ Addressing the qualifications of aircrew for this new type of warfare Trenchard advised Henderson and the War Office that it

²³³ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, (London: William Kimber and Co, Limited, 1969), 50-52.

²³⁴ Letter from Brooke-Popham to Trenchard, 15 August 1915, quoted in *WITA, Vol. II*, 144.

²³⁵ Andrew Boyle, 153. For brevity I will use *Aviation Militaire* for the remainder of this paper when identifying the French Military Aviation Service.

²³⁶ Part of this delay can be explained by the fact that the entire fleet of Eindeckers was grounded for several weeks in September, 1915 after three fatal crashes occurred at the Fokker training unit at Doberitz. This respite for the Allied air services was short lived however and after much pressure from the German commanders at the front, the ban was lifted and the Fokkers were cleared for operational flying. See Peter Kilduff, *Germany's First Air Force, 1914-1918*, (London: Arms and Armour Press, 1991), 36-41. See also Alex Imrie, *German Fighter Units, 1914-1917*, (Oxford, England: Osprey Publishing Ltd., 1978), 3-10.

²³⁷ Richard Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 18.

was critical that air fighting techniques be added to the training programs for both pilots and observers in England before they reached their operational squadrons in France.²³⁸



Fokker Eindecker E1 about to take off. (IWM Q69222)

From October 1915 through March 1916, the Germans were able to take control of the skies over the Western Front. In a period of four months, the GAAS destroyed or forced down sixty-three RFC and *Aviation Militaire* aircraft against the loss of sixteen.²³⁹ To fly over German controlled territory was too often invite a quick and violent death. The Fokker Eindecker was not a superior aircraft by any means but flown by a competent pilot and armed with a synchronized interrupter gear for its forward firing machine gun, enabled the German pilots to become “sharks flying amidst the allied minnows.”²⁴⁰ The RFC alone suffered fifty aircrew killed or wounded and twenty-eight aircraft shot down by enemy aircraft during a six-week period from mid-November 1915 to early January 1916, the two worst months of the

²³⁸Trenchard to DDMA, 25 October 1915, AIR 1/138/15/40/281, NA. Trenchard wrote: “In view of the fact that the number of combats in the air is constantly on the increase, it is suggested that pilots and observers under instruction at home should be trained as far as possible in fighting in the air.”

²³⁹Trevor Henshaw, *The Sky Their Battlefield: Air Fighting and the Complete List of Allied Air Casualties from Enemy Action in the First War*. (London: Grub Street, 1995.), 44-66.

²⁴⁰ Norman Franks, *Sharks Among Minnows*, x.

“Fokker Scrouge.”²⁴¹ The Germans shot down four enemy aircraft for every one they lost. Lieutenant H. B. R. Rowell, Number 8 Squadron, recorded in his diary that during that period his squadron replaced the entire complement of twelve assigned pilots three times in eight weeks thus suffering an astounding three hundred percent casualty rate.²⁴² With losses such as these it was natural that the morale within the entire RFC would be affected.

It may be clearly stated, however, that good as the Fokker was, and resourceful as were its pilots, its moral effect, when it was in the heyday of its superiority, was far greater than its actual success justified. The tendency to credit the monoplane with exaggerated fighting capabilities has often a cramping effect upon its opponents.²⁴³

Most of the British casualties occurred conducting either long-range reconnaissance or bombing raids deep into German occupied territory. A typical example occurred on 29 December, 1915 when two BE 2cs from Number 8 Squadron crossed the German lines at 6,500 feet to conduct a reconnaissance mission between Cambrai and St. Quentin. The mission was progressing well until six Fokker Eindeckers attacked the two British aircraft. Lieutenant David Glen, piloting the escort BE 2c aircraft was shot down almost immediately by two of the Fokkers while the other four Eindeckers attacked the aircraft crewed by Lieutenant Sholto Douglas (pilot) and Lieutenant James Childs (observer).²⁴⁴ Outnumbered and outclassed in respect to the aircraft involved, Douglas was able to outmaneuver the enemy fighters for nearly thirty minutes and in the process Childs shot down one of the Eindeckers. Douglas was able to evade the remaining three aircraft before crossing the lines and though his aircraft had been badly damaged he made an emergency landing south of Arras next to a French artillery battery. Upon inspection the young British pilot found nearly 100 bullet holes

²⁴¹ AIR 1/871/ 204/5/549, NA. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole (London: William Kimber and Co., Limited, 1969), 53-113; and Peter Hart's *Somme Success*, 20-21.

²⁴² Lieutenant H. B. R Rowell diary, 31 December 1915. Department of Documents, IWM.

²⁴³ *WITA, Vol. II*, 150.

²⁴⁴ Sholto Douglas, *Years of Combat: A Personal Story of the First War in the Air*. (London: Collins, 1963), 117-118. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 108.

in his aircraft.²⁴⁵ Douglas and Childs did not realize how lucky their escape had been. Amidst the flight of Fokker Eindeckers were two highly experienced and successful pilots, Leutenants Oswald Boelcke and Max Immelmann. During the fight Boelcke had run out of ammunition and one of Immelmann's two machine guns had jammed. If not for Douglas' superior flying skill and some bad luck for the two German pilots it was highly likely that Douglas and Childs would have become two more casualties of the 'Fokker Scrouge.'²⁴⁶



The RFC's all-purpose aircraft during the first two years of the war: the BE 2c. (RAFm)

The German pilots, under orders, operated exclusively over their own side of the lines. This was for three reasons. First, the GAAS was outnumbered approximately three to one by the combined strength of the British and French air services. Second, they were adhering to a

²⁴⁵ Sholto Douglas, *Years of Combat: A Personal Story of the First War in the Air*, 117-118.

²⁴⁶ Ibid.

defensive strategy on the ground as well as in the air and thus waited for the Allied machines to fly over German controlled territory before engaging them. Third, the Germans did not want to present the allies the gift of an Eindecker with its synchronization gear if it either crashed or was forced to land in allied territory.²⁴⁷

Boelcke and Immelmann would both play critical roles in what became known as the 'Fokker Scrouge' which saw the GAAS gain almost complete air supremacy over the Western Front from August 1915 till the early spring of 1916. Both would also be heavily involved in the air campaign over the Somme, Immelmann in the first phase and Boelcke in the last.²⁴⁸

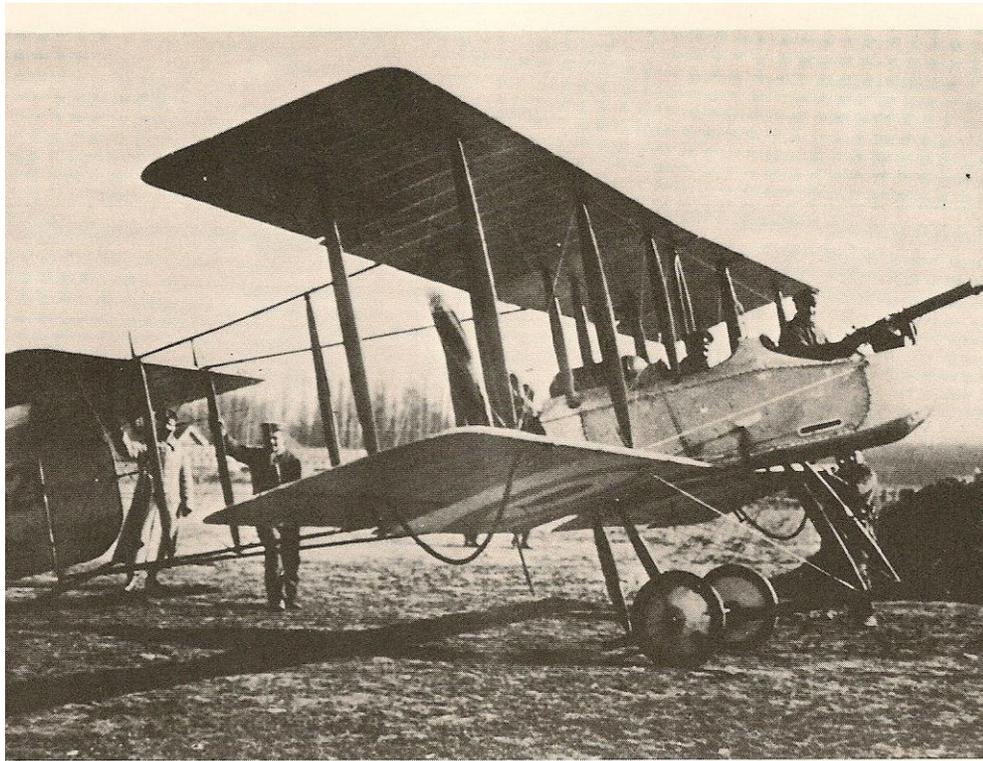
To counter the 'Fokker Scrouge' the three RFC wing commanders had contemplated, since as far back as September, 1915, whether or not they should assign armed aircraft to escort the slow BE 2c's that flew the majority of the reconnaissance missions. Sefton Brancker, commander of Third Wing, had two squadrons of BE 2c's (Number 4 and 8) and had just received Number 11 Squadron equipped with Vickers FB 5 'Gunbus' fighters from England in the days before the Battle of Loos. Having suffered several losses during the interdiction bombing raids conducted in support of First Army during the battle, Brancker directed that his aircraft begin flying in groups in the belief that there was safety in numbers.

We used to send two or three machines together and try to keep the air clear of enemy by patrolling with Vickers Fighters. I believe that these operations mark almost the first time in the British Army that any effort was made to fly in formation and to employ fighting patrols.²⁴⁹

²⁴⁷ David C. Cooke, *Sky Battle 1914-1918* (New York: W.W. Norton and Company, Inc., 1970), 90-91.

²⁴⁸ Peter Kilduff, *Germany's First Air Force, 1914-1918*, (London: Arms and Armour Press, 1991), 34-48.

²⁴⁹ *Sir Sefton Brancker*, ed. Norman Macmillan, 110.



Vickers FB5 'Gunbus.' The RFC's first operational fighter aircraft. This aircraft has been captured by the Germans intact.
<http://www.firstworldwar.com/airwar>

It would seem that Brancker's actions had some influence on the RFC commander.²⁵⁰ By the end of the year Trenchard faced a crisis and knew he had to alter the tactics that his air service was using or risk his force being driven from the sky. On 14 January, 1916, he sent a message to his squadron commanders. It is worth quoting the entire message:

Until the Royal Flying Corps is in possession of a machine as good as, or better than the German Fokker, it seems that a change in policy and tactics has become necessary. It is hoped very shortly to obtain a machine which will be able to successfully engage the Fokkers at present in use by the Germans. In the meantime it must be laid down as a hard and fast rule that a machine proceeding on reconnaissance must be escorted by at least three other fighting machines. These machines must fly in close formation and a reconnaissance should not be continued if any of the machines becomes detached. This should apply to both short and long reconnaissances. Aeroplanes proceeding on photographic duty east of the line should be similarly escorted. From recent

²⁵⁰ *Sir Sefton Brancker*, ed. Norman Macmillan, 110. See also Andre Boyle, *Trenchard: Man of Vision*, 155-156.

experience it seems that the Germans are now employing their aeroplanes in groups of three or four, and these numbers are frequently encountered by our aeroplanes. Flying in formation must be practiced by all pilots.²⁵¹

Trenchard knew his message was an admission that the RFC could not accomplish its missions without adjusting its tactics but the change was necessary.²⁵² The change in tactics would produce shrinkage in the overall strength of the RFC until more squadrons arrived from Britain. At least four aircraft had to be allocated to conduct a single reconnaissance mission that previously was done by one. Trenchard had made a convincing argument to Haig that the solution to the 'Fokker Scrouge' was not to stop flying into German airspace but instead all British aircraft were to fly in formation so that they could protect one another from air attack.²⁵³ Haig, who having replaced French as commander-in-chief of the BEF in mid-December 1915, agreed with Trenchard's revision of tactics, in large part because he did not anticipate the next major ground offensive taking place until mid-summer at the earliest and thus the demand for air support to the army would be reduced until the spring.²⁵⁴

In responding to the government's inquiry in mid-January about the increase in RFC casualties, Haig sent a letter to Prime Minister Asquith, using an analogy from the Napoleonic war to illustrate his argument.

. . . As to aircraft, I enclose a note of General Trenchard with which I agree. We must continue to reconnoiter. The remedy is not to stop sending machines out for this purpose but to send them out in groups rather than singly. This is now being done and will be done to an increasing extent in the future. Our present experience with aeroplanes is somewhat similar to Napoleon's in the matter of cavalry patrols before Jena in 1806. I think the Germans cavalry was very efficient and regularly mopped up the French reconnaissances until the latter went out in double strength to the enemy's patrols. Distant

²⁵¹ *WITA*, Vol. II, 156-157.

²⁵² Andrew Boyle, *Trenchard: Man of Vision*, 163.

²⁵³ *Ibid.*

²⁵⁴ *Ibid.* 156. See also Tim Travers, *The Killing Ground: The British Army, The Western Front and the Emergence of Modern Warfare, 1900-1918*, (London: Unwin Hyman Inc., 1987), 127-129; and Andrew Wiest, *Haig: The Evolution of a Commander*, (Washington, D.C.: Potomac Books, Inc., 2005), 22.

reconnaissances are not sent out without some object sufficiently important to justify the risk of loss involved.²⁵⁵

Up until this time in the war there had been little effort given toward formation flying but now much thought and experiment was devoted to solving this problem. Numerous formations were tested but the three found most effective were the Line Abreast, the Line Astern and Echelon. All three had their advantages and disadvantages.²⁵⁶ Their inception and use would play a pivotal role in defeating the “Fokker Scourge” and in the development of air combat tactics before and during the Somme battle.²⁵⁷ The drawback with the change in tactics was that by increasing the number of aircraft required for a single mission, the number of missions that could be flown was reduced. Dependent on aircraft and aircrew reinforcements from England, Trenchard thus found his hands were tied until he received more aircraft and more airmen capable of flying them. The message was a critical statement to his commanders and though on the surface its focus was on tactics, it more importantly reinforced Trenchard’s stated objective of maintaining an offensive posture, regardless of the heavy losses the RFC was experiencing and the decline in aircrew morale. He would later write to Henderson “I have cut down the work, in my opinion enormously. I have dropped bombing, no long-distance reconnaissances are done, and jolly few short ones, and these are just over the line.”²⁵⁸

Though some of the squadrons within the RFC were already experimenting with formation tactics, it would take several months to adequately train all the pilots in France on

²⁵⁵ Letter from Haig to Asquith, 26 January 1916. Blake, Robert (ed.) *The Private Papers of Douglas Haig, 1914-1919*. London: Eyre & Spottiswoode Publishers, Ltd., 1952), 126.

²⁵⁶ Richard Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 24-26. See also J. E. Johnson, *Full Circle, The Story of Air Fighting*, (London: Cassell & Co., 2001), 28-30.

²⁵⁷ Ibid.

²⁵⁸ Letter from Trenchard to Henderson, 3 April 1916, Trenchard Papers, MFC 76/1/76, RAFM.

the new tactics. By the beginning of the air campaign over the Somme in the spring of 1916 most if not all of the squadrons in the RFC were using them with increasing success.²⁵⁹

Trenchard's Policy of the Strategic Air Offensive

By early 1916, the RFC was conducting nearly a half-dozen tasks to support the BEF in France and Belgium. These tasks included: aerial reconnaissance, aerial photography, observation and direction of artillery fire, contact patrols with the infantry, and tactical bombing.²⁶⁰ A sixth mission, air combat against aircraft from the GAAS, had also become increasingly more important as each week passed and Trenchard realized that for his squadrons to be able to conduct all of their assigned missions successfully the RFC had to assume a more offensive posture to prevent the GAAS from interdicting his air service's ability to provide support to the British ground forces.²⁶¹ It was these tasks or missions which would become the key elements of the British air campaign during the Battle of the Somme.

It is hard to pinpoint a date as to exactly when Trenchard came to the conclusion that the RFC must attain air superiority to conduct the missions and tasks that the army required of it. It would not be until the middle of the Somme campaign in September, 1916 that Trenchard officially put his refined air strategy on paper (with much assistance from his aide, Captain Maurice Baring, who transcribed his commander's ideas into a cogent document).²⁶² With the Battle of Loos ending in early October and the effects of the Fokker 'Scrouge' growing more

²⁵⁹J. E. Johnson, *Full Circle, The Story of Air Fighting*, 28-30.

²⁶⁰ *WITA, Vol. II*, 111.

²⁶¹ *Ibid.*, 143-144. Trenchard's chief of staff, Lieutenant Colonel Brooke-Popham, had written a memorandum that predicted "the real struggle for air supremacy" would take place when the Germans defeated the Russians on the Eastern Front, then transferred those divisions to the Western Front. To prevent British and French aircraft from observing the movement of these divisions he argued the GAAS would be forced to make "a determined effort" in the air.

²⁶² 'Future Policy in the Air, 22 September, 1916.' See Appendix B.

deadly each week, it was during the last quarter of 1915 that Trenchard began thinking about the ways and means to wrest the air over the BEF away from the GAAS.²⁶³

According to the RFC's Official Historian, Trenchard developed his policy of the strategic air offensive in late 1915 during discussions with his French counterpart, Commandant Paul-Ferdinand du Peuty, the Air Commander of the French Tenth Army.²⁶⁴ Although there was not an established policy in early 1915, British pilots were attempting offensive operations as far back as the opening days of the war when men like Lieutenant Strange attempted to arm his aircraft with a machine-gun. Months before Trenchard took command of the RFC however, Sykes had written that "The principle of attacking hostile aircraft whenever and wherever seen . . . has been adhered to and has resulted in the moral fact that the enemy machines invariably beat immediate retreat when chased."²⁶⁵ When the first few machine-gun equipped pusher aircraft began to arrive in France in the summer of 1915, Henderson believed they should be combined to form a squadron. His subordinate wing commanders, Trenchard among them, argued that they every squadron should receive at least one or two to allow every pilot the chance to take part in offensive operations against the GAAS.

Pilots in the squadrons often alternated reconnaissance or artillery work on the rifle-armed two-seaters with fighting patrols on the machine-gun armed single-seater tractor or two-seater pusher [machines] . . . [General] David Henderson held the view that the fighting type aeroplanes should be concentrated in one or more squadrons but the opinion was strong in the Wings that they should be distributed so that each squadron should have a leavening of offensive aircraft. Henderson gave way and the fighters were split up, although the policy of grouping the fighters [into homogenous squadrons] was adopted later on.²⁶⁶

²⁶³ Andrew Boyle, *Trenchard: Man of Vision*, 156.

²⁶⁴ The French Tenth Army operated on the right (southern) flank of Haig's First Army. Trenchard met du Peuty in early 1915 when he was commanding the First Wing. See *The Royal Air Force in the Great War*, 116.

²⁶⁵ RFC War Diary, February 1915, AIR 1/1176/204/5/2595, NA.

²⁶⁶ *WITA*, Vol. II, 154.

Henderson acquiesced on this issue to the wishes of his commanders until Number 11 Squadron arrived in France in July 1915. Formed in February, the one hundred and fifty plus personnel spent nearly four months training on the Vickers FB 5 'Gunbus' before the squadron deployed.²⁶⁷ Having become the first homogenous fighter squadron in the RFC, the squadron established a second precedent. Having proven its worth over the battlefield, Henderson made the recommendation to the War Office in November that all future squadrons being sent to France should be homogeneous in that they should be equipped and trained on a single purpose aircraft before deploying overseas.²⁶⁸

With the arrival of a unit whose primary purpose was to seek out and destroy enemy aircraft, the RFC now had the beginnings of a technological capability to support Trenchard's offensive strategy in the air. Trenchard firmly believed that once the two opposing air services began shooting at one another that it was only a matter of time before the battle for air supremacy would have to be fought. The introduction of the Fokker Eindecker had enabled the Germans to seize control of the air but he recognized that they were still fighting a defensive battle. Trenchard would later write that "there could be no standing on the defensive" in the air

²⁶⁷ W. Alister Williams, *Against the Odds: The Life of Group Captain Lionel Rees, VC*, (Clwyd, Wales: Bridge Books, 1989), 37-44.

²⁶⁸ Memorandum from RFC HQ to War Office, 25 November 1915, AIR 1/2385/1/9, NA. During the first year of the war RFC squadrons in France had as many as three different types of aircraft assigned to them. When Number 5 Squadron deployed to France in August 1914 it had Henri Farman's, Avro 504s and RE 5s. This was primarily due to the fact that aircraft development, especially aircraft required for combat operations, was still in the experimental stage, with new advancements being discovered on a fairly rapid basis. The BE 2 series of aircraft had been approved for mass production before the war because at that time it was an acknowledged fact that the primary purpose of the RFC was to conduct aerial reconnaissance and the BE 2 was deemed more than adequate to accomplish that role. When the RFC began conducting other missions and roles it found it that many of the aircraft types it possessed were obsolete and required new and different types of machines. By September, 1915, the RFC had twelve operational squadrons in France totaling 161 aircraft with some fourteen different types assigned. It was not until the aircraft manufacturing industry was able to provide enough aircraft of a few specific types that squadrons were able to be identified to conduct specific missions and thus only required one type of aircraft to achieve that purpose. The problem was not completely solved by the beginning of the battle of the Somme but by early 1916 squadrons, especially those assigned as scouts or fighters, were arriving in France with 12 and later 18 of the same type of aircraft.

and that survival in three-dimensional warfare depended on maintaining the offensive, whatever the odds or the costs.²⁶⁹

Trenchard believed that to achieve air superiority the RFC required both a moral and material superiority over the GAAS.²⁷⁰ By moral he meant that every man in the RFC had to have the willpower to overcome any adversity (heavy losses of men and aircraft) and the courage to maintain offensive operations at all times. Material simply meant that the RFC had to have aircraft as good as or better than their opponents to be able to conduct the missions required of it and maintain an offensive strategy.²⁷¹ He knew that aircrew morale was also a critical variable to achieving his endstate. If his airmen were equipped with aircraft that at least gave them a fighting chance then regardless of casualties the RFC would prevent the Germans from interfering with both British air and ground operations and at the same time deny them the successful use of their own air assets.²⁷²

In analyzing Trenchard's concept of air superiority it is evident that it parallels the ideas and concepts presented by sea power theorists at the end of the nineteenth century and the decade before the First World War. There is no evidence to suggest that Trenchard ever met or discussed the concepts proposed by either the American naval strategist, Admiral Alfred T. Mahan or his British counterpart, Sir Julian S. Corbett, both of whose works were extremely popular within British military circles during the immediate years before the war. It

²⁶⁹ Autobiographical notes, Trenchard Papers, MFC 76/1/61, RAFM, and Boyle, 156 and 163-164.

²⁷⁰ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 103-106. See also Andrew Boyle, *Trenchard: Man of Vision*, 156; Aaron Norman, *The Great Air War: The Men, the Planes, the Saga of Military Aviation: 1914-1918*, (New York: The Macmillan Company, 1968), 99-100. The issue of morale as linked to the RFC's offensive strategy will be discussed in greater detail in chapter 7.

²⁷¹ Andrew Boyle, *Trenchard: Man of Vision*, 162-163. Though written during the Battle of the Somme, Trenchard's comments within his 'Future Policy in the Air' address both the issues of morale as well as material and their application to his strategy of the offensive. See Appendix B.

²⁷² Maurice Baring, *Flying Corps Headquarters, 1914-1918*. London: Buchan & Enright Publishers, Limited, 1985), 178-183. See also Boyle, 154-156 and 186-188. It was only later in the war that the combatants began to define the tenets of airpower doctrine. The interwar air power theorists (Douhet, Trenchard, Mitchell, et al.) would later provide specific definitions to the terms air superiority, air interdiction and close air support that exist today. An argument can be made that what Trenchard identified as air supremacy was in fact air superiority.

can be assumed however, that because of the language that Trenchard used in his concepts defining air power, that he was probably familiar with either Mahan's *The Influence of Sea Power Upon History, 1660-1783*²⁷³ or Corbett's *Some Principles of Maritime Strategy*²⁷⁴ and possibly both. Robin Higham has argued that Trenchard used several key concepts from Mahan to develop his own thoughts on air power.²⁷⁵ Mahan's tenets of the physical destruction of the enemy as well the strategic offensive were both adopted by Trenchard, either by design or not. It is evident that he also used several of Corbett's concepts, most especially his principle that command of the sea was not absolute and therefore it would have to be categorized as general, local, temporary or permanent.²⁷⁶ Trenchard would make a similar argument in his discussions with both military and political leaders about control of the air during the planning and execution of the Somme air campaign.²⁷⁷ As has been previously stated it is safe to say that through Henderson Trenchard was aware of the writings of

²⁷³ Alfred Thayer Mahan, *The Influence of Sea Power upon History, 1660-1783*, (New York, Dover Publications, Inc., 2004).

²⁷⁴ Julian S. Corbett, *Principles of Maritime Strategy*, (New York: Dover Publications, Inc., 2004).

²⁷⁵ Robin Higham, 'Airpower in World War I, 1914-1918,' *The War in the Air, 1914-1994* (Maxwell Air Force Base, AL: Air University Press, 2001), 2-3. Higham argues that Mahan's definition of sea power is applicable to the air—the ability to go where you wish, when you wish, and to prevent the enemy from doing likewise. He adds that airpower is also based upon technology, terrain, thought, training and tactics.

²⁷⁶ This entire issue is somewhat tenuous in that it is not possible to conclusively make the linkage that Trenchard was knowledgeable of or in fact used either Mahan or Corbett's ideas in the development of his ideas about air power. It is logical to assume however, that while serving on the staff of the Royal Flying Corps from 1912-1914, Trenchard would have been involved in professional discussions that argued the tenets of naval power and how they might be applied to the potential of air power in war. His only written reference to the theories and strategies of naval power are contained in his *Future Policy in the Air*, written in September, 1916. A search of Trenchard's papers at the RAF Museum, Hendon in February, 2009 found no specific references to either Mahan or Corbett's theories.

²⁷⁷ See Appendix B for what is considered Trenchard's first summary of the basic principles of air strategy developed prior to and during the Battle of the Somme. From Trenchard's application of air power throughout most of the First World War but specifically 1916 through 1918, aviation theorists would later develop a more definitive definition of air superiority to be the following: "Air superiority exists when one side can achieve its purpose while frustrating the purpose of the other side. This does not mean that the purpose is achieved without loss. In any modern war, the sky will be a dangerous place and losses will be sustained by both sides; what matters is whether those losses can be kept sufficiently under control to enable the purpose to be achieved before the resources or, as important, the *will* runs out" [italics from the original]. John R. Walker, *Air Superiority Operations*, (London: Brassey's, 1989), 1.

Frederick Lanchester and there is some evidence that Lanchester's ideas influenced Trenchard's own thinking on the use of aircraft in combat, both before the Somme and most especially in the later stages of the war.²⁷⁸

Using Mahan's definition of "command of the sea through naval superiority," Trenchard would have interpreted that as 'keeping the air clear for your own purposes and denying the air to the enemy for his use.'²⁷⁹ Trenchard applied this concept to air warfare. It was his intent to send RFC aircraft deep into German controlled territory to dominate the air space, and prevent the Germans from doing the same to the British. He was in fact practicing what the Royal Navy had done over the world's oceans for the previous two hundred plus years.²⁸⁰

Given more advanced fighter aircraft that were at least equal to the Fokker Eindecker, as well as adequately trained airmen, Trenchard firmly believed that his vision could be attained in a matter of weeks.²⁸¹ To maintain that supremacy over time however would require tough and dedicated leadership, almost super-human effort from the aircrews and maintenance personnel, and an adequate supply of replacement aircraft. He expected that both aircrew and aircraft losses would be heavy, but if the RFC's offensive operations prevented the enemy from interdicting the ground force in accomplishing their objectives, the losses would be

²⁷⁸ Robin Higham, *The Military Intellectuals*, 128.

²⁷⁹ *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret, (Princeton: Princeton University Press, 1986) 451. See also Alfred Thayer Mahan's *The Influence of Sea Power upon History, 1660-1783* (New York, Dover Publications, Inc., 2004), v-vi; and Julian S. Corbett's *Principles of Maritime Strategy* (New York: Dover Publications, Inc., 2004), 87-104. Corbett held a different view from Mahan and argued that command of the sea was in fact an attempt to control maritime communications. He also disagreed with Mahan's concepts of physical destruction of the enemy fleet i.e. the decisive battle and also the need for the strategic offensive.

²⁸⁰ Arthur Herman, *To Rule The Waves: How the British Navy Shaped the Modern World* (New York: Harper Collins Publishers, 2004); see also *The Oxford Illustrated History of the Royal Navy*, ed. J.R. Hill (Oxford: Oxford University Press, 1995); and *The Rise and Fall of British Naval Mastery* by Paul Kennedy (London: Hodder & Stoughton), 1976.

²⁸¹ Autobiographical Notes, Trenchard Paper, MFC 76/1/61, RAFM.

acceptable to both Trenchard and Haig.²⁸² Since the RFC was part of, and entirely subordinate to the needs of the army than whatever Haig and his subordinate commanders required, the RFC must and would accomplish.²⁸³ Haig fully supported Trenchard's vision primarily because it was firmly linked to his own.²⁸⁴ It would be put to the test in the months leading up to and during the Battle of the Somme.

As successful as the GAAS was with its small formations of Eindecker fighter aircraft, Trenchard firmly believed that the Germans had failed to exploit their enormous technical superiority. Putting himself in his counterpart's place, he argued that "he would have striven to drive the RFC out of the sky by an unremitting onslaught until every squadron was destroyed on the ground or over its own airfields."²⁸⁵

1916: The Battle of Verdun: Trenchard's offensive air strategy is put to the test.

Having very nearly gained both strategic and tactical surprise, the Germans launched a massive attack, along the banks of the Meuse in north-eastern France on 21 February, 1916 against the French town and fortress of Verdun. It was the beginning of a battle of attrition that would last nearly ten months and costs the lives of more than 377,000 French soldiers.²⁸⁶ The events which took place at Verdun would have great impact on the British Army's future operations as well as those of the RFC.

When the firestorm broke at Verdun, Trenchard immediately contacted his old friend, Commandant Paul-Fernand du Peuty, commander of the 10th Army's air units. Without waiting for a call for assistance, the RFC commander immediately transferred every

²⁸² Autobiographical Notes, Trenchard Paper, MFC 76/1/61, RAFM.

²⁸³ Peter Hart, *Somme Success: The Royal Flying Corps and the Battle of the Somme, 1916*, 20-21.

²⁸⁴ David Jordan and Gary Sheffield, 'Douglas Haig and Airpower', *Airpower Leadership: Theory and Practice*, (London: The Stationary Office, 2002), 272.

²⁸⁵ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM, and Boyle, 162.

²⁸⁶ Malcolm Brown, *Verdun, 1916*, (Gloucestershire, England: Tempus Publishing, Limited, 2003), 230-231. According to Brown, German casualties at Verdun were at least 337,000.

bombsight, every machine gun and every round of ammunition he could spare to the French squadron's in the south. Trenchard knew the *Aviation Militaire's* air battle was also his.²⁸⁷

With the French forced to transfer divisions from northern France south to Verdun Haig and the BEF assumed an additional one hundred miles of territory and Trenchard's RFC gained an additional one hundred miles of air space as French squadrons were also transferred south to the battle zone.²⁸⁸ Trenchard immediately requested additional squadrons from England to fill the gap.²⁸⁹ Two fighter squadrons, Number 20 equipped with the FE 2b and Number 24 equipped with the de Havilland DH 2, having just completed their final phase of training as a squadron, arrived in France on 23 January and 8 February respectively.²⁹⁰ These two squadrons with their pusher aircraft and their aggressive tactics would serve an instrumental role in bringing to an end the 'Fokker Scrouge.'²⁹¹

Trenchard and du Peuty had formed a strong relationship the year prior and had met occasionally to discuss, debate and even argue over the best strategy and tactics to employ in the air against the Germans. Using his aide Maurice Baring as his interpreter, since neither Trenchard nor du Peuty spoke the other's language, the two commanders's held "animated conversations, elaborating their words with gesticulations and diagrams and understanding each other perfectly."²⁹² Du Peuty was not totally convinced by Trenchard's argument that the best way to gain air superiority was to conduct a constant air offensive campaign against the

²⁸⁷ Andrew Boyle, *Trenchard: Man of Vision*, 165-168 . See also John H. Morrow, Jr., *The Great War in the Air: Military Aviation from 1909 to 1921*, 166; and Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 28.

²⁸⁸ Andrew Boyle, *Trenchard: Man of Vision*, 168.

²⁸⁹ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM.

²⁹⁰ Trevor Henshaw, *The Sky Their Battlefield*, 69-70.

²⁹¹ Alex Revell, *British Fighter Units, Western Front, 1914-1916*, (Oxford, England: Osprey Publishing Ltd., 1978), 10.

²⁹² Observation made by RFC chief of staff, H. R. Brooke-Popham, AIR 1/2385/1/9, NA.

enemy.²⁹³ Trenchard believed that by taking the fight to the enemy, German aircraft would be too busy dealing with British and French fighters and bombers which would allow the reconnaissance and artillery directing aircraft that supported the army the freedom to carry out their key tasks unhindered.²⁹⁴ The French air commander believed that defensive tactics also were a requirement for airmen, just like they were for soldiers on the ground. Though he respected Trenchard's ideas for a 'strategic air offensive' du Peuty had no intention of emulating the proposed strategy of the RFC until the situation or events forced him to do so.²⁹⁵ The surprise attack at Verdun would in fact force the *Aviation Militaire* to adopt the offensive strategy or risk being driven from the sky.

Verdun did in fact provide the laboratory where Trenchard's offensive strategy was put to the test by both the French and German air services. When du Peuty's Tenth Air Wing was transferred to the Verdun sector he and Trenchard exchanged liaison officers.²⁹⁶ Over the course of the battle and up until the beginning of the Battle of the Somme in July, Trenchard received detailed accounts from both his liaison officers and du Peuty himself. The reports covered everything from the strategy and tactics that both sides were using to advances in aircraft and maintenance technology.²⁹⁷ Du Peuty's personal bi-monthly reports provided

²⁹³ Aaron Norman, *The Great Air War: The Men, the Planes, the Saga of Military Aviation: 1914-1918*, (New York: The Macmillan Company, 1968), 97. See also Andrew Boyle, *Trenchard: Man of Vision*, 168.

²⁹⁴ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM.

²⁹⁵ John H. Morrow, Jr., *The Great War in the Air: Military Aviation from 1909 to 1921*, 133.

²⁹⁶ Two of the RFC liaison officers were Captain's Sewell and R. A. Cooper. Their detailed notes to RFC Headquarters throughout the first three months of the Battle of Verdun kept Trenchard and his staff well informed of what the French Air Service was doing in their air campaign. See AIR 1/1303/204/11/169.

²⁹⁷ Some of the technological advancements that the RFC learned of and Trenchard acted on included French aerial photography methods in which they had decentralized their photographic operations down from the wing headquarters to squadron level. Trenchard directed that each reconnaissance squadron should be authorized a small section to develop aerial photographs which by the Battle of the Somme greatly reduced the time it took to get the photographs into the hands of the units that required or requested them. The French also established a set of concise instructions for coordination with the infantry. The RFC built on the techniques presented and formalized the use of 'contact patrols' which aviation historian John H. Morrow, Jr., argues was one of the RFC's most significant innovations used

Trenchard an unvarnished view of both the accomplishments and failures of the *Aviation Militaire* in the areas of bombing, aerial photography, coordination with the artillery, surveillance, and efforts to conduct night flying operations.²⁹⁸ These candid reports were a testament to the Frenchman's professionalism and his respect for Trenchard as a fellow airman.

Weeks before the opening attack on Verdun, the GAAS had begun concentrating its aircraft in the sector nearest the fortress city and by doing so provided a welcome respite to the RFC squadrons in the north. A total of one hundred and sixty-eight aircraft, twenty-one of which were Fokker Eindeckers, were brought together to prevent French observation aircraft from detecting the German build-up prior to the attack.²⁹⁹ The Germans had organized several new *Kagohls* (battle groups) in the weeks before their offensive that included the best trained and experienced two-seater pilots in their air service.³⁰⁰ Within the first month of the battle five *Kagohls* would be conducting operations. Each *Kagohl* had six *Kampstaffeln* (*Kastas*: fighting sections) and were mobile enough to be able to relocate to any area of the front in order to conduct bombing or air attack missions against the *Aviation Militaire*.³⁰¹ Reconnaissance and bombing aircraft were also assembled as well as six artillery observation flights and two *Grossflugzeuge* (large two-engine aircraft) as well as four Zeppelin airships.³⁰² The French had only one fighter and three reconnaissance squadrons at Verdun when the

during the Somme campaign. From German aircraft the French had captured, the RFC learned about and quickly copied the disintegrating separate metal links the Germans used on their ammunition belts which was much improved over the canvas belts being used with RFC machine guns. Additionally the RFC adopted and built French Bessoneau aircraft hangars which were large but light and were also portable.

²⁹⁸ "Report on Employment of Aviation," March 19th to April 4th by Commandant Du Peuty, AIR 1/1585/204/82/41, NA.

²⁹⁹ John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon: 1914-1916*, (Harrisburg, PA: Military Service Publishing Company, 1947), 211.

³⁰⁰ Alex Imrie, *Pictorial History of the German Army Air Service, 1914-1918*, (Chicago: Henry Regnery Company, 1973), 32.

³⁰¹ *Ibid.*, 31.

³⁰² *Ibid.*, 32.

German attack began. It was a hardly surprising that the Germans gained air superiority in just a matter of days.³⁰³

Kagohls I and II conducted bombing operations against railroad junctions and airfields and attacked any French aircraft they encountered in the air.³⁰⁴ Ten *Feldflieger Abteilungen* (FFA) whose primary mission was aerial photography were directed to prevent French aircraft from entering the airspace above the battlefield.³⁰⁵ Six *Artillerie Flieger Abteilungen* were assigned to conduct artillery observation and direction while the twenty-one single-seat fighters, identified as *Kampfeinsitzer Kommando (KeK)*, (single-seater fighter detachments) were formed into three independent units.³⁰⁶ These fighter detachments provided aerial escort to the two-seater aircraft and conducted fighter patrols as well. Prior to the battle all fighter aircraft had been integrated into the *Feldflieger Abteilungen* but at Verdun the *KeKs* would become semi-permanent units.³⁰⁷

Realizing that the *Aviation Militaire* had been forced onto the defensive, the French High Command (Grand Quartier General or GQG) ordered six fighter squadrons, eight reconnaissance squadrons and two heavy artillery aviation sections to relocate to the Verdun sector.³⁰⁸ This reallocation of aircraft included du Puety's 10th Army aviation units. A week after the opening attack GQG issued a directive that changed the aerial tactics being used by French squadrons. As of 29 February, all fighter aircraft conducting offensive air patrols were to fly in formation in groups of at least three or four aircraft. The days of operating as

³⁰³ John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1916*, 212-213 and 225-226. See also William Hoff, "Die Entwicklung der deutschen Heeresflugzeuge im Kriege," *Zeitschrift des Vereins deutscher Ingenieure*, LXIV, 3 July 1920, 493-498.

³⁰⁴ Alex Imrie, *Pictorial History of the German Army Air Service, 1914-1918*, 32.

³⁰⁵ *Ibid.*

³⁰⁶ *Ibid.*, 33.

³⁰⁷ Norman Franks, *Sharks Among Minnows*, 53-54. See also Peter Kilduff, *Germany's First Air Force, 1914-1918*, 13 and 44-45.

³⁰⁸ S. F. Wise, *Canadian Airmen and the First World War: The Official History of the Royal Canadian Air Force, Volume 1*. (Toronto: University of Toronto Press, 1980), 359-360.

individual aircraft were over.³⁰⁹ The French were aware from air commanders such as du Puety and de Rose, that the RFC had begun using formation flying tactics in mid-January to maintain offensive operations. The RFC's change in tactics to deal with the Fokker threat did in fact influence the French decision to do the same.³¹⁰

Flying in groups of three or four aircraft the French *escadrille's* (squadron's) went on the offensive. The change in tactics brought almost immediate results but there was a cost. There was a notable increase in aircrew casualties and French ground units no longer received the tactical air support they were accustomed to.³¹¹ Though the Germans were also operating in groups as large as a dozen aircraft they soon found themselves outnumbered and were unable to stop French reconnaissance and artillery directing efforts. The tide quickly turned in favor of the French air service.³¹²

A critical factor that paid dividends at Verdun took place before the battle began. This had to do with the actual organization of the *Aviation Militaire* itself. The French air service had reorganized their aircraft into squadrons by function in mid-1915 (observation, reconnaissance, bombing, and fighting) under the direction of Colonel Joseph Bares, the GQG aviation chief.³¹³ When the situation grew desperate at Verdun in early March, Bares ordered the commander of *MS 12*, Commandant Tricornot de Rose, to regain the initiative from the Germans.³¹⁴ De Rose assembled fifteen squadrons of *escadrilles de chasse* (fighter squadrons) and formed them into an effective fighter command.³¹⁵ By concentrating fighter aircraft into

³⁰⁹ S. F. Wise, *Canadian Airmen and the First World War: The Official History of the Royal Canadian Air Force, Volume 1*, 359-360. See also John H. Morrow, Jr., *The Great War in the Air*, 132.

³¹⁰ Aaron Norman, *The Great Air War*, 101. See also Andrew Boyle, *Trenchard Man of Vision*, 168-171.

³¹¹ S. F. Wise, *Canadian Airmen and the First World War: The Official History of the Royal Canadian Air Force, Volume 1*, 360.

³¹² Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 27-29.

³¹³ John H. Morrow, Jr., *The Great War in the Air*, 132-133.

³¹⁴ *Ibid.*

³¹⁵ *Ibid.*

homogenous units that were not assigned or under the control of French army units, de Rose was able to concentrate on attacking the Germans and not worrying about providing direct support to French ground units.³¹⁶ Secondly, the French fighter squadrons were able to magnify the strengths of the small but agile Nieuport 11 single-seat tractor biplane and its later variant the Nieuport 17. Powered by an 80 horse-power Gnome engine and later a 100 hp Le Rhone and armed with a single Lewis gun over the top wing, in the hands of well trained pilots the Nieuport was far better than the German Fokker and Albatross fighters.³¹⁷

By taking the offensive and attacking the German fighters the French realized that their own reconnaissance and artillery observation aircraft were able to conduct their missions unmolested by the GAAS. At the same time the French were also able to attack German reconnaissance and artillery directing aircraft preventing the enemy from interdicting French ground units.³¹⁸

The Germans response to the French aerial offensive was to order their shrinking number of fighters to provide close escort to their reconnaissance aircraft and prevent French aircraft from flying into German held territory. It basically became a policy of trying to occupy airspace so that the enemy could not use it. The skies above the German Fifth Army were then divided into four sectors, each with its own dawn-to-dusk patrols. The intent of the “barrage flights” or *Luftsperr*e was to deny the French access to German air space and prevent French aircraft from attacking German reconnaissance and artillery directing aircraft as well

³¹⁶ John H. Morrow, Jr., *The Great War in the Air*, 133.

³¹⁷ John Batchelor and Bryan Cooper, *Fighter: A History of Fighter Aircraft*, 19. See also Kenneth Munson, *Fighters 1914-1919*, 137-139.

³¹⁸ Henri Philippe Petain, *Verdun*. (New York: The Dial Press, 1930), 190-192. Petain, commander of the Second French Army and then the army group responsible for the defense of Verdun later wrote “The Nieuport pursuit planes distinguished themselves for boldness and activity, continually attacking the enemy planes and balloons, incessantly flying over the front either in powerful patrol squadrons or in small groups, and appearing always at different hours.” He concluded that Verdun was “the crucible in which the aviation of the French was fired.” See also John H. Morrow, *The Great War in the Air: Military Aviation from 1909-1921*, 132-134; Trevor Henshaw, *The Sky Their Battlefield*, 73-74.

as ground units.³¹⁹ The tactic was self-defeating, for while the German fighters were flying escort or flying up and down their own lines, they were not searching for or attacking French aircraft, airfields, or logistics centers and by doing so assisting the ground commander. The defensive tactic dissipated German strength and at the same time failed to prevent the French Air Service from entering German-held territory. While the Germans flew their ‘barrage flights’ French aircraft were attacking German infantry positions, artillery batteries, rail centers, and road networks practically unopposed.³²⁰

What saved the GAAS from destruction were the French ground commanders. After several German aircraft strafed and bombed several infantry units the GQG began receiving complaints that the only aircraft seen over Verdun were German. Instead of continuing the French air offensive, the GQG directing that all French aircraft were to provide direct support to the French army around Verdun.³²¹ By doing so the *Aviation Militaire* went on the defensive and within days lost both the initiative and air superiority over the battlefield. In less than a week the roles for both air services had been totally reversed. As the French tried to occupy the sky above their ground units, with too few aircraft, the Germans went back on the offensive and in turn achieved air superiority.³²² The Germans bombed French ground units, artillery batteries and airfields but strangely failed to interdict the road from Bar-le-Duc to

³¹⁹ Lee Kennett, *The First Air War, 1914-1918*, 70-71.

³²⁰ WITA, Vol. II, 165-166. See also Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 212-214. General von Hoepfner, who would take command of the newly reorganized German Army Air Service in October 1916, later wrote of the air operations at Verdun that “in the battles of attrition before Verdun, the aeroplane barrage came to be regarded as the universal panacea against the enemy Air Forces. This notion spread over the whole Western Front and had the most disastrous influence upon the methods of use of the airmen. The quite intelligible wish of the infantry and artillery to be rid of enemy aircraft could, it was thought, only be met by keeping German aeroplanes constantly flying up and down the lines. It is not possible to keep down the enemy by this means. The rapidity with which the enemy aeroplanes can get away, their ability quickly to change their altitude without interfering with their observation, the difficulty of recognizing an enemy in the air from a distance, all combined to prove that this kind of aerial line patrol merely meant an unlimited waste of strength to the detriment of our own reconnaissance work.” Ernest von Hoepfner, *Deutschlands Krieg in der Luft*, (Leipzig: von Hase & Koehler Verlag, 1921), 52.

³²¹ Andrew Boyle, *Trenchard: Man of Vision*, 170.

³²² Ibid.

Verdun, the road that was the life-blood of the French army and which provided the necessary reinforcements and supplies into the Verdun sector that kept the battle from becoming a disastrous defeat.³²³

As the *Aviation Militaire's* casualty list began to grow at alarming rates du Peuty took a huge risk and made the decision to reissue his original orders to his squadrons and to set the example he led several long-range intruder missions in person.³²⁴ His fighter squadrons were to attack every German aircraft they encountered. They would also attack the enemy's front-line units, supply depots, rail centers and staging areas. Under seemingly constant pressure from the air the Germans once again resumed a defensive posture when their ground commanders made the same demand for support that their French counterparts had made after being under attack by German aircraft. Within six weeks of the beginning of the German offensive against Verdun, the *Aviation Militaire* had for the second time gained control over the skies of Verdun. By trial and error, du Peuty learned that Trenchard's strategy was valid.³²⁵ Offensive action did in fact seem to be the key to gaining air superiority.

In April, du Peuty sent a letter to Trenchard that provided some critical insight as to the strategy and tactics the *Aviation Militaire* was using against the German air service.³²⁶ It was becoming more and more evident to the French air commander that many of Trenchard's assertions about the conduct of a strategic air offensive to gain air superiority were being proven over the skies of Verdun.

³²³ Malcolm Brown, in his book *Verdun, 1916* raises the question that perhaps the Germans intentionally avoided bombing or interdicting France's primary road network to Verdun to ensure that the French continued to send large numbers of reinforcements to that sector. By not bombing the Bar-le-Duc road this would eventually enable the Germans to accomplish their primary objective of attacking Verdun in the first place: to force the French into defending terrain that had significant emotional value to the military and the nation and in the process bleed the French Army to death. See Malcolm Brown, *Verdun, 1916*, (Gloucestershire, England: Tempus Publishing, Limited, 2003), 125-127.

³²⁴ Andrew Boyle, *Trenchard: Man of Vision*, 171.

³²⁵ Aaron Norman, *The Great Air War*, 103.

³²⁶ Letter from du Peuty to Trenchard, 5 April, 1916, AIR 1/1585/204/82/41, NA.

By flying together in threes, our army machines have shown that they can protect themselves, so freeing the real combat aircraft for independent offensive action against enemy fighters which are already organized in such groups. I'd like to draw to General Trenchard's attention also to the following point: in the near future the advantage will go to the group which can carry its striking power the farthest. . . . Aircraft can be divided into two groups: army machines and combat machines. These aircraft can be employed in two separate ways: either by using the combat machines to protect the army machines, or by letting the latter fend for themselves so that the combat machines can do their real jobs of fighting. We employed both methods, and here are the results. Like the Germans, we began by adopting the second method, and thanks to our offensive efforts we attained a material and moral superiority so marked that the enemy were forced to protect their army machines. We were proud of this. It made us a little complacent; we yielded to the demands of our own army corps which wanted close protection for their hard-pressed co-operation machines. We in turn were driven to adopt the first method, and were barely able to hold our own with the enemy. The strongest formations of aircraft proved themselves masters of the situation. We then resumed the second method and immediately recaptured local air superiority by going after it. There were two main drawbacks. The first was this: the corps commanders, misunderstanding what was at stake, protested shrilly at being left in the lurch, despite the fact that their corps machines, by flying in formations of three, as ordered, managed to do their work, protect themselves and suffer relatively few casualties in the process. The second drawback has been the acute nervous strain imposed on our combat pilots, who are carrying the fight non-stop to then enemy's back areas, fighting and dropping their bombs far from their own bases and within constant range of the German anti-aircraft defences. Our losses in the air may be heavy, but they are much less than those we are inflicting on the enemy. And our air mastery is proving of enormous advantage to the troops on the ground.³²⁷

When the Battle of Verdun entered its third month, du Peuty notified Trenchard that he had identified three key lessons that the *Aviation Militaire* had gained from their experience so far.³²⁸ The first was that it was necessary that all fighter units should be organized into separate groups outside the ordinary army-co-operation squadrons and placed under the command of the air service. Second, in this particular battle, intelligence, photography and reconnaissance operations held greater priority and urgency than artillery observation and direction and that both the army and the air service required intelligence sections that were trained to exploit the products received from the aircrews. Third, all aviation units must be

³²⁷ Letter from du Peuty to Trenchard, 5 April, 1916. AIR 1/1585/204/82/41, NA. See also Andrew Boyle, *Trenchard: Man of Vision*, 168-170.

³²⁸ 'Report by Commandant du Peuty on the Working of the Aviation in the Vaux-Douaumont Sector,' 6 May 1916 and 'Notes by Capt. Sewell, RFC Liaison Officer with the French Armies', 28 April 1916, AIR 1/1303/204/11/169. NA.

well trained which would enable them to be both adaptable and flexible enough to perform a multitude of tasks and missions.³²⁹

Du Peuty also recommended that numerical superiority should be used to mount continuous fighter patrols, flying in formation and over the German lines which would then create an area where no hostile aircraft could fly without heavy escort.³³⁰ The French air commander added that by following these tenets the air service must anticipate heavy casualties since “our machines fight in the enemy country” and any aircrew whose aircraft was forced to land behind the German lines would become prisoners of war at best.³³¹

Furthermore, the constant offensive would take a great toll both physically and mentally on pilots and observers. He concluded that “However heavy our losses may have been, those of the Germans have been heavier.”³³² He also provided Trenchard with a warning stating that there was no such thing as total air superiority. The side with the smaller air service could in fact gain temporary dominance by concentrating their squadrons at a given point and that individual aircraft would always be able to conduct reconnaissance or bombing missions, and aircraft flying at low-level might be able to evade fighter formations flying at higher altitudes.³³³

When Trenchard forwarded the eighteen page document to the Director of Air Operations at the War Office, he made only one clarification and this was to du Puety’s second lesson reference the low priority assigned to artillery co-operation. “For an offensive battle he considers that the relative importance of the various nature of the work would be different, artillery work being of primary importance, especially during the preliminary stages

³²⁹ ‘Report by Commandant du Peuty on the Working of the Aviation in the Vaux-Douaumont Sector,’ 6 May 1916 and ‘Notes by Capt. Sewell, RFC Liaison Officer with the French Armies’, 28 April 1916, AIR 1/1303/204/11/169. NA.

³³⁰ Ibid.

³³¹ Ibid.

³³² Ibid.

³³³ Ibid.

of the battle.”³³⁴ As the author of the *Official History of the Royal Canadian Air Force* concluded “du Peuty’s findings anticipated to a remarkable degree the offensive tactics Trenchard was to pursue relentlessly for the remainder of the war.”³³⁵

With du Peuty’s reports confirming his theory, Trenchard believed that both he and his offensive air strategy had been vindicated. He was now convinced that he had identified the crucial tenets necessary to gain air superiority.³³⁶ The fact that the Germans had the better aircraft with a synchronized machine gun did not deter him. He told both his superiors and his subordinates that the best way to provide adequate support to the army was to ensure that the air service maintained a constant offensive posture.³³⁷ There could be no “standing on the defensive” in the skies. “Survival in three-dimensional warfare depended on maintaining the offensive, whatever the odds or the cost.” In Trenchard’s mind one had a choice of destroying the enemy air service or being destroyed by that same enemy force.³³⁸

During the winter and spring of 1916, while the *Aviation Militaire* was fighting to gain air superiority over Verdun, the RFC was in the process of a major expansion program in which the flying service nearly doubled in size since the previous autumn.³³⁹ It was also reorganizing to better support the greatly expanded BEF which began receiving divisions of Kitchener’s New Army during the same time period. Having already convinced Haig that the air service could and would make even greater contributions than it had at Loos, Trenchard’s strategy of air warfare had two basic assumptions. The first was that continuous air support was vital to enable success of offensive ground operations and second, that the only way to ensure this constant air support was to pursue a strategy of air interdiction of the GAAS far

³³⁴ Cover Letter to ‘Report by Commandant du Puety’, Trenchard to Brancker, 15 May, 1916, AIR 1/1303/204/11/169, NA.

³³⁵ S. F. Wise, *Canadian Airmen and the First World War, Vol. I*, 361.

³³⁶ Andrew Boyle, *Trenchard: Man of Vision*, 171.

³³⁷ *Ibid.*, 156.

³³⁸ *Ibid.*, 156.

³³⁹ John H. Morrow, Jr., *The Great War in the Air*, 165.

behind the enemy's lines.³⁴⁰ As Malcolm Cooper has identified "it was Trenchard's conversion of Haig to the doctrine of close air support which finally made the RFC an integral part of the growing war machine" that Haig commanded.³⁴¹

With the success of the *Aviation Militaire* at Verdun having proven his strategy valid and with the arrival of more and better equipped RFC fighter squadrons in France occurring on nearly a monthly basis, Trenchard was convinced he had both the correct strategy and the technology that would allow his force to best support the army by interdicting the enemy air service as far forward of friendly units as possible.³⁴² Trenchard awaited the opportunity for the RFC to demonstrate the effectiveness of his offensive air strategy in the coming offensive on the Somme.

³⁴⁰ Malcolm Cooper, *The Birth of Independent Air Power*, 72.

³⁴¹ *Ibid.*

³⁴² Aaron Norman, *The Great Air War*, 106. See also Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM; John H. Morrow, Jr., *The Great War in the Air*, 165; and Andrew Boyle, *Trenchard: Man of Vision*, 171.

Chapter Three

**THE ORGANIZATIONAL STRUCTURE AND
LEADERSHIP OF THE RFC**

The Royal Flying Corps (RFC) consisting of a Military Wing (Army) and a Naval Wing (Royal Navy) officially became part of the British Army on 13 April, 1912 when King George V granted a royal warrant for its formation.³⁴³ The motto chosen to represent the new arm was ‘*Per Ardua ad Astra*’ (With Effort to the Stars).³⁴⁴ Based on the trials and tribulations that the RFC would experience both in peacetime and in war it would prove to be a fitting motto.

Captain Frederick Sykes had recommended that the squadron be the primary unit within the RFC as it would be manageable and if required expandable and this was approved by the ‘Flying Corps Committee.’ Each squadron would consist of three flights of aircraft with four machines to a flight. Sykes rejected the French concept of the ‘escadrille’ which had two and later three flights of six aircraft on the grounds that the RFC did not have enough trained officers “to command a large number of small independent units.”³⁴⁵

The Military Wing of the RFC was authorized a Wing Headquarters, seven aircraft squadrons (one to be assigned to support each of the seven infantry divisions that were to make up the BEF in the event of a major European war), each with twelve aircraft and an additional aircraft for the squadron commander.³⁴⁶ An airship and kite squadron with two airships and two flights of kites was also authorized as well as a Line of Communications RFC workshop which eventually became the Aircraft Park.³⁴⁷ The first two squadrons to be formed were Number 1 and Number 3. Number 1 Squadron took possession of the airships and kites

³⁴³ Sir Robert Thompson, *The Royal Flying Corps*, 26.

³⁴⁴ *Sir Sefton Brancker*, ed. Norman Macmillan, 49. See also Michael Sharpe, *History of the Royal Air Force*, 7. Brancker translates the motto to ‘By work to the Stars’ while Sharpe translates it to ‘Through Bolts and Bars to the Stars.’

³⁴⁵ *WITA*, Vol. 1, 201. See also Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 24.

³⁴⁶ Sir Robert Thompson, *The Royal Flying Corps*, 86. See also Michael Paris, *Winged Warfare*, 209; *WITA*, Vol. 1, 203.

³⁴⁷ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 27.

from Number 1 (Airship) Company of the Air Battalion when it was stood down. It was assigned to Farnborough and by spring 1914 it was directed to transfer its airships and kites to the Royal Navy.³⁴⁸ When war was declared in August the squadron was still in the process of becoming an aircraft squadron. Number 3 squadron had been formerly Number 2 Company of the Air Battalion and was stationed at Larkhill. By September, 1912 the squadron possessed 18 aircraft of six different makes and designs. Number 2 Squadron was the first of the newly designated squadrons that formed at Farnborough to in-process its assigned personnel, conduct initial training, collect its assigned aircraft and vehicle transport before moving to one of the other new RFC airfields that were being established throughout Britain.³⁴⁹ In September, 1912, Number 4 Squadron was stood up and upon completion of all requirements was moved to Netheravon to share the airfield there with Number 3 Squadron. In July 1913, Number 5 Squadron was formed from a flight detached from Number 3 Squadron and was later moved to Gosport a month before the war broke out. Number 6 and 7 Squadrons were formed in January and May 1914 respectively. Neither squadron was completely formed when the war began and thus did not make the initial deployment to France.³⁵⁰

In addressing aircrew requirements the RFC had proposed that two pilots be assigned to each aircraft. Additionally, based on the lessons learned from the Italians in Libya, a reserve of at least twenty-four pilots per squadron was to be formed to compensate for what the Official History termed ‘wastage.’³⁵¹ Based on requirements to support an expeditionary force

³⁴⁸ *WITA, Vol. I*, 217-218.

³⁴⁹ *Ibid.*, 233.

³⁵⁰ *Ibid.*, 258-259.

³⁵¹ *Ibid.*, 203. While in Italy during the Italian-Turkish War of 1911-1912, Major Frederick Sykes gained access to Italian Aviation reports. One of the topics dealt with the number of hours a pilot could fly in combat before becoming exhausted and having to be replaced. Captain Moizo, a veteran of the conflict, recommended that pilots be given a rest and rotated after 90 days in combat. It was noted that during the Tripoli campaign, two pilots who had each flown eighty missions had to be taken off flying duties and sent back to Italy for rest. See Michael Paris, *Winged Warfare*, 114. See also *Notes on a*

the decision was made that the Military Wing should have 91 aircraft and 364 trained pilots, half of whom would be made up of commissioned officers while the other half were to be non-commissioned officers (NCOs).³⁵² When the Naval Wing offered commissions to trained pilots, the Military Wing was forced to forgo its original plan and do the same.³⁵³ The projected numbers were in fact both unrealistic and unobtainable in the near term. When the Military Wing went to war more than two years after its forming it had four squadrons with less than seventy operational aircraft and just over one hundred trained pilots, all of who were commissioned officers.³⁵⁴

Promoted to Major, Sykes was chosen to command the Military Wing of the RFC whose headquarters was at Farnborough. Captain Godfrey Paine, R. N. was selected to command the Central Flying School (CFS) whose mission was to conduct 'elementary training in flying' and indoctrinate those pilots without military experience into the military.³⁵⁵ It would be several weeks before the Navy appointed Captain Murray F. Sueter to be the Director of the Air Department of the Admiralty, which also included command of the Naval Wing whose headquarters was in London.³⁵⁶ Friction between the Military Wing and the Naval Wing began from the start. One of the main friction points between the two organizations was the Central Flying School. It began in the fall of 1913 when Henderson made the decision to reorganize the RFC. He removed nearly half of the duties of the

conversation with Captain Moizo, 26 June 1912, AIR 1/204/4/1233, NA. Once the First World War began, the term 'wastage' would also include battle casualties as well.

³⁵² *Ibid.*, 204.

³⁵³ *Sir Sefton Brancker*, ed. Norman Macmillan, 79. The issue to allow NCO's to serve as pilots will be analyzed in greater detail in chapter 6.

³⁵⁴ *WITA, Vol. I*, 287-293. At the beginning of 1912 the RFC had twenty operational aircraft between the two wings. There were in fact several NCO pilots in the RFC but they did not deploy to France with the first contingent. The subject of commissioned officer and NCO pilots will be covered in greater detail in Chapter 6.

³⁵⁵ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 25. See also Sir Robert Thompson, *The Royal Flying Corps*, 26; and Geoffrey Norris, *The Royal Flying Corps: A History*, 26.

³⁵⁶ Malcolm Cooper, *The Birth of Independent Air Power*, 21-21. See also David Devine, *The Broken Wing*, 77.

commander of the Military Wing in an effort to decentralize the organization and bring it on-line with the other branches of the army.³⁵⁷

Henderson's plan called for the division of the RFC into two branches; a Combat Wing, commanded by Sykes, and an Administrative Branch which would consist of the Aircraft Depot, the Flying Depot, Inspection Branch, Records Branch, Experimental Branch, the CFS, and the Royal Aircraft Factory.³⁵⁸ Sykes only responsibility would thus be "the command and training of the flying squadrons."³⁵⁹ Sykes believed it was the wrong decision to make because in his expert opinion it would "undermine the effectiveness of military flying by divorcing peacetime operations from those of combat."³⁶⁰ Two of the major issues that Sykes had with the plan were that the Admiralty would gain more control of the CFS than it already had and all experimentation and quality control of aircraft was transferred from the Military Wing to the Royal Aircraft Factory.³⁶¹ Though Sykes himself had recommended that the RFC's primary aircraft should be the BE 2 and the Royal Aircraft Factory would produce it in quantity long after it was proven obsolete in combat, Sykes believed the Factory's organizational processes under the civilian leadership of Mervyn O'Gorman, were inefficient which forced the RFC to conform its operations and its tactics with the production capabilities of the Factory.³⁶² Identifying a problem without a solution was not Sykes methodology so he developed a detailed plan that encompassed a total reorganization of the RAF which he

³⁵⁷ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1914*, 33.

³⁵⁸ *Ibid.*, 34.

³⁵⁹ *Ibid.* See also 'Royal Flying Corps Organization Notes,' AIR 1 780/204/4/477, NA.

³⁶⁰ *Ibid.* Sykes found several faults with Henderson's proposed reorganization plan and according to Sykes biographer, Eric Ash, Sykes reacted too quickly without taking the time to think through what his commander was attempting to do. Ash concludes that Henderson's plan was realistic forward thinking in that when the war began nine months after Henderson's reorganization plan took effect there was no way that the commander of the Military Wing could have accomplished all of the tasks that he would have been responsible for had the reorganization not taken place.

³⁶¹ *Ibid.*, 33-34.

³⁶² *Ibid.*

believed would improve civilian workforce efficiency and at the same times cater to the needs of the RFC. With the British military's lone aircraft producing company experiencing a near state of constant change between 1911 and 1914, it is not surprising that Syke's recommendations were not acted on.³⁶³

Eric Ash contends that Sykes, though a key member of the committee that would be responsible for the formation of the RFC, argued from the beginning against the formation of a separate air service on the grounds that 'soldiers historically did not work well with sailors' and 'that it ruined their morale.'³⁶⁴ He further argued that Sykes position in the RFC and his negative attitude toward the Naval Wing may have played a major factor in the Admiralty decision to form its own separate air service.³⁶⁵ What impact Sykes had on the Admiralty's decision is debatable but what is not is the fact that Sykes, as one of the senior leaders of the

³⁶³ Sykes was correct in his assessment of the shortcomings of the organizational process being used by the Royal Aircraft Factory between 1911 and 1914. The Superintendent of the RAF, Mervyn O'Gorman was strong-willed, impulsive, overly protective of his organization, and dismissive with those in uniform whose vision and opinions on aviation matters differed with his own. When the RAF was first formed, it was O'Gorman's understanding that the Factory's primary purpose was to conduct research and design of aircraft and the actual construction and supplying of aircraft for the RFC was of secondary importance. When these priorities were finally addressed by the Secretary of State for War, Lord Haldane, the RAF was still resistant to the building of aircraft as was evidenced by the small numbers of aircraft that it provided to the RFC during the three years before the war. From 1911 to 1914 the RAF built only 48 aircraft for the RFC which forced the War Office to purchase large orders of aircraft from the French. Because of O'Gorman's intransigence, hostility grew between the RFC leadership and the RAF. Much of this problem would have been alleviated had the government made the decision early on to allow private aircraft manufacturers to compete with the RAF in supplying air frames to the RFC. [O'Gorman]" imposed on [the RAF] degrees of standardization that . . . were inappropriate to the infancy of a fundamentally illogical development. He [also] had a powerful capacity for making enemies." See David Divine, *The Broken Wing*, 23. See also Joubert de la Ferte, *The Third Service*, 8-10.

³⁶⁴ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 36.

³⁶⁵ Ibid. Ash also contends that Sykes was convinced that the Central Flying School could not train both navy and army pilots because of the differences in service culture.

young air service, fostered a deep anti-navy sentiment that would greatly affect army-navy relations as the two organizations prepared for the coming war.³⁶⁶

The War Office's belief that aircraft development and construction should be controlled by the military through the Royal Aircraft Factory (RAF), would prove to be a major strategic error that would lead directly to the heavy casualties in both aircrew and aircraft suffered by the RFC during the Battle of the Somme.³⁶⁷ The War Office would be challenged by several private aircraft manufacturers arguing that the RAF had become a monopoly and that their firms were excluded from competing with it. A government committee would rule in favor of the RAF and by doing so forced these same firms into the open arms of the Admiralty who then began issuing contracts for aircraft.³⁶⁸ Unfortunately because of their peacetime requirements there was not enough demand to provide or ensure greater growth within the aircraft industry. When the war broke out and the War Office finally realized that the RAF could not meet the demands of the expanding RFC, the army was forced to ask for assistance from the navy.³⁶⁹ Thus began the struggle for resources between the two air services, most notably for aircraft and engines, which would have a major impact on the

³⁶⁶ After all of Sykes intrigues with the Royal Navy, whether real or imagined, it is ironic that the Admiralty would request Sykes to take command of the RNAS at Gallipoli in the summer of 1915. See Frederick Sykes, *From Many Angles*, 155-160.

³⁶⁷ John H. Morrow, Jr., *The Great War in the Air*, 184-187. The central premise rests with the fact that the RAF was primarily producing the BE 2 series of aircraft for the first two years of the war and these aircraft were hopelessly outclassed by their German counterparts. Just prior to the Battle of the Somme the RAF produced the BE 2d and the RE 7 which resulted in Trenchard condemning the RAF and its chief, Mervyn O'Gorman for "failing to keep pace with design alterations." Morrow, 168. In all fairness the RAF was also responsible for developing the FE 2 series which proved most effective in bring the Fokker 'Scrouge' to an end in the spring of 1916.

³⁶⁸ *Ibid.*, 41-44.

³⁶⁹ Malcolm Cooper, *The Birth of Independent Air Power*, 5.

entire air effort for most of the war. It would also be a major reason why the two air services would eventually be combined to form the Royal Air Force in 1918.³⁷⁰

In the final year before war was declared, two major organizational changes took place that would not only have a great impact on the structure of the RFC but also its performance in the first year of the war. The first was the creation of the Experimental Branch of the Military Wing formed in March 1913 under the command of Major Herbert Musgrave.³⁷¹ Its tasks included the development of balloons, man-lifting kites, aerial photography, bomb-dropping, meteorology, aerial gunnery, and artillery observation. But the section's most notable contribution to the RFC and aviation in general was the advancement of wireless communications from aircraft to ground units.³⁷² With the assistance of Lieutenants D. S. Lewis and B. T. James, and building on the work already done by Captain H. P. T. Lefroy who had been in charge of the army's wireless experimental work since 1909, Musgrave and his assistants had proven that aircraft could communicate with one another two months before the war.³⁷³ Musgrave, though a tough disciplinarian and somewhat of an eccentric, would be an instrumental leader in overcoming the logistics problems of providing wireless sets and wireless mounted aircraft to the RFC in the first year of the war.³⁷⁴ Six months before the war, Musgrave received a flight of aircraft with which to conduct his experiments and 'to serve as a link between theory and practice.'³⁷⁵ When the war began the flight was broken up to bring each of the four deploying squadrons up to strength but a new

³⁷⁰ Malcolm Cooper, *The Birth of Independent Air Power*, 5-6.

³⁷¹ Sir Robert Thompson, *The Royal Flying Corps*, 28-29.

³⁷² *Ibid.*

³⁷³ *WITA, Vol. 1*, 229.

³⁷⁴ *Ibid.*, 231-233. See also Geoffrey Norris, *The Royal Flying Corps*, 110-114; and Sir Robert Thompson, *The Royal Flying Corps*, 28-29.

³⁷⁵ *Ibid.*

Wireless Flight was formed and then attached to Number 4 Squadron.³⁷⁶ It was during the first few weeks of fighting that Musgrave directed the first experimental operations where wireless equipped aircraft attempted to direct artillery. These were successful and by December, the Wireless Flight was expanded and became Number 9 Squadron, Experimental led by Musgrave. It became the RFC's first wireless telegraphy organization and was tasked to support the entire air service with wireless communications.³⁷⁷ It was largely because of the work done by the Experimental Branch that techniques and methodologies were developed that established both the feasibility and the parameters for the six missions the RFC would assume in its efforts to provide support to the army in combat.³⁷⁸

The second major organizational change took place in September, 1913 when the Directorate of Military Aeronautics (DMA) was created to replace the Air Committee.³⁷⁹ It was also decided that the newly created directorate would become independent of the four principal departments of the War Office and directly responsible to the Secretary of State. Brigadier General Henderson who had been the Director of Military Training was selected to be the Director General of the new organization with Captain Brancker appointed as his deputy.³⁸⁰ The Directorate was organized with three sections. The first was responsible for administration and training, the second for equipment, and the third for contracts. The inclusion of a section to handle contracts set a new precedent within the War Office in that

³⁷⁶ *WITA, Vol. 1*, 231-233.

³⁷⁷ Musgrave participated in one of the first bombing missions of the war and though praised for his dedication to the advancement of wireless communications, experienced several problems with his leadership style during his command of his squadron when he tried to run it as if it was a just another conventional army unit. He was criticized for not having "the right psychological make-up to lead a band of brilliant individualists" which eventually led to his relief from command in 1915. He returned to the Army General Staff and in June, 1918 was killed in action. See *WITA, Vol. 1*, 233; and Geoffrey Norris, *The Royal Flying Corps*, 114.

³⁷⁸ Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM.

³⁷⁹ Malcolm Cooper, *The Birth of Independent Air Power*, 8.

³⁸⁰ *Sir Sefton Brancker*, ed. Norman Macmillan, 41.

previously all contracts had been the responsibility of the Director of Military Training.³⁸¹

Once the war began Henderson became dual-hatted in that he assumed command of the RFC and retained his position as the DGMA. As has been previously mentioned this would cause several problems for the air service, most especially back in England where Brancker as his deputy was outranked by his counterparts in the Admiralty and ill-prepared to deal with the political aspect that was a pre-requisite for the DGMA. This dilemma would not be solved until Henderson gave up command of the RFC in August, 1915 and returned to London to resume his duties as the DGMA full-time.³⁸²

Three months into the war the RFC conducted its first wartime organizational change to meet its growing requirements due to the expansion of the BEF. Sir John French, commander of the BEF, created two armies, each of which were planned to consist of up to three army corps.³⁸³ He then requested that the War Office authorize an increase in RFC squadrons due to

The necessity for watching the enemy's line for prolonged periods . . . during which movements of great masses, both from reserves and from distant parts of the fighting line, may take place at a distance of from fifty to sixty miles, demands continuous and extended reconnaissance to an unforeseen degree. At the same time tactical aeroplane reconnaissance has proved so valuable that, for this purpose and for directing artillery-fire, it has been found necessary to attach aeroplanes continuously to Army Corps.³⁸⁴

Because of the demand he requested that three more squadrons (No. 1, No. 7 and No. 8) complete their final preparations and deploy to France.³⁸⁵ Henderson directed his chief of staff, Sykes, to develop a reorganization plan that centered on one tenet: the decentralization

³⁸¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 41.

³⁸² David Devine, *The Broken Wing*, 76-77 and *Sir Sefton Brancker*, ed. Norman Macmillan, 106-108.

³⁸³ Sir Frederick Sykes, *From Many Angles*, 143.

³⁸⁴ *Ibid.*

³⁸⁵ *Ibid.*

of the RFC by forming it into wings that would then be attached to each Army corps.³⁸⁶ He then informed Brancker and Trenchard back in England about his ideas for a proposed reorganization and invited them to submit their own concept to him.³⁸⁷ He would then consider what each of them provided before making his decision. Henderson and Sykes agreed that the RFC should remain an autonomous unit under the command of an RFC general officer because the branch had become too technical and too specialized to hand over the duties to an Army corps commander who did not understand the capabilities of the air service.³⁸⁸ The reorganization plan called for the RFC to be formed into wings of two or three squadrons with one of the wings remaining under RFC headquarters and one to be attached to each army.³⁸⁹ The squadrons within the Headquarters Wing would conduct strategic reconnaissance to a depth of sixty miles behind the German lines and also conduct any special missions as directed by the RFC commander.³⁹⁰ A wireless squadron was to be formed with a flight attached to each wing. The squadrons attached to an army would provide both army strategic and tactical reconnaissance to a depth of twenty miles and artillery observation and direction.³⁹¹

Back in England three wings were formed: the Administrative Wing which encompassed Farnborough and Brooklands, the Aircraft Park, the Record Office, and the Recruits Depot; the Training Wing with headquarters at Netheravon and finally the Central Flying School.³⁹² Though the original plan called for the wings to be commanded by colonels, the War Office approved the command position to be filled by a lieutenant colonel. Henderson

³⁸⁶ Sir Frederick Sykes, *From Many Angles*, 143-144.

³⁸⁷ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 60. See also 'RFC 433 Organization of the Royal Flying Corps', 30 October 1914, Henderson Papers, AC 71/4/4, RAFM.

³⁸⁸ *Ibid.*, 61.

³⁸⁹ Sir Frederick Sykes, *From Many Angles*, 144.

³⁹⁰ *Ibid.*

³⁹¹ *Ibid.*

³⁹² *WITA, Vol. 1*, 435. See also Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 71-72.

submitted his reorganization plan to the War Office at the end of October.³⁹³ As the Deputy Director of Military Aeronautics (DDMA) Brancker sent a letter to the Chief of the Imperial General Staff (CIGS), Sir James Wolfe Murray, which raised the question of RFC expansion. “We have been living hand to mouth so far, but I think that the time had now come for a more or less definite statement of policy for the future development of the RFC.”³⁹⁴ Working with Kitchener in the first few months of the war, Brancker knew that the Secretary of State for War had envisioned building six armies with three corps each.³⁹⁵ For the RFC this meant a further thirty squadrons and Brancker added five more to form a reserve. Brancker had recommended one squadron for each army headquarters and each army corps at the front with an additional six squadrons assigned to the RFC headquarters.³⁹⁶ The recommendations were forwarded to the War Office on 1 November and after briefing Kitchener on 3 November, the Henderson-Sykes’s re-organization plan was approved by the CIGS on 21 December.³⁹⁷ On the issue of number of squadrons, Kitchener, believing Brancker’s figures were too conservative, arbitrarily doubled them.³⁹⁸ Kitchener expected a long, drawn out war and he realized it would take years for his expansion plan to be completed. Shortages of aircraft, aircraft engines, trained aircrew, and support personnel would ensure that the additional seventy squadrons that Kitchener envisioned for the RFC would be a long time in coming in

³⁹³ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 61. See also Henderson to Chief of the General Staff, 30 October 1914, Henderson Papers, AC 71/4/4, RAFM.

³⁹⁴ Letter from Brancker to Wolfe Murray, 8 December 1914 and attached Murray and Kitchener minutes, AIR 1/2413/303/11, NA.

³⁹⁵ John H. Morrow, Jr., *The Great Air War*, 79. See also *Sir Sefton Brancker*, ed. Norman Macmillan, 68.

³⁹⁶ Malcolm Cooper, *The Birth of Independent Air Power*, 20.

³⁹⁷ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 61. See also John H. Morrow, Jr., *The Great Air War*, 79.

³⁹⁸ *Sir Sefton Brancker*, ed. Norman Macmillan, 68.

fact eighteen months after the plan was approved there were only 27 operational RFC squadrons on the Western Front.³⁹⁹

Whereas Henderson and Sykes viewed the reorganization from an operational command and control perspective, Trenchard and Brancker focused largely on the logistical issues of an expansion of the RFC which they were both heavily involved with at that time.⁴⁰⁰ Brancker also supported decentralization of the force and agreed with Trenchard that the RFC commander in the field should be a staff officer.⁴⁰¹ Trenchard however went even further. He wanted the RFC in the field to replicate the organizational structure of a corps or divisional unit, recommending that they “definitely [be] allocated to the large units of the field army, the squadron commanders being directly responsible to the high [Army] commanders.”⁴⁰² Furthermore, Trenchard believed that the senior leaders of the RFC in the field should serve as advisors to the ground commander like the senior artillery and engineer officers did and thus there would be no need for this senior aviator to command air units or direct flying operations.⁴⁰³

Henderson disagreed with both Brancker’s and Trenchard’s recommendations, believing that they went against all of the work and effort that had created the air service.⁴⁰⁴ He believed that if their reorganization plan was accepted it would eliminate the autonomy of

³⁹⁹ RFC War Diary, 20/RFC/87, RAFM. On 12 March, 1915 Kitchener directed Henderson to add a further ten squadrons to his December figure bringing the total to 70. Writing on 23 November, 1915, Henderson addressed the fact that due to resource constraints it would be at least a year (December, 1916) before the RFC attained sixty operational squadrons. Henderson Papers, AC 71/4/4, RAFM.

⁴⁰⁰ Frederick Sykes, *From Many Angles*, 143-146. Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 61.

⁴⁰¹ Ibid.

⁴⁰² Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 72.

⁴⁰³ Frederick Sykes, *From Many Angles*, 143-146.

⁴⁰⁴ Ibid., 144.

the RFC and in turn greatly reduce the branch's ability to adequately support the army.⁴⁰⁵ Fortunately for the RFC, the Henderson-Sykes plan was published by the War Office and went into effect on 15 January, 1915.⁴⁰⁶ Its approval only added further fuel to the on-going Sykes-Trenchard feud but Henderson was not concerned with the personal issues the two officers had with one another as long as they performed their duties. He was more focused on the greater good of the organization as a whole. The Trenchard-Brancker reorganization plan as proposed would have been quite detrimental to the future of the RFC and the future of military air power in Britain in general had it been accepted.⁴⁰⁷ Sykes argument that "the RFC as a separate service would virtually have ceased to exist" was valid.⁴⁰⁸ The RFC would more than likely have become an auxiliary to army and corps level units and without adequate command and control by an aviation-centric headquarters would have been unable to concentrate its squadrons when necessary and would have had even greater difficulty attempting to conduct combined-arms operations. Instead the RFC would have been decentralized down into small formations similar to those used by the Germans in the first two years of the war. The results being that they were unable to provide even a modicum of strategic or tactical support to the army.⁴⁰⁹

⁴⁰⁵ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 61. See also Letter from Henderson to Brancker, 13 November 1914, Sykes Private Papers, RAFM.

⁴⁰⁶ Number 2 and 3 Squadrons were grouped to form Number 1 Wing, commanded by Lieutenant Colonel Trenchard, supporting First Army; and Number 5 and 6 Squadrons were grouped to form Number 2 Wing under the command of Lieutenant Colonel C. J. Burke, one of Britain's early air power theorists. Number 4 Squadron along with the Wireless Unit and the advanced base of the Aircraft Park, remained under the command of Flying Corps Headquarters. They were and in April, 1916 were formed into a third wing under the command of Lieutenant Colonel H. R. M. Broke-Popham in April, 1916. *WITA, Vol. I*, 435.

⁴⁰⁷ Frederick Sykes, *From Many Angles*, 144.

⁴⁰⁸ *Ibid.*, 146.

⁴⁰⁹ John R. Cuneo, *Winged Warfare, Vol. II: The Air Weapon, 1914-1916*, (Harrisburg, PA: The Military Publishing Company, 1947); G. P. Neumann, *The German Air Force in the Great War*, (London: Hodder & Stoughton, Ltd., 1921); and Ernest von Hoepfner, *Germany's War in the Air: The Development and Operations of German Military Aviation in the World War*, (Nashville, TN: The Battery Press, 1994).

Thus the RFC was decentralized into wings for tactical support of the army but also maintained its autonomy as an air service with its own chain of command. This reorganization would prove to be most critical to the future development of the RFC in that it provided the required organizational framework necessary for the even greater expansion programs that were to take place over the course of the following three years.

By the time Henderson returned to England to resume his duties as DGMA and Trenchard replaced him as commander of the RFC in August, 1915, the BEF had expanded from four to thirty divisions but the number of RFC squadrons had only increased from four to eleven with 153 operational aircraft.⁴¹⁰ Two days after taking command Trenchard submitted a plan to the CIGS that built on the Henderson-Sykes plan from the previous November. To meet the requirements that would be expected with a massive expansion of the army he recommended that the RFC organize into higher formations than wings. By this stage of the war the aviation needs of the army were divided almost equally between close or short-range reconnaissance, photography, and artillery co-operation missions on the immediate front of each army corps. There was also a demand for reconnaissance work beyond the area covered by the corps, which belonged to the army commander.⁴¹¹ Thus it was logical that the wings should be reorganized so that one or more would conduct missions for the corps while one or more conducted missions for the army. "I think a guide for the future should be at least one squadron to each corps, one squadron to each army headquarters, and one for General Headquarters. In addition I would ask that a squadron per army be sent out when formed, for

⁴¹⁰ The eleven squadrons were Number's 1 through 8, 10, 11, and 16 with Number 10 Squadron having been the last of the eleven posted to France and arriving on 25 July, 1915. The Wireless Squadron, Number 9, was for experimental work and not considered an operational squadron. The Air Ministry, *The Royal Air Force in the Great War*, 62.

⁴¹¹ *WITA*, Vol. II, 147.

special work such as bomb raids.⁴¹² In short Trenchard was requesting one squadron to support each army corps for the direction and observation of artillery, aerial photography, and tactical or short-range reconnaissance; a squadron for each army headquarters to conduct strategic or long-range reconnaissance as well as other missions as directed by the commander.⁴¹³ Lastly, he was requesting that each army should be assigned a squadron whose primary mission was to conduct bombing raids. If his plan was approved, Trenchard envisioned that thirty-two operational squadrons would be in France by mid-April, 1916. Sixteen of these squadrons were to be assigned with one to every corps of the four armies for corps works; twelve to the four armies with three squadrons to each army for army work and four squadrons assigned to General Headquarters.⁴¹⁴

Trenchard's expansion plan was approved by Kitchener and the Army Council in December, 1915 and went into effect on 30 January, 1916.⁴¹⁵ The result was that there were corps wings and army wings and these were formed into brigades, one for each army. Trenchard's request that army headquarters should also have a squadron of aircraft for long-range reconnaissance and aircraft that were capable of fighting "for their information" was also approved.⁴¹⁶ Henderson recommended to the CIGS that once the RFC had thirty-six

⁴¹² Trenchard to CIGS, 21 August 1915, Trenchard Papers, MFC 76/1/76, RAFM. See also *WITA*, Vol. I, 448.

⁴¹³ It is not evidently clear exactly when Trenchard realized that the plan that Henderson and Sykes had had approved by the War Office in November 1914 was better than the one that he and Brancker had proposed. It is evident however that by the time he took command of the RFC on 19 August, 1915 or shortly thereafter he had changed his mind and accepted the reorganization that had been approved by the War Office. All further changes and expansion to the RFC under his command were based off of the Henderson-Sykes plan.

⁴¹⁴ *WITA*, Vol. I, 449. According to Malcolm Cooper, in late 1915, Henderson had predicted that the RFC would have 36 operational squadrons by mid-April, 1916 with 12 aircraft and 12 pilots per squadron. Henderson argued that if the decision was approved to increase the number of aircraft and pilots to 18 the RFC would not achieve its goal of 60 squadrons before the end of 1917. See Malcolm Cooper, *The Birth of Independent Air Power*, 32

⁴¹⁵ *WITA*, Vol. II, 148.

⁴¹⁶ *Ibid.*

squadrons on hand, the strength of each would then be increased to eighteen aircraft along with the required pilots and mechanics to fly and service them.⁴¹⁷

The results were a second major reorganization of the RFC which further decentralized the command structure and organization of the RFC. Three brigades were formed from the three existing wings. First and Tenth Wing along with an aircraft park and kite balloon section formed I Brigade commanded by Brigadier General E. B. Ashmore; Second and Eleventh Wings were combined to form II Brigade under Brigadier General J. M. Salmond; while Third and Twelfth Wings formed III Brigade under Brigadier General J. F. A. Higgins.⁴¹⁸ Each brigade was to provide aviation support to one of the army's assigned to the BEF and would consist of a corps wing for general cooperation duties and an army wing for strategic reconnaissance, bombing and aerial fighting.⁴¹⁹ Each brigade would also have two balloon sections assigned to it. By early March 1916, the first three brigades were formed from squadrons and wings then in France. That same month Trenchard was notified that a Fourth Brigade must be formed to support the newly formed Fourth Army and so the 3rd Wing was detached from the III Brigade and the 12th (Army) Wing was reconstituted as a corps wing. The III Brigade received the 13th (Army) Wing to replace 3rd Wing. An RFC Headquarters wing, the Ninth Wing, was formed on 6 May and a week later was designated as the 9th (GHQ) Wing providing support directly for General Headquarters, BEF.⁴²⁰ As the expansion of the RFC took place it began to take on the force structure of an army division. With the increase in size as well as capability, Trenchard's responsibilities and command

⁴¹⁷ RFC War Diary, 23 November, 1915, RAFM. See also *WITA*, Vol. II, 146-149.

⁴¹⁸ *WITA*, Vol. II, 148.

⁴¹⁹ On 16 Feb, 1916, General Salmond was sent back to England to reorganize flying training in England. He was replaced by Brigadier General T. I. Webb-Bowen. *WITA*, Vol. II, 148.

⁴²⁰ *Ibid.*, 196.

authority also increased to that on par with a division commander. He was subsequently promoted to the rank of major general.⁴²¹

As part of the overall organizational change to the RFC the fighter squadrons were gradually removed from the Corps Wings and transferred to the Army Wings. At the end of April, Trenchard held a meeting with his four brigade commanders and explained why he believed it necessary to remove the fighters from the corps squadrons and concentrate them in the army wings. The process was to be gradual and was not completed until the middle of August, six weeks into the Battle of the Somme.⁴²²

A secondary issue of the expansion had to do with the number of aircraft and pilots assigned to each squadron. Since its formation the RFC squadron had consisted of twelve aircraft forming three flights of four aircraft each but discussion to increase the number of aircraft in each squadron began as early as the first reorganization of the RFC in November, 1914.⁴²³ With the RFC expanding a second time the squadron and wing commanders made the recommendation to Trenchard that that number of aircraft in each squadron should be increased to eighteen forming three flights of six aircraft and that the number of pilots per squadron should be increased from twelve to twenty.⁴²⁴ Henderson, Trenchard, and Brancker agreed with the concept but questioned the practicality of the increases when the RAF at that

⁴²¹ Nigel Steel & Peter Hart, *Tumult in the Clouds: The British Experience of the War in the Air, 1914-1918*, (London: Hodder & Stoughton, 1997), 102.

⁴²² *WITA, Vol. II*, 167-168.

⁴²³ Letter from the Director of Air Organization to the Commander of the Administrative Wing, RFC, 16 April, 1915, RAFM. Preliminary work had already been done by staff officers under Brancker sometime between November 1914 and early April 1915 on the number of ground personnel required to support the increase from twelve to eighteen aircraft per squadron. It was determined that the additional six aircraft would require an increase of nine fitters and six riggers per squadron totaling an increase of almost 450 fitters and 300 riggers for the RFC.

⁴²⁴ *WITA, Vol. I*, 450.

time was just able to replace the number of aircraft that were lost in training accidents or from combat action each month.

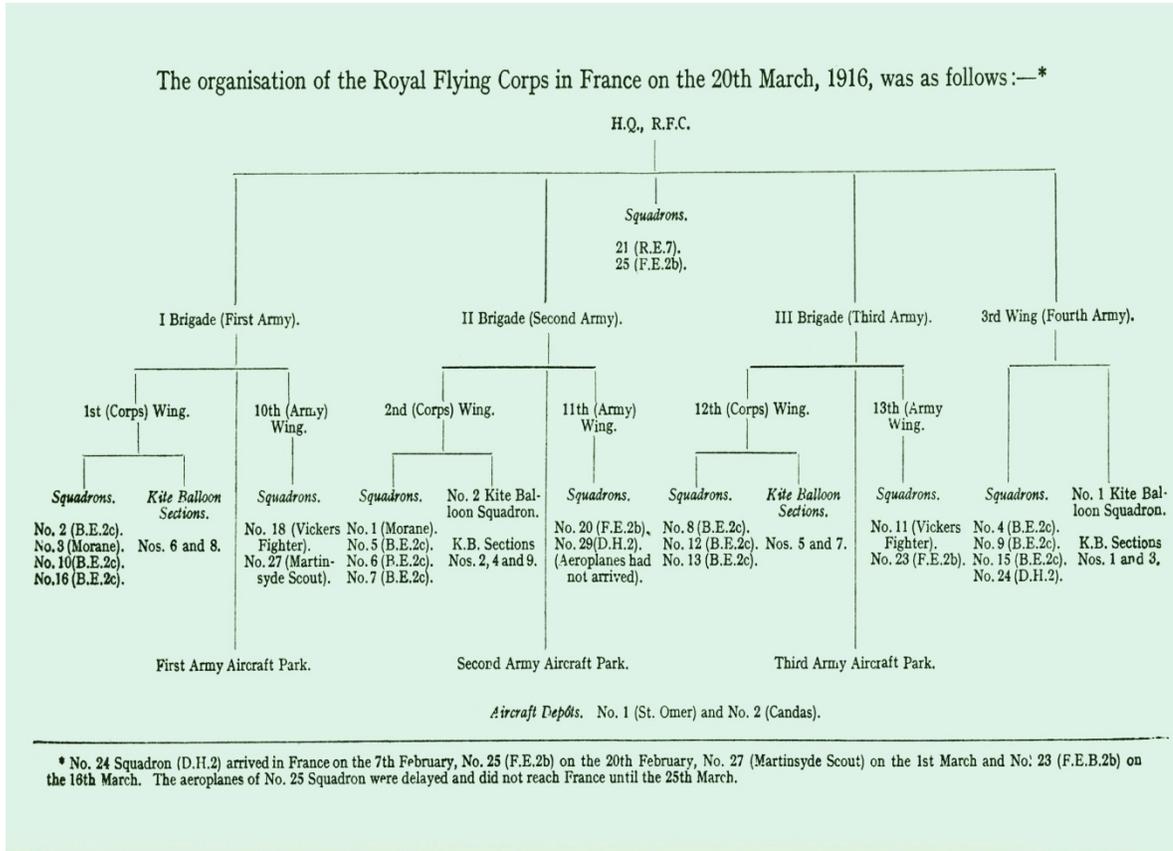


Table 1: Royal Flying Corps Order of Battle, France, 20 March 1916.
(*The Royal Air Force in the Great War*, 112).

All three leaders agreed that “the raising of squadrons to the higher establishment [of eighteen aircraft] should take precedence over the formation of new squadrons.”⁴²⁵ In their almost daily written communications in the months leading up to the battle of the Somme, Trenchard and Brancker brought up this topic repeatedly.⁴²⁶ Along with the aircraft issue, the

⁴²⁵ *WITA*, Vol. I, 450.

⁴²⁶ Letter from Trenchard to Brancker, 9 March, 1916; Letter from Brancker to Trenchard, 13 March 1916; Letter from Trenchard to Brancker, 19 March, 1916. Trenchard Papers, MFC 76/1/76, RAFM.

ability to recruit and train aircrew and support personnel was also a major concern for the RFC forcing Trenchard to consider asking the War Office and the Admiralty to transfer thirty to forty RNAS pilots to the RFC on a temporary basis until the squadrons in France were brought up to strength.⁴²⁷

As final preparations were being made to launch the Somme offensive, Haig and Trenchard were already formulating the RFC's next major expansion in concert with that of the BEF. Haig submitted his proposal (with Trenchard's assistance) to the War Office on 15 June, 1916.

By the spring of 1917, the British army in France will consist of five armies of four corps each. For these a total of fifty-six squadrons will be required, each squadron to consist of eighteen machines. I fully realize that my demand for this large number of squadrons involves the provision of a very large number of pilots and observers. The importance of this service, however, is so great that I consider it essential that the necessary personnel should be found even at the reduction in other directions.⁴²⁸

Before the War Office would contemplate acting on further requests for more squadrons than were already in the process of being trained and equipped within the U.K., questions were being raised within the government on the soundness and feasibility of Trenchard's offensive strategy and its impact on the RFC.⁴²⁹ The debate on whether or not the RFC was using the correct strategy and the corresponding increasing casualty rate amongst aircrew in France put all discussion about expansion for the air service on hold until an investigation was conducted,

⁴²⁷ Letter from Trenchard to Brancker, 9 March, 1916; Letter from Brancker to Trenchard, 13 March 1916; Letter from Trenchard to Brancker, 19 March, 1916. Trenchard Papers, MFC 76/1/76, RAFM.

⁴²⁸ *WITA*, Vol. I, 450.

⁴²⁹ Andrew Boyle, *Trenchard: Man of Vision*, 185.

much to Trenchard's consternation.⁴³⁰ There were also manpower issues involved that would affect any future expansion of the RFC as Brancker was quick to remind Trenchard.

The Adjutant-General is at his wit's end to find men, let alone skilled mechanics. The Expeditionary Force have put in further enormous demands for heavy artillery, and neither the Master-General of Ordnance nor the Quartermaster-General know where to look for the necessary skilled artificers . . . Heavy guns and aeroplanes need the same class of men to maintain them in the field and to manufacture them.⁴³¹

The organizational changes that had taken place or were under way when the air campaign began in early April, 1916, provided sufficient evidence to the army leadership that the RFC was both adaptable and flexible in accomplishing any mission assigned to it. A critical element of the organization's ability to expand and modify its structure during combat operations was largely due to the leadership of the organization itself. Much of the credit for the RFC's success rests with four men, two of whom were largely responsible for the creation of the RFC before the war began while the other two established the conditions for the air service to expand when it was realized that the war would not be 'over by Christmas' like so many had first thought in the summer of 1914. Almost as important, all four men would have some role in the formulation of the offensive strategy that the RFC would follow during the air campaign over the Somme.⁴³²

The third element identified as playing a significant role in the RFC's air campaign on the Somme was leadership. Any analysis of the RFC during the First World War must include detailed assessment of the senior leadership— those individuals who were directly involved in

⁴³⁰ According to Boyle, Haig's request (drafted by Trenchard and more likely by Baring) "gathered thumb-marks and unsympathetic comments in a succession of War Office pending trays." See *Trenchard: Man of Vision*, 185.

⁴³¹ Letter from Brancker to Trenchard, 20 June, 1916, Brancker Papers, IWM.

⁴³² See Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*; Malcolm Cooper, *The Rise of Independent Air Power*, David Devine, *The Broken Wing*, and Robin Higham, *The Military Intellectuals in Britain*.

the creation, expansion and actions of the British Army's air service prior to and during the Battle of the Somme. The three most influential leaders of the RFC during this period were Major General Sir David Henderson, Brigadier General Hugh Trenchard and Brigadier General William Sefton Brancker. A brief biography of each will be presented with emphasis on their duties and accomplishments within the RFC prior to the start of the air campaign.⁴³³

Major General Sir David Y. Henderson

Henderson entered the British Army at the age of twenty in August, 1882 after having spent four years studying engineering at the University of Glasgow and then graduating from the Royal Military Academy at Sandhurst.⁴³⁴ Commissioned into the Argyll and Sutherland Highlanders, Henderson saw active service with the Nile Expedition of 1898 and was wounded during the Siege of Ladysmith during the South African War (1898-1902). During this campaign he was awarded a Mention in Despatches (MID) and later a Distinguished Service Order (DSO) and was promoted to Lieutenant Colonel. In October, 1900 he was selected to serve as Kitchener's Director of Military Intelligence, a post he held for almost two years. While in this position he established himself as one of the British Army's leading experts on the gathering and analysis of tactical intelligence.⁴³⁵

What made Henderson stand out amongst his peers was the fact that he worked hard to make himself a professional soldier. He spent many hours each week reading and studying

⁴³³ The rank of the Henderson, Trenchard and Brancker is the rank each held at the beginning of the ground campaign on the Somme, 1 July 1916.

⁴³⁴ "Biography of Lieutenant General Sir David Y. Henderson," (HTML). University of Glasgow Roll of Honour. University of Glasgow, November 2005. <http://www.archives.gla.ac.uk/honour/bio.php?bid=178>. Accessed on 8 June, 2009.

⁴³⁵ "Biography of Lieutenant General Sir David Y. Henderson," (HTML). University of Glasgow Roll of Honour. University of Glasgow, November 2005. <http://www.archives.gla.ac.uk/honour/bio.php?bid=178>. Accessed on 8 June, 2009. See also Robin Higham, *The Military Intellectuals in Britain*, 123.

topics that would make him a better soldier and a better leader. Just as important, he also wrote about his profession.⁴³⁶ He authored two important manuals after the South African War: *Field Intelligence: Its Principles and Practice* (1904) and *The Art of Reconnaissance* (1907), both of which further solidified his reputation as the army's expert on tactical intelligence.⁴³⁷ His great interest in reconnaissance operations led him inevitably to the potential use of aircraft for reconnaissance purposes and it would be Henderson who was one of the first senior military leaders to recognize that the aircraft could serve that role in support of the army in wartime.⁴³⁸

Believing it essential that he understand the capabilities and possibilities of aircraft and their potential use by the military, Henderson learned to fly at Brooklands and in 1911, at the age of 49 he was awarded his Royal Aero Club certificate (RAeC) and in the process became Britain's oldest pilot at that time.⁴³⁹ Henderson's influential work on the CID's technical sub-committee led directly to the formation of the RFC in May, 1912, has already been discussed. In July, 1912, he was assigned to the War Office and appointed Director of Military Training where he "enjoyed a good reputation as an able staff officer with an open, direct personality which made him respected by soldiers and politicians alike."⁴⁴⁰ His next assignment would lead directly to his command of the RFC. On September 1, 1913, control of Britain's military aviation was separated from the responsibilities of the Master-General of Ordnance and a new Directorate of Military Aeronautics was created. Henderson being one of the few senior army officers who was also a certified pilot, was logically chosen to be the first

⁴³⁶ "Biography of Lieutenant General Sir David Y. Henderson," (HTML). University of Glasgow Roll of Honour. University of Glasgow, November 2005. <http://www.archives.gla.ac.uk/honour/bio.php?bid=178>. Accessed on 8 June, 2009.

⁴³⁷ Ibid.

⁴³⁸ *WITA*, Vol. I, 199.

⁴³⁹ Ibid., 200.

⁴⁴⁰ Nigel Steel & Peter Hart. *Tumult in the Clouds: The British Experience of the War in the Air, 1914-1918*. (London: Hodder & Stoughton, 1997), 15.

Director-General.⁴⁴¹ It was a role he was qualified for but it was also an assignment he would never enjoy.⁴⁴² Describing the future RFC commander, Sefton Brancker, then serving as Henderson's deputy wrote "David Henderson . . . was a born diplomat with a very subtle mind, and a keen sense of humour. His foresight and soundness of judgment were wonderful, and his tact and skill in dealing with a tangled and delicate problem used to fill me with envious admiration."⁴⁴³



Major General Sir David Y. Henderson. (IWM Q69460)

Henderson's role in the development and organization of the RFC before the war has already been discussed. When war was declared he assumed command of the RFC but also

⁴⁴¹ Joubert de la Ferte, *The Third Service*, 15.

⁴⁴² Henderson believed this assignment ruined his chances of promotion and would prevent him from attaining high command, especially a field command. See 'Minutes of the Committee on the Administration and Command of the RFC', 3 and 5 July 1916, AIR 1/518/16/7/17 and 19, NA. See also Henderson's correspondence with Trenchard, Trenchard Papers, MFC 76/1/76, RAFM.

⁴⁴³ *Sir Sefton Brancker*, ed. Norman Macmillan, 33.

retained his position as Director General of Military Aeronautics (DGMA). Thus for the first year of the war Henderson maintained two critical leadership positions with one in England and the other in France, both of which had two interconnected but different objectives. As commander of the RFC, Henderson was tasked with providing aviation support directly to the BEF and in the first few months of the campaign this primarily consisted of strategic and tactical reconnaissance.⁴⁴⁴ Though he directed Brancker and Trenchard to oversee the recruiting, selection, and training of all RFC personnel, Henderson was still responsible for all three programs.⁴⁴⁵ As DGMA he was responsible for a multitude of duties but arguably the two most important were serving as both a liaison and coordinator between the War Office and the Admiralty on all aviation issues and planning and budgeting the required resources for the RFC, both within the training base and operationally in the field. Within this vital area the most important was the development and procurement of aircraft.⁴⁴⁶

Believing that no one single man could adequately handle the responsibilities of both positions, Sykes and Brancker recommended that Henderson relinquish command of the RFC in favor of the position of DGMA as both believed that because of his seniority, his command experience, and his political acumen he could do more good for the air service in that position within the War Office.⁴⁴⁷ Three months after the RFC deployed to France, Sykes, serving as Henderson's Chief of Staff, wrote a memorandum outlining his reasons for the critical importance of the DGMA position. In it he made inferences that some of the reorganizational problems then being experienced within the RFC could be traced to Henderson's inability to conduct both positions simultaneously. "In the strained and abnormal conditions of war, the

⁴⁴⁴ Sir Robert Thompson, *The Royal Flying Corps*, 37.

⁴⁴⁵ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 50. See also Frederick Sykes, *From Many Angles*, 122.

⁴⁴⁶ David Devine, *The Broken Wing*, 77

⁴⁴⁷ *Sir Sefton Brancker*, ed. Norman Macmillan, 106-109.

weight of control would seem to be even more essential. But, as a fact, the Directorate of Military Aeronautics has been heavily weakened by the services of the Director General himself being required in the field.”⁴⁴⁸ Sykes comments were accurate but they were not much appreciated by Henderson who during this same time period was selected by the BEF commander to take command of the 1st Division after its commander had been wounded. For nearly a month Henderson commanded an infantry division, leaving command of the RFC to Sykes. This provides some evidence that Henderson was in fact placing his own career ahead of the air service. As a division commander he would be promoted to major general but his time as a division commander was short-lived, as Kitchener overruled the BEF commander and by Christmas, 1914, Henderson returned to command the RFC and Sykes, to his chagrin, returned to his position of chief of staff.⁴⁴⁹ Divine contends that Henderson was never truly an airman because he was not passionate about flying and only gained his pilot’s certificate out of duty to his profession, unlike the majority of young military officers who were learning to fly because it was new, challenging, adventurous, and patriotic as war loomed on the horizon. Henderson on the other hand had loftier goals and he “looked always beyond the auxiliary of the air to high command in the field.”⁴⁵⁰ It is true that once Henderson had earned his pilot’s certificate he rarely flew an aircraft after that time.

By July, 1915, Brancker was also convinced that the command of the RFC in France “was child’s play compared with the work which I was doing [in Henderson’s absence].”

⁴⁴⁸Eric Ash, *Sir Fredrick Sykes and the Air Revolution, 1912-1918*, 62. See also ‘Notes on the Superior Control and Coordination of the Aeronautical Services,’ November 1914, Sykes Restricted Papers, Vol. 1, 40, RAFM.

⁴⁴⁹ Sykes, having been promoted to Colonel on taking command of the RFC, with Henderson’s return he returned to his previous position of chief of staff and also returned to his previous rank of Lieutenant Colonel. It must be further noted that Henderson was absent on sick leave for intermittent periods during late 1914-1915 and Sykes had assumed command of the RFC in Henderson’s absence during those periods. See Ash, *Sir Frederick Sykes and the Air Revolution*, 50-67.

⁴⁵⁰ David Divine, *The Broken Wing*, 33.

. . . We must wake up in the senior officer line or get left. The drawback to the situation is that you are our only really senior officer. I do not feel that I fill this place properly. If it requires a Major-General to command the R.F.C. in the Field, it certainly wants one here, where instead of being a valuable asset, the R.F.C. is still an expensive and precocious innovation. The fact that you come home occasionally does not help; rather the reverse, for it makes my position much weaker-the innate but, I presume, unconscious obstructor financial and otherwise, will not treat me seriously, and they use the desire to treat with you and not with me as a means of avoiding action . . . in any case I don't think you and Trenchard should be on the same side of the water. . .⁴⁵¹

Two weeks later, Brancker followed this with a second letter after returning from visiting Henderson at his headquarters in France. He recorded that his efforts 'had their effect' since shortly thereafter Henderson gave up command of the RFC in the field to Trenchard on 19 August, 1915. There is no evidence to support the contention that it was Kitchener who directed Henderson to give up command of the RFC in France and take up his position as DGMA full time or that he gave up command in the field due to ill health.⁴⁵² The *Official History* implies that it was Henderson himself who made the decision to return to England. "On August the 19th, Colonel H. M. Trenchard took command of the RFC in France, and Sir David Henderson returned to the War Office to deal with the multitudinous problems of supply of men and material for the rapidly expanding air service."⁴⁵³

⁴⁵¹ Letter from Brancker to Henderson, 28 July, 1915. As quoted in *Sir Sefton Brancker*, ed. Norman Macmillan, 106-108.

⁴⁵² In reference to the possibility that Kitchener directed Henderson to give up command of the RFC, a search of the Kitchener Papers in the Public Record Office, Kew, specifically files 26-85, which cover the years 1902 through 1916, found no reference to this subject. There was also nothing found addressing the topic in Henderson's papers in the archives of the Royal Air Force Museum, Hendon. Eric Ash has noted in his work on Sykes, that "Henderson's presence [in France] was unpredictable, which was detrimental to the RFC. He was back in command at the start of 1915, but as soon as the winter weather broke to allow action by the BEF and the RFC, his health once more began to deteriorate. [Henderson] attempted to work but often had to spend parts of the day in bed, and when doctors ordered him to take extended leave on 17 March, he did not return to the RFC until 19 April." Between November 1914 and August 1915, Henderson also returned to England for several days each month to conduct his duties as DGMA. Ash argues that between January and March 1915, Sykes was in command of the RFC for at least one-third of that period. See Eric Ash's *Sir Frederick Sykes and the Air Revolution*, 65-66, and RFC War Diary, AIR 1/1176/204/5/2595, NA.

⁴⁵³ *WITA*, Vol. II, 124. See also Air Historical Branch. *A Short History of the Royal Air Force*. (London: The Imperial War Museum, Department of Printed Books, 1936), 62. Trenchard's biographer Andrew

Once back in London and in the months leading up to the Battle of the Somme, Henderson focused heavily on three priorities. The first was improving the training of new aircrew and equipping new squadrons preparing to deploy to France. The second was the creation of a Home Defense system of ground stations and aircraft against the incursions of Zeppelin raiders and the third was the production of new, better performance aircraft capable of defeating the German Fokker in France.⁴⁵⁴ With his plan of merging wings into brigades approved by the Army Council and underway by the end of January, 1916, and the expansion scheme for the RFC on track, the Army Council made the decision that Henderson should return to France in mid-February to take command once more of the RFC and Trenchard would become DGMA in London. But Henderson's dreams of returning to the field and a combat command were not to be. After nearly three months without a Zeppelin raid on England the lull was broken on the night of 30-31 January, 1916.⁴⁵⁵ Though the bombing was scattered over the Midlands the fact that the Aerial Home Defence Organization was unable to intercept or shoot down any of the attacking Zeppelins which resulted in a massive public outcry that was led by political leaders and the press who demanded the government take action to address the issue of Britain's air defences.⁴⁵⁶ The Cabinet and Kitchener believed the solution to the Zeppelin problem lay with Henderson. Instead of returning to France, Henderson would be given a permanent seat on the Army Council so that he could address the

Boyle also believed that it was Henderson himself who made the decision to return to England in the belief that by serving as the DGMA full time he could best serve the RFC as it expanded and by working within the War Office ensure that it got its fair share of material and manpower. See *Trenchard: Man of Vision*, 141.

⁴⁵⁴ Andrew Boyle, *Trenchard: Man of Vision*, 160. The War Office had agreed in the summer of 1915 to assume the mission originally assigned to the Royal Navy of providing the nation's air defense but it was not until January 1916 that this actually took place.

⁴⁵⁵ Andrew Boyle, *Trenchard: Man of Vision*, 160.

⁴⁵⁶ *Ibid.*, 161. See also Letter from Henderson to Trenchard, 1 February, 1916 and Letter from Henderson to Trenchard, 25 February, 1916, Henderson Papers, RAFM.

“conflicting air interests of the army and navy.”⁴⁵⁷ By doing so he would also, it was believed, solve Britain’s air defense problem.⁴⁵⁸ Additionally, a select Committee was to be formed to investigate the roles and responsibilities of the rival air services. When informed of this Henderson quickly notified Trenchard.

I have heard definitely that I am to stay at home for some time and will probably go on the Army Council, so you may make all arrangements for remaining in Command. . . Also the establishment of the new Joint Air War Committee is going to give me a lot of work, and I think very useful work as we are now bound to get the Navy more or less in line.⁴⁵⁹

From the fall of 1915 through the conclusion of the air campaign over the Somme in November 1916, Henderson would play an important and critical role in coordinating the requirements of the RFC and fighting for resources he believed the army’s air service required to accomplish its assigned missions. Throughout the planning and execution of the air campaign he would be in almost weekly communication with his replacement, Trenchard, while his deputy, Sefton Brancker, communicated much more frequently via letter with the

⁴⁵⁷ Andrew Boyle, *Trenchard: Man of Vision*, 160. See also *Sir Sefton Brancker*, ed. Norman Macmillan, 115-116; Malcolm Cooper, *The Rise of Independent Air Power*, 35-36.

⁴⁵⁸ In February 1916, analysis of the Royal Navy’s ability to provide for the air defense of Britain, most particularly the south coastal areas of the country, were found to be totally inadequate. This was largely because there were not enough pilots or suitable aircraft to conduct the tasks that Churchill, the First Sea Lord at the start of the war, had agreed to accomplish. As General Sefton Brancker identified in his autobiography, there had been two schools of thought on how best to provide air defense to Britain. “The conservatives who maintained that we must depend on searchlights and anti-aircraft guns, and that it would be useless and unfair to send aeroplanes up at night to attack Zeppelins and the radicals, who urged that guns and lights were merely subsidiaries which would force the enemy to fly high, while the only really dependable form of defence lay in active operations in the air [use of aircraft].” When the shortcomings of the Admiralty’s capabilities were identified, Henderson volunteered the RFC to take over the responsibility and the mission of Britain’s home defense. The Cabinet accepted Henderson’s proposal and though there was some consternation within the RFC for taking on this mission it was apparent to all that the transfer of aircraft from RNAS Home Defense squadrons would now provide Henderson a reserve force for his RFC squadrons in the France if the need ever arose for him to use them in that capacity. See *Sir Sefton Brancker*, ed. Norman Macmillan, 115-116.

⁴⁵⁹ Letter from Henderson to Trenchard, 25 February, 1916, Trenchard Papers, MFC 76/1/76, RAFM.

RFC commander on the day-to-day issues and activities of the flying service during the campaign.⁴⁶⁰

Brigadier General Hugh M. Trenchard

What is remarkable about Trenchard's military career is the fact that he attained both the rank of general officer and high command with little in his first twenty years of military service to indicate that he possessed the skills and competencies to achieve great success as a professional soldier. Having failed the Royal Navy entrance exam examination at the age of thirteen he then applied for a commission into the army but failed to apply himself and failed the entrance examination for the Military Academy at Woolwich not once but twice before being forced to apply to the Militia (later the Territorial Army) which had lower entrance requirements.⁴⁶¹ Over two consecutive years, Trenchard failed the entrance examinations twice and was fortunate to be made a probationary subaltern with the Kincardine and Forfar Artillery.⁴⁶² On his third attempt he passed the army's entrance exam in March, 1893 and at the age of twenty was gazetted a second lieutenant in the Second Battalion, the Royal Scots Fusiliers, and sent to India.⁴⁶³

It was Trenchard's skill at sports which prevented him from being an outcast within his regiment as he was a poor communicator and lacked the social graces of many of his fellow officers. For this reason he earned the nickname "the camel" since he did not drink and

⁴⁶⁰ Whereas Henderson wrote at least a letter a week to Trenchard in the months before and during the Battle of the Somme, Brancker exchanged letters with Trenchard on nearly a daily basis and oftentimes the two exchanged two or three letters a day to the point where they agreed to identify their letters first with the number of the letter followed by the date. On 21 March, 1916 Trenchard wrote "I will number all my letters in future to avoid confusion." Both found that this form of communication was extremely beneficial in keeping the two informed of what was taking place within the War Office and on the battlefield. Trenchard Papers, MFC 76/1/76, RAFM.

⁴⁶¹ Andrew Boyle, *Trenchard: Man of Vision*, 19-26.

⁴⁶² Ibid.

⁴⁶³ Ibid., 30.

rarely spoke.⁴⁶⁴ Realizing that he had been deficient in his studies, Trenchard started a personal reading program in an effort to make up for his past educational shortcomings. He spent many hours each week reading the biographies of men of action, primarily British military and political leaders from the 18th and 18th centuries.⁴⁶⁵ He was successful in educating himself “on the quiet” without his fellow officers catching on to what he was doing but there was little fear that he would be accused of being an ‘intellectual.’ His habit of reading primarily historical works and biographies became a life-long passion.⁴⁶⁶

After serving several tours in Africa, including the Boer War, where he was badly wounded and then made a somewhat miraculous recovery, Trenchard commanded a regiment for nearly three years. Suffering an abscessed liver in 1910 he was evacuated back to England, seriously ill.⁴⁶⁷ After a long recovery, he was posted to Londonderry, Northern Ireland where the Second Battalion, Royal Scots Fusiliers were stationed. There he was reduced from temporary lieutenant colonel to major and given command of a company, a far cry after having just spent several years commanding a regiment.⁴⁶⁸

Almost forty and having been turned down for duty with the Egyptian Army and the International Gendarmerie in Macedonia for being too old and having received no reply to his applications to join mounted units within the Colonial Defence Forces in South Africa, Australia, and New Zealand, Trenchard again considered leaving the army.⁴⁶⁹ It was a chance letter from one of his subordinate officers from the Southern Nigeria Regiment that provided Trenchard the direction he so desperately was in search for. Captain Eustace Loraine had

⁴⁶⁴ Andrew Boyle, *Trenchard: Man of Vision*, 34.

⁴⁶⁵ *Ibid.*, 39.

⁴⁶⁶ *Ibid.*, 38. Boyle identified that the biographies included Warren Hastings, Clive, Pitt and the Wellesleys.

⁴⁶⁷ Andrew Boyle, *Trenchard: Man of Vision*, 43-90.

⁴⁶⁸ *Ibid.*, 92.

⁴⁶⁹ *Ibid.*, 94.

returned to England before Trenchard and had learned to fly. “You’ve no idea what you’re missing . . . Come and see men like ants crawling.”⁴⁷⁰



Major General Hugh M. Trenchard, pictured when he was serving as Chief of Air Staff, RAF in 1918 (RAFM)

Though his commanding officer did his best to convince Trenchard that he was too tall, (Trenchard was six foot three inches) and too old to be an aviator, he granted the prospective flyer three months paid leave to pursue his dream.⁴⁷¹ Arriving in London on 6 July, 1912 Trenchard learned that the man who had lit the spark in him to pursue flying, Captain Loraine, had been killed in a flying accident the day before he arrived in London.⁴⁷²

⁴⁷⁰ Letter from Captain Eustace Loraine to Trenchard, Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM. See also David Nevin, *Architects of Air Power*, (Alexandria, VA: Time-Life Books, 1981), 21.

⁴⁷¹ Andrew Boyle, *Trenchard: Man of Vision*, 96.

⁴⁷² *Ibid.*

The death of his friend only made Trenchard more determined to accomplish his goal. At that time applicants to the RFC had to have previously earned a Royal Aero Club certificate before being accepted into the Central Flying School. They also had to be in good physical condition and be between the ages of 18 to 40. Due to his wounding in South Africa, Trenchard only had one functioning lung, but he was less concerned about the physical requirements than he was about the time available before he turned forty in February, 1913.⁴⁷³ He knew he needed to earn his certificate in less than four weeks and then earn a seat in the next CFS class before it was filled. With his fortieth birthday less than seven months away, Trenchard knew that if he failed his initial flying certification and did not gain acceptance into the next class he would have no chance of becoming an airman. He was most fortunate that he had Thomas Sopwith as a flight instructor.

Major Trenchard arrived at my School at Brooklands one morning in August 1912. He told me that the War Office had given him ten days in which to learn to fly and pass his tests for an aviator's certificate, adding that if he could not pass by that date he would be over age. It was no easy performance to undertake but Major Trenchard tackled it with a wonderful spirit. He was out at dawn every morning, and only too keen to do anything to expedite tuition. He passed in about one week from first going in the air as a passenger. He was model pupil from whom many younger men should have taken the lead.⁴⁷⁴

⁴⁷³ David Nevin, *Architects of Air Power*, 21.

⁴⁷⁴ *WITA*, Vol. 1, 418-419. Thomas O. M. Sopwith became one of Britain's premier aircraft designer's during the First World War. A pilot before he became an aircraft designer, he earned Royal Aero Club certificate No. 31 on 22 November, 1910 and two weeks later won the 4,000 pound prize for the longest flight from England to the Continent in a British built airplane. He flew 169 miles (272 km) in 3 hours 40 minutes and then used his winnings to establish the Sopwith School of Flying at Brooklands. In June, 1912 Sopwith, along with several other aviation pioneers established the Sopwith Aviation Company of which Trenchard was one of his first batch of students. Sopwith's company produced more than 18,000 British aircraft for the Allied forces during the war, including 5,747 of the famous Sopwith Camel single-seat fighter. According to Sopwith's biographer, Alan Bramson, in the summer of 1912 there were nearly a half-dozen flying schools operating at Brooklands from which an aspiring aviator could choose to enroll in and it was Frederick Sykes, a graduate himself of Sopwith's flying school, who recommended Trenchard sign up with Sopwith for flight training.

After a total of sixty-four minutes in the air spread out over thirteen days and at the cost of 75 pounds tuition, Trenchard earned his RAeC, No. 270 on 13 August, 1912.⁴⁷⁵ He then proceeded to Upavon and was enrolled into the CFS. Before he could join a flight and be tested on his flying skills, the school's commandant, Captain Godfrey Paine, RN, "co-opted" Trenchard and made him adjutant of the school. One of his first official duties was to serve as the chief examiner of the exams given at the CFS. Directed by his new commander to redesign the exams for the ground portion of the training, Trenchard did so and then took the exams himself, graded them and awarded himself passing marks so he could advance directly to flight training.⁴⁷⁶

Trenchard was by no means a natural pilot and his instructor, Naval Lieutenant Arthur Longmore, found their initial test flight together quite harrowing. "At best, he [Trenchard] was an indifferent flier. His age told against him, though he showed enviable pluck and perseverance."⁴⁷⁷ When his staff duties allowed, Trenchard was in the air as often as time would permit trying to improve his capabilities as a pilot. Upon passing his flight training he was officially made an instructor at the CFS but since he was a marginal pilot at best, he in fact never performed the duties of a flying instructor.⁴⁷⁸ His true strength lay in the myriad tasks of administrating and operating the CFS and he excelled at learning all of the specific duties and responsibilities of every section within the school.⁴⁷⁹ Paine was extremely pleased with Trenchard's performance in bringing order and discipline where there had previously

⁴⁷⁵ David Nevin, *Architects of Air Power*, 21.

⁴⁷⁶ Geoffrey Norris, *The Royal Flying Corps: A History*, 144. See also Gavin Lyall, "Marshal of the Royal Air Force the Viscount Trenchard", *The War Lords: Military Commanders of the Twentieth Century*, ed. Michael Carver, (Boston: Little, Brown and Company), 176-187.

⁴⁷⁷ Andrew Boyle, *Trenchard: Man of Vision*, 101. Philip Joubert de la Ferte, one of the first RFC pilot's to conduct an aerial reconnaissance in the opening days of the war and later an Air Chief Marshal in the RAF, attributed Trenchard's poor flying skills to the fact that he was nearly blind in one eye. See Philip Joubert de la Ferte, *The Third Service*, 18.

⁴⁷⁸ Ibid.

⁴⁷⁹ Ibid.

existed confusion. With a mixed cadre of instructors and students from the army and the navy, Trenchard created the guidelines and orders that would ensure the CFS accomplished its assigned purpose of providing qualified pilots to the two services. “Trenchard had to mix guile and diplomacy with firmness. He adapted what was best in the regulations of army and navy; and, with the set aim of offering the least offence to the greatest number, he jettisoned the rest.”⁴⁸⁰

Trenchard was correct in his assessment that the CFS primary purpose was to take novice pilots and turn them into specialists. He was also the first to admit that he had much to learn about the art and science of flying and he applied himself to understand what had been accomplished in the field in the decade since the Wright Brothers first flight in 1903.⁴⁸¹ He read and studied what he could find in the popular press about the pioneer aviators and aircraft designers, who at that time seemed to be making almost weekly advances in the technology and potential of air power.⁴⁸² As Paine’s assistant at the CFS, Trenchard’s dominant personality impressed the student pilot’s and because of his deep pitched and resonant voice Trenchard earned the new nickname of “Boom” which remained with him for the rest of his career.⁴⁸³

Probably the one single event which convinced Trenchard of the unlimited possibilities of the aircraft for military use was his involvement as an air observer during the annual Army Maneuvers in September, 1912. As part of General Grierson’s northern force, Trenchard, along with his pilot Lieutenant Longmore, observed units of Haig’s southern force

⁴⁸⁰ Andrew Boyle, *Trenchard: Man of Vision*, 101

⁴⁸¹ *Ibid.*, 102.

⁴⁸² *Ibid.*

⁴⁸³ David Nevin, *Architects of Air Power*, 20.

marching along a road in East Anglia.⁴⁸⁴ Reporting to Grierson with this information, Trenchard and Longmore were directed to make contact with the northern force cavalry which was moving in the wrong direction. Finding the cavalry, the two airmen landed and Trenchard notified the cavalry commander of Grierson's orders. Now heading in the right direction the cavalry made off to attack Haig's force. Maneuver observers admitted that the results of the war games had been heavily influenced by the intervention of aircraft which in fact had enabled Grierson's force to defeat Haig's.⁴⁸⁵ As for Trenchard, he had observed large formations of men moving across the countryside and saw first-hand how quickly critical information could be delivered by airmen to the ground commander and its impact on the outcome of a battle. It was from this experience that he began to understand the role aircraft could serve in combat.⁴⁸⁶

Less than a year after the conclusion of the 1912 maneuvers, Trenchard was appointed Assistant Commandant, CFS by Henderson.⁴⁸⁷ Promoted to the temporary rank of lieutenant colonel and serving as Captain Paine's second-in-command, Trenchard had no small influence on the overall operation of the flying school. In discussions with other members of the flying school staff Trenchard became involved in heated debates and arguments about how aircraft would be used in war. "Hugh Trenchard held extremely advanced views. He used to assert that the aeroplane would one day transform the battlefield, and did so one evening at table in the hearing of General Smith-Dorrien. His words were coldly received."⁴⁸⁸

When Britain declared war on Germany on 4 August, 1914, Trenchard recorded his disappointment at being informed that he would be remaining in England. "I was told I would

⁴⁸⁴ David Nevin, *Architects of Air Power*, 22. See also Andrew Boyle, *Trenchard: Man of Vision*, 103.

⁴⁸⁵ *Ibid.*, 103-104.

⁴⁸⁶ Kenneth Norris, *The Royal Flying Corps: A History*, 31-32.

⁴⁸⁷ *Sir Sefton Brancker*, ed. Norman Macmillan, 36.

⁴⁸⁸ Andrew Boyle, *Trenchard: Man of Vision*, 110.

not be going to France with the Expeditionary Force, but would replace Sykes as commandant of the Military Wing. I handed over my duties at the Central Flying School on the 7th.⁴⁸⁹

After assisting in the first expansion of the RFC in the opening months of the war, Trenchard arrived in France in November, 1914 to take command of the First Wing, which consisted of two squadrons. In early January he met the new commander of the newly designated First Army, General Douglas Haig, for the first time.

I was very nervous beforehand as I had always heard that he was very reserved, austere, severe and that he did not believe a great deal in the air. He ordered me to go round to his H. Q. at about five o'clock in the evening and asked me about the use of aircraft in battle. I tried to explain what I thought they would do in future besides reconnaissance work, how our machines would have to fight in the air against German machines and how we should have to develop machine-guns and bombs. He was interested. . . I could not help feeling then and for years afterwards that Haig said what he did to give confidence to me and the whole R. F. C. Though he did not understand very much about it, Haig believed in the air. And he accepted what I said.⁴⁹⁰

Thus began what would become a very close and professional relationship between Trenchard and Haig. Trenchard would serve as Haig's principle air advisor for more than three years.

The two were similar in several ways. Both lacked good verbal communication skills and disliked speaking freely among those they did not know well or trust. Both were seen as silent and aloof to their staffs but could be very direct when they observed a problem that needed addressing. Mutual strengths included indomitable leadership skills which included a fierce drive to accomplish any mission assigned to them.⁴⁹¹

These similarities and the close working relationship the two men experienced during the planning and execution of the battles of Neuve Chapelle and Loos, enabled them to build a relationship built on trust and mutual admiration that eventually became a deep and lifelong

⁴⁸⁹ Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM .

⁴⁹⁰ Ibid.

⁴⁹¹ Malcolm Cooper, *The Birth of Independent Air Power*, 72-73. See also Gary Sheffield, *The Somme*, (London: Casell, 2003), 33-34.

friendship.⁴⁹² Haig was delighted when Trenchard was promoted to command the RFC just four months before he himself was promoted to command the entire BEF. He grew to rely totally on Trenchard's technical expertise on the use of air power to the point where almost all of the official documents concerning the RFC and air strategy issued by Haig's headquarters were in fact drafted by Trenchard and his staff.⁴⁹³

It is somewhat hard to fathom that the man who had repeatedly failed to gain a commission into the army and had been so badly wounded that doctors had given him up for dead and then had to overcome several life-threatening illnesses, was able to continue serving in the army. Most surprisingly of all, Trenchard did not attend the staff college which was the usual prerequisite for future promotion and attaining positions of high command. By mid-1912, his career seemed all but over until he received a letter from a fellow officer that convinced him that he ought to learn how to fly. Once he accomplished that task and with much hard work and a strong personality, and with the backing of both Kitchener and Henderson, Trenchard amazingly rose from the rank of major when war was declared in August, 1914, to brigadier general and commanding officer of the RFC just over a year later.⁴⁹⁴ His rapid rise to general officer did not hide his several weaknesses. "Discipline and organization were his [Trenchard's] forte; strategy was not."⁴⁹⁵ Though his communication skills were poor, both spoken and in writing, the fact that he had the BEF commander's total support enabled Trenchard to defeat all attempts made by governmental officials, the press,

⁴⁹² David Jordan and Gary Sheffield, "Douglas Haig and Airpower", *Airpower Leadership: Theory and Practice*, ed. Peter W. Gray and Sebastian Cox, (London: The Stationary Office, 2002) , 270-272. See also Andrew Boyle, *Trenchard: Man of Vision*, 178.

⁴⁹³ Malcolm Cooper, *The Birth of Independent Air Power*, 73. See also Robin Higham, *The Military Intellectuals in Britain, 1918-1939*, 136.

⁴⁹⁴ *Ibid.*, 138.

⁴⁹⁵ Robin Higham, *The Military Intellectuals in Britain, 1918-1939*, 139.

and even some of the leaders within the army and the RFC, to influence or change the direction of the air strategy that he had adopted as his own.⁴⁹⁶

To achieve his stated objective Trenchard directed an offensive based strategy and spent much time during his tenure of command visiting RFC wings and squadrons explaining how this strategy would lead to a successful air campaign (with much help from his trusted aide and confidant, Maurice Baring).⁴⁹⁷ In Trenchard's mind the standards for success were clear: British aircraft would fly deep into German-controlled territory every day and interdict both the German Army as well as its air service and prevent both from interfering with BEF units as they carried out the Somme offensive.⁴⁹⁸ He did allow and encouraged his subordinates to use their initiative, be innovative and take risks as long as they enabled the larger organization, the RFC, to achieve its goals and objectives. Not all members of the air service, the army, or civilian leadership agreed with Trenchard's leadership style, believing that he was overbearing to the point of ignoring their guidance or recommendations and to a degree they were correct, most especially with his adherence to following a continuous offensive strategy after it was determined that the casualties in the last three months of the air campaign over the Somme were prohibitive.⁴⁹⁹ His failure to adjust his strategy in the fall of 1916 would have long-term consequences on the overall effectiveness of the RFC.

Trenchard also set high performance standards and demanded much from his subordinates, maintaining close contact with his aircrew to ensure that he fully grasped and understood the pressure he had placed on them. "When the going was roughest, the distant

⁴⁹⁶ Malcolm Cooper, *The Birth of Independent Air Power*, 73; See also David Jordan and Gary Sheffield, "Douglas Haig and Airpower", *Airpower Leadership: Theory and Practice*, ed. Peter W. Gray and Sebastian Cox, 270-272.

⁴⁹⁷ Andrew Boyle, *Trenchard: Man of Vision*, 156.

⁴⁹⁸ David Nevin, *Architects of Air Power*, 26.

⁴⁹⁹ *Ibid.*, 172. See also L. E. O. Charlton, *An Autobiography*, (London: Penguin Books Limited, 1938). Charlton's disapproval of Trenchard's offensive strategy will be discussed in chapter 8.

thunder of his voice rumbling in the mess, a hangar or workshop, conveyed its own peculiar reassurance to aircrews and maintenance men alike.”⁵⁰⁰ Though many have argued that Trenchard’s communications skills were weak, he had little trouble getting his message across whenever he addressed a group of aircrew prior to or after a mission. His comments were ‘off the cuff’ and heartfelt and he did not pull punches with them knowing the risks they faced on a daily basis. He often reminded the airmen that they should never take for granted the vital work of the ground crews: the mechanics and technicians who maintained the aircraft and performed daily miracles keeping the machines and their weapons airworthy. “They are the backbone of all our efforts” and without their hard labor and ingenuity the air campaign would have faltered long before it had begun.⁵⁰¹ He also told his fighter pilots that whenever they shot down a German aircraft, the ground-crew deserved half the victory.⁵⁰² He received little argument from any of his pilots with that statement. Trenchard was above all about teamwork and realized that if the technicians on the ground and the aircrew who engaged the enemy could form and maintain their effectiveness as a team than the battle was half way over before his men went into combat.⁵⁰³

As his biographer described, Trenchard may have been “abrupt, rude, jovial, unflattering or plain contrary” at times but he never took for granted what he was asking his men to accomplish.⁵⁰⁴ It was a tough, exhaustive, and deadly business they were engaged in and it demanded sacrifice from every member of the flying service. “I’m not asking you to do anything I wouldn’t do myself. . . Just because I’m condemned to ride about in a big Rolls-

⁵⁰⁰ David Nevin, *Architects of Air Power*, 198.

⁵⁰¹ Andrew Boyle, *Trenchard: Man of Vision*, 190. See also Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM.

⁵⁰² Ibid.

⁵⁰³ Ibid.

⁵⁰⁴ Ibid, 199.

Royce and sit out the fighting in a chair, you mustn't think I don't understand."⁵⁰⁵ When he said these words to them they knew they came from his heart and though some would accuse the RFC commander for being callous with his aircrew's lives, the vast majority of the air service believed that 'Boom' was their champion and would not squander their lives needlessly.⁵⁰⁶

Finally, analysis of Trenchard's correspondence with both Henderson and Brancker throughout the air campaign demonstrates the fact that he was intent on developing the future leaders of the RFC. His letters are full of recommendations of which commanders needed a rest because they were nearing the breaking point; which leaders needed to be promoted or given increased responsibilities; and which leaders or aircrew needed to be returned to the army or assigned non-flying duties because they were not good pilots or observers after receiving ample time and opportunities to prove otherwise. Those who claim that Trenchard had little empathy for his men need only to read the RFC commander's correspondence to Henderson and Brancker during the Battle of the Somme to correct that misconception. A quote from a contemporary concisely describes the complexity of Trenchard's leadership style:

Trenchard [was] brusque and abrupt in his manner, had little time for politics and less for people who were thus engaged. Never very clear in his exposition of a case he often confused people he was trying to enlighten or persuade. But his transparent honesty, his great determination and his ability to come to a just conclusion by an apparently erroneous process of thought, endeared him to those who worked under him though his manner often repelled or frightened them.⁵⁰⁷

⁵⁰⁵ Andrew Boyle, *Trenchard: Man of Vision*, 190. See also Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM.

⁵⁰⁶ Ibid.

⁵⁰⁷ Joubert de la Ferte, *The Third Service*, 19.

Brigadier General William Sefton Brancker

The son of an artillery colonel in the British Army who had fought in the Crimean War, William Sefton Brancker attended the Royal Military Academy at Woolwich where he graduated as the “Top Gunner” before he was commissioned into the Royal Artillery (RA).⁵⁰⁸ In 1897 he was assigned to the 20th Company, Southern Division, RA. Six months after joining his unit he volunteered to serve as an observer in a captive balloon during an experiment the Royal Engineers were conducting with using a balloon for observing artillery fire. Though the experiment was considered a failure due to instability of the balloon in even the most moderate of winds and though its passenger suffered from violent airsickness, the experience convinced the young artillery officer that there was great potential for observation from the air.⁵⁰⁹

After serving in several artillery units in England and Ireland and deploying to the South African War where, like Sykes and Trenchard, he was wounded, decorated and promoted, it was not until his ninth year of service when he was nominated to attend the new Indian Staff College in June, 1906 that Brancker realized he was beginning “to develop into a serious soldier.”⁵¹⁰ It was there that he caused “some surprise and not a little derision by advocating [the use of] observation aircraft for [directing] howitzer fire—and there was a consensus of opinion during the discussion which followed that no one was likely to employ such foolhardy methods.”⁵¹¹

After graduating from the staff college he spent an additional four years in India becoming fluent in both Hindustani and Tibetan. In the fall of 1910 he joined the Royal Aero

⁵⁰⁸ Robin Higham, *The Military Intellectuals in Britain, 1918-1939*, 125.

⁵⁰⁹ *Sir Sefton Brancker*, ed. Norman Macmillan, 6.

⁵¹⁰ *Ibid.*, 7

⁵¹¹ *Ibid.*

Club and several months later became the first passenger to fly in an aircraft in India. In January, 1911 he then served as an observer in the British Army's first military aerial reconnaissance conducted in India during maneuvers at Aurangabad where he flew with a French pilot, Henri Jullerot, in a Bristol biplane. It was during this exercise that Brancker received sealed orders from Chief of the General Staff in India, General Sir Douglas Haig that detailed the following day's operations. It was the first time "a British General issued official orders for an aeroplane to fly and bring back information about troops opposed to his."⁵¹²

In April, 1912, Brancker returned to England where he was assigned to the 43rd Battery, Royal Field Artillery stationed near Aldershot. The battery was commanded by Major E. B. Ashmore who would himself later transfer to the RFC.⁵¹³ Because the battery was only a few miles from Farnborough, then Britain's primary military airfield, Brancker was able to spend much of his free time at the airfield learning to fly. In July, the army began to conduct experiments in using aircraft to observe and direct artillery fire. Brancker volunteered to fly as an observer with the newly established RFC as often as his duties would allow but progress was slow due to poor weather and a shortage of aircraft. Brancker did no flying during the Army maneuvers of 1912 but instead was attached to the 1st Division General Staff during the exercise and observed first-hand the work and subsequent results of both the Naval and Military Wings.

⁵¹² *Sir Sefton Brancker*, ed. Norman Macmillan, 17. Brancker would later record that from that day on he fell in love with flying though he admitted that he often was "thoroughly frightened by it."

⁵¹³ When the war started Lieutenant Colonel E. B. Ashworth was on the staff of the General Officer Commanding the Home Forces. When Trenchard was sent to take command of First Wing in November, 1914, Ashmore was placed in command of the Administrative Wing at Farnborough. In 1915 he commanded the First Wing during the Battle of Loos. When it became 'I Brigade' during the RFC reorganization in January, 1916, he commanded it for a further three months before taking command of the newly formed IV Brigade on 1 April, 1916. Providing aviation support to General Rawlinson's Fourth Army, Ashmore's brigade served as the RFC's main effort throughout the air campaign. In 1917, as part of the reorganization of the British Home Defense network, Ashmore took command of all ground units in south-east England.

Brancker had hoped to transfer to the RFC in 1912 but his inability to meet the vision requirements due to short-sightedness and the fact that he could not afford the 75 pounds required to pay for flight training to earn his RAeC, convinced him that he was not meant to be a pilot. Instead he went to Germany with the intent to “learn the language and study the habits of our potential enemies.”⁵¹⁴

Upon his return, Brancker was promoted to major and was appointed GSO 3 (General Staff Officer, 3rd class) in the Education of Officers Branch of the Training Directorate within the War Office. Attached to the Aviation Section of the Military Training Directorate to fill in for an officer on leave, Brancker was surprised to find himself once again heavily engaged in all matters pertaining to British military aviation. It was in this role that he worked for General Henderson who was the Director of Military Training. Henderson believed that everyone assigned to the Military Aeronautics Directorate should be able to fly, Brancker happily enrolled in the Vickers School at Brooklands. Flying in the evening until dark after a full day’s work, Brancker achieved his goal within four weeks, successfully passing all requirements and earning his Royal Aero Club certificate Number 525 on 18 June, 1913.⁵¹⁵

His next goal was to qualify as a military pilot. The first hurdle was the medical test. Though his medical examiner recommended that he not be allowed to enroll in the CFS because of his short-sightedness, Brancker was able to get an exemption because of his duties in the War Office. With that hurdle overcome, Brancker was given six weeks leave and sent to

⁵¹⁴ *Sir Sefton Brancker*, ed. Norman Macmillan, 30.

⁵¹⁵ Brancker recalled that the fact that CFS student pilots had earned the Royal Aero Club certificate meant little to his instructors who believed that it was “of little practical value” preferring instead that student pilots arrive with no previous experience and thus had not learned any bad habits prior to starting the course. The average student pilot arrived at the CFS with around twenty-five flying hours though Brancker in fact had only thirteen.

Upavon to attend the CFS' first short course in July, 1913.⁵¹⁶ His observations of the two leaders of the CFS are worth noting.

At this time Captain Godfrey Paine, R.N., was the commandant, Major Trenchard his second in command, and Jack Salmond, Webb-Bowen, Gerrard, and Fulton were among the instructors. The Central Flying School was a joint Naval and Military concern administered by the War Office. Godfrey Paine was an ideal Commandant; a born leader of men. Enthusiastic, enterprising, with boisterous manners and a delightful personality. . . In all the competition and friction which occurred between the Naval and Military elements of aviation then and later, there was never the faintest sign of discord at the Central Flying School. . . Trenchard was responsible for the discipline and domestic organization of the C.F.C. and was already displaying those qualities of untiring energy, concentration on essentials, and rigid discipline which meant so much to the Royal Flying Corps later on.⁵¹⁷

Flying was even then considered a young man's adventure but Brancker also noted that though he was thirty-six years old there were two other student pilots that were older than he was in the course. Reflecting back on his flight training Brancker commented on how little was known at the time about the actual theory and mechanics of flying. Though several instructors had two or three years experience, neither had successfully mastered "the art of *teaching* pupils to fly. They did things instinctively without being able to explain how they were done, and the young pilot really had to teach himself all that was to be known beyond simple turns and landings."⁵¹⁸

Brancker completed his course at the CFS in August, 1913 and returned to the War Office to find that General Henderson had been replaced as the Director of Military Training (DMT) and had taken the new role of Director-General of Military Aeronautics (DGMA) with direct access to the Secretary of State for War.⁵¹⁹ Brancker was also assigned to the Directorate of Military Aeronautics and was made Henderson's deputy (DDMA). Once

⁵¹⁶ The Short Course was designed to train officers for the RFC Reserve and for staff officers who did not have the available time to attend the longer fifteen week course.

⁵¹⁷ *Sir Sefton Brancker*, ed. Norman Macmillan, 36-37.

⁵¹⁸ *Ibid.*, 37-38.

⁵¹⁹ *Ibid.*

Britain began mobilization in August, 1914, Henderson took command of the RFC and Brancker was promoted with the temporary rank of lieutenant colonel so that he could be on a more equal footing with the more senior officers within the War Office.⁵²⁰ In this role Brancker had direct access to the new Secretary of State for War, Lord Kitchener and as already has been described it was Kitchener who was largely responsible for directing the massive expansion of the RFC in the first year of the war.



Brigadier General William Sefton Brancker (IWM O69034)

Lord Kitchener was an enormous asset to the R.F.C. He instinctively understood aviation, and realized fully its vast possibilities; he saw me constantly, perhaps four or five days a week at least, and often twice a day. . .

⁵²⁰ *Sir Sefton Brancker*, ed. Norman Macmillan, 36-37.

In the first month of the war, he was talking about [conducting] bomb-raids against the industrial centres of Germany. . . .⁵²¹

Brancker's greatest challenge however came about from the lack of centralized control on all issues concerning aviation matters between the War Office and the Admiralty.⁵²² Though the Air Committee had coordinated the efforts between the Military and Naval Wings before the war, when war broke out the Committee ceased to function when most of its members either deployed to France or assumed positions of greater responsibility. All efforts to maintain co-operation between the two air services virtually ended when the Air Committee disbanded.⁵²³

Once mobilization was declared Brancker met with Sueter, his counterpart in the Naval Wing, to discuss "the allocation of available contractors, aircraft and engines."⁵²⁴ The two agreed that all seaplanes and engines above 100 hp (except for the 120 hp Beardmore engine) would go to the Navy and aside from a few aircraft and low-powered engines needed for training purposes, all aircraft as well as engines of 100 hp and below would go to the Army.⁵²⁵ The contractors were then divided equally to support this agreement. As Brancker soon found out the agreement he made with Sueter would not be supported by the First Lord of the Admiralty, Churchill, who was convinced that with war declared that the Naval Wing, only weeks before officially recognized as the Royal Naval Air Service (RNAS), should focus on attacking strategic targets inside Germany from the air.⁵²⁶

For the remainder of 1914 and through 1915, Brancker found himself and the RFC "in constant competition" with the RNAS for the manufacture of aircraft, engines and recruitment of qualified craftsmen. When the RNAS conducted a successful attack on the Zeppelin sheds at Friedrichshafen in early 1915, Churchill directed that the RNAS expand and develop a

⁵²¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 67.

⁵²² *Ibid.*, 74.

⁵²³ *Sir Sefton Brancker*, ed. Norman Macmillan, 67.

⁵²⁴ *Ibid.*, 75.

⁵²⁵ *Ibid.*

⁵²⁶ *Ibid.*, 76.

bombing force capable of strategic attacks on Germany, specifically the industrial districts of Metz and the Rhine Valley.⁵²⁷ Both Henderson and Trenchard (by then commanding the First Wing), as well as Haig were convinced that the Admiralty should not be allowed to strip away valuable air assets that were required to win the air war on the Western Front and that if any targets needed to be bombed they should be of a tactical nature in support of British ground units.⁵²⁸

Henderson and Brancker placed the blame for this duality of effort on the lack of organization within the government to control the two air services which enabled the Navy to develop an air strategy that army leadership believed was counter-productive to the RFC's efforts in France.

The aviation resources of the country in August, 1914, were practically *nil*, and everything had to be created *ab initio*; it is not to be wondered that the burning zeal of junior and enthusiastic officers of two entirely different Services without any efficient central control, and whose demands on aviation material always clashed, led to undesirable competition, friction, and general unpleasantness.⁵²⁹

During the early months of the war while he worked diligently with Trenchard and Kitchener to build and train new squadrons for the RFC, Brancker was able to travel to France on three different occasions between October and December, 1914. "These visits were of intense interest. I went the round of the squadrons and talked to everyone I saw, and I learnt more of the work and the needs of aviation in the Field in a few hours than I could have done by months of correspondence. After this I always made it a rule to keep personal touch with Squadrons and Wings both at home and abroad, no matter how much the War Office demanded my presence."⁵³⁰ This says much about Brancker's style of leadership and the

⁵²⁷ *Sir Sefton Brancker*, ed. Norman Macmillan, 104.

⁵²⁸ Malcolm Cooper, *The Birth of Independent Air Power*, 62.

⁵²⁹ *Sir Sefton Brancker*, ed. Norman Macmillan, 104-105.

⁵³⁰ *Ibid.*, 85-86.

importance he placed on meeting and talking with the aircrew and their leader's first-hand, the men who had to fight the war with the equipment and personnel that he was responsible for providing them.

Under immense strain to provide replacement aircrew and aircraft to the RFC in France after the Battle of the Marne, Brancker recommended to the War Office that the army should take responsibility for "all aerial work with the expeditionary force abroad and with the mobile forces at home, while the navy should undertake the aerial work for all fixed defences at home."⁵³¹ The RNAS had been given permission to form two squadrons to be trained for military vice naval operations and was in the process of standing up the new squadrons when the army rejected the plan fearing that the navy was encroaching on its primary mission. The Army Council informed the Admiralty that the best way the navy could support the army was to transfer the aircraft destined for the new squadrons directly to the RFC.⁵³²

Six weeks later, with the aircraft and aircrew shortage becoming even more severe in France, Brancker sent "an urgent appeal" to the Air Department of the Admiralty.⁵³³ He formally requested that the aircraft being produced for the two new squadrons being built by Avro and all of the Vickers fighters then in production be transferred to the War Office as well as four Maurice Farmans being built in France under license. He also requested that the RNAS 'loan' as many as twenty pilots and the same number of wireless operators temporarily to the RFC until the crisis was over.⁵³⁴ The Admiralty was willing to transfer twelve Vickers fighters and six Maurice Farman's to the RFC and also agreed to send a squadron of eight Avro's and four Sopwith Scouts to France by the middle of January, 1915 to serve "under the orders of

⁵³¹ Letter from Sir John French to the War Office, 17 October, 1914, Brancker Papers, IWM. Brancker added his comments and attached them to French's letter.

⁵³² *Sir Sefton Brancker*, ed. Norman Macmillan, 104-105.

⁵³³ *WITA*, Vol. I, 474.

⁵³⁴ *Ibid.*

the officer commanding the Military Wing.⁵³⁵ It was not until 1 January, 1915 that the War Office responded to the Admiralty's offer.

It has been decided to send no further new aeroplane squadrons to join the Expeditionary Force until the winter is over; the bad weather renders aerial reconnaissance difficult, and we find that owing to the impossibility of protecting the machine from deterioration it will be better to keep our new units at home until conditions improve.⁵³⁶

Because there had been little air to air fighting in the first five months of the war, the War Office made the decision to defer the Admiralty's generous offer and wait until the spring of 1915 to reassess the needs and requirements of the RFC. The RNAS did in fact transfer a large number of aircraft to the RFC but did not transfer the combat ready squadron as was originally planned.⁵³⁷

For his efforts as the DDMA, Brancker was sent to France to take command of 3rd Wing.⁵³⁸ During his first month in command, 3rd Wing was heavily involved as a supporting effort during the Battle of Loos in September, 1915. It was during this operation that Brancker directed that his lone Vickers FB5 squadron provide escort to his three squadrons of BE 2c's.⁵³⁹ Brancker's unit had thus initiated a new technique to the air war which by doing so began the reduction of RFC aircrew and aircraft losses caused by the 'Fokker Scrouge'.⁵⁴⁰ Even with the use of new tactics, by the end of 1915 it was evident to the RFC leadership that the GAAS had attained a level of air superiority over most of the British sector on the Western

⁵³⁵ *WITA, Vol. I, 474.*

⁵³⁶ Letter from Brancker to Admiralty, 1 January, 1915, as quoted in *WITA, Vol. I, 474-475.*

⁵³⁷ The Admiralty transferred approximately one hundred aircraft of all types to the RFC between December, 1914 and December, 1915. *Sir Sefton Brancker*, ed. Norman Macmillan, 105.

⁵³⁸ *Sir Sefton Brancker*, ed. Norman Macmillan, 109.

⁵³⁹ *Ibid.*, 110.

⁵⁴⁰ *Ibid.*

Front, primarily because of the introduction of the latest model of the Fokker Eindecker, the EIII and its forward firing machine gun.⁵⁴¹

After five months of command and with the RFC about to transition to the brigade organizational structure, Brancker was promoted to brigadier general and transferred back to England where he took command of the Northern Training Brigade with his headquarters at Birmingham.⁵⁴² It was evident from his inspection tours of the airfields under his command that the RFC in England had grown too quickly and was critically short of its two most important assets: instructors and aircraft. Even worse was the fact that the training units were tasked with producing pilots “in numbers which it was quite impossible to attain with [any] proficiency.”⁵⁴³ After only four weeks in command, and with the Military Aeronautics Department having been reorganized into three directorates, Henderson recalled Brancker to take over the first directorate. In March, 1916 Brancker became the first Director of Air Organization (DAO), responsible for “all General Staff and Adjutant Generals work.”⁵⁴⁴ That same month Brancker notified Trenchard that because of the rapid pace of expansion, the training brigades were not capable of providing enough trained pilots to France.

I am not happy about the pilots; we have rushed the Brigade system and the new squadrons too fast; and I fear that the dispatch of the squadrons promised to you on March 31 will seriously interfere with output of pilots at home.⁵⁴⁵

Five days later, Brancker notified Trenchard that the situation was even more desperate than he had at first thought.

Not only is it impossible to let you have five more new squadrons during April, but it has proved absolutely necessary to postpone the departure of the

⁵⁴¹ Norman Franks, *Sharks Among Minnows*, 41-42.

⁵⁴² *Sir Sefton Brancker*, ed. Norman Macmillan, 112.

⁵⁴³ *Ibid.*

⁵⁴⁴ *Ibid.*, 115.

⁵⁴⁵ *Ibid.*, 117. See also Letter from Brancker to Trenchard, 8 March, 1916, Brancker Papers, IWM.

last three due to join you before March 31st. This will be extremely inconvenient and annoying for everyone, but I was forced to advise it, as I find that the pilot situation is really serious, and unless we take a pull and get level with your demands and those of the various organizations at home at once, we shall land into most awful trouble. I reckon that at the moment we are actually about 100 pilots short of what we require to be on a really sound basis both at home and abroad. This shortage is partly due to weather, partly to optimistic estimates, and partly to sending out new squadrons too early.⁵⁴⁶

As planning continued for the summer offensive on the Somme, Trenchard requested Brancker make a second request to the Admiralty for the 'loan' of thirty to forty pilots but aircraft were not required.⁵⁴⁷ The RNAS promised to temporarily transfer fifteen experienced pilots but then the promise was cancelled when the naval pilots who were notified of the temporary transfer objected to having to fly the BE 2c.⁵⁴⁸ It was well known throughout the RNAS that during the last four months of 1915 the BE 2c had suffered ever increasing losses during the 'Fokker Scrouge.'⁵⁴⁹ Though the second request failed to provide the RFC additional pilots, a month later the Admiralty agreed to transfer a number of Sopwith 1 and 1/2 Strutters, which were some of the first tractor aircraft equipped with a forward firing machine gun and interrupter gear to serve in the RFC.⁵⁵⁰ "They proved invaluable to [the RFC, but] because Sopwith was an Admiralty contractor we could not get them ourselves."⁵⁵¹

Brancker spent the ninety days leading up to the start of the ground offensive heavily involved with the expansion of the training program for pilots, which included the planning

⁵⁴⁶ *Sir Sefton Brancker*, ed. Norman Macmillan, 118. See also Letter from Brancker to Trenchard, 13 March, 1916, Brancker Papers, IWM.

⁵⁴⁷ *Ibid.*, 119.

⁵⁴⁸ *Ibid.*

⁵⁴⁹ In a letter from Brancker to Trenchard, dated 22 March, 1916, which was marked "The following is absolutely PRIVATE" Brancker wrote "The Naval pilots detailed to come out [to France] have objected to being asked to fly the B.E. 2c. I don't think that D. H. [General David Henderson] knows this, but they have persuaded him to say that he will let them bring 4 or 5 Nieuports [fighter aircraft] with them-I believe from Dunkirk. . . As you will realize the whole business has been wrongly handled." Trenchard Papers, MFC 76/12/76, RAFM

⁵⁵⁰ *Sir Sefton Brancker*, ed. Norman Macmillan, 119.

⁵⁵¹ *Ibid.* See also *WITA*, Vol. II, 162.

for opening schools in France, Egypt and in Canada.⁵⁵² He also strongly supported the recommendation which called for centralizing the training scheme within the RFC and in March, 1916 the War Office approved Henderson's recommendation that the two separate RFC brigades in England as well as the Training Wings be combined into one command and renamed the Training Brigade. A Home Defense Wing was also created and placed under the command of Commander-in Chief, Home Forces.⁵⁵³

Brancker's role as Trenchard's liaison officer and conduit to Henderson during the air campaign cannot be understated. As Henderson's deputy he provided sound council and recommendations or suggested solutions to the man-power problems as well as the number of squadrons that would be available for the RFC in France.⁵⁵⁴ When the training brigade could not provide aircraft or aircrew and in several cases entire squadrons per the agreed upon timelines, it was Brancker who delivered the bad news to Trenchard. His leadership skills along with his ability to negotiate with the other directorates within the War Office and just as importantly, within the Admiralty, would prove crucial both to Trenchard and the RFC and its ability to carry out the air campaign during the Battle of the Somme.

Each of the three key leaders of the RFC during the Battle of the Somme: Henderson, Trenchard, and Brancker, possessed different skills and competencies. All three played a significant role in organizing and developing the RFC from its beginnings through the first two years of the war. As the senior leaders of the army's air service they were also

⁵⁵² *Sir Sefton Brancker*, ed. Norman Macmillan, 138.

⁵⁵³ Air Historical Branch, *The Royal Air Force in the Great War*, 153.

⁵⁵⁴ As an example, in a letter to Trenchard dated 18 March, 1916, "At the end of March you will be short of 3 squadrons, 2 fighting reconnaissance and 1 single-seater fighter. According to our present promises, one fighting reconnaissance and one single-seater fighter will join you during April; so, bearing in mind your demand for 5 more squadrons in April, by the end of April your shortage will be 3 fighting reconnaissances, two artillery and one reconnaissance and bomber. As a feeble endeavor to make both ends meet I suggest that you should turn your 2 Vickers Squadrons into Artillery Squadrons which will convert your shortage into 5 fighting reconnaissances and 1 reconnaissance and bomber. This means that instead of there being 2 fighting reconnaissances to each army and 2 at General Headquarters there will be only 1 each." Brancker Papers, IWM.

responsible for setting the conditions for the RFC to regain air superiority as a prerequisite to the start of Britain's first major ground offensive of the war. It was these three same leaders who would also be responsible the successes as well as failures that occurred during the air campaign over the Somme as well as what took place in the air campaign that followed.

Chapter Four

**REGAINING THE INITIATIVE: THE RFC ASCENDANT,
APRIL-JUNE, 1916**

The British Plan for an Offensive on the Somme.

Within weeks of taking command of the BEF on 19 December, 1915, Haig was envisioning conducting an offensive campaign in the Flanders sector, specifically near Ypres, in the late spring of 1916.⁵⁵⁵ Haig's hopes for an offensive in Flanders were stillborn when the French Commander-in-Chief, General Joseph Joffre, proposed a British-French combined offensive in the Somme sector during a second conference between the Allied leaders at Joffre's headquarters at Chantilly.⁵⁵⁶ Joffre's plan called for the British to conduct a supporting attack north of the river Somme to force the Germans to expend their reserve units in that area while the French as the main effort attacked several months later south of the river.⁵⁵⁷

Though agreeable to a combined British-French offensive in the Somme area, Haig had no intention of allowing his armies to be a supporting effort in a 'wearing down' battle while the French remained in their trenches for weeks if not months.⁵⁵⁸ Instead he counter-proposed that the two armies conduct a simultaneous attack along the river Somme and the

⁵⁵⁵ On 8 and 16 January, 1916, Haig met with his chief of staff, Lieutenant General Sir Launcelot Kiggell, his deputy chief of staff, Major General Richard Butler and his army commanders and outlined his plan for an offensive operation to take place in the northern sector of the Western Front against Ypres. His initial intent was to conduct "(a) preliminary operations to wear out the Enemy and exhaust his reserves and (b) for a decisive attack made with the object of piercing the Enemy's lines of defence." See *Douglas Haig War Diaries and Letters, 1914-1918*, ed. Gary Sheffield and John Bourne, (London: Weidenfeld & Nicolson, 2005), 178. Haig's idea for his assault against Ypres in 1916 actually began to form when the Allied leaders held a meeting at Chantilly on 6 December, 1915, to discuss and plan for large-scale attacks by the French, British, Italians, and Russians on three different fronts. It was believed that by conducting these simultaneous assaults the Germans and their allies would be unable to assist or reinforce one another. The offensives were to take place in late spring early summer. See John Terraine, *Ordeal of Victory*, (Philadelphia: J. B. Lippincott Company, 1963), 182-183; and Gary Sheffield, *The Somme*, (London: Cassell, 2003), 12-13.

⁵⁵⁶ *The Private Papers of Douglas Haig, 1914-1919*, (ed.) Robert Blake, (London: Eyre & Spottiswoode, 1952), 129.

⁵⁵⁷ Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I*. (London: Macmillan and Company., Limited, 1932), 27-28. See also Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*, (Barnsley, England: Pen & Sword Books Limited), 138.

⁵⁵⁸ Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*, 138. See also Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I*, 129.

British would commit even more units to the operation. Joffre agreed to this proposal.⁵⁵⁹ On 1 March, the Fourth Army was formed with the expressed intent that it would be the main effort for the British offensive on the Somme. Haig selected General Sir Henry Rawlinson to be its commander.⁵⁶⁰ When the Fourth Army officially came into existence, it consisted of three corps and eight divisions with many of the subordinate brigades and battalions made up of Kitchener's 'New Army' soldiers.⁵⁶¹ By the time of the start of the Somme offensive it would grow to five corps with eighteen divisions and total of more than 400,000 men.⁵⁶²

When the German attack on Verdun began on 21 February, 1916, the French were forced to shift many of their divisions in the Somme sector to the southeast and as a result the British Third Army took over the sector vacated by the French Tenth Army.⁵⁶³ Rawlinson's Fourth Army then took control of the area between the Third Army and the Somme and over the course of the next four months occupied a twenty-mile front that stretched from Fonquevillers on the left (north) to Maricourt on the right (south).⁵⁶⁴

After providing his initial guidance to Rawlinson, Haig became perturbed over his subordinate's proposals for the offensive and recorded in his diary on 5 April:

His intention is merely to take the Enemy's First and Second system of trenches and 'kill Germans.' He looks upon the gaining of 3 or 4 kilometers more or less of ground immaterial. I think we can do better than this by aiming at getting as large a combined force of French and British across the Somme and fighting the enemy in the open.⁵⁶⁵

⁵⁵⁹ Letter from Haig to Joffre, 1 February, 1916, War Office Papers, NA.

⁵⁶⁰ John Terraine, *Ordeal of Victory*, (Philadelphia: J. B. Lippincott Company, 1963), 200.

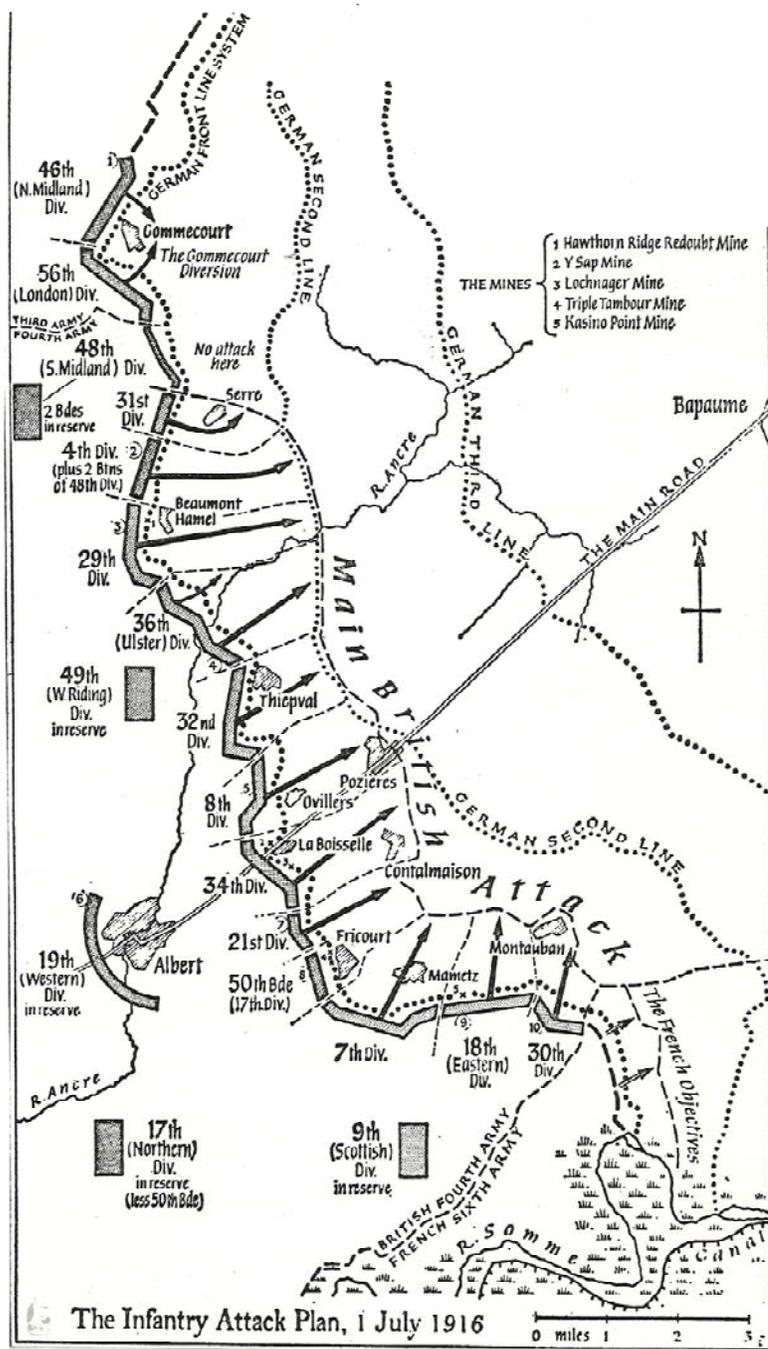
⁵⁶¹ A. H. Farrar-Hockley, *The Somme*, (London: Severn House Publishers, 1964), 50. See also Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I*. (London: Macmillan and Company., Limited, 1932), 39. Fourth Army would receive two more corps with an additional nine divisions before the start of the offensive.

⁵⁶² Robin Neillands, *Attrition: The Great War on the Western Front, 1916*, (London: Robson Books, 2001), 238.

⁵⁶³ Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I*, 39.

⁵⁶⁴ Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*, 139.

⁵⁶⁵ *Douglas Haig War Diaries and Letters, 1914-1918*, ed. Gary Sheffield and John Bourne, (London: Weidenfeld & Nicolson, 2005), 184.



Map 1: Fourth Army Plan of Attack for start of the Somme Offensive. (Martin Middlebrook, *The First Day on the Somme*, New York: W.W. Norton & Company, Inc., 1972), 66.

Simply put the plan that Rawlinson and Haig finally agreed upon after numerous changes and revisions, called for an attack by the Fourth Army on the north side of the River Somme to seize the high ground along the Thiepval-Pozières ridge on a ten-mile front from Montauban in the south to the River Ancre in the north, while the French Sixth Army attacked on the south side of the River Somme.⁵⁶⁶ (See Map 1). Once the initial objectives were captured, the Fourth Army would continue the attack until a breach occurred. The other three armies of the BEF: the First, Second and Third, were to conduct diversionary attacks along their fronts to prevent the German forces opposing them from reinforcing the German formations under attack by Rawlinson's army.⁵⁶⁷

The Beginning of the RFC's air campaign over the Somme

To support the Fourth Army's attack plan Trenchard coordinated with Haig, Rawlinson and his staff beginning in early April to identify and prioritize the missions that his Army and Corps squadrons should conduct to provide the best possible support to the Fourth Army in their preparations for the offensive.⁵⁶⁸ It was determined that in priority the Army squadrons would be required to conduct strategic reconnaissance and at the same time begin the process to achieve air superiority against the GAAS followed by long-range bombing of

⁵⁶⁶ *Great Battles of the British Army*, ed. David G. Chandler, (Chapel Hill: The University of North Carolina Press, 1991), 108. The changes and revisions were primarily the result of Haig believed that Rawlinson was being too cautious in his planning for a methodical, step-by-step attack which lacked both surprise and speed. Rawlinson's approach would later become known as 'bite and hold' operations. For further details on the differences of opinion over the initial Somme offensive planning between Haig and Rawlinson see Tim Travers, *The Killing Ground: The British Army, the Western Front and the Emergence of Modern Warfare, 1900-1918* (London: Allen & Unwin, Inc., 1987), 127-151; *Haig: A Reappraisal 70 Years On*, (ed.) Brian Bond and Nigel Cave, (Barnsley, England: Pen & Sword Books Ltd., 1999), 84-87; and Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*, (Barnsley, England: Pen & Sword Books Limited), 141-153.

⁵⁶⁷ Martin Middlebrook, *The First Day on the Somme*, (New York: W. W. Norton & Company, Inc., 1972), 71.

⁵⁶⁸ Andrew Boyle, *Trenchard: Man of Vision*, 178.

German communication networks. For the corps squadrons the priorities would be observe and direct counter-battery fire against German artillery followed by contact patrols with the infantry, close reconnaissance and special missions which consisted of destruction of enemy observation balloons, aerial photography as well as maintain a small tactical reserve missions to be determined by the RFC commander.⁵⁶⁹

The true start of the RFC's aerial offensive began in the first week of April when observation aircraft began to identify and target German artillery batteries opposite the Fourth Army.⁵⁷⁰ Simultaneously, the army and corps squadrons within the Third and Fourteenth Wing began to photograph every yard of ground in that same sector to assist Rawlinson and his staff in their planning for the upcoming offensive. Over a period of several weeks the German First and Second lines of trenches were completely photographed from the air.⁵⁷¹ RFC fighter aircraft were given the dual-task of protecting the corps and army aircraft from enemy attacks as well as preventing German observation and reconnaissance aircraft from venturing into British airspace where they could witness the gradual build-up of units and logistics that were obvious signals that a major attack was in the making.⁵⁷²

The process of taking a series of photographs from several thousand feet was both taxing and difficult. In many aircraft the pilot and not the observer had to take the photographs. The camera was located just outside the pilot's cockpit and to take the photograph the pilot had to lean out of his seat and look downwards through a ball sight while still flying the aircraft with his left hand and operate the camera with his right hand. An RFC pilot described the procedure.

⁵⁶⁹Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I.*, 268-269.

⁵⁷⁰Peter Hart, *Somme Success: The Royal Flying Corps and the Battle of the Somme, 1916*, (London: Pen & Sword Books Limited, 2001), 32. See also *WITA, Vol. II*, 173.

⁵⁷¹Air Historical Branch, *The RAF in the Great War*, 120. See also *WITA, Vol. II*, 196.

⁵⁷²Sir Robert Thompson, *The Royal Flying Corps*, 65.

As far as possible the whole of the German front line would be photographed for a depth of about a thousand yards every month. The cameras that we used for this work were box cameras with an infinite focus, containing an auxiliary magazine or changing box of twelve plates. As each of these plates was exposed, they were transferred into a second box by means of a sliding handle that worked on top of the camera. This handle reset the shutter for another exposure at the same time. The shutter release had a piece of cord attached to it so that the pilot might pull it easily with his thick-gloved hands.⁵⁷³

It took an expert to analyze a set of aerial photographs but by the period before the Somme offensive both BEF and RFC headquarters had sections that could locate man-made features with a great deal of accuracy.⁵⁷⁴ From these photographs maps would be made and then issued to the infantry and artillery units to assist them with their planning of operations.

Once the RFC converted to brigade sized elements in January, 1916, squadrons were allocated to the army wings which were best able to protect themselves. Air operations were becoming more and more specialized. Drawing on the lessons learned from the French *Aviation Militaire* at Verdun, in late April, Trenchard met with his brigade commanders and explained to them that it was his intent to remove all fighter aircraft from the corps squadrons and place them in squadrons assigned to the army wings.⁵⁷⁵ Although not fully completed by the opening of the Somme offensive two months later, it proved to be so effective that this re-organization of assets and units within the RFC became permanent for the remainder of the war.⁵⁷⁶ As winter turned to spring and new fighter squadrons arrived from England, the corps squadrons focused on accomplishing the missions of reconnaissance, photography, artillery observation, and bombing key targets in the German rear area opposite the British Fourth

⁵⁷³ Peter Hart, *Somme Success*, 27-28.

⁵⁷⁴ *WITA, Vol. II*, 177-178

⁵⁷⁵ Air Historical Branch, *The RAF in the Great War*, 120. See also *WITA, Vol. II*, 167-168.

⁵⁷⁶ *WITA, Vol. II*, 167-168. By the middle of August, 1916, all fighter aircraft had been removed from the corps squadrons.

Army while the army squadrons denied the GAAS from interfering with the corps squadron aircraft.⁵⁷⁷

Of the six missions given to the RFC prior to the beginning of the Somme offensive, the one that garnered the most attention initially from the Fourth Army commander was artillery observation and direction. At a conference in mid-April, 1916, he stated “Much more practice is still required with aircraft and artillery. There has been improvement, but not yet enough.”⁵⁷⁸ A pamphlet addressing the importance of cooperation between the RFC and the artillery most especially, had been written by the RFC staff in August, 1915 and revised and reissued to all units within the BEF in January, 1916.⁵⁷⁹ It stated that artillery programs had to be planned by the artillery commander of the counter-battery group in consultation with the squadron commander whose squadron was supporting him. Air observers were to discuss, plan, and rehearse every aspect of each day’s mission with the battery commander and then conduct an after action review upon returning from each aerial mission.⁵⁸⁰

During the winter and spring of 1916, the artillery and the RFC developed improved procedures that would serve them well in the coming battle. Several shortcomings were identified, the most critical being communications between the aircraft and units on the ground.⁵⁸¹ A drawback to wireless communications was that it could be jammed by the enemy or by overlapping messages sent out from other nearby aircraft. This limited the number of aircraft that could work with artillery units along any given length of the front.⁵⁸²

⁵⁷⁷ S. F. Wise. *Canadian Airmen and the First World War: The Official History of the Royal Canadian Air Force, Vol. 1*, (Toronto: University of Toronto Press, 1980), 362.

⁵⁷⁸ *WITA, Vol. II*, 174.

⁵⁷⁹ *Instructions Regarding The Co-Operation of Aeroplanes With Other Arms (Provisional)*, January, 1916, HMSO, RAFM.

⁵⁸⁰ *Ibid.*, 12-18.

⁵⁸¹ *WITA, Vol. II*, 173-175.

⁵⁸² *Ibid.*

The solution to both enemy and friendly jamming was to reduce the number of wireless messages to a minimum and by the invention of what was to be called the “clapper-break.”⁵⁸³ The British found that by varying the pitch or tone of the signal sent by the aerial observer, a ground operator could distinguish one aircraft from another working on the same wavelength. The wireless set used by the RFC normally gave off a high note. Once fitted with the clapper-break the set could be tuned to give off either a low or medium note. Two flights of each corps squadron were quickly equipped with ‘clapper-breaks,’ one with low note, the other medium.⁵⁸⁴ The third flight operated its wireless in normal mode without the new device. It was also found that the low note had longer range so that flight was assigned long-range work while the high note squadron was assigned to contact patrols. The significance of this device was instrumental in enabling the RFC to double the number of artillery observation aircraft over a given sector.⁵⁸⁵ In April, the Third Wing, whose personnel developed the ‘clapper-break,’ proved that one wireless aircraft could cover nearly 2,000 yards of trench line without fear of causing interference to another aircraft’s communication set.⁵⁸⁶

Another major step forward was the improvement of the ‘clock code’ for transmitting the call for fire from the aircraft to the firing battery. The ‘clock code’ was created by two RFC pilots at an artillery/RFC coordination conference in January, 1915.⁵⁸⁷ The artillerymen had wanted to continue using the original method of using signals of ‘left’, ‘right’, ‘short’, and ‘over’ but the airmen suggested using a new system—the hour positions on the clock. Using a transparent celluloid disc marked with six concentric circles signifying the distances from the target from 50 yards to 500, each circle was also identified by a letter (A, B, C, D, E, and

⁵⁸³ *WITA*, Vol. II, 173-175.

⁵⁸⁴ *Ibid.*, 174.

⁵⁸⁵ *Ibid.*, 175.

⁵⁸⁶ *Ibid.*

⁵⁸⁷ *Ibid.*, 86. See also Peter Mead, *The Eye in the Air: History of Air Observation and Reconnaissance for the Army, 1785-1945*, (London: Her Majesty’s Stationary Office, 1983), 103-104.

F).⁵⁸⁸ A set of radial lines on the disc numbered by the hours from the clock were used for direction. This allowed the observer to send a short coded message containing just a single letter and single number to represent the distance and direction that the round landed from the target. The ‘clock code’ used the standard army squared map which were lettered and numbered so that any location on the ground could be identified.⁵⁸⁹

The aerial observer placed the thin celluloid sheet over the map square with the target in the center of the clock at the juncture of the hands with twelve o’clock always pointed true north. Three o’clock represented due east, six o’clock due south and nine o’clock due west. If a round landed north of the target the observer signaled that it had landed at twelve o’clock. After actual experimentation in the field it was found that to ensure greater accuracy two additional circles were added at ten and twenty-five yards radius from the target with these circles being lettered Y and Z. From this starting point the relative position of each artillery round could then be provided by wireless from the airborne observer to the artillery battery, regardless of whether or not the observer knew the location of the battery.⁵⁹⁰ Thus “A9” sent via Morse code told the artillery battery that their rounds had landed 100 yards west of the target.

The ‘clock code’ was first used during the preliminary artillery bombardment at Neuve Chapelle but because of the inexperience of the artillery units working with wireless aircraft who were using the ‘clock code’ the effects achieved were limited at best.⁵⁹¹ However,

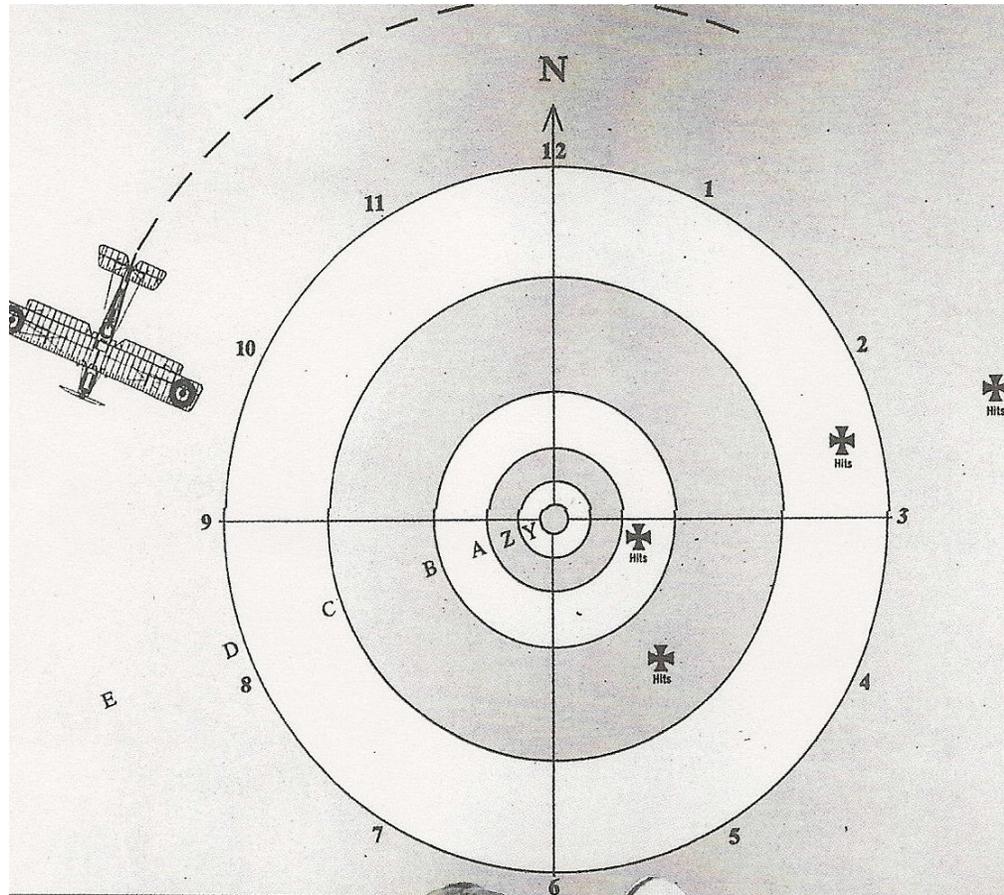
⁵⁸⁸ Geoffrey Norris, *The Royal Flying Corps: A History*, 114-115.

⁵⁸⁹ *Ibid.*, See also *WITA, Vol. I*, 342.

⁵⁹⁰ Captain Baron T. James and Captain Donald S. Lewis were the originators of the ‘clock code.’ Both did much to advance the use of wireless communications within the RFC in the first year of the war. During an artillery observation and direction mission, James was killed by anti-aircraft fire on 13 July, 1915. Lewis took command of Number 3 Squadron in April, 1915 and then took command of Second Wing in February 1916. Promoted to lieutenant colonel, he continued to fly over the enemy lines. He was also killed by anti-aircraft fire on 10 April, 1916. Geoffrey Norris, *The Royal Flying Corps: A History*, 114-115.

⁵⁹¹ *WITA, Vol. II*, 87.

both the artillery and the RFC realized that with more training the ‘clock code’ was simpler, faster and reduced the chances of error to practically zero. With slight modifications it became the standard system for directing artillery from the air for the remainder of the war.⁵⁹²



The ‘Clock Code’ used by the RFC for directing artillery fire from the air.

It was hoped by the senior British leadership, but most especially General Haig, that the Somme offensive would create a breakthrough of the German lines and lead to open

⁵⁹² <http://www.firstworldwar.com/airwar/observation>. Accessed on 1 February, 2010.

warfare.⁵⁹³ If this did occur the artillery batteries would be moved forward where they would have to fire on new and unknown targets versus the static enemy trenches and artillery positions they had been engaging for months prior to the battle.⁵⁹⁴ There would be little time for coordination between the batteries and the corps squadrons if a war of movement took place. Major E. R. Ludlow-Hewitt, commander of Number 3 Squadron, had been working on modifying the 'clock code.' His modification was the Zone Call for Fire and it was accepted and put into practice just weeks before the start of the offensive.⁵⁹⁵

Using the 'clock code' methodology, the Zone Call for Fire was based on the lettered squares of a 1/40,000 scale map. Each square was divided into four zones, lettered, for example A, B, C, and D. Each zone, covered an area of 3,000 yards square, had a two-letter identifier made up of the map square letter, followed by the zone letter.⁵⁹⁶ The aircraft observer sent his request for fire by using the particular zone in which the target was located. The artillery battery would only respond to those calls for fire in which their guns could fire into.⁵⁹⁷

The group artillery commander had a choice, depending on the mission or size of the target, to allow his subordinate batteries to fire upon receipt of a call for fire into their zone or he could retain control, giving instructions directly to battery commanders once he received the call from the aerial observer.⁵⁹⁸ The strength of the Zone Call for Fire was it ensured at any given point in time every sector of the battlefield was covered by supporting artillery units. Air observers, without knowing the locations of the batteries, could submit a request for fire

⁵⁹³ Peter H. Liddle, *The 1916 Battle of the Somme: A Reappraisal*, (London: Pen & Sword Books Ltd., 1992), 21. See also Tim Travers, *The Killing Ground: The British Army, The Western Front and the Emergence of Modern Warfare, 1900-1918*, (London: Unwin Hyman Ltd., 1987), 131.

⁵⁹⁴ Sir Martin Farndale, *History of the Royal Regiment of Artillery: Western Front, 1914-1918*, (Dorchester, England: Henry Ling Limited, 1986), 141-146.

⁵⁹⁵ *WITA*, Vol. II, 175-176.

⁵⁹⁶ *Ibid.*

⁵⁹⁷ *Ibid.*

⁵⁹⁸ *Ibid.*

and then provide the corrections. It reduced the requirement for liaison between RFC crews and artillerymen to a minimum and eliminated any confusion which could arise due to problems of communications while the ground forces were on the move.⁵⁹⁹ Although the Somme would not bring about the war of movement the British hoped for, the Zone Call for Fire would be used throughout the five month campaign with much success.⁶⁰⁰

Beside using aircraft to observe and direct artillery fire, kite balloons were an important asset that had gained increasing use within the RFC. Having learned from the French Air Service about their successful employment of balloons, Haig and Trenchard directed an increase in the number of balloons available to the BEF.⁶⁰¹ By the summer of 1915 the RFC had received fourteen kite balloons from the RNAS and had positioned them along the British Army's sector of the Western Front.⁶⁰² The major advantage of the kite balloon over the airplane was that it could remain in the air continuously for long periods of time and only needed to be lowered to the ground to change out observers or escape from enemy air attacks.⁶⁰³ Each balloon was supported with its own vehicle section as well as an engine operated winch, both of which allowed the balloon to be moved to different locations of the front as required.⁶⁰⁴

⁵⁹⁹ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 89.

⁶⁰⁰ *WITA, Vol. II*, 175-176. As a captain in November 1915, Edgar R. Ludlow-Hewitt served as a flight commander in Number 1 Squadron and then took command of Number 3 Squadron. He commanded IV Brigade's III (Corps) Wing during the air campaign over the Somme. He would retire after the Second World War as an Air Chief Marshal, Royal Air Force.

⁶⁰¹ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, (London: Constable and Company, Ltd., 1994), 89.

⁶⁰² Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 91.

⁶⁰³ *WITA, Vol. II*, 34. See also Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 87.

⁶⁰⁴ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 89.



An RFC Observation Balloon on the Western Front in 1916. (IWM Q11864)

Balloon observers usually were teamed in pairs and operated from a basket that suspended from the kite balloon which was tethered at a height of between 1,000 and 1,500 feet within a few kilometers of the front lines.⁶⁰⁵ A telephone line provided them direct access to the artillery batteries they supported and when conducting observation and direction of artillery fire the balloon observers used the same ‘clock code’ methodology that aircraft observers used.⁶⁰⁶ The Germans used kite balloons in much the same way in France and Flanders and this made balloons lucrative targets. Fighter aircraft who were often directed to remove ‘the eye in the sky’ that kite balloons provided.⁶⁰⁷ Because the balloon observers were unarmed Trenchard directed that they be equipped with parachutes.⁶⁰⁸

⁶⁰⁵ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 89.

⁶⁰⁶ Ibid.

⁶⁰⁷ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 90. See also Lee Kennett, *The First Air War, 1914-1918*, 27.

⁶⁰⁸ Andrew Boyle, *Trenchard: Man of Vision*, 200-201. See also Lee Kennett, *The First Air War, 1914-1918*, 27-28.



RFC Balloon observer's preparing to ascend. The canvas bag contains the parachute for the observer on the left. <http://www.firstworldwar.com/airwar/observation>

The RFC used the C. G. Spencer Static Line (Automatic) type parachute which was attached to the outside of the basket as it was too large to be worn by the observer. The parachute was contained within an elongated wicker container and when the observer jumped from the basket his downward fall pulled the canopy from its case. Because of the overly large size of the parachute it would not fit within the confines of an aircraft's cockpit, and for this practical reason as well as several others that were fallacious at best, RFC aircrew were not issued

parachutes.⁶⁰⁹ A secondary reason given by senior army leaders was that since both pilot and observer were armed with machine guns to defend themselves they did not require parachutes and should thus stay with their aircraft to the bitter end. This flawed logic and decision making would cost thousands of British, French, and American as well as German airmen their lives by war's end.⁶¹⁰

Both Rawlinson and Trenchard agreed that the use of airborne contact patrols would also be an important task for the RFC once the battle began.⁶¹¹ It was hoped that the contact patrols would assist the corps and division commanders and their staffs by providing the locations of units during the initial and subsequent assaults. During April and May, 1916 the Fourth Army and the RFC conducted numerous training exercises together, rehearsing for the upcoming offensive.⁶¹² On 26 May, Rawlinson's headquarters published instructions for contact patrols which would allow the ground units to identify aircraft in this role.⁶¹³ The aircraft would bear distinctive markings: broad black bands painted underneath the lower wing and blue streamers attached to the wing struts, were to have the sole duty of tactical observation of the battlefield, reporting directly to army corps headquarters. The infantry were

⁶⁰⁹ Arthur Gould Lee, *No Parachute: A Fighter pilot in World War I*, (New York: Harper & Row, Publishers, 1970), 219-225.

⁶¹⁰ By Between late 1917 and mid-1918 the German *Luftstreitkräfte* began to issue parachutes to aircrew and many lives were saved from certain death when their aircraft caught fire or were so badly damaged they crashed. Ernst Udet, future deputy to Luftwaffe Marshal Hermann Goering in the Second World War, was saved by a parachute in June, 1918 when he was compelled to jump from his damaged and out of control aircraft. Arthur Gould Lee, a British fighter pilot in the First World War addressed this contentious topic in his classic work *No Parachute: A Fighter Pilot in World War I*. His focus was primarily on the War Office's decision not to issue parachutes to British airmen. He laid the blame for not mandating the use of parachutes on the senior army and RFC leaders who ignored or never approved the testing and issuance of a suitable parachute, even though actual demonstrations of parachute descents from balloons and aircraft had been done as early as 1912 in both the United States and Britain. Lee identifies General's Henderson, Charlton and Groves as having ignored the capabilities of the parachute or worse still informing senior military and political leaders in the War Office that British aircrew did not want to use parachutes. Lee does not condemn Trenchard on the subject since the RFC commander provided parachutes for balloon observers and authorized the use of parachutes for dropping spies behind the German lines.

⁶¹¹ *WITA*, Vol. II, 179-181.

⁶¹² *Provisional Instructions for Contact Work*, IV Army Headquarters, 26 May, 1916, RAFM.

⁶¹³ *Ibid.*

to indicate their progress by lighting flares as directed by the company commander or as far down the chain of command as the section commander. Certain infantry units would also have small mirrors or small triangular tin sheets tied onto soldier's packs. It was hoped that sunlight reflecting off the tin would allow an air observer to follow the advance. Of course this system would only prove feasible if the attacks took place on a sunny day.⁶¹⁴

Aircraft would also receive messages from battalion and brigade headquarters via lamps or other ground signals. The air observer, besides transmitting information signaled from ground units, was also to keep corps headquarters informed of enemy movements during the preliminary bombardment, the progress of advancing friendly forces and the movement of enemy reserves and the staging of counterattacks.⁶¹⁵

A code was also established between the RFC and all ground headquarters using signal panels.⁶¹⁶ There were several available. The first consisted of large Louvre shutters of six to eight laths painted white on one side and neutral on the other. The laths were connected by tapes and the ground operator could work his tapes so as to expose the white side of the laths to spell out a message using Morse code. In training it was found that a message could be read up to a height of six thousand feet.⁶¹⁷ Another consisted of a simple canvas sheet staked to the ground with a series of colored panels painted dark green on one side or white on the other allowing the sender to send messages using Morse code. Under actual combat conditions the infantry put themselves at great risk to use this marking system and the dust and smoke caused by artillery fire often times obscured the panels from the searching airmen.⁶¹⁸

⁶¹⁴ *Provisional Instructions for Contact Work*, IV Army Headquarters, 26 May, 1916, RAFM.

See also *WITA*, Vol. II, 180.

⁶¹⁵ Air Historical Branch, *The Royal Air Force in the Great War*, 116-118.

⁶¹⁶ *WITA*, Vol. II, 180.

⁶¹⁷ *Ibid.* see also Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 90.

⁶¹⁸ Air Historical Branch, *The Royal Air Force in the Great War*, 119.

In training and in combat, balloon observers could spot a moving column of infantry or artillery up to 12,000 yards away. Flares could be seen out to 7,000 yards.⁶¹⁹ Because of this Rawlinson requested that three kite balloon sections be attached to his army to support his attack.⁶²⁰

A distinct mission for the RFC that would prove of great benefit to Rawlinson and his army, both before and during the upcoming battle, was that of bombing.⁶²¹ In November and December, 1915, 3 Wing, RFC had conducted several bombing operations against German logistic and rail centers in the Somme area with surprising success.⁶²² After Trenchard's edict to conduct formation flying, RFC squadrons began to concentrate all available aircraft of the wing to bomb a single target.⁶²³ This was a major change over previous raids where a squadron would attack multiple objectives by assigning two or three aircraft to each target. Now mass bombing of a single target became doctrine.⁶²⁴

Trenchard believed that if the objective was not more than thirty miles behind enemy lines, the bombers would be adequately protected by fighters flying patrols between the bombers and enemy airfields.⁶²⁵ His subordinate commanders believed that the bombers, minus the observer, could carry additional bombs and did not require escorts.⁶²⁶ If the objective was more than thirty miles away, two out of every ten bombers would carry an observer with two Lewis machine guns instead of a bomb load to provide protection for the

⁶¹⁹ *WITA, Vol. II*, 181.

⁶²⁰ Air Historical Branch, *The Royal Air Force in the Great War*, 119-120.

⁶²¹ *Ibid.*, 121.

⁶²² Andrew Boyle, *Trenchard: Man of Vision*, 149. See also Air Historical Branch, *The Royal Air Force in the Great War*, 54.

⁶²³ *WITA, Vol. II*, 181.

⁶²⁴ *Ibid.*

⁶²⁵ Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM. See also *WITA, Vol. II*, 181-182.

⁶²⁶ *Some Notes on Bombing Attacks*, RFC HQ, 21 December, 1915, HMSO, RAFM.

bombers.⁶²⁷ By the middle of March, 1916 squadrons assigned bombing missions increased from fourteen aircraft to thirty-one (twenty three bombers and eight escorts).⁶²⁸

A month prior to this, Haig had given Trenchard permission to conduct night bombing operations against targets not more than six miles behind the German lines.⁶²⁹ Because of the inherent dangers with flying and navigating at night, Trenchard placed a constraint on his squadrons. He directed that until all crews were trained in night operations, no more than two aircraft per night from each army wing could conduct night bombing missions.⁶³⁰ Limited night bombing operations were carried out prior to the start of the Somme offensive but because of generally poor weather and the shortage of trained pilots Trenchard husbanded his resources on accomplishing those missions that more directly supported ground operations.⁶³¹ This would change once the battle began.

While the corps squadrons focused on carrying out their aerial reconnaissance, photography, artillery observation and direction and bombing missions, the army wing squadrons began the deadly struggle for air superiority as Trenchard had ordered.⁶³² Only by accomplishing this difficult task would the RFC be able to complete its other missions, and in doing so assist the Fourth Army in its upcoming offensive.

Since late January, 1916, the RFC had been receiving new squadrons that had been organized and trained as fighter units to engage the GAAS and end the 'Fokker Scrouge.' On 23 January, Number 20 Squadron, the first to be fully equipped with the FE 2b, arrived in

⁶²⁷ WITA, Vol. II, 182-183.

⁶²⁸ Ibid.

⁶²⁹ Ibid.

⁶³⁰ Ibid.

⁶³¹ Sir Robert Saundby, *Air Bombardment: The Story of its Development*, (New York; Harper & Brothers, 1961), 14.

⁶³² Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 85-87. See also Air Historical Branch, *The Royal Air Force in the Great War*, 114-116.

France.⁶³³ Number 24 Squadron, equipped with Britain's first single-seat fighter aircraft, the de Havilland DH 2, arrived in France two weeks later on 7 February; followed by Number 25 Squadron (FE 2b's) on 20 February.⁶³⁴ Two more fighter squadrons, Number 29 Squadron (DH 2's) and Number 23 Squadron (FE 2b's) arrived on 16 and 25 March respectively.⁶³⁵



Britain's first single-seat fighter aircraft: de Havilland DH 2. (IWM Q67534)

When the FE 2b and the DH 2 had been designed, the British did not have an interrupter gear that allowed a machine gun to fire through a forward mounted propeller. Thus, they followed the conventional design of pusher aircraft: a nacelle which accommodated the pilot (or in the case of the FE 2b a pilot and observer/gunner), instrument panel, weapons and a rear mounted engine.⁶³⁶ The FE 2b had a 120 horsepower Beardmore engine while the DH 2 had a 100-horsepower Monosoupape rotary engine, with the tailplane and rudder carried by

⁶³³ Air Historical Branch, *The Royal Air Force in the Great War*, 114.

⁶³⁴ Trevor Henshaw, *The Sky Their Battlefield*, 71- 72.

⁶³⁵ *Ibid.*, 76-77.

⁶³⁶ Terry Treadwell and Edward Shacklady, *Classic World War I Aircraft Profiles*, (Bristol, England: Cerberus Publishing Limited. 2002), 150-159; and J. M. Bruce, *RAF FE2b*, (Hertfordshire, England: Albatros Productions, Ltd., 1989), 2-5. See also Jon Guttman, *Pusher Aces of World War I*, (Oxford, England: Osprey Publishing, 2009), 22-34.

converging booms from the top and bottom mainplanes on both aircraft.⁶³⁷ The armament for the DH 2 was a single .303 Lewis machine gun while the FE 2b had two or three Lewis machine guns for the observer to use in either a sitting or standing position.⁶³⁸



Royal Aircraft Factory FE 2b. Before the war the FE stood for Farman Experimental. By the time it reached the Western Front it stood for Fighter Experimental. (IWM Q69651)

Leading the RFC's efforts to gain air superiority was Number 24 Squadron commanded by Major Lanoe G. Hawker, winner of Britain's highest award for gallantry in combat, the Victoria Cross. He had received this honor for single handedly shooting down two German aircraft in one day on 25 July, 1915.⁶³⁹ He was the first RFC fighter pilot to win this award in the First World War and prior to the Somme offensive was one of the most experienced combat leaders in the RFC.⁶⁴⁰

⁶³⁷ Terry Treadwell and Edward Shacklady, *Classic World War I Aircraft Profiles*, (Bristol, England: Cerberus Publishing Limited, 2002), 150-159.

⁶³⁸ Ibid.

⁶³⁹ Tyrrel M. Hawker, *Hawker, V.C. The Biography of the late Major Lanoe George Hawker, V. C., D.S.O.*, (London: The Mitre Press, 1965), 98-104.

⁶⁴⁰ Alex Revell, *Victoria Cross: WWI Airmen and Their Aircraft*, (Stratford, CT: Flying Machine Press, 1997), 28-33.

While the *GAAS* focused on Verdun, Hawker spent days and weeks training his pilots in tactics and formation flying.⁶⁴¹ Trenchard had directed that due to their combat leadership and experience, squadron commanders were not allowed to take part in contact patrols or operational flights against the enemy.⁶⁴² Though constrained by this restriction, Hawker like most of his fellow squadron commander's, still flew an occasional patrol, allowing his subordinate flight commanders to lead while he flew as just another pilot in the formation.⁶⁴³

Hawker found that commanding a fighter squadron was rewarding despite the numerous challenges of administration and personnel problems that confronted him on a daily basis. He also understood that the orders he received from wing headquarters which directed he provide escorts for deep reconnaissance designated urgent, despite terrible weather were the result of insistent and sometimes unreasonable demands from the army which Trenchard would never disapprove.⁶⁴⁴

Hawker had many strengths: he was an operational pilot, an excellent trainer, a tactician, and an innovator; among the many things he developed for use by his pilots and observers were a more practicable gun mount for the Lewis gun, an improved gun sight, and thigh high fur boots for DH 2 pilots who easily suffered near frostbite from the intense cold in their open cockpits.⁶⁴⁵ He originated the de-briefing sessions that became standard procedure

⁶⁴¹ Tyrrel M. Hawker, *Hawker, V.C.*, 139-154.

⁶⁴² The month before he deployed his squadron to France, Hawker wrote: "I should certainly be in France by March, and glad I'll be to get back again, but remember shell-dodging isn't my job now. I'm strictly forbidden to cross the lines, squadron commanders being (I suppose) too valuable." Hawker diary entry, 15 January, 1916, Tyrrel M. Hawker, *Hawker, V.C.: The Biography of the late Major Lanoe George Hawker, V. C., D.S.O.* (London: The Mitre Press, 1965), 133.

⁶⁴³ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 148.

See also Tyrrel M. Hawker, *Hawker, V.C. The Biography of the late Major Lanoe George Hawker, V. C., D.S.O.*, 98-104.

⁶⁴⁴ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 148.

⁶⁴⁵ Tyrrel M. Hawker, *Hawker, V.C. The Biography of the late Major Lanoe George Hawker, V. C., D.S.O.*, 147-154. See also Jon Guttman, *Pusher Aces of World War I*, (Oxford, England: Osprey Publishing, 2009), 30-32.

in the RFC after every flight.⁶⁴⁶ He was popular and well known throughout the RFC and had become the model for every British fighter pilot.⁶⁴⁷



Major Lanoe G. Hawker, VC, DSO. (IWM Q67598)

On 2 April, 1916, Number 24 Squadron achieved its first of many victories under Hawker before and during the Battle of the Somme. Lieutenants Tidmarsh and Sibley shot down an Albatros two-seater but it would be nearly three more weeks before the squadron had their first combats with the Fokker Eindecker.⁶⁴⁸ Three weeks later on 25 April, Hawker's men finally met the Fokker Eindecker in combat. While escorting five BE 2c's from Number 13 Squadron on a reconnaissance mission, four DH 2's led by Lieutenant J. O. Andrews attacked a single Eindecker 10,000 feet over German held Bapaume. The Eindecker dove away and avoided combat. Rejoining the BE 2c's, the British fighters were attacked by three newly

⁶⁴⁶Tyrrel M. Hawker, *Hawker, V.C. The Biography of the late Major Lanoe George Hawker, V. C., D.S.O.*, 132-135.

⁶⁴⁷Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 147-148. See also Alex Revell, *Victoria Cross: WWI Airmen and Their Aircraft*, 30.

⁶⁴⁸Alex Revell, *British Fighter Units: Western Front, 1914-1916*, (London: Osprey Publishing Ltd., 1978), 13. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 140.

arrived Eindeckers. In his DH 2 Lieutenant S. E. Cowan was set upon by two German fighters.⁶⁴⁹ He outmaneuvered one of the Fokkers by flying in an upward spiral. He then found himself below a second Fokker. He elevated his Lewis gun and fired more than 20 rounds into the German aircraft. Cowan easily climbed upwards and got on the tail of the enemy machine, emptying the remainder of his drum of ammunition and loading a fresh one. His DH 2 was being badly bumped around in the Fokker's slipstream and he found it difficult to aim and fire properly. The German pilot was desperately trying to shake his pursuer off his tail. The German banked vertically, side-slipped, and then dove 500 feet before flattening out and heading east as fast as his aircraft would go. Cowan did not know that he, a relative new pilot to air combat and the Western Front had just bested in aerial combat the infamous Leutnant Max Immelmann, then the top-scoring Fokker pilot with 14 victories.⁶⁵⁰ The German fighters had the advantage in both the dive and in climbing capability but the DH 2 could out-turn it without losing much height much to the surprise of Leutnant Max Immelmann of *Flieger Abteilung 62*.

I had a nasty fight in the air today. I took off at about 11am and met two English biplanes southward of Bapaume. I was about 700 metres higher and therefore came up with them very quickly and attacked one. He seemed to heel over after a few shots, but unfortunately I was mistaken. The two worked splendidly together in the course of the fight and put eleven shots into my machine. The petrol tank, the struts on the fuselage, the undercarriage and the propeller were hit. I could only save myself by a nose-dive of 1,000 metres. Then at last the two of them left me alone. It was not a nice business.⁶⁵¹

⁶⁴⁹ Alex Revell, *British Fighter Units: Western Front, 1914-1916*, (London: Osprey Publishing Ltd., 1978), 13.

⁶⁵⁰ A. E. Illingworth, *A History of Number 24 Squadron*. (London: Department of Printed Books, Imperial War Museum, NPD), 15. See also Alex Revell, *British Fighter Units: Western Front 1914-1916*. (London: Osprey Publishing, 1978), 13-14.

⁶⁵¹ Letter from Leutnant Max Immelmann, 25 April, 1916. Franz Immelmann, *Immelmann: The Eagle of Lille*. (London: John Hamilton Ltd., 1935), 194.

This action, one of many that occurred during April and May, 1916, demonstrated without a doubt, to both the British and the Germans, that the Fokker Eindecker was no match for the agile DH 2.⁶⁵²

While Cowan's air to air combat was taking place the crews of the BE 2c's were able to conduct a detailed reconnaissance unmolested and discovered that the Germans were building a third line trench system opposite the Fourth Army's sector. They also reported that many of the towns and villages in that same sector were being fortified.⁶⁵³ Reporting back with this information, several other aircraft were tasked to immediately photograph this entirely new trench system.⁶⁵⁴

The FE 2b also fought many air to air combats during this period and it too more than held its own against the best the GAAS could put in the air. One German fighter pilot had this to say about the British aircraft:

The techniques and tactics of the English were amazing, their main principle being that each machine could not look after itself but its partner. Each one therefore protected the other against any attack by their German opponents, and each pair tried to attack the same foeman. . . . The Englishmen refused to be rushed and their steadiness gave them an absolute superiority. Meanwhile our machines tried to break their formation by a series of advances and retreats, like dogs attacking a hedgehog. They pirouetted and spiraled, but their movements exposed them to more risks than their opponents, who appeared to be invulnerable and unassailable.⁶⁵⁵

More importantly, by the end of April, Trenchard's tactics produced the visible results he required to demonstrate to both the army commanders and the political leaders back in England that the RFC was gaining control of the sky over the Somme as well as Flanders. From 1 February to 30 April, the RFC shot down or destroyed 42 German aircraft for the loss

⁶⁵² Alex Revell, *British Fighter Units: Western Front 1914-1916*. (London: Osprey Publishing, 1978), 14.

⁶⁵³ *WITA, Vol. II*, 196-197.

⁶⁵⁴ *Ibid.*

⁶⁵⁵ Hans Schroder, *A German Airman Remembers*, (London: Greenhill Books, 1986), 229.

of 32.⁶⁵⁶ This was considered an acceptable ratio by Trenchard but also illustrates that the war in the air, like that on the ground, had become a war of attrition.

Also of great importance to the RFC was the fact that in April a new two-seater tractor biplane arrived in France. This was the Sopwith 1 and 1/2 Strutter. Initially armed with the standard Lewis machine gun for the observer, it had performed so well during its initially testing that it was chosen to be the first British aircraft to be equipped with the newly developed interrupter gear, which allowed a nose mounted Vickers machine gun to fire through the propeller.⁶⁵⁷



Sopwith 1 and 1/2 Strutter two-seater aircraft. This was the RFC's first aircraft to be equipped with a synchronization mechanism to allow the pilot to fire his machine-gun through the propeller arc. (IWM Q67507)

Trenchard was pleased to learn of the Sopwith's capabilities and even more pleased when notified that a flight from RNAS Number 70 Squadron, equipped with the Sopwith 1

⁶⁵⁶Terry C. Treadwell and Alan C. Wood, *The First Air War: A Pictorial History, 1914-1919* (London: Brassey's, 1996), 62.

⁶⁵⁷The first British aircraft that was equipped with a synchronizing gear was the Bristol Scout which arrived in France on 25 March, 1916. On 8 April, the RFC finally captured a Fokker Eindecker with its interrupter gear intact, when the machine made a forced landing behind the British lines. It was a little too late, for by then the British had solved the riddle of firing through a propeller safely. Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 139. See also *WITA, Vol. II*, 162.

and 1/2 Strutter would be attached to the RFC by mid-May.⁶⁵⁸ The additional two flights of eight Sopwith's were expected to deploy to France in June.⁶⁵⁹ More good news for the RFC came in the way of sheer numbers. From the start of the war through the middle of 1915 squadrons had been organized and equipped with 12 aircraft. Trenchard's recommendation to increase all squadrons to 18 aircraft had been approved in late 1915 and by the spring of 1916, all squadrons on the Western Front were in the process of receiving the additional aircraft as the air campaign began.⁶⁶⁰ The squadrons within 4th Wing who were to support Rawlinson's Fourth Army were given first priority of receiving the new aircraft and pilots.⁶⁶¹

While this was taking place the French fielded the Nieuport 11, an outstanding V strut, tractor sesquiplane (a biplane with the upper wing-span greater than the lower). It was small in size, very fast (ten miles an hour faster than any RFC aircraft at the time) and had an excellent rate of climb (10,000 feet in 10 ½ minutes). It was armed with a Lewis gun on its top wing, which fired over the propeller arc. The Nieuport 11 had great success against the Germans over Verdun and because of this the RFC immediately purchased six of these fighters.⁶⁶² Number 1 and Number 11 Squadrons were the first to receive the Nieuport and by the end of summer, three RFC squadrons would be equipped with Nieuport 11's and the more improved Nieuport 16 and 17.⁶⁶³

⁶⁵⁸ *WITA, Vol. II*, 162.

⁶⁵⁹ War Office Directive, 25 April, 1916; Trenchard Papers, RAFM. See also AIR 1/176 and AIR 1/694, NA. A Flight arrived on 25 May and B Flight on 29 June. C Flight did not arrive until 30 July.

⁶⁶⁰ *WITA, Vol. II*, 196.

⁶⁶¹ *Ibid.*

⁶⁶² Jack Hennis and Bob Pearson, *Aircraft of World War I, 1914-1918*, (London: Amber Books Ltd., 2010), 31

⁶⁶³ Number's 1, 32, and 60 Squadrons. The Nieuport 11 was powered by a 80 h.p. Gnome or Le Rhone rotary engine. Just before the start of the air offensive over the Somme, the RFC received the Nieuport 16 which was powered by a 110 h. p. Le Rhone engine and mounted a synchronized Vickers machine gun which replaced the over the wing Lewis machine gun. The Nieuport 16 was also capable of carrying six to eight Le Prieur rockets on the interplane struts and had some success shooting down German observation balloons before and during the Battle of the Somme. The Nieuport 17 was very similar to the Nieuport 16 but had an increased wingspan as its major difference. It proved to be one of the most 'successful and popular' fighter aircraft of the First World War. At least 527 Nieuport 17's

Air combat between Number 24 Squadron and several squadrons of German fighter and observation planes became much more numerous as the spring weather improved, especially in May.⁶⁶⁴ Lieutenant Cowan shot down an Albatros two-seater on 4 May.⁶⁶⁵ During this same air combat his thumb switch jammed, stopping the engine and forcing him to land behind the German lines. Fortunately the impact of landing corrected the malfunction and he was able to take off before being captured by German infantry.⁶⁶⁶ On 20 May two DH 2's piloted by Lieutenants Tidmarsh and Wilson also of Number 24 Squadron joined in the attack by Captain Summers of Number 22 Squadron against a lone Albatros two-seater. Lieutenant Tidmarsh was credited with destroying the enemy aircraft after it crashed in flames.⁶⁶⁷ During this same patrol, Lieutenant Wilson shot down another German aircraft, which crashed in flames into the British lines south of Maricourt.⁶⁶⁸

By mid-May the RFC began to gain dominance along the British sector of the Western Front.⁶⁶⁹ On 23 May, Sir Henry Rawlinson, commander of the Fourth Army, sent a note to Haig recapping air operations in his sector. He was convinced that the RFC had achieved aerial superiority in the skies over the Fourth Army front.

It was about the first week of May that we sent out our reconnaissance over Bapaume escorted by the de Havilland machines. Up to that time we had been carefully training our young pilots and it was not till then that Ashmore thought them sufficiently expert to take on the Fokkers. In carrying out the reconnaissances they were attacked by the Fokkers and rendered a good account of themselves for they reported that on the first occasion they sent two Fokkers to earth in a damaged condition and on the second

served with the RFC and RNAS. *WITA*, Vol. 2, 161. See also Francis Crosby, *A Handbook of Fighter Aircraft*, (London: Anness Publishing Limited, 2003), 120-121; and Kenneth Munson, *Fighters, 1914-19: Attack and Training Aircraft*, (London: Blandford Press, Ltd., 1968), 137-139.

⁶⁶⁴ A. E. Illingworth, *A History of Number 24 Squadron*, 15. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 145-156.

⁶⁶⁵ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 146-147.

⁶⁶⁶ *Ibid.*

⁶⁶⁷ *Ibid.*, 151.

⁶⁶⁸ *Ibid.*

⁶⁶⁹ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 151. Cole notes that by 20 May "the growing RFC superiority was indicated by combats in which up to three British aircraft were available to deal with a single enemy machine."

they destroyed another which fell in the town of Bapaume and was smashed against some houses. All three of these machines fell of course in the enemy's lines so we have no certain information of what actually happened to them. But the fact remains that since this occurrence we have successfully photographed the whole of the enemy's trenches in front of the Fourth Army, the first line, over a front of more than twenty miles without being once attacked by the Fokkers. This was done on the 15th, 16th, 17th, and 18th May and clearly shows that for the moment at any rate we have command of the air by day on the Fourth Army front. I cannot speak too highly of the work of these young pilots, most of whom have recently come out from England, and the de Havilland machine has unquestionably proved itself superior to the Fokker in speed, maneuver, climbing, and general fighting efficiency.⁶⁷⁰

Rawlinson's assessment was accurate. After nine months the "Fokker Scrouge" was officially over. Largely due to a combination of the hard work and dedication of the RFC aircrews and the introduction of the DH 2 and FE 2b aircraft, the RFC had achieved aerial superiority over the Somme six weeks before the start of the ground offensive.⁶⁷¹ Whether it could maintain that superiority during the upcoming offensive was yet to be determined.

Though the RFC had a distinct advantage in numbers of aircraft and aircrew over the GAAS in the Somme sector, Trenchard realized that numbers were only one factor in the equation of maintaining air superiority once the battle began.⁶⁷² He was still very much concerned about the lack of trained aircrews.⁶⁷³ The RFC on the Western Front received on average ten pilots a week which barely replaced even a low number of casualties, and it was hardly comforting to know that most of these replacements had only the minimum allowable 15 hours of flight time upon reaching their squadrons.⁶⁷⁴ When notified that pilots from Number 32 Squadron were being transferred to Number 29 Squadron to bring it up to strength

⁶⁷⁰ Letter from Rawlinson to Haig, 23 May, 1916. Rawlinson Papers, NA. See also *WITA, Vol. II*, 160-161.

⁶⁷¹ Tyrrel M. Hawker, *Hawker, V.C. The Biography of the late Major Lanoe George Hawker, V. C., D.S.O.*, 168. See also Geoffrey Norris, *The Royal Flying Corps, A History*, 154-155; and Sir Robert Thompson, *The Royal Flying Corps*, 65.

⁶⁷² Andrew Boyle, *Trenchard: Man of Vision*, 179. See also *Sir Sefton Brancker*, ed. Norman Macmillan, 131.

⁶⁷³ Letter from Trenchard to Brancker, 8 March, 1916, Trenchard Papers, MFC 76/1/5, RAFM.

⁶⁷⁴ Air Historical Branch, *The Royal Air Force in the Great War*, 154. See also John H. Marrow, Jr., *The Great War in the Air*, 167.

which would result in Number 32 Squadron missing its deployment date to France, Trenchard vented his anger and frustration in a letter to Brancker.⁶⁷⁵ It would not be the last time that a shortage of trained pilots would impact a squadron's ability to deploy to France. The issue of trained aircrew would be one of Trenchard's top concerns throughout the spring but most especially in the month prior to the start of the offensive.⁶⁷⁶ In many of the letters and communiqués exchanged between Trenchard and Brancker between April through June and even after the Somme offensive got underway, the topic of both the number and the qualifications of aircrew were discussed, sometimes quite heatedly.⁶⁷⁷ The issue became even more contentious when the War Office approved Trenchard's recommendation to increase the number of aircraft in each squadron from 12 to 18 aircraft. The Training Wing back in Britain was nearly overwhelmed fighting their own battle to replace the casualties in France as well as provide men for the new squadrons being formed.⁶⁷⁸ No other issue caused Trenchard more concern than whether or not he would have enough trained aircrew to conduct the air campaign that he and his staff had planned so diligently to support Rawlinson's Fourth Army.⁶⁷⁹

On 11 June, the French liaison officer to BEF headquarters notified Haig that the situation at Verdun was desperate and that Joffre requested that the start date for the British offensive on the Somme be moved up from 1 July to 25 June, which meant the artillery

⁶⁷⁵Letter from Trenchard to Brancker, 10 April, 1916, Trenchard Papers, MFC 76/1/26, RAFM. In the same letter Trenchard notified Brancker that "I do not know what pilots you took away from No. 32 for No. 29, as the reserve pilot that came out with No. 29 had never been in a De Havilland. Another pilot smashed four machines so I am returning him for further training."

⁶⁷⁶Autobiographical Notes, Trenchard Papers, MFC, 76/1/76, RAFM.

⁶⁷⁷*Sir Sefton Brancker*, ed. Norman Macmillan, 118-119.

⁶⁷⁸Letter from Brancker to Trenchard, 13 March, 1916, Trenchard Papers, MFC 76/1/76, RAFM.

⁶⁷⁹Andrew Boyle, *Trenchard: Man of Vision*, 189. See also John H. Marrow, Jr., *The Great War in the Air*, 167.

bombardment needed to begin five days prior.⁶⁸⁰ Haig directed Rawlinson to prepare to attack on 25 June.⁶⁸¹ Then the situation at Verdun improved and the Russian offensive, led by General Brusilov, which had begun in early June, was making good progress.⁶⁸² Therefore, the French requested the assault be postponed until 29 June. Haig agreed to this latest change. On 17 June, Joffre arrived at Haig's headquarters and requested the date be moved back to 1 July. Haig reminded Joffre that the logistics required to support a five day artillery bombardment was no easy matter and the movement of units from one sector of the line to take the place of units moving into attack positions would signal to the Germans that the offensive was imminent.⁶⁸³ Joffre concurred with Haig's logic and notified his commanders that the attack would begin on 29 June as earlier agreed.

Three days before the start of the offensive, Haig met with Joffre at Rawlinson's headquarters and reiterated his objectives to the French commander:

1st. To aim at breaking the enemy's front first of all between the Somme and Serre.

2d. To secure the positions about Bapaume and thence southwards to Ginchy, while the French forces aim at reaching Sailly and Rancourt (as agreed at our last meeting, Saturday, 17th June).

3rd. To enlarge the breach by gaining possession of the area lying between Bapaume and Arras. With this object an attack will be launched from the N.W. against Blaireville and Ficheux in co-operation with all available troops (including cavalry) working northwards from the line Miraumont-Bapaume.

4th. Having once broken the enemy's front between Arras and the Somme, opened the roads comprised in that sector eastwards and established our forces on the line Monchy-le-Preux-Bapaume-Rancourt, I shall then be prepared to move forward to the line Cambrai-Douai, with the object of continuing the operations against the enemy's forces, the direction of the further operations depending on whether he clings to his fortified positions to

⁶⁸⁰ Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I*, 265.

⁶⁸¹ Ibid.

⁶⁸² Gary Sheffield, *The Somme*, 27.

⁶⁸³ *The Private Papers of Douglas Haig, 1914-1919*, ed. Robert Blake, 149.

the north, or has succeeded in concentrating a force to oppose our advance eastwards.⁶⁸⁴

On 28 June, Haig received a letter from Foch that criticized the BEF commander's plan.⁶⁸⁵

Foch "desired that the British on reaching Bapaume should first extend six miles southward to Saily-Saillisel to enable the French to get forward, after which a combined movement upon Arras might be made."⁶⁸⁶ Haig was upset that his plan was being questioned and that the criticism failed to take into account the likelihood of a German assault against the exposed British left flank during the operation.⁶⁸⁷ He sent no reply to Foch. Instead he met with General Joffre, the French Commander-in-Chief, at Rawlinson's headquarters that same evening. Joffre raised the same points that Foch had brought up in his letter so Haig attempted to clarify why he thought it was critical to take the offensive north of Bapaume once that city was captured.⁶⁸⁸ He was convinced that the Germans would counter-attack from the north and attempt to cut the Fourth Army off from its logistics support. Haig thought he had convinced Joffre as the issue was dropped. "Foch seems anxious that the British should do all the fighting required to get the French on the open ground between Bapaume and Peronne, and he ignores the danger to our left flank which is very real if we do not enlarge the gap northwards as soon as possible."⁶⁸⁹

The artillery fire plan developed by Rawlinson's chief of artillery, Major General N. Birch, called for a six-day concentrated barrage along the entire 25,000 yard front that

⁶⁸⁴ Letter from Haig to Joffre, 28 June, 1916. Quoted in *WITA, Vol. II*, 197-198.

⁶⁸⁵ *The Private Papers of Douglas Haig, 1914-1919*, ed. Robert Blake, 150.

⁶⁸⁶ Sir James Edmonds, *Military Operations: France and Belgium, 1916 Vol. I*, 50.

⁶⁸⁷ *The Private Papers of Douglas Haig, 1914-1919*, ed. Robert Blake, 150.

⁶⁸⁸ *Ibid.*

⁶⁸⁹ *Ibid.*

encompassed the Fourth Army attack.⁶⁹⁰ The plan entailed three stages; the first stage involved two days devoted to cutting the wire obstacle belts in front of the two German trench lines to be attacked as well as the registration of targets. During the second stage lasting three days, all targets identified in stage one as well as the wire obstacle belts that had not been damaged, were to be destroyed and finally the third stage, Z Day, the day of the attack, the British artillery would provide a supporting bombardment as the troops left their trenches and crossed No-man's land.⁶⁹¹ During each stage there were planned pauses to allow RFC aircraft to conduct aerial photography followed by detailed assessments of the photographs to assist in planning the next day's targets.⁶⁹²

The intent of the bombardment was to destroy the enemy trenches as well as fortified positions in and around the villages that were to be attacked. Command posts and lines of communications were also heavily targeted as were hundreds of German artillery batteries. To accomplish this herculean task Haig and Rawlinson amassed 1,537 guns and howitzers to support the Fourth Army.⁶⁹³ This averaged out to one field gun for every twenty-one yards of front and one heavy artillery piece for every fifty-seven yards.⁶⁹⁴ The logistics support required to supply the artillery units was staggering. It required seven trains a day to move forward the three million artillery rounds required to be fired for the barrage. Seven thousand miles of underground communication lines were laid and buried and another forty-three thousand miles of surface line was laid as well. All of this was accomplished by 20 June.⁶⁹⁵

⁶⁹⁰ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, (London: Windrow & Greene Ltd., 1995), 35. See also Martin Farndale, *History of the Royal Regiment of Artillery*, (London: The Dorset Press, 1986), 142-143.

⁶⁹¹ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 35.

⁶⁹² Ibid.

⁶⁹³ Ibid. See also Martin Farndale, *History of the Royal Regiment of Artillery*, 144.

⁶⁹⁴ Martin Farndale, *History of the Royal Regiment of Artillery*, 144.

⁶⁹⁵ Ibid., 142-143.

Throughout the month of June as Rawlinson's army and the French units on its southern flank prepared for the start of the offensive, the RFC did a commendable job in preventing most German observation aircraft from crossing the line and detecting the build-up in the Fourth Army sector.⁶⁹⁶ But as Trenchard knew it was impossible to patrol the limitless depths of the sky. Both the German Second Army and its supporting aviation units had detected signs of an impending attack as early as March.⁶⁹⁷ By the middle of May German observation aircraft had photographed two new airfields being built east of Villers-Brettoneux as well as the construction of new railways and camps to base both troops and logistics.⁶⁹⁸ Two weeks before the start of the offensive German aircrew reported signs of new communication trenches being dug north of the River Somme. With the increase in artillery fire as well as British aerial activity, the Germans logically deduced that an attack both north and south of the river was imminent.⁶⁹⁹

When the Fourth Army was formed, Trenchard had created and then assigned the IV Brigade, commanded by Brigadier General E. B. Ashmore, to provide air support to Rawlinson's army. It comprised the 3rd (Corps) Wing which consisted of Number 3 Squadron (Morane Parasol's), Number 4 Squadron (BE 2c's), Number 9 Squadron (BE 2c's), and Number 15 Squadron (BE 2c's). Number 1 Kite Balloon Squadron with two sections was also assigned to 3rd (Corps) Wing. Two fighter squadrons from the 14th (Army) Wing consisting of Number 22 with FE 2b's and Number 24 with DH2's would serve as the fighter arm that would support Ashmore's squadrons. In addition to the squadrons belonging to 4th Brigade,

⁶⁹⁶ Martin Farndale, *History of the Royal Regiment of Artillery*, 142-143.

⁶⁹⁷ John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1916, Vol. II*, 234. See also Ernest von Hoepfner, *Germany's War in the Air: The Development and Operations of German Military Aviation in the World War*, (Nashville, TN: The Battery Press, 1994), 66-67.

⁶⁹⁸ John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1916, Vol. II*, 234.

⁶⁹⁹ Georg Paul Neumann, *The German Air Force in the Great War*, (London: Hodder and Stoughton Ltd., 1921), 217-218. See also Sir James E. Edmonds, *Military Operations, France and Belgium, 1916, Vol. I*, 316-319, 'German Intelligence as Regards the Somme Offensive.'

the 9th Headquarters Wing, which consisted of three squadrons: Number 21 (RE 7's), 27 (Martinsyde G100's), and 60 Squadron (Morane Scouts) were tasked to support the Fourth Army by conducting strategic reconnaissance, the bombing of communication and supply lines, and general offensive operations as required against the GAAS. II Brigade with Number 7 Squadron and 16 Squadron as well as III Brigade with Number 8, Number 12, and Number 13 Squadrons (each with 12-14 BE 2c's) were also available to support Trenchard's tactical bombing offensive against the German rail network supporting the German Second Army.⁷⁰⁰

Thus by the beginning of the offensive, the Fourth Army was supported by nine squadrons totaling 167 aircraft and another five squadrons in support as required. The overall strength of the RFC by 1 July had increased to 27 squadrons, consisting of 421 aircraft and four kite balloon squadrons consisting of a total of fourteen balloons available for observation duties.⁷⁰¹ In total the RFC had 185 aircraft in direct support of the Fourth Army including the Army squadrons whose mission it was to protect the Corps aircraft and engage the GAAS in aerial combat.⁷⁰²

Opposing Rawlinson's Fourth Army on the Somme was the German Second Army, commanded by General Fritz von Below. Von Below had six divisions in the front line with an additional four and a half divisions in reserve.⁷⁰³ The Second Army was supported by air units which consisted of six reconnaissance flights (*Feldflieger Abteilungen*) totaling forty two aircraft, four artillery flights (*Artillerie Flieger Abteilungen*) with seventeen aircraft, a fighter-

⁷⁰⁰ WITA, Vol. II, 195-196.

⁷⁰¹ Ibid., 200. See also Appendix A for RFC Order of Battle, 1 July, 1916.

⁷⁰² Sir James Edmonds, *The Official History: Military Operations: France and Belgium, 1916*, 268-269.

⁷⁰³ Gary Sheffield, *The Somme*, 27. See also A. H. Farrar-Hockley, *The Somme*, 73-75.

Corps	Squadron	Allotment Counter- Battery	of Aircraft by Contact Patrol	Mission Trench Fighters (a)	Type Special Missions(b)
VIII	No. 15 (BE 2c)	8	3	3	2
X	No. 4 (BE 2c)	9	3	4	2
III	No. 3 (Moranes)	4	3	3	2
XV	No. 3 (Moranes)	4	Shared with III Corps	-	-
	No. 9 (BE 2c)	-		2	-
XIII	No. 9 (BE 2c)	5	4	4	3
Total aircraft allocated		30	13	16	9

(a) Close reconnaissance and destructive bombardment.

(b) Destruction of kite balloons, close photography, & reserve.

Table 2. Allocation of Corps Squadrons to Fourth Army for the start of the Somme offensive. (<i>WITA, Vol. II, 198</i>).
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bomber squadron (*Kampfgeschwader Number 1*) with forty three aircraft, a fighter bomber flight (*Kampfstaffel Number 32*) with eight aircraft and one single-seater fighter detachment (*Kampfeinsitzer Kommando*) of nineteen aircraft.⁷⁰⁴ The total air strength of the German Second Army, not counting those at depot level, was 129 aircraft.⁷⁰⁵ The GAAS supporting von Below's army were thus heavily outnumbered by the RFC in aircraft.⁷⁰⁶

It was also evident to both Rawlinson and von Below that not only did the RFC outnumber the GAAS in aircraft, but that the British had also gained the technical advantage in fighter aircraft with the introduction of the DH 2, FE 2b and the Nieuport 11.⁷⁰⁷ Because of this, German aircraft were forced away from the main battle area which allowed RFC Corps

⁷⁰⁴ *WITA, Vol. II, 201*. See also John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1916, Vol. II, 245*.

⁷⁰⁵ *Ibid.*

⁷⁰⁶ *Ibid.*

⁷⁰⁷ Ernest von Hoepfner, *Germany's War in the Air: The Development and Operations of German Military Aviation in the World War*, 68.

squadrons to complete their missions unmolested by enemy fighters as the offensive loomed ever nearer.⁷⁰⁸

During the last two weeks of June, 1916, the tempo of the air war over the Somme increased in preparation for the start of the offensive.⁷⁰⁹ RFC fighter and reconnaissance squadrons became engaged in daily combats as they flew over German-held territory.⁷¹⁰ In trying to accomplish its missions to support the British Army and maintain its offensive strategy, the RFC suffered losses that were vastly higher than those it imposed on the GAAS. From 1 January to 1 June, 1916, the RFC lost on average one aircraft and its pilot or crew every day. March and June were the costliest, where casualties rose to 40 per month.⁷¹¹

On 18 June an incident occurred that seemed to signify that the RFC truly held air superiority over the Somme when the GAAS lost one of its premier fighter pilots, Leutnant Max Immelmann, “The Eagle of Lille,” in aerial combat.⁷¹² At approximately 2100 hours, on the last patrol of the day, seven FE 2b’s from Number 25 Squadron were attacked by Immelmann and four other Germans, who were all flying Fokker EIII’s. Immelmann shot down one of the FE 2b’s, but was in turn attacked by a FE 2b piloted by Second Lieutenant G. R. McCubbin and his observer, Corporal J. H. Waller. Waller opened fire once the German aircraft came into range as Immelmann flew passed the nose of the British aircraft. Seconds later the Fokker staggered and went into a dive where it was seen to break up in the air.

⁷⁰⁸ Ernest von Hoepfner, *Germany’s War in the Air: The Development and Operations of German Military Aviation in the World War*, 68.

⁷⁰⁹ Ibid.

⁷¹⁰ *Royal Flying Corps 1915-16*, ed. Christopher Cole, 110-156.

⁷¹¹ Ibid. See also Andrew Boyle, *Trenchard: Man of Vision*, 180-181.

⁷¹² Sholto Douglas, *Years of Combat: A Personal Story of the First War in the Air*, (London: Collins, 1963), 147-148. See also Trevor Henshaw, *The Sky Their Battlefield*, 86.

Immelmann, one of the war's first great fighter pilots and tacticians, fell from nearly 5,000 feet and was killed.⁷¹³

The RFC awarded the FE 2b crew with the aerial victory and both were decorated with Waller earning promotion to sergeant as well.⁷¹⁴ The Germans believed that since Immelmann's aircraft broke up in the air he had either been hit by anti-aircraft fire or that his synchronization gear had malfunctioned and he had shot his propeller off.⁷¹⁵ Either way, Immelmann was dead.

For the RFC and the GAAS, Immelmann's death had major ramifications. He had been one of the most widely renowned fighter pilots of the war, highly respected by his own air service as well as the RFC.⁷¹⁶ Immelmann, along with Boelcke, was one of the most successful German fighter pilots during the "Fokker Scourge." His death was a major blow to

⁷¹³ The German obituary notice in the 24 June, 1916 edition of the *Frankfurter Zeitung* read: "On 18th June, 1916, there met his death for his country in aerial combat Max Immelmann, Knight of the Order "pour le Merite" and Commander 2d Class of Royal Saxon Military Order, Knight Commander of several high and of several of the highest decorations, holder of the Iron Cross, I and II Class. Royal Saxon 1st Lieutenant and fighting pilot of a Flying unit. His glory and his name are his country's. In the annals of the German Flying Corps his memory will live as that of a bold flyer, fighter and conqueror." Arguing that no Allied pilot could have shot down the great Immelmann, the German Sixth Army conducted an inspection of the wreckage and claimed that Immelmann's interrupter gear had failed and he had shot off one of the blades on his own propeller and the subsequent vibrations of the engine caused his aircraft to break apart in the air. Immelmann's interrupter gear had failed on 31 May but he was able to safely land his plane. Since German fighter pilots were not issued parachutes until the last year of the war, Immelmann had no chance of surviving. The British contended that it was the bullets from Waller's Lewis guns that caused the Eindecker EIII to break up and not a malfunctioning synchronizing gear. Oswald Boelcke, Immelmann's best friend and wingman, would write of the 'Eagle of Lille's death: "Aside from the great personal loss we have suffered [the German Army Air Service], I feel the moral effect of his death on the enemy is not to be underrated." Boelcke, Oswald. *Hauptmann Boelckes Feldberichte*. (Gotha: Perthes, 1917), 138-139. Published in English as *An Aviator's Field Book*. (New York: National Military Publishing Company, 1917. As several RFC pilots were claiming they had shot down Immelmann and this was causing some controversy back at the War Office, Trenchard notified Brancker that to end the debate on who should receive credit for downing the great German ace, he planned to send out a peremptory order to all RFC squadrons that there was sufficient eyewitness evidence to award Second Lieutenant McCubbin and his observer the victory. (Trenchard to Brancker, 8 July, 1916, Trenchard Papers, MFC 76/1/26, RAFM.

⁷¹⁴ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 153.

⁷¹⁵ Franz Immelmann, *Immelmann: The Eagle of Lille*, (London: Greenhill Books, Lionel Leventhal Limited, 1990), 211-212.

⁷¹⁶ *Ibid.* In an act of respect to their fallen foe, several RFC squadrons sent aircraft deep into German-held territory and at great risk to both crew and aircraft, dropped wreaths over German airfields, from heights as low as 150 feet, with one wreath inscribed "To our Gallant and Chivalrous Opponent."

German morale and provided further evidence to British as well as German leadership that German air superiority above the Somme was over.⁷¹⁷

For the British, aircrew morale soared to its highest point of the campaign.⁷¹⁸ In the months leading up to the ground offensive they had been equipped with several good aircraft that were more than a match for what their enemy could put in the air. They had been on the offensive for three months and by all accounts had attained air superiority as directed prior to the start of the British ground offensive. In concert with the *Aviation Militaire*, the RFC had also achieved air superiority over most, if not all, of the Western Front during this period.⁷¹⁹

The GAAS on the other hand had lost one of its best tactical leader's. Morale dropped as German aircrew realized that not only were they greatly outnumbered by the RFC in men and machines but they no longer held the technological advantage over the RFC.⁷²⁰ To make matters worse, the recently promoted Hauptmann Oswald Boelcke was transferred away from front line operations so as not to risk the life of Germany's remaining elite fighter pilot who had become a national hero. Just when Boelcke's leadership was needed most, he was ordered to Turkey and the Balkans to conduct an inspection tour of air operations in those theaters that would take him away from Verdun and the Somme for nearly three critical months.⁷²¹

From the middle of June the British began an intermittent artillery bombardment of the German Second Army positions along the Somme. British kite balloons and their observers played a major role in locating German artillery batteries and directing British counter-fire onto them.

⁷¹⁷ Trevor Henshaw, *The Sky Their Battlefield*, 86. See also Peter Hart, *Somme Success*, 73.

⁷¹⁸ Gwilym H. Lewis, *Wings Over the Somme, 1916-1918*, (Clwyd, Wales: Bridge Books, 1976), 52. See also Jon Guttman, *Pusher Aces of World War I*, 34.

⁷¹⁹ Ibid.

⁷²⁰ Ernest von Hoepfner, *Germany's War in the Air: The Development and Operations of German Military Aviation in the World War*, 68-69.

⁷²¹ Oswald Boelcke, *An Aviator's Field Book*, 143-44.

The observers went up for spotting purposes, trying to spot enemy gun positions, trenches and anything behind the German lines that they could see was of interest. That carried on every day that we had the balloons up. Two or three times a week, artillery officers, sometimes infantry officers, would go up as an observer with his sketching map and binoculars to spot whatever he could, making notes of it for his own purpose and for recording purposes, which was telephoned to the telephone lorry on the ground.⁷²²

On Friday, 23 June, a major thunderstorm swept over the front and the kite balloons of Numbers 1 and 14 Sections were hit by lightning and destroyed and another three balloons were badly damaged.⁷²³ The next day the British began what became one of most intense artillery bombardments of the war. Intermittent rain and low cloud hindered the RFC's artillery observation and direction, causing pilots to fly low and into the paths of their own artillery shells. Lieutenant Cecil Lewis of Number 3 Squadron observed

Out of the corner of my eye, when I wasn't really looking, I saw something moving like a lump. I didn't really know what the devil it was. It was a mystifying sort of effect. Then I looked again and focused and about 100 yards ahead there was the business part of a 9-inch howitzer shell right at the top of its trajectory-just about 8,000 feet. It had come up like a lobbed tennis ball and right at the top it was going quite slowly and it was a pretty hefty bit of metal, turning end over end before it gathered speed again and went off down to the ground again. The battery was evidently firing and we saw two or three shells and once you had caught them you could follow them right down to burst.⁷²⁴

Primarily due to the poor weather and observation the RFC was only able to direct artillery fire onto forty targets, far below what the artillery plan called for.⁷²⁵

On 25 June, the RFC made a concerted daylight attack against the German observation balloons all along the Somme front, with the main effort going against those balloons opposite Rawlinson's Fourth Army.⁷²⁶ Fifteen balloons of the twenty-three in the air

⁷²² Peter Hart, *Somme Success*, 71-72.

⁷²³ *WITA*, Vol. II, 206-207.

⁷²⁴ Peter Hart, *Somme Success*, 77-78.

⁷²⁵ *WITA*, Vol. II, 207.

⁷²⁶ *Ibid.*

found themselves under attack by RFC fighters and five were destroyed.⁷²⁷ This success in spite of the poor weather and intense anti-aircraft fire was followed up the next day when three pilots from Number 1 Squadron, flying Nieuport 11's, shot down three more balloons, which had survived the previous day's attacks.⁷²⁸

On this same day, the second day of the British artillery bombardment, the German artillery began an intense counter-battery program. The RFC was able to locate and identify one hundred and two positions. Aircraft and balloon observers reported back that the entire Somme valley seemed to have caught fire as "blazing dumps and exploding ammunition over a wide area added to the inferno."⁷²⁹ The GAAS was again noticeably absent in trying to prevent the RFC from accomplishing its missions. One Fokker Eindecker was seen near the lines over Courcellette but was immediately attacked by a DH2 from Number 24 Squadron and shot down.⁷³⁰

For the next four days poor weather and heavy fog made the work of the RFC more difficult in supporting Rawlinson's army. Every hour of bad weather that kept the British aircrews on the ground and away from the front, brought respite to a German artillery battery, unit assembly area or logistics center. No one understood what this meant better than Trenchard.⁷³¹

British crews took many risks in their flimsy wood and fabric machines, flying below the low clouds to direct artillery onto the German guns. The bad weather took its toll however and for this reason the British artillery bombardment was not nearly as effective as it could have been. Trying to emphasize the positive before the attack on 28 June the daily

⁷²⁷ Geoffrey Norris, *The Royal Flying Corps: A History*, 166. See also *WITA, Vol. II*, 207.

⁷²⁸ *Ibid.*

⁷²⁹ *Ibid.*, 208.

⁷³⁰ Tyrrel M. Hawker, *Hawker, V. C.*, 183. See also *Royal Flying Corps, 1915-1916*, 165-166; *WITA, Vol. II*, 208.

⁷³¹ Michael Chappell, *The Somme 1916: Crucible of a British Army*, 40-42.

communiqué for the RFC recorded: “Heavy rain and low clouds throughout the day. In the evening it cleared somewhat, and some successful artillery work was accomplished. There was no hostile aircraft activity”⁷³²

Both Haig and Joffre had agreed that the offensive would begin on 29 June but Foch requested a two day delay to ensure that his assault forces were in position.⁷³³ Bad weather also set in and it was agreed to postpone the attack until 1 July.⁷³⁴ Because of this postponement, the artillery bombardment was extended from five days to seven.

Air observation and direction of the artillery was the RFC’s most critical task in the week leading up to the attack.⁷³⁵ If the aircrews were unable to observe and direct the seven day artillery barrage with precision and accuracy, the lack of results could be devastating to the attacking infantry. NCO pilot Frank Courtney summed up the critical aspect of the mission succinctly.

It was an unglamorous but hazardous occupation, and often a nerve wracking one. We did this work in all weathers, which often meant flying very low over German target areas and back and forth over the trenches, giving the enemy ample time to figure out what we were doing so that he could plaster us with Archie [anti-aircraft fire], machine guns, or any other hardware he had to offer. Losses among artillery co-operation planes were often exceptionally heavy.⁷³⁶

In conducting its reconnaissance and photography missions during the artillery bombardment, the RFC focused not only on the destruction and neutralization of German artillery batteries but also the impact the British artillery was having on the belts of barbed

⁷³² *Royal Flying Corps, 1915-1916*, 168.

⁷³³ Gary Sheffield, *The Somme*, 36.

⁷³⁴ *Ibid.*

⁷³⁵ Fourth Army was supported by 68 aircraft specifically for observation and the direction of artillery. Thirty aircraft were assigned the mission of directing counter-battery fire against the German gun positions; sixteen were to observe and direct fire on the Germans front line trenches; nine were used to attack German balloons and conduct aerial photography and the remaining thirteen were tasked with conducting ‘contact patrols’ to monitor the infantry advance. See Peter Mead, *Eye in the Air*, 78.

⁷³⁶ Frank Courtney, *Flight Path: My Fifty Years of Aviation*, (London: William Kimber and Company, Ltd., 1972), 52.

wire obstacles the Germans had placed forward of their front line trench system. Destruction of these wire obstacles was one of the most important missions assigned to the artillery to accomplish before the Fourth Army attacked.⁷³⁷ These defensive positions had been constructed to comprise several trench lines and fortified villages, which were interconnected and protected by dense barbed-wire entanglements. These obstacles ran the length of the entire forward trench line and in some areas were forty yards in depth.⁷³⁸

With the artillery assigned the mission of eliminating these obstacle belts, the RFC was tasked to observe and report the effects of the barrage on the wire. Thousands of photographs were taken during the final week before the start of the offensive.⁷³⁹ On the afternoon of 26 June there was a pause in the bombardment to allow RFC aircraft to photograph the entire area and these photos were then passed onto the artillery headquarters for analysis.⁷⁴⁰

One of Rawlinson's corps commanders reported: "The aeroplane photographs showed admirably the effect of the bombardment both on the wire and on the [enemy] trenches and were of the greatest value."⁷⁴¹ But the intermittent rain that had begun on the 24th played havoc with the RFC's observation aircraft and their ability to observe and direct the artillery

⁷³⁷ Martin Middlebrook, *The First Day on the Somme*, 87-88. See also Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 35-43; Robin Prior and Trevor Wilson, *The Somme*, (New Haven, CT: Yale University Press, 2005), 62-66; *WITA, Vol. II*, 209; and Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*, (London: Pen & Sword Books Limited, 2004), 171..

⁷³⁸ J. E. Johnson, *Stalmate: The Real Story of Trench Warfare*, 58-62.

⁷³⁹ *WITA, Vol. II*, 208.

⁷⁴⁰ *Ibid.*

⁷⁴¹ *WITA, Vol. II*, 209. Though unidentified in the Official History, the quote is believed to have been made by Lieutenant General Sir William Pulteney. Haig recorded in his diaries that on the 29 June he visited Pulteney at his III Corps headquarters where he informed Haig that he "also is quite satisfied with the artillery bombardment and wire cutting." There were five corps in Rawlinson's Fourth Army: III Corps (LTG Sir William P. Pulteney); VIII Corps (LTG Sir Aylmer G. Hunter-Weston); X Corps (LTG Sir Thomas L. N. Morland); XIII Corps (LTG Walter. N. Congreve, V.C.); XV Corps (LTG Henry S. Horne) .

barrage. Fog along with clouds of dust and dirt from the constant barrage fire made observation even more difficult throughout the last week of June.⁷⁴²

Unfortunately for the one-half million British soldiers of the Fourth Army waiting for the attack to begin, the photographs were misleading and the wire was not cut or destroyed across the width and depth of the German defensive positions as Haig and his staff was led to believe.⁷⁴³ Of the five day planned bombardment (which was extended another two days), the weather was only good for less than two days. The bad weather was a critical factor in Rawlinson's decision to postpone the attack for forty eight hours.⁷⁴⁴ Rain, mist, low cloud and even fog had restricted aerial observation during most of the daylight hours in the week before the start of the offensive. The RFC's ability to photograph, locate, and direct the British guns against German artillery was greatly reduced through no fault of the men in the squadrons.⁷⁴⁵ Though the weather was poor the final forty-eight hours prior to the start of the offensive, RFC aircraft were able to direct artillery fire against 57 German batteries on 29 June and an additional 95 targets on 30 June.⁷⁴⁶

As night arrived on 30 June, all was in readiness for the attack to begin the next morning. While fitters, riggers, and armorers made the final adjustments and preparations to the fighters, bombers, and reconnaissance aircraft, the RFC's commander visited several of his front-line squadrons.⁷⁴⁷ With the RFC having achieved aerial superiority over the Somme, Trenchard realized that that had only been the first phase of the air campaign. The struggle to maintain that superiority as well as support the Fourth Army's offensive in the upcoming days

⁷⁴² S. F. Wise, *Canadian Airmen and the First World War*, 368.

⁷⁴³ Robin Prior and Trevor Wilson, *Command on the Western Front: The Military Career of Sir Henry Rawlinson, 1914-1918*, 173-174.

⁷⁴⁴ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 41.

⁷⁴⁵ *WITA, Vol. II*, 208-209.

⁷⁴⁶ S.F. Wise, *Canadian Airmen and the First World War*, 368.

⁷⁴⁷ Cecil Lewis, *Sagittarius Rising*, 70.

and weeks would task both he and his men. He was confident that both he and his aircrew were up to the task.⁷⁴⁸

On the eve of the offensive, the General Officer Commanding, 'Boom' Trenchard, with his ADC [Maurice Baring], visited the squadron. Sitting on his shooting-stick, he called us all up round him, gave us a bird's-eye view of the whole attack, and in the pleasant masterful way congratulated us all on our work. It had contributed, he said, more than we knew to the success of the preliminary bombardment. Artillery observation, photography, reconnaissance, all received their commendation. 'Boom' infused men's enthusiasm without effort by a certain greatness of heart that made him not so much our superior in rank as in personality. When he left we were all sure that victory was certain, that the line would be broken, the cavalry put through, and the Allies sweep on to Berlin.⁷⁴⁹

The pilots and observers of Number 3 Squadron as well as all of the other squadrons supporting the Fourth Army would be aloft well before the British infantry left their trenches the next morning.

⁷⁴⁸ Andrew Boyle, *Trenchard: Man of Vision*, 184.

⁷⁴⁹ Cecil Lewis, *Sagittarius Rising*, 70.



Lieutenant Geoffrey H. Bonnell, an American volunteer in No. 32 Squadron in the nacelle of his DH 2, Summer 1916. (IWM Q7237)

Chapter Five

ORDER OF THE DAY: “ATTACK EVERYTHING”

JULY-SEPTEMBER, 1916

At 0730, Saturday 1 July, 1916, there was a momentary lull as the bombardment ceased. The skies had cleared and to those on the ground it looked to be “a perfect summer day.”⁷⁵⁰ Silence filled the air as the British artillery batteries reloaded their howitzers and cannons and prepared to fire on their secondary objectives. Platoon commanders blew their whistles all along the Fourth Army front and the first wave of British infantry from fifteen divisions left their trenches and proceeded out into no-man’s land. The Somme offensive had at last begun.⁷⁵¹

The aircrews of the six squadrons supporting the Fourth Army had been aloft since 0400. As the sun rose and the early morning mist faded away, aerial observers were able to report to the ground units the effect of the bombardment. As the first waves of infantry left their trenches, contact patrols flew between 500 and 1,000 feet overhead, reporting back to each corps and division headquarters on the progress of their units.⁷⁵²

Aerial observers, most of them flying in the outdated BE 2c, flew along the entire front of the Fourth Army, searching out and locating dozens of German artillery batteries who were now laying down an intense barrage of their own on the advancing British infantry. The airmen sent hundreds of requests for fire and loitered in the air to direct the counter-fire against the enemy artillery units but with hundreds of bursting shells landing seemingly everywhere below them, it became impossible to give more than general corrections.⁷⁵³

Balloon observers from Number 1 Kite Balloon (KB) Squadron were linked by telephone directly to each of the corps artillery headquarters. Not only did they observe and direct counter-fire, they also reported the effects of the German barrage.⁷⁵⁴

⁷⁵⁰ WITA, Vol. II, 209.

⁷⁵¹ J. H. Johnson, *Stalmate: The Real Story of Trench Warfare*, 63

⁷⁵² Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 94-95.

⁷⁵³ Geoffrey Norris, *The Royal Flying Corps: A History*, 168-169. See also WITA, Vol. II, 209.

⁷⁵⁴ WITA, Vol. II, 214.

Besides observing and directing artillery, the RFC also focused on its other missions to support Rawlinson's army. Air reconnaissance during the early morning hours of 1 July revealed that there was very little movement on the roads and at the rail centers behind the German lines.⁷⁵⁵ The RFC gave special focus to the rail centers at Bapaume and Cambrai.⁷⁵⁶ Reports were sent back to Fourth Army headquarters that there was no major activity taking place at either station. With this information in hand, Rawlinson was heartened by the fact that the Germans were not moving reinforcements into the area that his army was about to attack.⁷⁵⁷

The RFC had been conducting bombing raids on key German installations and sites throughout May and June but with the start of the offensive Trenchard stepped up the intensity of these operations.⁷⁵⁸ Under his direction, the RFC Headquarters staff planned an intense bombing campaign, which began on 30 June with a raid on the St. Sauveur train station.⁷⁵⁹ Aerial reconnaissance had confirmed that the train station was a critical logistics node in which the Germans could transfer reinforcements into the Somme sector from.⁷⁶⁰ The RFC dispatched six RE7's from Number 21 Squadron to bomb the station. A second raid by the same squadron was conducted the following morning with some success. Bombs were plainly seen striking the station buildings and the rail lines. For each raid six RE 7's were escorted by two Martinsydes and by two Morane biplanes.⁷⁶¹

Also on 30 June, the RFC attacked the Cambrai train station in the afternoon. The rail lines were struck by at least seven 112-pound bombs. Returning that evening for a second

⁷⁵⁵ *WITA, Vol. II, 214.*

⁷⁵⁶ *Ibid.*

⁷⁵⁷ Fourth Army Summary of Operations, 1st July 1916', Fourth Army War Diary 5 Feb -13 July, 1916, Fourth Army Papers, Vol. 1, IWM.

⁷⁵⁸ Andrew Boyle, *Trenchard: Man of Vision,*

⁷⁵⁹ *Royal Flying Corps, 1915-1916,* ed. Christopher Cole, 171. See also *WITA, Vol. II, 214.*

⁷⁶⁰ *Ibid.*

⁷⁶¹ *Royal Flying Corps, 1915-1916,* ed. Christopher Cole, 171.

strike, Second Lieutenant A.L. Gordon-Kidd from Number 7 Squadron bombed an approaching train from 900 feet, scoring a direct hit on the middle of the train, which caught fire and began to explode. An hour later the train was still burning.⁷⁶²

At 1400, six aircraft from a III Brigade squadron, attacked the rail center at St. Quentin which was located more than thirty-five miles behind the German front lines. Lieutenant Lawrence Wingfield, piloting a BE 2c without his observer so he could carry two 110 pound bombs located his target and dropped his bombs directly on what he thought was the rail station. He observed a column of smoke and on his return flight was attacked by a Fokker Eindecker. The BE 2C was shot down and Wingfield was captured by German infantry.⁷⁶³ The remaining British aircraft were also shot down after bombing the station. Since the RFC aircrew had all become casualties or prisoners of war the impact of this single bombing raid would not be learned for several weeks and only then when a captured German soldier revealed the details during his interrogation.

On the 1st July the Division was warned to proceed to the Somme front. About 3:30pm the first battalion of the 71st Reserve Regiment and the 11th Reserve Jaeger Battalion were at St. Quentin Station ready to entrain, arms were piled and the regimental transport was being loaded into the train. At this moment English aeroplanes appeared overhead and dropped bombs. One bomb fell on a shed which was filled with ammunition and caused a big explosion. There were 200 wagons of ammunition in the station at the time; 60 of them caught fire and exploded, the remainder were saved with difficulty. The train allotted to the transport of troops and all the equipment which they had placed on the platform were destroyed by fire. The men were panic-stricken and fled in every direction. One hundred and eighty men were either killed or wounded. It was not till several hours later that it was possible to collect the men of the 71st Regiment. It was then sent back to billets.⁷⁶⁴

The RFC had thus prevented one more German division from reaching the front lines in a timely manner to oppose the attack of the Fourth Army. Trenchard directed repeated raids

⁷⁶² *WITA, Vol. II, 215-216.*

⁷⁶³ *Ibid.*

⁷⁶⁴ Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 154-155.

against the German rail system primarily targeting the junctions and railheads in Cambrai, Busigny, and St. Quentin.⁷⁶⁵ Though results for the most part were marginal at best, occasionally one or two bombs dropped by diligent pilots facing enormous odds did achieve significant results.

The first offensive patrols by the RFC occurred when Number 32 Squadron took to the air at 0545. Number 24 Squadron was also airborne shortly thereafter. The squadron commander, Major Lanoe Hawker, VC, DSO, had issued his tactical orders to the seventeen others pilots the day before the start of the offensive: "Attack Everything."⁷⁶⁶ In just two words Hawker summed up the ethos of the RFC since Trenchard took command. The pilots of these two RFC squadrons witnessed one of the largest attacks undertaken by a modern army. Patrols would continue throughout the day, the last leaving the front line area only after it became too dark to see.⁷⁶⁷

The most noticeable air engagement on 1 July however took place before the infantry left their trenches. At approximately 0600, two DH 2's from Number 32 Squadron intercepted ten German bombers crossing the lines at Festubert. Flying the lead DH 2 was the squadron commander, Major Lionel Rees, who had won the Military Cross as a flight commander in 1915 flying an FB5 'Gunbus' with Number 11 Squadron. With Rees in the other DH 2, was his wingman, a Canadian, Lieutenant John Simpson.⁷⁶⁸

Simpson and Rees became separated and against 10 to 1 odds, Simpson attacked the German formation. Within seconds three enemy aircraft attacked him in turn. After a fierce exchange of machine-gun fire, Simpson's DH 2 descended more than 5,000 feet, apparently

⁷⁶⁵ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 171.

⁷⁶⁶ Tyrrel M. Hawker, *Hawker, V.C.*, 182.

⁷⁶⁷ *Ibid.*

⁷⁶⁸ W. Alister Williams, *Against the Odds: The Life of Group Captain Lionel Rees, VC*, 88.

under control. In fact Simpson was dead, having been hit eight times in the head by the accurate fire from one of the German gunners.⁷⁶⁹

Rees did not witness the attack but spotted the German formation and was surprised that a flight of enemy machines was actually attempting to cross over the lines into British airspace, something they had not done in any strength for weeks.⁷⁷⁰ Rees, replicating Simpson, attacked without hesitation. Holding his fire until within 100 yards, he quickly disabled two German aircraft, both were seen to be trailing smoke and descending back towards the German lines. To the surprise of Rees and the thousands of British and German soldiers who observed the fight from the ground, the German aircraft turned back towards their lines. At least one of the bombers dropped its bombs onto German positions.⁷⁷¹

Rees gave chase and the faster DH 2 soon overtook the German bombers. He was, however, hit in the leg from one of the bomber's observer/gunners firing at long range. Rees continued his attack and began to fire as he came within range of the German lead aircraft.

I closed, just as I was about to open fire, a shot struck me in the leg putting the leg temporarily out of action. I fired another drum, but not having complete control of the rudder, I swept the machine backwards and forwards. I finished firing about 10 yards away, and saw the observer sitting back firing straight up in the air. . . . I then recovered the use of my leg and saw the leader going towards the lines. I got within long range of him. He was firing an immense amount of ammunition. Just before he reached the lines I gave him one more drum. Having finished my ammunitions I came home."⁷⁷²

One British pilot had single handedly prevented ten German bombers from crossing the British lines and accomplishing their mission. Rees was also credited with shooting down two

⁷⁶⁹ W. Alister Williams, *Against the Odds: The Life of Group Captain Lionel Rees, VC*, 89.

⁷⁷⁰ Ibid.

⁷⁷¹ Alex Revell, *Victoria Cross, WWI Airmen and their Aircraft*, 78.

⁷⁷² W. Alister Williams, *Against the Odds*, 90.

of the enemy machines. Thousands of soldiers from both sides were eyewitnesses to this act of incredible bravery.⁷⁷³

As it turned out Rees had killed the observer of the lead aircraft, Leutnant Zimmermann, who in fact was in command and leading the bombing mission. The results of this single air combat were just another indicator to both armies that the RFC controlled the skies above the Somme.⁷⁷⁴ For his courage and resolution in the face of overwhelming odds, Rees was awarded the Victoria Cross. Although the air campaign over the Somme lasted another five months, Rees was the only RFC pilot to earn Britain's most distinguished medal for valor during the campaign.⁷⁷⁵

RFC pilots were probably the first to realize that events of the ground were not going as planned. As they watched the masses of British infantry moving across no-man's land from the west, they also observed the German infantry scrambling from their deep dugouts, and proceed to lay down a barrage of machine-gun fire that swept through the British ranks.⁷⁷⁶ Almost all British units that did penetrate the German lines were quickly cut off and it proved nearly impossible to send reinforcements to their aid due to the heavy German artillery that was targeting assembly areas and communication trenches where the third and fourth waves of British soldiers were forming up.⁷⁷⁷ The German artillery fire was also causing many casualties in no-man's land, which also obscured the vision of British airmen from accurately observing their own artillery fire they were directed onto the German lines. RFC aircrew watched in frustration as the German units formed up and counter-attacked all along the

⁷⁷³ Gwilym H. Lewis, *Wings Over the Somme, 1916-1918*, 47-48. See also W. Alister Williams, *Against the Odds*, 90-91.

⁷⁷⁴ *WITA, Vol. II*, 332.

⁷⁷⁵ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 163.

⁷⁷⁶ Cecil Lewis, *Sagittarius Rising*, 105.

⁷⁷⁷ Martin Pegler, *Attack on the Somme: Haig's Offensive, 1916*, (London: Pen & Sword Books, Ltd., 2005), 25.

Fourth Army front.⁷⁷⁸ Contact patrols supporting the British infantry units, reported this information to several Corps headquarters via messages dropped from the air or by wireless.⁷⁷⁹ The information was accurate but due to confusing reports that Rawlinson and his staff were receiving from subordinate unit headquarters, by the time decisions were made and orders were issued it was too late to influence the action that had been observed and reported by the airmen.⁷⁸⁰

The left of the main attack, from Serre to as far north as Thiepval where VIII and X Corps attacked, ended with similar results. These two formations were supported by Number 15 and 4 Squadrons, respectively. Forward ground observers were able to track the progress of the fighting but only the RFC observers were able to identify penetrations made at Pendant Redoubt and at the Schwaben Redoubt. Number 4 Squadron reported that several German artillery batteries between Gandcourt and Courcellette were conducting hasty displacements to ensure they were not overrun by the advancing British infantry.⁷⁸¹

Number 4 Squadron also reported at 1630 that the enemy was not massing any troops in the area near the Schwaben Redoubt but British units needed reinforcements to maintain their foothold within the German lines. Captain C. A. A. Hiatt of Number 4 Squadron was directed to fly over the fierce fighting that was taking place at Thiepval, where the Germans had fortified this French village. The penetrations that had been made into the German trenches in this village and along this part of the line could not be reinforced due to several German counterattacks that had regained much of the ground the British had captured. Based

⁷⁷⁸ *WITA, Vol. II, 210-211.*

⁷⁷⁹ *Ibid.*

⁷⁸⁰ S. F. Wise, *Canadian Airmen and the First World War*, 371-372.

⁷⁸¹ *WITA, Vol. II, 210-212.*

on this information, X Corps headquarters directed that the British infantry attacking Thiepval and Beaumont Hamel withdraw.⁷⁸²

The greatest advance for the British on 1 July was observed by Number 9 Squadron flying over XIII Corps on the British right flank. RFC aircrew conducting a contact patrol reported that the 30th Division had broken into the German front line and faced little opposition. They also witnessed the 18th Division occupy Pommiers Trench and then capture Pommiers Redoubt.⁷⁸³

Another Number 9 Squadron aircraft observed a line of flashes, which reflected from the mirrors on the packs of the advancing British soldiers, in the direction of Montauban. The British crew, Captain J. T. P Whittaker and Second Lieutenant T. E. G. Scaife, spotted a German artillery battery coming into action in Bernafay Wood. Whittaker dove his aircraft down to 700 feet and dispersed the battery with machine-gun fire. They then attacked German troops occupying trenches east of the woods with machine-gun fire before breaking off the attack to observe the 16th Manchesters enter and capture Montauban.⁷⁸⁴ Rawlinson received this good news within the hour from the RFC aircraft and his RFC liaison officer.

On the right of the British front the French had been much more successful in their attack on both sides of the Somme.⁷⁸⁵ Haig made the decision to concentrate his efforts between La Boisselle and the boundary with the French.⁷⁸⁶ He notified Rawlinson that Fourth Army would no longer be responsible for the sector from La Boisselle to Serre. That area was

⁷⁸² *WITA, Vol. II, 210-212.*

⁷⁸³ *Ibid.*, 213.

⁷⁸⁴ *WITA, Vol. II, 214.*

⁷⁸⁵ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 74.

⁷⁸⁶ Peter Hart, *Somme Success*, 101. See also *WITA, Vol. II, 218.*

being turned over to Lieutenant General Sir Hubert Gough, who would take command of the two northern corps of the Fourth Army.⁷⁸⁷

When darkness set in over the Somme, the RFC aircraft returned to their airfields for well-earned rest. Many of the aircrew from the nine squadrons providing support to Rawlinson's army had been in the air between six and twelve hours. This would be the norm for the duration of the first phase of the battle.⁷⁸⁸

Darkness also brought an end to the sporadic fighting along the Fourth Army front (see Map 2). It also brought an end to one of the most horrific days of slaughter the British Army has ever experienced. The initial casualty report from the Fourth Army totaled nearly 62,000 men killed, wounded and missing.⁷⁸⁹ It would be several days before the official casualty report was completed. It was only when the massive amounts of wounded had overwhelmed the medical system that had been set up prior to the commencement of the battle, that both army and civilian leaders realized how badly the British Army had suffered on the first day of the battle. An advance of one mile on a three-mile front had cost 57,470 casualties: 19,240 were killed or died of wounds; 35,493 were wounded; 2,152 were missing; and 585 had been taken prisoner.⁷⁹⁰ As for RFC casualties Trenchard notified Brancker in a letter on 2 July.

I enclose herewith casualties of the first days fighting. Considering it is practically a bare 2% of the whole lot engaged and its not as if they only went over the lines once as most of them did two or three trips, I think it is a very small percentage for pilots. The machines are a little bit heavier.⁷⁹¹

⁷⁸⁷ Douglas Haig: *War Diaries and Letters, 1914-1918*, ed. Gary Sheffield and John Bourne, 197. See also Martin Middlebrook, *The First Day on the Somme*, 229; and Sir James E. Edmonds, *Military Operations: France and Belgium, 1916, Vol. I*, 480.

⁷⁸⁸ Tyrrell M. Hawker, *Hawker, V.C.*, 185-186.

⁷⁸⁹ Martin Middlebrook, *The First Day on the Somme*, 266.

⁷⁹⁰ Sir James E. Edmonds, *Military Operations: France and Belgium, 1916, Vol. I*, 483. See also Gary Sheffield, *The Somme*, 68.

⁷⁹¹ Trenchard to Brancker, 2 July, 1916, MFC 76/1/26, RAFM.

Aircrew casualties were one killed, four wounded, and nine missing; an extremely small fraction of the tens of thousands amongst the infantry who had become casualties on the first day of the offensive.⁷⁹² Though the German Army may have won the first round of the battle, the GAAS had been beaten in the air. All total more than 110 British aircrew had flown nearly 108 hours between dawn and darkness and there had been only nine air combats between British and German aircraft.⁷⁹³

The next day, RFC reconnaissance aircraft detected German troop trains bringing reinforcements from Douai towards the Somme front and this was reported to Rawlinson. While this air reconnaissance was taking place, Number 21 Squadron dispatched several flights of aircraft to bomb an infantry division headquarters and multiple ammunition dumps. Each aircraft carried six bombs with each bomb weighing 336 pounds apiece. The bombing mission was successful in that several ammunition dumps were engulfed in flames and burned out of control for most of the day. The RE 7 bombers were escorted by four Martinsydes from Number 27 Squadron while six Moranes of Number 60 Squadron flew over the Bapaume area while the attack was taking place. Not surprisingly, no German aircraft rose to the challenge and there was no interference from the enemy while the British bombers made their bombing runs.⁷⁹⁴ On the Fourth Army front that day there were only four air combats. In the Third Army sector, there were seven, resulting in four German aircraft being shot down.⁷⁹⁵ To Trenchard, these were sure signs that the RFC was maintaining aerial superiority, if not supremacy, over the Somme battlefield.⁷⁹⁶

On 3 July, as Rawlinson's army continued to attack the German fortified villages of Thiepval and Ovillers, RFC observers flew over Cambrai and reported back to both RFC

⁷⁹² *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 173.

⁷⁹³ Peter Hart, *Somme Success*, 100.

⁷⁹⁴ *WITA, Vol. II*, 219-220.

⁷⁹⁵ *Ibid.*

⁷⁹⁶ Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM.

headquarters and the Fourth Army commander that there were many troop trains in the town.⁷⁹⁷ The Germans were rushing reinforcements from the east and south-east and were moving them forward to Bapaume and Peronne. Within twenty-four hours, several of the units were identified and it was confirmed that they had been hastily transferred from the Verdun sector. If the much sought after breakthrough that Haig so desperately wanted had not occurred in the first seventy-two hours of the offensive, he could at least take some satisfaction in the fact that the enemy was removing units away from the battle in the south. He was thus achieving one of his missions, which was to relieve the pressure on the French at Verdun.⁷⁹⁸

Trenchard directed that his bombing squadrons attack the enemy troop trains and interdict them before they could deliver the reinforcements into the Somme battle.⁷⁹⁹ Over the course of the next three days numerous missions were directed against these trains staging at Cambrai. RFC casualties were heavy, with eight bombers shot down and many more badly damaged returning often with wounded crewmen.⁸⁰⁰ These missions reaffirmed to all the bombing squadron commanders, that sending antiquated BE 2c's deep into German held territory, flying without escort and without their observers (because of the weight of the bomb-load), was as good as signing a death warrant for the pilot.⁸⁰¹ Trenchard realized he had to make adjustments due to the increase in casualties. "A less resolute commander might have cancelled his bombing programme. Trenchard decided instead to revert immediately to

⁷⁹⁷ WITA, Vol. II, 220-221.

⁷⁹⁸ Martin Gilbert, *The Somme: Heroism and Horror in the First World War*, (New York: Henry Holt and Company, LLC, 2006), 88.

⁷⁹⁹ WITA, Vol. II, 220-221.

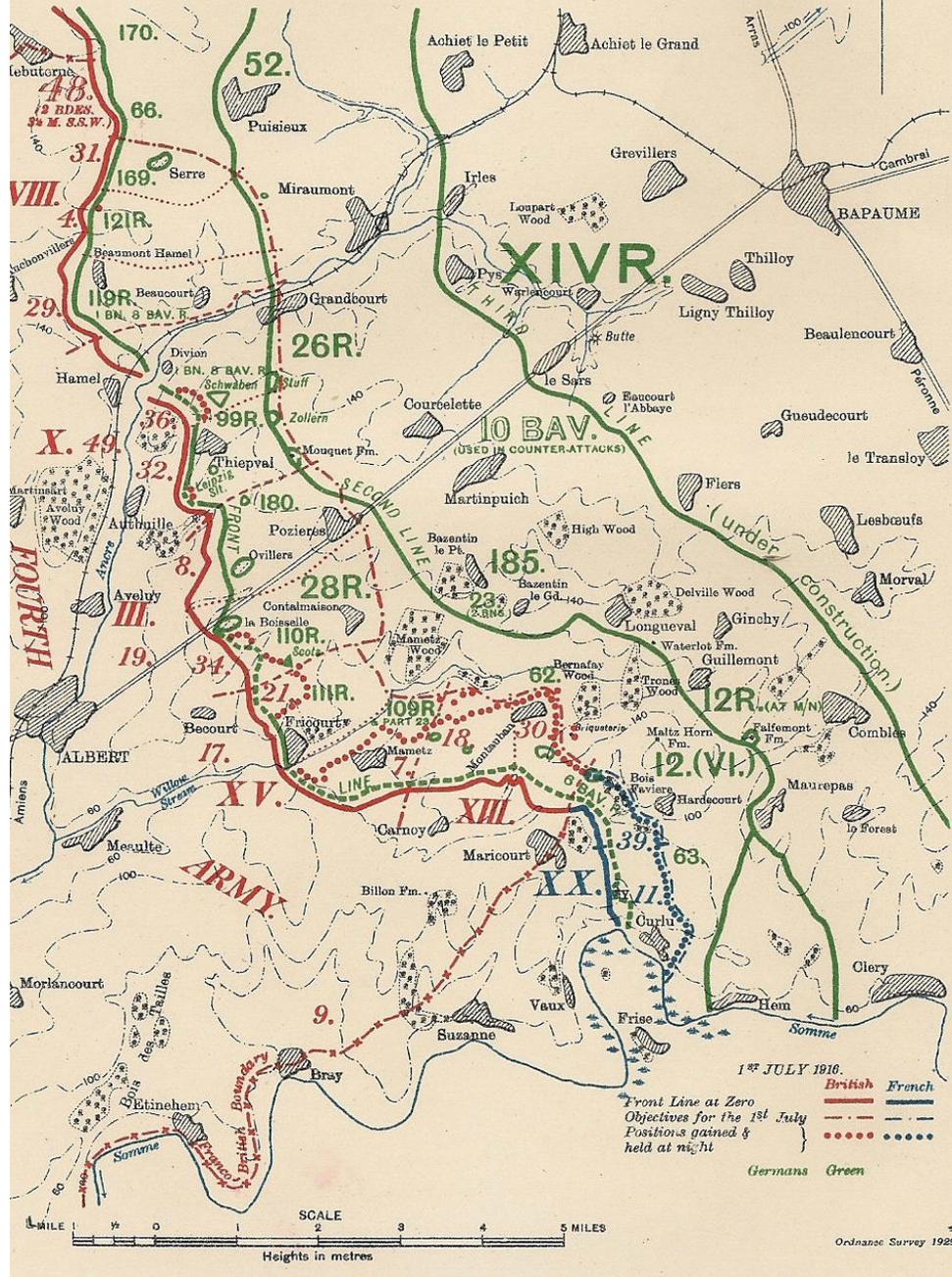
⁸⁰⁰ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 163.

⁸⁰¹ S. F. Wise, *Canadian Airmen and the First World War*, 373.

SKETCH 25.

SKETCH 26.

THE SOMME, 1916.
THE ATTACK OF THE FOURTH
ARMY ON THE 1ST JULY.
THE SITUATION AT NIGHT.



Map 2. The Somme, 1916: Ground gained evening 1 July, 1916. (*Military Operations: France and Belgium, 1916, Vol. I, 479*).

escorted attacks in big formations, realizing as he did that there would be fewer machines for reconnaissance and that more fighters would be needed.”⁸⁰² Costly though the bombing raids were, the RFC commander had no intention of stopping them. At the end of the first week of the Battle of the Somme, Trenchard sent a note back to Brancker, recapping the critical events of the week.

I have lost a good many machines lately and a certain number of pilots, but really they had done splendidly. We have done 1,200 hours’ flying a day which makes you think a bit, and a lot of pilots have done five to six hours’ flying a day, and this is going on day after day. I have lost, as you know, eight machines at low bombing, I am afraid that some of the pilots are getting a bit rattled, and it’s not popular. I have put in for two V.C.s. Contact patrols working with the infantry have been a great success this time, and the artillery work has been extraordinary. The fighting is going well, and the pilots are doing splendidly. We have crashed a good number of Fokkers and brought down a good many more than they admit. . . It’s a bit of a strain with so many hostile machines and anti-aircraft guns about. . . The depots are getting overworked mending machines that are shot to pieces and crash, issuing stores and repairing transport.⁸⁰³

During the first week of the offensive the RFC fought continuously above the ground battle with only the occasional bad weather bringing the British aircrews limited periods of respite. By 9 July, there was a noticeable increase in German air activity along the entire Fourth Army front. Twenty-four air combats took place and several German aircraft penetrated as deep as ten miles into the British rear areas.⁸⁰⁴

It was becoming more and more apparent to Haig and Trenchard that when the Germans transferred infantry divisions from Verdun to the Somme front, they were also

⁸⁰² Andrew Boyle, *Trenchard: Man of Vision*, 183.

⁸⁰³ Trenchard to Brancker, 5 July 1916, Trenchard Papers, MFC 76/1/26, RAFM. See also *Sir Sefton Brancker*, 131. RFC communiqués for the first three days of the offensive reported twenty-four aircraft lost with thirty-nine aircrew killed, wounded, or missing. ‘RFC Aircraft and Personnel Casualty Reports’, AIR 1/844/204/5/372, NA.

⁸⁰⁴ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 179.

transferring fighter squadrons to provide support to their ground forces.⁸⁰⁵ The RFC commander was not surprised by the increase in enemy air activity, he expected it. He was even more convinced this his offensive policy was proving to be an effective measure to maintain air superiority, though the costs in crews and aircraft was becoming more expensive with each passing day.⁸⁰⁶ The Germans were definitely on the defensive over the Somme battlefield and the RFC was forcing them to require more squadrons for defensive patrolling. Trenchard knew that if the GAAS continued to conduct defensive patrolling, they would not be able wrest air superiority away from his squadrons.⁸⁰⁷

When the first phase of the Somme offensive ended on 14 July, the British had gained six thousand yards at great cost. The Fourth Army had pushed forward and gained possession of the southern crest of the main plateau between Delville Wood and Bazentin-le-Petit.⁸⁰⁸ The effect the RFC played in supporting the Fourth Army was significant. Cooperation between the RFC and the infantry via contact patrols had provided results which made it clear to both ground and air commanders that this mission would be a requirement for all future operations.⁸⁰⁹ Feedback from aircrew confirmed that most information could be obtained by direct observation from a low height and if in doubt the pilot would fly low enough to draw fire, which usually verified friend from foe.

The principle is for the pilot or observer to get to know the trench system of his own and the enemy area, by direct observation and by the careful study of

⁸⁰⁵ John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon: 1914-1916*, 250-251. According to Cuneo between 6-9 July the GAAS on the Somme was reinforced by a field aviation section as well as a flight of Fokker fighters. He further states that these initial reinforcements failed to have an impact because “instead of dispatching experienced battle-trying sections, as from the Verdun sector, the Supreme Command sent units withdrawn from the Eastern Front which were unaccustomed to the more advanced type of aerial warfare on the Western Front.”

⁸⁰⁶ Andrew Boyle, *Trenchard: Man of Vision*, 183-184.

⁸⁰⁷ S. F. Wise, *Canadian Airmen and the First World War*, 374. See also Andrew Boyle, *Trenchard: Man of Vision*, 185-186.

⁸⁰⁸ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 166. See also Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 84.

⁸⁰⁹ *WITA, Vol. II*, 234-235.

maps made from photographs, so that he merely had to look at the ground and know it by heart. When the battle is being waged the observer or pilot will watch our troops from above and report their progress or otherwise by message bag to Headquarters . . . To start with it was found that the staff were somewhat disbelieving, but after a time they learnt to trust us and we were often sent back to make further observations on important points.⁸¹⁰

What was somewhat unexpected to the RFC was the comparative immunity of the aircraft conducting the contact patrols.⁸¹¹ Trenchard had directed his squadrons to take extreme risks to ensure the infantry were supported from the air.⁸¹² During the first phase of the battle the only British aircraft casualty that occurred while conducting a contact patrol was shot down by British artillery engaged in the preparatory bombardment.⁸¹³ That only one was lost from friendly fire was remarkable since almost all RFC crews flying between 500 and 1000 feet during the last week of June reported numerous occasions when British artillery shells passed visibly by their aircraft during the conduct of their missions.⁸¹⁴

The artillery direction and observation by the RFC, hampered during the last few days of June by bad weather, was conducted as well as it could have been given the conditions and the enormity of the mission. There were several occasions during the first two weeks of the offensive where bad weather or poor visibility hampered aircrews from observing the effects of counter-battery missions.⁸¹⁵ Several ground commanders commented that air observation made all the difference in whether attacks succeeded or failed. After a failed attack on Pozieres, the III Corps commander, Lieutenant General W. P. Pulteney stated: “aeroplane

⁸¹⁰ Peter Hart, *Somme Success*, 110.

⁸¹¹ Geoffrey Norris, *The Royal Flying Corps: A History*, 167-168. See also *WITA*, Vol. II, 233.

⁸¹² *WITA*, Vol. II, 233.

⁸¹³ Geoffrey Norris, *The Royal Flying Corps: A History*, 168.

⁸¹⁴ Nigel Steel and Peter Hart, *Tumult in the Clouds: The British Experience of War in the Air, 1914-1918*, (London: Hodder & Stoughton, 1997), 118. See also Jon Guttman, *Pusher Aces of the First World War*, 32; and *WITA*, Vol. II, 233.

⁸¹⁵ The dates were 4, 5, 6, 8, 10, and 11 July. See *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 176-186.

observation now appears to be an essential preliminary to a successful attack.”⁸¹⁶ He was not alone in his beliefs.

Lieutenant General Sir Thomas L. N. Morland, commander of the X Corps, sent a note through General Gough, the Reserve Army commander which provided examples in his sector of numerous successful attacks, due largely to the RFC-artillery cooperation.⁸¹⁷ At Bailiff Wood, RFC directed artillery fire destroyed fourteen German artillery positions; another thirteen artillery pieces were abandoned by their crews due to the accuracy of the fire directed by aircraft.⁸¹⁸ At Contalmaison Wood, several artillery batteries had been destroyed. The same results were found at Mametz, Caterpillar Woods, and Bottom Wood.⁸¹⁹ The division artillery commander for the 32d Division, Brigadier General J. A. Tyler stated that: “The German artillery on our front has been in a great measure destroyed by our aeroplane observation for heavy artillery.”⁸²⁰ In a note sent to Major A. B. Burdett, the commander of No. 9 Squadron, the artillery commander of XIII Corps, Brigadier General R. StC. Lecky stated that “The results obtained were entirely due to the gallant efforts of your observers and pilots.”⁸²¹

On 9 July, Trenchard had written Haig stating that his policy was intent on keeping the *GAAS* from crossing the British lines or interfering with the corps squadrons conducting reconnaissance and artillery observation and direction missions.⁸²² Even Trenchard could not have envisioned just how successful the RFC would be during the first two weeks of the campaign. Not once during this period was a corps squadron aircraft prevented from

⁸¹⁶ *WITA, Vol. II, 234.*

⁸¹⁷ Official correspondence from Morland to Gough, 18 July, 1916, Trenchard Papers, MFC 76/1/26, RAFM.

⁸¹⁸ Official correspondence from Morland to Gough, 18 July, 1916, Trenchard Papers, MFC 76/1/26, RAFM.

⁸¹⁹ *Ibid.*

⁸²⁰ *Ibid.* See also *WITA, Vol. II, 234.*

⁸²¹ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 99.

⁸²² Letter from Trenchard to Haig, 9 July, 1916, Trenchard Papers, MFC 76/1/26, RAFM.

conducting its mission by an enemy machine.⁸²³ As Trenchard realized, it was impossible to occupy the air so that no enemy aircraft could break through, the offensive patrols by the army squadrons into the German rear areas contained the GAAS to the point that they could not or did not provide the required support to their own ground forces.⁸²⁴

At the conclusion of the first phase of the Somme offensive (1-14 July), Trenchard and his staff conducted an assessment as to how successful the air service had been in assisting the Fourth Army. They found that in conducting their direct support missions before the start of the offensive, the RFC had photographed the entire battle-space that Rawlinson's army would fight on and they had reported on the condition of many of the barbed wire obstacles, enemy trenches, and on the probable strength of the German units in the Somme sector.⁸²⁵ They had been successful in keeping the corps and division headquarters informed of the location and status of their units during the initial and subsequent attacks, doing their best to prevent a ground attack from failing due to a commander's lack of situational awareness.⁸²⁶ At the same time and as equally important, there were several incidents where RFC crews prevented the British artillery from firing on British troops as the advancing units moved quicker than the artillery timetable had planned.⁸²⁷

RFC aircraft also conducted low-level bombing and strafing attacks on German artillery and infantry units with much success. The ground commanders were also especially pleased with the aerial observation and direction of artillery, both before and during the first phase of the battle which neutralized the fire of many German artillery batteries, and destroyed trenches and strong points that were holding up the infantry advance.⁸²⁸

⁸²³ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 98-99.

⁸²⁴ *WITA*, Vol. II, 235.

⁸²⁵ *Ibid.*

⁸²⁶ *Ibid.*

⁸²⁷ *Ibid.*

⁸²⁸ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 98-99.

At the same time, the army squadrons sought out and engaged the German fighters and bombers with an almost incredible intensity.⁸²⁹ They prevented the GAAS from providing aerial observation to his artillery batteries, direct support to his defending infantry and also preventing bombers from interdicting the advancing British infantry. On no occasion did a German aircraft attack the Fourth Army rear area where huge logistic centers had been established to support the offensive.⁸³⁰

There were also the intangible effects on troop morale, both British and German, in which the RFC had a great impact because of its domination over the Somme during this phase.

The morale of the British infantry before they went into the line suffered nothing from aircraft bombing. Moreover when the infantry moved up to attack they could do so in the knowledge that no spying aeroplanes would turn the German guns on to them; and they could go into battle reasonably assured that any rapid enemy movements to counter them would not go unnoticed by their own airmen.⁸³¹

Numerous battalion and brigade officers within Fourth Army reported similar comments to their division and corps commanders who then informed Rawlinson and Haig of the positive impact the RFC was having on soldier morale.⁸³²

The commander of the German Second Army also had high praise for the RFC. General Fritz von Below was fully cognizant that the RFC had gained aerial superiority of the skies over the Somme by the spring of 1916.

The beginning and the first weeks of the Somme battle were marked by a complete inferiority of our own air forces. The enemy's aeroplanes enjoyed complete freedom in carrying out distant reconnaissances. With the aid of aeroplane observation, the hostile artillery neutralized our guns and was able to range with the most extreme accuracy on the trenches occupied by our infantry; the required data for this were

⁸²⁹ Tyrrel M. Hawker, *Hawker, V. C.*, 188-189.

⁸³⁰ *WITA, Vol. II*, 234-235.

⁸³¹ *Ibid.*, 236.

⁸³² Charles Carrington. *Soldier From the Wars Returning* (New York; David McKay Company, Inc., 1965) 110. See also John Terraine, *General Jack's Diary: War on the Western Front, 1914-1918*, (Cassell & Co., 2000), 155; Anthony Farrar-Hockley, *The Somme*, 122; Malcolm Brown, *The Imperial War Museum Book of the Somme*, (London: Sidgwick & Jackson, 1996), 165-166.

provided by undisturbed trench reconnaissance and photography. By means of bombing and machine-gun attacks from a low height against infantry, battery positions and marching columns, the enemy's aircraft inspired our troops with a feeling of defencelessness against the enemy's mastery of the air. On the other hand, our own aeroplane's only succeeded in quite exceptional cases in breaking through the hostile patrol barrage and carrying out distance reconnaissances; our artillery machines were driven off whenever they attempted to carry out registration for their own batteries. Photographic reconnaissance could not fulfill their demands made upon it. Thus at decisive moments, the infantry frequently lacked the support of the German artillery either in counter-battery work or in barrage on the enemy's infantry massing for attack. Heavy losses in personnel and material were inflicted on our artillery by the enemy's guns, assisted by excellent air observation, without our being able to have recourse to the same methods. Besides, both arms were exposed to attacks from the air by the enemy's battle-planes, the moral effect of which could not be ignored⁸³³

The German commander was not alone in his praise for the RFC. A German soldier in the 24th Infantry Division was one of many who felt the direct effect's of the RFCs presence over the battlefield. He voiced his anger at the GAAS's lack of courage in a letter home.

Now just a word about our own aeroplanes. Really one must be almost too ashamed to write about them; it is simply scandalous. They fly up to this village but no further, whereas the English are always flying over our lines directing artillery shoots, whereby getting all their shells, even those of heavy caliber right into our trenches. Our artillery can only shoot by the map as they have no observation."⁸³⁴

Several days later the 24th Infantry Division was moved forward into the front line trenches near Warlencourt. The same soldier updated his family on his situation in a second letter home.

What a bad position this is! You have to stay in your hole all day and must not stand up in a trench because there is always a crowd of English [aircraft] over us. Always hiding from aircraft. Always, with about eight or ten English machines overhead, but no-one sees any of ours. If German machines go up at all, they are only up for five minutes and then retire in double-quick time. Our airmen are a rotten lot.⁸³⁵

⁸³³Extract from "The Experiences of the German First Army in the Somme Battle', General von Below, AIR 1/911/204/5/838, NA. The report's title was in error as von Below actually commanded the German Second Army at the beginning of the Battle of the Somme.

⁸³⁴Extracts from Captured German Documents and Correspondence', (SS 473), 3, Department of Documents, IWM.

⁸³⁵ Ibid., 4.

It was evident that the RFC was having a direct impact on the German units opposite the British Fourth Army. Relief of front line units had to take place at night or during extremely bad weather. Any attempt to conduct these operations in daylight would bring down a barrage of artillery fire, directed and observed by RFC aircraft.⁸³⁶ Reinforcements, food, water and most importantly ammunition, had to be brought from the rear area to the front lines during hours of darkness for the same reason.⁸³⁷

As successful as the RFC was in the opening phase of the battle, it was evident to Trenchard and most of the BEF's leaders, that the most the RFC "could contribute must remain a small part of the whole. Command of the air in this war would never make the difference between success and failure on the ground."⁸³⁸

The second phase of the battle lasted almost two months, from 15 July to 14 September. The Fourth Army continued its battle of attrition, with the fiercest fighting taking place on the British right flank.⁸³⁹ A sharp salient had formed there at Delville Wood and Longueval which allowed the Germans to concentrate observed fire on the wood and the village. Rawlinson directed that this salient be eliminated but bad weather postponed the attack and allowed the Germans to prepare new defensive positions.⁸⁴⁰ Another delay was caused by a German counter-attack against the village of Longueval on the 18th and 19th of July. To assist the forces fighting in Longueval, several British and South African brigades attacked High Wood.⁸⁴¹ RFC observers from Number 3 Squadron flew continuous contact

⁸³⁶ Malcolm Brown, *The Imperial War Museum Book of the Somme*, 165-171.

⁸³⁷ Ibid.

⁸³⁸ Trevor Wilson, *The Myriad Faces of War: Britain and the Great War, 1914-1918*, (Cambridge, England: Polity Press, 1986,

⁸³⁹ *WITA*, Vol. II, 237.

⁸⁴⁰ Ibid.

⁸⁴¹ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 85-86.

patrols and reported that all but the northern portion of High Wood had been captured by nightfall.⁸⁴²

During the several days of bad weather the Germans had constructed a series of new trenches near Le Sars and Courcelette which were identified by crews from Number 4 Squadron.⁸⁴³ Number 3 Squadron also identified a major new trench system between Le Transloy and Warlencourt and major improvements to the third line between Eaucourt l'Abbaye and Flers.⁸⁴⁴

The RFC also reported that the village of Flers was strongly held by the enemy but more importantly discovered a new trench system had been built 300 yards forward of the Switch line, the main objective for III Corps in the coming attack.⁸⁴⁵ The RFC crew landed and immediately reported to the III Corps commander what they had seen. Based on their first hand knowledge, the corps commander amended his plan of attack and made this new trench the first objective for the 19th Division instead of the Switch line.⁸⁴⁶

On 23 July, after a forty-eight hour bombardment along the whole front from Trones Wood to Pozieres, British troops began their attack at 0130. The Germans had reinforced their front lines and again used their machine-guns to good effect. The advance of the Fourth Army was repulsed except for the foothold achieved at Pozieres, with heavy loss.⁸⁴⁷ By the end of the month XIII Corps had gained control of Delville Wood, XV Corps had captured

⁸⁴² Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 85-86.

⁸⁴³ *WITA, Vol. II*, 238.

⁸⁴⁴ *Ibid.*

⁸⁴⁵ *Ibid.*, 239.

⁸⁴⁶ *WITA, Vol. II*, 239.

⁸⁴⁷ *Ibid.* In capturing what was left of the village of Pozieres the 2d Australian Division suffered more than 3,500 casualties in eight days. See Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 90.

Longueval and had advanced forward to High Wood; III Corps was positioned along Munster Alley.⁸⁴⁸

Haig convinced himself that these attacks would break the German line and so he persisted with them into August.⁸⁴⁹ These attacks would set the stage for his next major attack in September, where he would use a new secret weapon; one that he hoped would ensure the breakthrough that he was so desperate for.

The RFC continued to conduct contact patrols above the advancing infantry and report back to the ground commander. Aerial observation and direction of artillery and aerial reconnaissance also proceeded with little interruption from German aircraft. However there were subtle changes in German air operations that convinced Trenchard that the enemy was learning from the RFC and was about to change their tactics in the air.⁸⁵⁰ On 19 July, the GAAS supporting von Below's army received three additional reconnaissance flights (*Feldflieger Abteilungen*) of six aircraft each, one artillery flight (*Artillerie Flieger Abteilung*) of four aircraft, one bomber-fighter squadron (*Kampfgeschwader*) with thirty six aircraft plus an additional bomber-fighter flight (*Kampfstaffel*) with eight aircraft.⁸⁵¹ Two new fighter squadrons (*Kampfeinsitzer Staffeln*) had also been formed by combining single-seat fighters that had been withdrawn from various artillery and reconnaissance units. As the British began the second phase of the Somme offensive, the GAAS had greatly increased its strength in that sector to 164 aircraft.⁸⁵²

During the first phase of the offensive it was rare for a British pilot to report any contact with German fighters but this changed once the two new *Kampfeinsitzer Staffeln*

⁸⁴⁸Sir James E. Edmonds, *Military Operations, France & Belgium, Vol. II*, 204 and 104 respectively. See also Martin M. Evans, *The Battles of the Somme* (Osceola, WI: Motorbooks International Publishers, 1996), 38-42.

⁸⁴⁹ Sir James E. Edmonds, *Military Operations, France & Belgium, Vol. II*, 233-234.

⁸⁵⁰ S. F. Wise, *Canadian Airmen and the First World War*, 381. See also *WITA, Vol. II*, 239.

⁸⁵¹ *WITA, Vol. II*, 236.

⁸⁵² *Ibid.*, 236-237.

arrived on the Somme. Realizing that the Germans were transferring fighter units from the south to reinforce their Somme front, Trenchard had directed Number 32 Squadron with its DH 2's to move south to reinforce this sector. They landed at Vert Galand airfield on 21 July.⁸⁵³ This date would signal a noticeable increase in air combats that would continue for the remainder of the battle.⁸⁵⁴

The previous evening, four aircraft led by Captain R. E. A. W. Hughes-Chamberlain from Number 24 Squadron engaged eleven German aircraft over Flers, shooting down three of them and driving down another two.⁸⁵⁵ At 0630 on 21 July, Number 24 Squadron's Captain J. O. Andrews led a flight of five DH 2's, along with two FE 2b's from Number 22 Squadron and they engaged five Rolands and five Fokker Eindeckers over Roisel. One of the Fokkers was shot down and three others were damaged while the others were dispersed. One of the DH 2's and both FE 2b's were also damaged and forced to return to the British lines. Now with only four aircraft, Andrews continued the patrol towards Peronne where they linked up with Number 24's squadron commander, Major Lanoe Hawker. They encountered four LVG's headed for the British lines. Hawker signaled the attack and they chased the German aircraft all the way back to their airfields before being forced to return to the British side of the lines due to lack of fuel.⁸⁵⁶

Later that evening, six RFC aircraft from three different squadrons, including Number 24 Squadron, attacked fifteen German machines over Bapaume in an air battle which lasted more than thirty minutes.⁸⁵⁷ This was very unusual, for most air combats lasted only a few minutes and the trend had been for the Germans to disengage and beat a retreat back to base

⁸⁵³ Trevor Henshaw, *The Sky Their Battlefield*, 96.

⁸⁵⁴ Ibid.

⁸⁵⁵ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 190-192.

⁸⁵⁶ Number 24 Squadron Air Combat Report, 21 July, 1916, AIR 1/1221/204/5/2634/24, NA.

⁸⁵⁷ Trevor Henshaw, *The Sky Their Battlefield*, 96.

before they were shot down or damaged. Five German aircraft were shot down with no losses for the British.⁸⁵⁸

On 22 July, Trenchard sent a note to Haig informing him of the noticeable increase in German air activity.⁸⁵⁹ He reiterated his message requesting more fighter squadrons and at the same time warned that he believed the enemy was about to make an attempt to challenge the RFC's superiority above the Somme.⁸⁶⁰

It was during the second phase of the Somme offensive where Trenchard drew a new wave of criticism from the political leadership back in London.⁸⁶¹ Most of it was focused on the increasing aircrew losses and his refusal to relax the pressure on his squadrons, especially those supporting the Fourth Army. It was for this reason that Trenchard would accept no criticism from within his own command or any insinuation that his strategy was not the correct strategy to follow.⁸⁶²

In early August, LTC Hugh C. T. Dowding, commander of the Ninth Wing, requested that one of his squadrons, Number 60, be temporarily withdrawn from frontline service to rest and reconstitute after having suffered a fifty percent casualty rate in less than four weeks.⁸⁶³ Dowding's request was both reasonable and feasible. A commander whose unit had suffered such heavy casualties in such a short period of time would be derelict not to discuss the issue of relief with his senior commanding officer. Trenchard did not see it that way however, and was afraid that Dowding's concerns over the high number of casualties might spread alarm to

⁸⁵⁸ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 193-194. See also *WITA. Vol. II.*, 262-263.

⁸⁵⁹ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 177-178.

⁸⁶⁰ *Ibid.*

⁸⁶¹ Andrew Boyle, *Trenchard: Man of Vision*, 184

⁸⁶² *Ibid.*

⁸⁶³ Basil Collier, *Leader of the Few: The Authorized Biography of Air Chief Marshal the Lord Dowding of Bentley Prior*, (London: Jarrolds, 1957), 105-120. See also John H. Morrow, Jr., *The Great War in the Air*, 169.

the other wing and squadron commanders which might then lead some of them to question his ‘incessant offensive’ strategy.⁸⁶⁴



Lieutenant Colonel Hugh Dowding. (IWM HU86613)

Dowding had had what would appear on the surface to have been several minor confrontations with Trenchard before the air campaign over the Somme. The first occurred when Dowding was assigned to a new squadron being formed at Farnborough when the war began. Having just earned his RAeC certificate and graduated from the CFS in the spring of 1914 and thinking the war might be over before his squadron would be operationally ready to deploy, Dowding met with the RFC commandant, then Major Hugh Trenchard, to request a transfer to a squadron in France.⁸⁶⁵ Dowding admits to having pestered Trenchard several times a week until finally he got what he requested, but not exactly. He was posted to France but not as a pilot. Instead he was sent out as an observer. “It was by way of being a fearful

⁸⁶⁴ Andrew Boyle, *Trenchard: Man of Vision*, 184.

⁸⁶⁵ Robin Wright, *The Man Who Won the Battle of Britain*, (New York: Charles Scribner’s Sons, 1969), 30-31.

insult to send out a qualified pilot as an observer, but I was well enough content.”⁸⁶⁶ In early 1915, he was posted as a Flight Commander to Number 9 Squadron which had been assigned to experiment with wireless communications for the RFC. After some operational work in France, Dowding and the squadron were sent back to Brooklands to form the Wireless Experimental Establishment.⁸⁶⁷ His experiences with this unit made him one of the premier experts in the use of wireless within the British Army.⁸⁶⁸

Dowding returned to France in the summer of 1915 to take command of Number Squadron 16 which was a subordinate unit within Trenchard’s First Wing.⁸⁶⁹ It was during this period that he had his second run-in with Trenchard. Several of his squadron aircraft were equipped with 80 horse-power engines and had received propellers meant for similar engines but with much less power capability. After trying to get the right propellers through his supply channels and making no headway, Dowding notified First Wing headquarters of the problem. Several days later Dowding was told that both types of engines used the same propeller. Dowding argued that that the propeller made for the less powerful engine did not fit the nosepiece of the more powerful engine as the bolt-holes were in different places.⁸⁷⁰ Trenchard then got involved and directed that a trial flight be conducted with an aircraft carrying a propeller whose hub had been bored out to fit the nosepiece of the stronger engine. Believing the modification might make the aircraft dangerous in the air and put the pilot’s life at risk, Dowding conducted the trial flight himself. Upon safely landing he notified Trenchard directly

⁸⁶⁶ Robin Wright, *The Man Who Won the Battle of Britain*, (New York: Charles Scribner’s Sons, 1969), 30-31.

⁸⁶⁷ Ibid.

⁸⁶⁸ Dowding claimed that he “was the first person, certainly in England if not in the world to listen to a wireless telephone message from the air.” He also argued that had he not been directed by the War Office to stop all work on two-way radio-telephone communication between the air and the ground, the RFC would have had this capability by mid- 1916 if not earlier. Robin Wright, *The Man Who Won the Battle of Britain*, 31.

⁸⁶⁹ Robin Wright, *The Man Who Won the Battle of Britain*, 31.

⁸⁷⁰ Ibid, 32-33.

that the propeller had not splintered or fractured under stress. Trenchard's answered by informing his irate squadron commander that in fact Dowding had been correct.⁸⁷¹ The French manufacturer had indeed shipped the wrong propellers to the RFC and the correct ones were being shipped to Number 16. Dowding was rightfully upset that his commander had taken "the word of 'some half-baked motor-salesman from Paris' against that of an experienced commander" and even more so because Trenchard refused to admit he had made a mistake.⁸⁷²

After promotion to Lieutenant Colonel, Dowding spent some months in the Administrative Wing at Farnborough. When the RFC was reorganized into brigades with corps and army wings, two squadrons were assigned to RFC headquarters to form the 9th Headquarters Wing and Dowding was selected to command it.⁸⁷³ Either the two incidents between the RFC commander and Dowding were forgotten or more likely Trenchard gained a better appreciation for Dowding's leadership and selected him because of how he handled the incidents.⁸⁷⁴

Arriving back in France four weeks before the start of the Somme offensive, Dowding's squadrons were equipped with two flights of the recently arrived Sopwith 1 and 1/2 Strutter, a squadron of Martinsyde Scouts, a squadron of Morane monoplane Scouts and a squadron with RE 7's. Their principle duties were strategic reconnaissance for Haig's headquarters but they also played a major role in Trenchard's tactical bombing campaign before and after the start of the offensive.⁸⁷⁵ Dowding's two scout squadrons were also instrumental in securing air superiority over the Somme in the weeks before the battle

⁸⁷¹ Basil Collier, *Leader of the Few: The Authorized Biography of Air Chief Marshal The Lord Dowding of Bentley*, 111-112.

⁸⁷² Ibid.

⁸⁷³ Basil Collier, *Leader of the Few: The Authorized Biography of Air Chief Marshal The Lord Dowding of Bentley*, 113.

⁸⁷⁴ Ibid.

⁸⁷⁵ Ibid., 114.

began.⁸⁷⁶ It was hoped that the bombers would not need escorts if the scout squadrons could maintain aerial superiority but heavy casualties amongst the BE 2c and RE 7 squadrons forced Dowding and the other wing and squadron commanders to provide escorts as often as possible. As the GAAS began to transfer fighter squadrons away from Verdun to reinforce the Somme, the number of aerial combats began to grow expeditiously and with them so too did the casualties amongst RFC aircrew.⁸⁷⁷

As the casualties mounted within Dowding's wing he became convinced that Trenchard's strategy for "relentless and incessant offensive" operations was incorrect.⁸⁷⁸ With a finite amount of aircraft and aircrew per squadron available, he realized that RFC squadrons supporting the Fourth Army could only put up several flights at any given time of the day thus allowing the Germans to mass their aircraft at a time and place of their choosing.

Unwilling to publicly challenge Trenchard's strategy during the first month of the battle, Dowding, instead fought the order that forbid squadron or wing commanders from flying across enemy lines on operations.⁸⁷⁹ He strongly believed that by flying with his men he could at least be an active participant in what he was ordering them to do. Surprisingly, Trenchard gave Dowding permission to lead a formation of sixteen aircraft on a bombing operation during the second week of July.⁸⁸⁰ Lieutenant Donald Brophy, a Canadian pilot with Number 21 Squadron recorded his thoughts about the mission after its completion.

The Colonel decided he would lead us to show us how. He was to lead and Captain Carr and I were next, four others in pairs behind and nine scouts. At 6,000 feet we met thick clouds and when I came through I couldn't see anyone anymore, so I just flew around and finally sighted three machines. I

⁸⁷⁶ Gerald Gliddon, *The Battle of the Somme: A Topographical History*, (Gloucestershire, England: Sutton Publishing Limited, 1998), 441-442 and 444-445.

⁸⁷⁷ *WITA*, Vol. II, 264. As an example, on 30 July the RFC encountered more German aircraft during one twelve-hour period since the start of the air campaign in April.

⁸⁷⁸ Basil Collier, *Leader of the Few: The Authorized Biography of Air Chief Marshal The Lord Dowding of Bentley*, 114.

⁸⁷⁹ *Ibid.*

⁸⁸⁰ *Ibid.*

went over and found Carr and the Colonel and two scouts, so I got into place and the Colonel went over the lines, and kept circling to get higher for half an hour, right over the lines. I thought this was a foolish stunt, as I knew the Huns could see us and would be waiting for us. I was very surprised that they didn't shell us, but there was a battle on and they were probably too busy. We were right over Albert, as I recognized two huge mine craters that had been sprung July 1st. When we did cross over with only two scouts, we hadn't been over more than a couple of minutes before I saw three Fokkers coming towards us and a couple of LVGs climbing up to us. Another Fokker was up above me and behind, between our two scouts. I knew he was going to dive at one of us, but expected the scouts to see him and attack him, so I didn't bother about him, but began to get the stop-watch time of my bomb-sight to set it for dropping. While I was doing this I suddenly heard the pop-pop-pop's of machine guns and knew the Huns had arrived. I looked and saw them diving in amongst us and firing. There were seven LVGs and three Fokkers as far as I could make out, but they went so fast I could hardly watch them. Our scouts went for them and I saw the Colonel turn about. My gun being behind me I couldn't get in a shot and turned around after Carr and the Colonel. They fired some more as we went back and didn't hit me. The Colonel was hit and the show was over. He had about a dozen bullets in his machine and was hit in the hand. His gun was shot through and his observer hit in the face. He probably won't try to lead us again.⁸⁸¹

Dowding suffered a grazed hand though the same bullet shattered his cockpit's instruments. Fortunately his observer was only slightly wounded.⁸⁸² As Lieutenant Brophy had inferred, Dowding was not current on the latest aerial tactics and thus had put his formation at risk and suffered the consequences for it.⁸⁸³ Though his leadership and administrative skills were admired by all who served with him, Dowding was not proficient as an operational pilot or flight leader and lacked situational understanding of the changing conditions of aerial combat then taking place over the Somme.⁸⁸⁴

Three weeks later, Dowding submitted his request to Trenchard to withdraw Number 60 Squadron temporarily from the battle. Both operationally and tactically it was a valid request and Dowding believed that the units that were most heavily engaged in the air

⁸⁸¹ S. F. Wise, *Canadian Airmen and the First World War*, 376-377.

⁸⁸² Basil Collier, *Leader of the Few: The Authorized Biography of Air Chief Marshal The Lord Dowding of Bentley*, 114-115.

⁸⁸³ Peter Hart, *Somme Success*, 114.

⁸⁸⁴ *Ibid.*

campaign over the Somme would and could be replaced on a temporary basis from squadrons who were not committed to the fight such as those operating further north in the much quieter Ypres sector. Somewhat surprisingly to the RFC staff, Trenchard approved the request and notified Haig of his decision.

I have had to withdraw one of the GHQ fighting squadrons from work temporarily. . . This squadron, since the battle began, have lost a squadron commander, two flight commanders and one pilot—all killed or missing, and yesterday it lost two more machines and two pilots and two observers by anti-aircraft fire. Besides this, they have had several officers wounded. They have a difficult machine to fly [Morane Parasol monoplane], and I think a rest away from work is absolutely necessary.⁸⁸⁵

Though he approved the request Trenchard questioned Dowding's resolve. Though Dowding had not publicly criticized Trenchard's offensive strategy the perception amongst some of the RFC staff who believed that by requesting an entire squadron be pulled out of the campaign at a critical time was in itself a challenge towards the strategy then in use.⁸⁸⁶ Concerned about a drop in aircrew morale due to the increasing number of casualties, Trenchard was more concerned about Dowding's morale. Dowding commanded one of the nine wings within the RFC and if his morale was shaken, Trenchard was convinced that aircrew morale would not be "restored by a wing-commander who gave him the impression of being obsessed by the fear of further casualties."⁸⁸⁷ Trenchard notified Brancker that Dowding had become a 'dismal Jimmy' and that he would replace him as soon as events would allow it.⁸⁸⁸

One of Trenchard's subordinate wing commanders, Lieutenant Colonel E. R. Ludlow-Hewitt, tried to explain the RFC commander's actions in relieving Dowding.

Trenchard at this time was bearing a stupendous burden, persevering in his offensive policy despite terrible losses. In this he proved of his faith in his men and his own strategical vision. . . . Trenchard later recognized that he had

⁸⁸⁵ Trenchard to Haig, 3 August, 1916, Trenchard Papers, MFC 76/1/26, RAFM. See also *WITA, Vol. II*, 256.

⁸⁸⁶ Andrew Boyle, *Trenchard: Man of Vision*, 184.

⁸⁸⁷ *Ibid.*

⁸⁸⁸ Trenchard to Brancker, 19 August, 1916. Trenchard Papers, MFC 76/1/7, RAFM.

misjudged Dowding. Though normally a good judge of men, Trenchard was liable at times to be misled by his own prejudices; and then, as in this case, he could be unjust. He hated complaints which he thought could be bad for morale and even when they were fully justified he was inclined to react against the complainant. Trenchard seldom admitted a mistake but when he recognised it [he] would quietly do his best to make amends.⁸⁸⁹

Six weeks later Dowding was promoted to colonel and sent back to England where he joined the Southern Training Brigade whose primary mission was the conduct of pilot training and building new squadrons for the RFC. For the remainder of the war Dowding was involved with the training of aircrew in a variety of duties but he never served in another operational unit until long after the war came to an end.⁸⁹⁰

Only Haig and Trenchard's aide, Major Maurice Baring, understood the monumental burden that the commander of the RFC carried on his shoulders during the first two months of the Somme campaign. He continuously stressed his offensive tactics despite the terrible losses his squadrons were suffering and with the air fighting over the Somme consuming his small reserves he formulated a plan for what the RFC would require both in fighter squadrons and aircrews for 1917.⁸⁹¹

In early August, Trenchard requested ten squadrons to conduct long-range bombing, fifty-six fighter and army co-operation squadrons and sixty observation balloon units. This was more than a fifty percent increase in the overall strength of the RFC on the Western Front.

⁸⁸⁹ Andrew Boyle, *Trenchard: Man of Vision*, 184.

⁸⁹⁰ To Trenchard's credit he did not ruin the career of a very capable officer. Dowding became an authority on training, most especially that involving aircrew. In the summer of 1917, at the age of thirty-four he was promoted to brigadier-general. Several years after the war, Dowding worked directly for Trenchard who was then serving as the Chief of the Air Staff. "To my surprise there was no friction between us." In a conversation the two shared Trenchard stated "Dowding . . . I don't often make mistakes about people [but] I made one about you." As Member of the Air Council for Research and Development, Dowding would become a huge advocate for the use of radar and as the commander of Fighter Command would become even more renowned as "The Man Who Won the Battle of Britain." See also "Air Chief Marshal Lord Dowding" by Gavin Lyall in *The War Lords: Military Commanders of the Twentieth Century*, ed. Field Marshall Sir Michael Carver, (Boston: Little, Brown and Company, 1976), 202-212.

⁸⁹¹ Andrew Boyle, *Trenchard: Man of Vision*, 185.

Though it was endorsed by Haig, once his request reached the War Office in London it was passed from office to office but gained little support.⁸⁹²

Because the RFC had gained air superiority over the Somme, most political and military leaders back in England ignored Trenchard's request. They argued that the incremental increase of a few squadrons over the previous year's plan would suffice. It was this mentality of attrition warfare however that would have almost cataclysmic results for the RFC in the spring of 1917. Just as important were the heavy losses the RFC had sustained in July and August. Though Trenchard was concerned about his high casualty rate he was convinced they would decrease as the campaign continued since he believed that the GAAS was suffering even heavier losses in men and aircraft than the RFC. In reality the Germans had only lost 19 aircraft over the Somme during the month of July, 17 of them in aerial combat. Their total losses in August remained nearly the same with another 17 shot down by the RFC. German aircrew casualties amounted to less than sixty over the eight week period.⁸⁹³

Because of the RFC's success, Trenchard vowed to overcome any obstacle to ensure that his airmen were taken care of.⁸⁹⁴ His visits to the twenty-seven squadrons in northern France ensured he had the pulse of his force.⁸⁹⁵ He met and talked daily with squadron commanders, pilots, observers and the ground crews. He argued, haggled, cajoled and demanded more fighter squadrons from Brancker and ultimately the War Office, especially

⁸⁹² Trenchard to Brancker, 6 August, 1916, Trenchard Papers, MFC 76/1/7, RAFM. See also Boyle, 184-185.

⁸⁹³ Norman Franks, *Sharks with Minnows*, 126 and 135. During the first week of July the RFC casualty rate exceeded more than ten aircrew killed, wounded or missing for every hundred aircraft available for operations. Losses dropped after the first week but for the entire month of July total aircrew casualties were 111. Total aircrew casualties for August were 96. AIR 1/509/16/3/54, NA. See also RFC daily communiqués in *Royal Flying Corps, 1915-1916*, 204-239.

⁸⁹⁴ Andrew Boyle, *Trenchard: Man of Vision*, 185.

⁸⁹⁵ Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 152-190.

those equipped with the DH 2.⁸⁹⁶ He also ensured the supply system provided the latest improvements in flying clothing to his men since more than a few suffered from frost bite in their open cockpits. He also established a leave plan for aircrews in which they had to take leave every six to eight weeks, primarily to prevent exhaustion as Trenchard expected the air campaign to last many months. In July and August alone his aircrews were averaging a minimum of six to eight hours a day in the air.⁸⁹⁷ He knew this would have to be sustained long after the ground campaign came to an end if the RFC was to maintain their mastery of the air.⁸⁹⁸

As Trenchard maintained his focus on the readiness and capabilities of his operational squadrons, he also directed that the bombing campaign concentrate on interdicting the movement of reinforcements and the destruction of enemy logistics centers and depots behind the German front lines.⁸⁹⁹ By doing this he knew it would greatly support the Fourth Army and at the same time keep the GAAS on a defensive footing. With this in mind he identified a new target worthy of his bomber squadrons: the German airfields themselves.⁹⁰⁰ From mid-July through early September RFC bombers began to take the war directly to the GAAS. Although in most cases only several hangers or aircraft were destroyed, the effects were much greater on the morale of the German airmen.⁹⁰¹

The German airfields at Douai, Queant, Bertincourt, Velu, Beaucamp, Trescault, and Hervilly were all attacked repeatedly during this eight-week period, primarily by two

⁸⁹⁶ Prior to the start of the second phase of the offensive, Trenchard sent at least five letters to Brancker request more fighter aircraft and specifically the DH 2 and FE 2b, (7 April, 2 June, 15 June, 2 July, and 8 July). See Trenchard to Brancker correspondence, Trenchard Papers, RAFM.

⁸⁹⁷ Andrew Boyle, *Trenchard: Man of Vision*, 183. See also *Sir Sefton Brancker*, ed. Norman Macmillan, 131-133.

⁸⁹⁸ *Ibid.*

⁸⁹⁹ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 182-184. See also *WITA, Vol. II*, 251-259; Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 102-104.

⁹⁰⁰ *WITA, Vol. II*, 259-261.

⁹⁰¹ Trevor Henshaw, *The Sky Their Battlefield*, 98-110.

squadrons: Number 27 and Number 70.⁹⁰² These two units worked well together with the only major difference between the two was that Number 27 Squadron was equipped with the Martinsyde Scout single-seat aircraft and Number 70 Squadron flew the first RFC aircraft equipped with a synchronized forward firing machine gun, The Sopwith 1 and 1/2 Strutter.⁹⁰³ The Sopwith was also equipped with the newly designed Scarff ring mount, which revolutionized the observer's ability to quickly train and aim his twin Lewis machine guns onto incoming enemy aircraft. The new gun mount had a direct impact on crew and aircraft survivability. Trenchard demanded that all RFC two-seaters be immediately equipped with this new and improved gun mount. It would prove so successful that the French and American Air Services would adopt it for their own aircraft later in the war.⁹⁰⁴

The RFC also concentrated on the destruction of German observation balloons, which were used in similar fashion by the British, as a source to gather intelligence and to observe and direct artillery fire. In the first week of August alone the RFC conducted thirty aerial attacks against the German balloons along the Fourth Army Front, destroying six of them.⁹⁰⁵

Balloons were extremely difficult to destroy as they were protected on the ground by several anti-aircraft batteries.⁹⁰⁶ To destroy a balloon, the British pilot would have to penetrate an incredible amount of anti-aircraft fire with a single pass being about all the attacking pilot would get before he would need to fight his way home, usually into a stiff west wind.

⁹⁰² *WITA, Vol. II*, 259-261. See also Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 102-104.

⁹⁰³ Gerald Gliddon, *The Battle of the Somme: A Topographical History*, 445-446. See also Kenneth Munson, *Bombers, Patrol and Reconnaissance Aircraft, 1914-1919*, 134-135.

⁹⁰⁴ *WITA, Vol. II*, 261. See also Jack Herris and Bob Pearson, *Aircraft of World War I: 1914-1918*, 31-32.

⁹⁰⁵ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 204-213. See also Alex Imrie, *A Pictorial History of the German Army Air Service, 1914-1918* (Chicago: Henry Regnery Company, 1971), 34.

⁹⁰⁶ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 89-93 and 179-180; See also Colin Pengelly, *Albert Ball V. C.: The Fighter Pilot Hero of World War I*, (London: Pen & Sword Books Ltd., 2010), 57; James T. B. McCudden, *Flying Fury: Five Years in the Royal Flying Corps*, (New York: Doubleday & Company, Inc., 1968), 109.

As the ground battle continued into late August, the RFC maintained its superiority in the air. Corps aircraft supported the infantry with daily contact patrols and the artillery by directing their fires, but as the Official Historian identified “there were signs of a further increase in the German aircraft at the front.”⁹⁰⁷ The RFC continued its bombing campaign against German logistic sites and airfields with more and more success.⁹⁰⁸ The army squadrons sought out and engaged any German aircraft they could find and protected the corps aircraft from the enemy fighters that did try to intercept them.⁹⁰⁹

There were three main reasons that the RFC was able to maintain aerial superiority over the Somme as the offensive entered its third month: First, the continuation of Trenchard’s offensive policy of taking the air war to the enemy. Second, the GAAS’s continued reliance on a defensive strategy; and three, the superiority of the British fighters over the German Fokkers, most especially the DH 2, the FE 2b, and the Sopwith 1 and 1/2 Strutter.⁹¹⁰ Based on their lack of success against the RFC and their inability to prevent British aircraft from carrying out their assigned missions, July and August, 1916 were the blackest days in the history of the GAAS.⁹¹¹ Noted German aviation historian John Cuneo summarized the impact that the RFC had on the GAAS during these two critical months of the air campaign when he wrote “It had been swept into the rear areas and was unable to render the slightest assistance to the ground forces. The latter lost faith in them, but worse than that, its own faith in itself was shaken.”⁹¹² Though the British and French air services held a two to one superiority over the GAAS in aircraft by the middle of August and the allies controlled the skies over the Western Front, the German air service was far from being a defeated force.

⁹⁰⁷ *WITA, Vol. II, 267-269.*

⁹⁰⁸ *Ibid.*, 259-260.

⁹⁰⁹ *Ibid.*, 262-268.

⁹¹⁰ Air Historical Branch, *The Royal Air Force in the Great War*, 123.

⁹¹¹ John R. Cuneo, *Winged Mars, Volume II: The Air Weapon, 1914-1916*, 253-254.

⁹¹² *Ibid.*,

For German aviation on the Western Front, the end of August was significant in that at long last, the in-balance in tactics, leadership and equipment was to be addressed. On 29 August, Field Marshal Paul von Hindenburg replaced Erich von Falkenhayn as Chief of the General Staff.⁹¹³ Hindenburg assigned General Erich von Ludendorff to be his Quartermaster General. Ludendorff had been one of the first two General staff officers to fly and had become an advocate of the airplane. He was firmly convinced that aircraft could and should be a prominent weapon on the modern battlefield.⁹¹⁴

The change in leadership had a huge impact for the Germans on the ground and air forces fighting on the Somme. First, von Hindenburg directed that the German Second Army, under von Below should be divided into two armies.⁹¹⁵ The area south of the Somme was assigned to the Second Army and the area north of the Somme was assigned to the newly designated German First Army.⁹¹⁶

The German air order of battle was changed to allow the transfer of numerous aircraft formations supporting the battle at Verdun to the Somme front. By 1 September, von Below controlled 17 *Feldflieger Abteilungen*, 12 *Artillerie Flieger Abteilungen*, 4 *Kampfgeschwadern*, 2 *Kampfstaffeln*, and sixty fighters formed up in a number of *Kamfeinsitzer Kommandos*.⁹¹⁷

Two other important organizational changes took place within the GAAS in late August. The first was the establishment of a *Gruppenfuhrer der Flieger (Gruf)* within each German corps headquarters.⁹¹⁸ The mission of the *Gruf* was to coordinate the tactical use of

⁹¹³ John R. Cuneo, *Winged Mars, Volume II: The Air Weapon, 1914-1916*, 255.

⁹¹⁴ John H. Morrow, Jr. *The Great War in the Air*. 152.

⁹¹⁵ Christopher Duffy, *Through German Eyes: The British & the Battle of the Somme, 1916*, (London: Weidenfeld & Nicolson, 2006), 199.

⁹¹⁶ *Ibid.*

⁹¹⁷ Alex Imrie, *Pictorial History of the German Army Air Service: 1914-1918*, 35. See also Ernest von Hoepfner, *Germany's War in the Air*, 70-71.

⁹¹⁸ *Ibid.*, 38.

the *Feldflieger Abteilungen* that provided air support to the corps. The second major change was the establishment of the first *Jagdstaffel* (Hunting Squadrons) or *Jasta*. These units were formed for the sole purpose of aerial combat.⁹¹⁹ They were to hunt out enemy fighters and destroy them and by doing so allow their army co-operation aircraft the freedom to accomplish their assigned missions.⁹²⁰ Secondly, the *Jastas* were to destroy British and French observation and reconnaissance aircraft, especially those conducting artillery direction and observation.⁹²¹ Each *Jasta* was to have a complement of 14 aircraft. In September these new fighter squadrons would receive the best trained and most experienced pilots across the air service. Hauptmann Oswald Boelcke, not allowed to participate in the first two months of the Somme battle, was directed to form *Jagdstaffel 2* (Fighter Unit 2) in late August.⁹²² He was given free rein to hand pick the pilots he needed from all over the air service to man this new fighter squadron. *Jagdstaffel 2* or *Jasta 2* as it was referred as was also the first unit to receive the new Albatros fighter plane on 1 September.⁹²³ With the arrival of this aircraft in the hands of well trained fighter pilots led by Boelcke, British air superiority over the Somme was about to be challenged for the first time since before the start of the battle.⁹²⁴

During the first two weeks of September, those German fighter squadrons stationed on or being transferred to the Somme front, began receiving three new fighter aircraft: the Albatros DI and DII, and the Halberstadt DII.⁹²⁵ All three aircraft were equipped with two fixed machine guns synchronized to fire through the propeller whereas all the new British tractor type fighters had only one. These new German fighters were also strongly built to

⁹¹⁹ Alex Imrie, *Pictorial History of the German Army Air Service: 1914-1918*, 41.

⁹²⁰ Ibid.

⁹²¹ Ibid.

⁹²² Johannes Werner, *Knight of Germany: Oswald Boelcke, German Ace*, (London: Greenhill Books, Lionel Leventhal Limited, 1991), 203-204; see also Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 52-54.

⁹²³ Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 54.

⁹²⁴ Trevor Henshaw, *The Sky Their Battlefield*, 105.

⁹²⁵ Ibid.

sustain the rigors of air combat and were very maneuverable, having the ability to sustain long, steep dives, a distinct advantage over their allied counterparts.⁹²⁶ The Fokker Eindecker was still in service and in the hands of a well-trained pilot could still put up a good fight against the best British fighter being used by the RFC at that time. Flight Sergeant James T. B. McCudden had joined Number 29 Squadron in early August, 1916 and had been flying the DH 2 for nearly three weeks when he shot down his first German aircraft on 6 September north of the Somme over Ypres.⁹²⁷ Two days later however, he was almost shot down himself by a Fokker Eindecker.

At about 14,000 feet over Gheluvelt I saw a monoplane west of us coming towards us from the direction of Ypres. . . I fired a red light to draw the attention of the rest of the patrol and then turned nose-on to the Fokker. We both opened fire together at about 300 yards range. After firing about three shots my gun stopped, and whilst I was trying to rectify the stoppage the Fokker turned round behind me and had again opened fire. I now did a silly thing. Instead of revving around and waiting for the other two D. H.'s to help me, I put my engine off and dived, but not straight. The Fokker followed, shooting as opportunity offered, and I could hear bullets coming far too close to be healthy. At one time I glanced up and him just a hundred feet above me following my S turns. We got down to about 8,000 feet like this when I got my gun going, so I put my engine on, and zoomed. The Fokker zoomed also, but passed above me and in front of me. Now was my opportunity, which I seized with alacrity. I elevated my gun and fired a few shots at him from under his fuselage, but my gun again stopped. The Fokker, whose pilot apparently had lost sight of me, dived steeply towards Houthem, and I followed feeling very brave. Again I got my gun to function, but the Fokker had easily outdived me, and I last saw him restarting his engine in a cloud of blue smoke just over his aerodrome. . . My lucky star undoubtedly shone again on this day, for the Fokker had only managed to put two bullets through my machine, so I was indeed thankful, for if the German had only been a little skilful I think he would have got me. But still, this was all very good experience for me, and if one gets out of such tight corners it increases one's confidence enormously.⁹²⁸

⁹²⁶Ernest von Hoepfner, *Germany's War in the Air: The Development and Operations of German Military Aviation in the World War*, (Nashville, TN: The Battery Press, 1994), 81-82. See also David C. Cooke, *Sky Battle: 1914-1918* (New York: W. W. Norton and Company, Inc., 1970), 107.

⁹²⁷James T. B. McCudden, *Flying Fury: Five Years in the Royal Flying Corps*, (New York: Doubleday & Company, Inc., 1968), 105-106. See also Christopher Cole, *McCudden, VC*, (London: William Kimber and Co Ltd., 1967), 61-62.

⁹²⁸ James T. B. McCudden, *Flying Fury: Five Years in the Royal Flying Corps*, 107-108. See also McCudden's 'Combat in the Air' report, 8 September, 1916, AIR 1/1221/204/5/2634. Raised in a

Had McCudden encountered a more experienced pilot it is unlikely he would have survived the encounter.

As more and more German ground divisions and air squadrons arrived on the Somme, it was becoming even more evident to both British and French commanders that the BEF's offensive on the Somme was reducing the pressure on the French Army at Verdun. However, as August became September, it was also evident to Trenchard, if not Haig, that the German First and Second Armies were not about to break and run. Trenchard wrote:

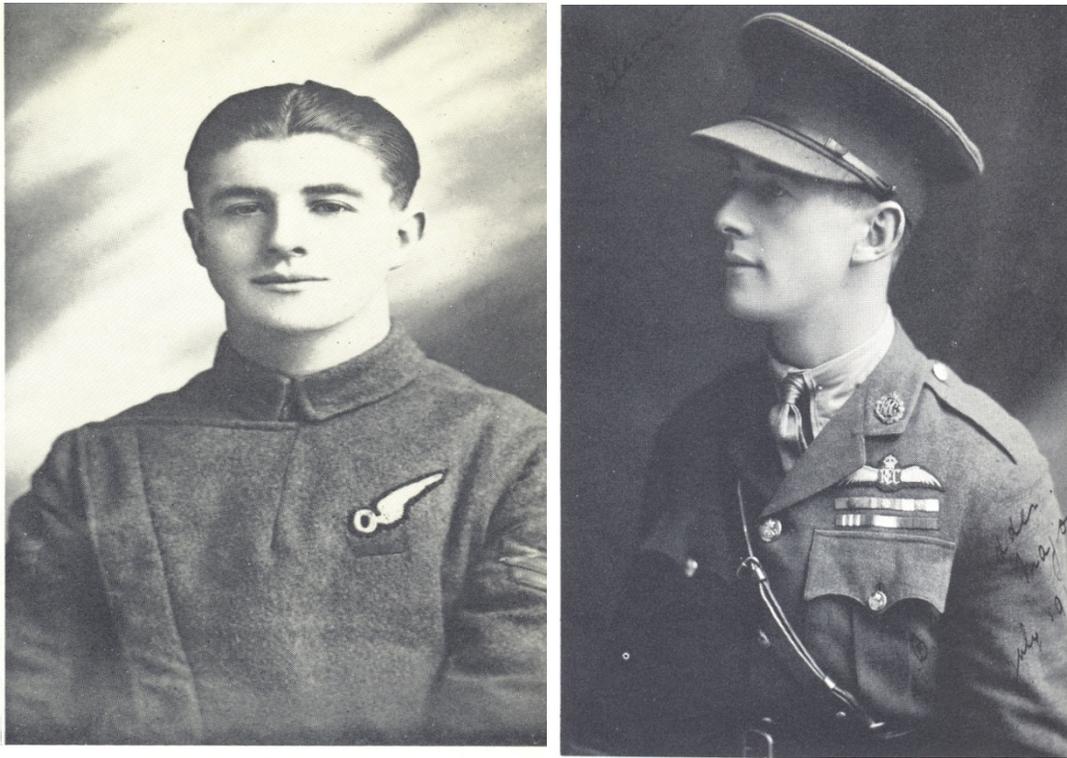
I knew by early September that the Germans would not collapse because our army was unable to take advantage of the situation. I also foresaw that the Germans would recover in the air. . . and might even wrest supremacy from us unless our reserves increased and our weapons improved. Generals like Rawlinson thought I must have got jumpy, worrying in case the enemy would do to us what we had just done to them, but how true my forebodings turned out to be.⁹²⁹

The buildup of German air units throughout August as well as a willingness to engage RFC fighter aircraft much more frequently convinced Trenchard and his squadron commanders that the air war over the Somme had entered a new phase.⁹³⁰

military family, McCudden was one of six children, three of whom flew with the RFC during the war. He joined the British Army when he was 15 in 1910 and transferred to the RFC three years later. He served as a mechanic for the first year of the war with Number 3 Squadron and then flew many operations as an observer and was awarded the Military Medal and Croix de Guerre for his work as an observer. In January, 1916 he was sent back to England for pilot training. He earned his RAeC certificate on 16 April, 1916 and on 1 May was assigned to the CFS for training as a 'scout' pilot. On arrival at the CFS however, he was made an assistant flying instructor after attaining only eight hours solo flying himself. Upon completion of his flight training he was sent back to France along with three other NCO pilots, all three of whom were killed in action within six months. Assigned to Number 20 Squadron where he flew FE 2b's, McCudden was transferred to Number 29 Squadron and flew the DH 2 throughout the Battle of the Somme.

⁹²⁹Trenchard Autobiographical Notes, MFC 76/1/7, RAFM. See also Andrew Boyle, *Trenchard: Man of Vision* 186.

⁹³⁰WITA, Vol. II, 296. See also Geoffrey Norris, *The Royal Flying Corps: A History*, 172-173.



James T. B. McCudden, VC. The picture on the left was taken in 1915 when McCudden was an NCO Observer. The picture on the right was taken in 1918 when McCudden was a Captain. (Second photo: IWM O67600)

In early September, Haig directed Rawlinson to prepare his army for a major attack to occur not later than the fifteenth of the month.⁹³¹ He was not pleased with the progress of the Fourth Army or the results achieved in the last eight weeks of the offensive in which the Fourth Army had “advanced barely 1,000 yards on a front of five miles” and suffered 82,000 casualties for these small gains.⁹³² On 14 September, High Wood still had not been captured. Guillemont and Ginchy were at last captured after many weeks of hard fighting on 3 and 9 September, respectively. Both villages and High Wood were to have been captured in the first week of the offensive.⁹³³

⁹³¹ Sir James E. Edmonds, *Military Operations: France and Belgium, 1916, Vol. II*, 238.

⁹³² Robin Prior and Trevor Wilson, *Command on the Western Front*, 203-204.

⁹³³ Martin Pegler, *Attack on the Somme: Haig's Offensive, 1916*, 69.

From mid-July on, Rawlinson basically directed a long series of successive small attacks that were rarely synchronized between the battalions, brigades and divisions directed to conduct them. According to Somme historians Robin Prior and Trevor Wilson, the Fourth Army conducted “90 operations (attacks by at least one battalion or more), only four of which were launched across the whole of its front” between mid-July to mid-September.⁹³⁴ Rawlinson’s directive to conduct “bite and hold” attacks caused much higher casualties to the British than the Germans, with little success to show for it.⁹³⁵

Though the BEF commander-in-chief was upset with his Fourth Army commander for his lack of success during the second phase of the Somme offensive, both he and Rawlinson were more than pleased with the performance of the RFC and how well it had supported the Fourth Army and the BEF overall during the summer campaign.⁹³⁶

An assessment of how well the RFC supported the Fourth Army at the end of phase II of the offensive reads very similar to the plaudits already stated for the end of phase I. The corps squadrons performed almost flawlessly in accomplishing their reconnaissance, photography, and artillery observation and direction missions. The bomber squadrons had a greater impact than anyone in the British chain of command, ground or air, could have anticipated. Three squadrons had prevented at least two German divisions from reaching and reinforcing the enemy front lines when their trains were attacked and immobilized in July and August respectively.⁹³⁷ The RFC bombed numerous logistic sites, troop encampments, several corps and division headquarters, causing much chaos and confusion amongst the enemy’s

⁹³⁴Robin Prior and Trevor Wilson, *Command on the Western Front*, 203-204.

⁹³⁵ *Ibid.*, 207.

⁹³⁶Douglas Haig, *War Diaries and Letters: 1914-1918*, ed. Gary Sheffield and John Bourne, (London: Weidenfeld & Nicolson), 212, 222, 232. See also Trevor Wilson, *The Myriad Faces of War* (New York: Polity Press, 1986), 370-371.

⁹³⁷ *WITA*, Vol. II, 215-216 and 251-259.

command, control and support of its forces.⁹³⁸ The bomber squadrons also had much success in attacking almost all of the enemy squadrons opposite the British Fourth Army. A captured German aviator stated “Enemy airplanes in squadrons of six, eight, and ten or more worked over our airdromes with almost absolute impunity.”⁹³⁹

The army squadrons, consisting of Number 22 Squadron (FE 2b’s) and Number 24 Squadron (DH 2’s) had achieved just as much success as their comrades in the corps flying units. These two squadrons were largely responsible for achieving air superiority above the Fourth Army and then maintaining it.⁹⁴⁰ The German fighter units suffered heavily in the first two months of the Battle of the Somme.⁹⁴¹ They would have suffered even greater losses if not for the fact that the German’s refused to commit more aircraft to aerial combat, unless the numerical advantage was in their favor. The German decision to fly only on their side of the line also had much to do with preventing even heavier losses than they experienced in July and August.⁹⁴²

As Phase II ended, Haig and Rawlinson may not have been happy with the staunch defense put up by the Germans or the lack of progress made by the British and Commonwealth divisions, but neither commander had any complaints about the RFC’s performance during the second phase. Haig had proven to be a keen supporter of Trenchard and was determined to do all in his power to get him the men and the aircraft he required to

⁹³⁸ *WITA, Vol. II*, 215-216 and 251-259.

⁹³⁹ Ezra Bowen, *Knights of the Air* (Alexandria, VA: Time-Life Books, 1980), 93.

⁹⁴⁰ Tyrrel M. Hawker, *Hawker, VC.*, 164-168. See also S. F. Wise, *Canadian Airmen and the First World War*, 379-381; Jon Guttman, *Pusher Aces of the First World War*, 22-39.

⁹⁴¹ Ernest von Hoepfner, *Germany’s War in the Air*, 68. See also John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 244-254. The GAAS reported 19 aircraft losses for the month of July (17 to air combat with the RFC, one to ground fire and one lost for unknown reasons) and another 17 lost in September. See Norman Franck, *Sharks Among Minnows*, 126.

⁹⁴² David C. Cooke, *Sky Battle: 1914-1918: The Story of Aviation in World War I*, (New York: W. W. Norton & Company, Inc., 1970), 90-91. See also Norman Franks, *Sharks Among Minnows*, 6; Alex Imrie, *German Fighter Units, 1914-May, 1917*, 6.

maintain the air superiority he had achieved above the battlefield.⁹⁴³ Haig and Rawlinson also believed that the third and final phase of the offensive would break the German First and Second Armies and the aircraft, along with a new weapon of war, the tank, would be critical to that success.⁹⁴⁴

The third and final phase of the Somme offensive began on 15 September with a major attack that became known as the Battle of Flers-Courcelette (See Map 3). Haig was convinced that the Fourth Army could still cause a major breakthrough of the German defensive positions if it attacked with enough force and vigor.⁹⁴⁵ He also believed that by using the elements of shock and surprise predicated by a new weapon, the tank, success could be achieved with small loss to his infantry divisions. The tank had been tested with great secrecy in England and then again in France, where both Haig and Rawlinson observed it with high expectations for the coming battle. Haig had wanted at least 100 tanks for the initial attack on 1 July but only half that number had been produced so that by 15 September there were only forty-nine Mark I tanks available to Rawlinson's command.⁹⁴⁶

An intense artillery bombardment began on the morning of the 12th of September but the weather turned bad in the afternoon and the heavy rain continued for the next thirty hours.⁹⁴⁷ This bad weather greatly hampered the RFC's ability to observe and direct the artillery which in turn greatly reduced the effectiveness of the bombardment.⁹⁴⁸ The weather

⁹⁴³ Andrew Boyle, *Trenchard: Man of Vision*, 188-189. See also Douglas Haig, *War Diaries and Letters: 1914-1918*, ed. Gary Sheffield and John Bourne, 226. In his diary for 4 September Haig recorded "General Trenchard reported on Flying Corps. . . Trenchard is quite satisfied that we can hold our position of superiority in the air next spring, but he is anxious lest the German bring out by then some new type of swift machine thanks to better engines."

⁹⁴⁴ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 95-98.

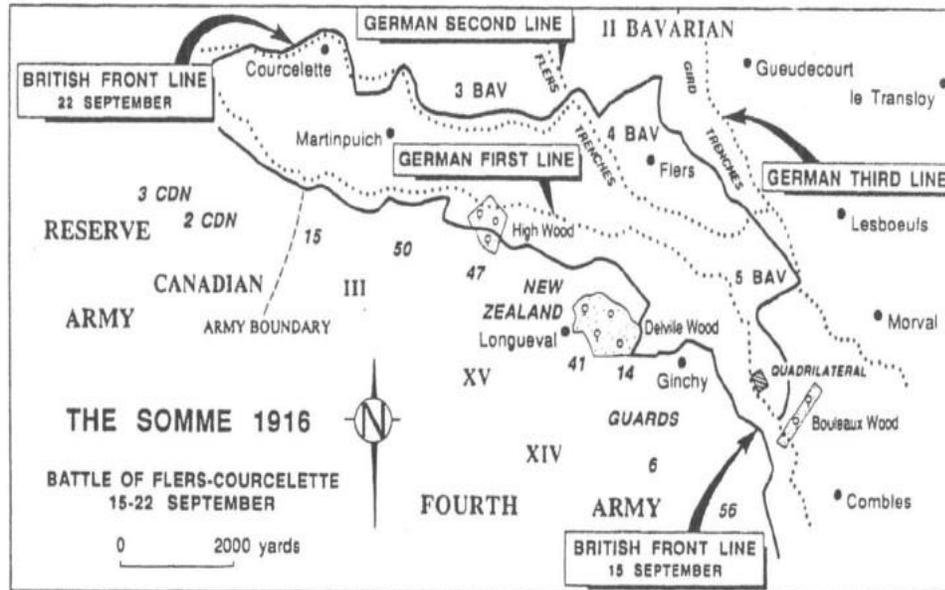
⁹⁴⁵ Gary Sheffield, *The Somme*, 112. See also Douglas Haig, *War Diaries and Letters: 1914-1918*, ed. Gary Sheffield and John Bourne, 229.

⁹⁴⁶ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 98. See also Sir James E. Edmonds, *Military Operations: France and Belgium, 1916, Vol. II*, 296-297.

⁹⁴⁷ Sir Martin Farndale, *History of the Royal Regiment of Artillery: Western Front, 1914-1918*, 152.

⁹⁴⁸ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 253-255.

broke on the 14th, allowing the RFC to accurately direct the artillery onto its targets for the last day of the bombardment.



Map 3. The Somme: Battle of Flers-Courcelette, 15-22 September, 1916
Robin Prior and Trevor Wilson, *Command on the Western Front*, (South
Yorkshire, England: Pen & Sword Books Limited, 2004), 238.

On 14 September, Trenchard and his aide Baring visited those squadrons who would be supporting the morning attack. Gathering all of the officers of the Ninth Wing around him he briefed them on the importance of supporting the infantry attack. As one pilot commented [Trenchard] “said more to the point in five minutes than the rumourists had said in five weeks.”⁹⁴⁹

No German machines could be allowed near enough to the lines for any observation. We must shoot all Hun machines at sight and give them no rest. Our bombers should make life a burden on the enemy lines of communication. Infantry and transport were to be worried, whenever possible, by machine-gun fire from above. Machines would be detailed for contact work with our infantry. Reconnaissance jobs were to be completed at all

⁹⁴⁹ Alan J. Bott, *Cavalry of the Clouds*. (New York: Doubleday, Page & Company, 1918), 28. See also Maurice Baring, *Flying Corps Headquarters: 1914-1918*, 174.

costs, if there seemed the slightest chance of bringing back useful information.⁹⁵⁰

To ensure that the forty-nine tanks reached their assembly areas unobserved by the enemy, Trenchard directed that all German observation balloons along the Fourth Army front be attacked.⁹⁵¹ Fourth Army also requested that the RFC provide aircraft to conduct night flying missions above the tanks, to cover the noise they made as they moved forward the night before the attack.⁹⁵²

Early on the morning of the fifteenth, Trenchard visited Number 60 Squadron at Vert Galand. The RFC commander gathered the squadron pilots around him and informed them that during the night the Germans had hoisted three observation balloons high into the air and several kilometers directly opposite the British tank assembly areas. It was not clear if the Germans had seen anything of the new weapon but Number 60 Squadron, with its Nieuport 11's and armed with Le Prieur rockets, was the only unit that could effectively engage and destroy the enemy balloons on such short notice. Trenchard asked for volunteers. Three men stepped forward. He spoke to each man in turn and to the last he said, "Good luck Gilchrist. But remember this: it's far more important to get that balloon than to fail and come back."⁹⁵³ Trenchard watched the three aircraft take off realizing that as well defended as the enemy balloons normally were with anti-aircraft batteries and dedicated fighter aircraft support that he may in fact have just sent the three young men off to certain death. He waited anxiously for word on their progress when Fourth Army headquarters called and reported that the three

⁹⁵⁰ Alan J. Bott, *Cavalry of the Clouds*. (New York: Doubleday, Page & Company, 1918), 29.

⁹⁵¹ Andrew Boyle, *Trenchard: Man of Vision*, 199-200. See also Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 179.

⁹⁵² WITA, Vol. II, 272.

⁹⁵³ Andrew Boyle, *Trenchard: Man of Vision*, 199-200.

balloons had just fallen to earth in flames. Long minutes later the three Nieuports returned, all badly damaged but their pilots unharmed.⁹⁵⁴

Less than an hour later, at 0620 on the fifteenth, nine British divisions, consisting of fifty infantry battalions, left their trenches. Each of the attacking divisions used what had become known as the “creeping barrage,” friendly artillery fire that the advancing infantry kept as close to as possible as they moved forward across No-man’s land.⁹⁵⁵ This type of barrage fire provided protection to the attacking infantry but also did a good job of killing the many German machine gun teams that positioned themselves in shell holes between the trenches.

Lieutenant Cecil Lewis from Number 3 Squadron was assigned to conduct a contact patrol with the lead tanks on the morning of the 15th. He was airborne before first light and had a grandstand view of the first use of tanks in history.

When we climbed up to the lines, we found the whole front seemingly covered with a layer of dirty cotton-wool-the smoking shell-bursts. Across this were dark lanes, drawn as it might be by a child’s stubby finger in dirty snow. Here no shells were falling. Through these lanes lumbered the Tanks in file, four to each lane. By 0620 they had reached the front line and the barrage began to roll back as they advanced, the infantry with them. We could see them sitting across the trenches and enfilading the enemy with their four-pounders. By eight o’clock the complete network of trenches known as Switch Line and Flers Line was taken.⁹⁵⁶

The British XV Corps, in the center of the attack, made significant progress and as Lewis observed, the 41st Division with twelve tanks of the seventeen attached to it still in action, captured the fortified town of Flers, destroying two German battalions in the process. The gains won by the three divisions within the XV Corps could not be exploited however as the Germans moved every reserve unit available to seal off the breach. Every German artillery unit that could range Flers was ordered to train its fire onto the village and its approaches. This

⁹⁵⁴ Andrew Boyle, *Trenchard: Man of Vision*, 199-200.

⁹⁵⁵ Sir Martin Farndale, *History of the Royal Regiment of Artillery: Western Front, 1914-1918*, 152. See also Robin Prior and Trevor Wilson, *Command on the Western Front*, 235-236.

⁹⁵⁶ Cecil Lewis, *Sagittarius Rising*, 142-143.

fire did much to inflict casualties on the advancing British units and though they made it into Flers the Germans had arrived in front of them and prevented the British from exploiting the success achieved earlier at Flers.⁹⁵⁷

Elsewhere on the British left and right (III Corps and XIV Corps respectively), the XIV Corps suffered the heaviest casualties as they assaulted from Combles to Ginchy. The tanks had been directed to attack three important strong-points: Bouleaux Wood, the Quadrilateral between the British front line and the German first position, and the Triangle, a series of trenches in the German front line.⁹⁵⁸ Thirteen of the fifteen tanks failed to link up with the infantry and the 56th and 6th Divisions as well as the Guards Division, suffered great losses, mainly to machine-gun fire. In the III Corps sector, tanks assisted the 15th (Scottish) Division in capturing Martinpuich but fire from High Wood prevented the other two divisions in the corps from capturing any ground.⁹⁵⁹

The RFC did its best not only to take German lives but to save British ones during the attack. A BE 2c crew, Captain C. H. B. Blount and Lieutenant T. S. Pearson from Number 34 Squadron, on contact patrol supporting III Corps whose headquarters was trying to ascertain the status of three tanks which were to support units attacking High Wood. The RFC crew made their initial report to corps headquarters via a dropped message, that at 1000 hours they had located the three tanks.⁹⁶⁰ One was ditched and abandoned in a British trench, a second was upended against a tree and the third was on fire straddling the German trenches. The RFC crew flew back to the landing field next to III Corps headquarters to brief the commander that attacking troops on either side of the wood had pushed past High Wood, had linked up and

⁹⁵⁷ Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 97-103. See also A. H. Farrar-Hockley, *The Somme*, 200-202.

⁹⁵⁸ *WITA, Vol. II*, 275.,

⁹⁵⁹ A. H. Farrar-Hockley, *The Somme*, 201.

⁹⁶⁰ *WITA, Vol. II*, 273. See also Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 105.

were consolidating their positions.⁹⁶¹ Blount and Pearson found the staff planning a frontal attack on the German trenches straddling High Wood for that afternoon. The RFC crewman noted: “This would have resulted in the complete wiping out of the attacking force, for the enemy trench was manned literally shoulder to shoulder with a machine gun every few yards, and most of the wire uncut.”⁹⁶² Based on the eyewitness report from the two aviators, the corps commander realized that the Germans in High Wood were surrounded and that they would be forced to surrender. He canceled the attack and as predicted at 1300, the German units occupying High Wood did in fact surrender.⁹⁶³

Despite the setbacks on the left and right of the Fourth Army, both Haig and Rawlinson viewed the day’s advances as a success. “Of the three German trench lines under attack on this day, the first had been captured on a front of 9,000 yards, and 4,000 yards of the second line around Flers” had also been taken.⁹⁶⁴ Two key strong-points that had held up the British advance since mid-July had been captured: High Wood and the Switch Line. The fortified villages of Courcellette, Martinpuich, and Flers had all been captured and best of all, the Fourth Army had at last seized the Bazentin Ridge.⁹⁶⁵ As Robin Prior and Trevor Wilson have assessed, the British were now in positions that enabled them to have good observation over the entire German forward and rear areas.⁹⁶⁶ On the negative side the German third line was still intact and German morale had not collapsed as Haig believed it would.⁹⁶⁷ Worse still was the fact that a breakthrough had still not occurred on the Somme and ten British divisions had suffered almost 30,000 casualties.⁹⁶⁸

⁹⁶¹ *WITA, Vol. II, 273.*

⁹⁶² *Ibid.*, 274.

⁹⁶³ *Ibid.*

⁹⁶⁴ Robin Prior and Trevor Wilson, *Command on the Western Front*, 242.

⁹⁶⁵ *Ibid.*

⁹⁶⁶ *Ibid.*

⁹⁶⁷ *Ibid.*, 243.

⁹⁶⁸ *Ibid.*

The fifteenth of September was a 'maximum effort' day for the RFC.⁹⁶⁹ Its squadrons flew more hours and engaged in more air combats than on any other single day since the war began.⁹⁷⁰ The corps squadrons were highly successful in locating and engaging German artillery batteries. RFC aircrew used the Zone Call for Fire repeatedly throughout the day targeting 159 enemy artillery batteries. They were able to direct and observe artillery fire on 70 of them, destroying 29, thirteen by direct hits.⁹⁷¹ The corps squadrons also flew contact patrols continuously until well after the infantry had consolidated their gains. Rawlinson, his corps and division commanders had been kept fully informed on the progress or lack thereof of their units throughout the day from messages dropped by aircraft or in person from briefings provided by RFC aircrew.⁹⁷²

The bomber squadrons dropped a total of eight and a half tons of bombs, a Herculean feat for the period.⁹⁷³ Targets attacked included General von Below's Second Army headquarters at Bourslon by Number 27 Squadron, who also managed to shoot down four enemy aircraft during the raid, while losing one of their own.⁹⁷⁴ The same squadron also bombed the railheads at Achiet-le-Grand and Velu, striking at least three trains in the process and later in the day another three aircraft from Number 27 Squadron attacked a train carrying a German division enroute to the front lines. The three aircraft bombed simultaneously. The first bomb struck the engine bringing the train to a halt. The second aircraft bombed the rear of the train with even deadlier results. The 112-pound bombs from the third aircraft hit an ammunition car in the middle of the train which in turn set off a chain reaction that blew up

⁹⁶⁹ S. F. Wise, *Canadian Airmen and the First World War*, 382

⁹⁷⁰ Geoffrey Norris, *The Royal Flying Corps: A History*, 173. See also S. F. Wise, *Canadian Airmen and the First World War*, 382.

⁹⁷¹ *WITA*, Vol. II, 276.

⁹⁷² S. F. Wise, *Canadian Airmen and the First World War*, 382.

⁹⁷³ *WITA*, Vol. II, 277-278.

⁹⁷⁴ *Ibid.*

several train cars attached in front and behind it.⁹⁷⁵ Another five bombers from this squadron hit trains at Ribecourt and Epehy and a logistics site at Bantouzelle with great effect. German corps and division headquarters in Bapaume were also bombed by at least three RFC squadrons.⁹⁷⁶

Many of the air combats that took place on 15 September took place above the German-occupied town of Bapaume.⁹⁷⁷ FE 2b's from Number 11 Squadron shot down four German fighters and forced another two down without loss.⁹⁷⁸ Number 60 Squadron destroyed three enemy aircraft also without loss.⁹⁷⁹ All total, fourteen German aircraft were claimed by RFC aircrew as having been shot down over the German lines opposite the Fourth Army, another six being damaged and forced to land.⁹⁸⁰ RFC casualties were six aircraft shot down with seven aircrew killed in action and eight wounded, of whom three later died of their wounds.⁹⁸¹ The impact of these air combats gave testimony to the success of the RFC's fighter squadrons in support of Rawlinson's army that day. By mid-afternoon, Number 70 Squadron conducted a reconnaissance of the Fourth Army front and reported seeing not one German aircraft during its three-hour patrol.⁹⁸² This was welcome news to Number 70 Squadron for earlier that day four of its twelve Sopwith 1 and 1/2 Strutters had been shot down by Oswald Boelcke's *Jasta 2*.⁹⁸³

⁹⁷⁵ *WITA, Vol. II, 278.*

⁹⁷⁶ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 256-260.

⁹⁷⁷ A. H. Farrar-Hockley, *The Somme*, 201. See also *WITA, Vol. II, 279.*

⁹⁷⁸ *WITA, Vol. II, 279.* See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 256-260.

⁹⁷⁹ *Ibid.*

⁹⁸⁰ *Ibid.*, 280. In all actuality the true numbers were less than a third of these claims. The Germans admitted that a total of 17 aircraft had been shot down for the entire month by the Allies. See Norman Franks, *Sharks Among Minnows*, 135.

⁹⁸¹ Trevor Henshaw, *The Sky Their Battlefield*, 39.

⁹⁸² Number 11, 60, and 70 Squadron air combat reports, 15 September, 1916, AIR 1/2248/209/43/12, part II, NA.

⁹⁸³ Alex Revell, *British Single Seater Fighter Squadrons on the Western Front in World War I*, (Atglen, PA: Schiffer Publishing Limited, 2006), 39.

Forty-eight hours later however, the *GAAS* became even more aggressive and the RFC suffered some of its heaviest losses since the 'Fokker Scrounge.' At 0930, 17 September, eight BE 2c's from Number 12 Squadron, each carrying one 112-pound bomb and four 20-pound bombs, took off from their airfield at Avesnes-Le-Comte.⁹⁸⁴ By 1030 they had linked up with their escort, six FE 2b's from Number 11 Squadron, and crossed the lines. Their target: the Marcoing railhead, a key logistics center for the German Second Army.⁹⁸⁵ Two of the BE 2c's were forced to turn back due to engine problems but the remaining six flew on. The British bombers dropped thirty bombs on the rail center, creating a large fire and causing numerous secondary explosions.⁹⁸⁶ Before the RFC crews could conduct an assessment of the raid, six German Albatros DII fighters from *Jasta 2*, led by Boelcke, attacked the bombers from above. Another seven German fighters arrived within moments and joined the fight.⁹⁸⁷

In numbers the two sides were near equal, but in fact the Germans had a distinct advantage. Boelcke and his pilots were flying the new Albatros DII fighter plane. It had a much improved Mercedes six-cylinder in-line engine and was armed with two forward firing machine guns.⁹⁸⁸ Six of the British aircraft were BE 2c's aircraft that had been outdated more than a year previously and should not have been in service in front line squadrons. Short of new aircraft, Trenchard was forced to use them for reconnaissance, artillery observation and bombing. What was worse, because they had been conducting a bombing mission, none of them carried their observer/gunners. Thus the only real defense for these aircraft was evasive flying by the pilot.

The six FE 2b's did what they could to protect the bombers but Boelcke and his pilots, in their faster, more maneuverable fighters, focused on the RFC fighters and within minutes

⁹⁸⁴ *WITA*, Vol. II, 282. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 261-262.

⁹⁸⁵ *Ibid.*

⁹⁸⁶ *Ibid.*

⁹⁸⁷ John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 259.

⁹⁸⁸ Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 48-49.

shot four of them down.⁹⁸⁹ The Germans then attacked the BE 2c's, shooting two down before four RFC aircraft from Number 60 Squadron arrived to lend support. It is doubtful if any of the BE 2c's or FE 2b's would have made it back to their airfield had Number 60 Squadron not arrived to drive off the German aircraft.⁹⁹⁰

Boelcke was pleased with the performance of his flight. Of the six, only he was an experienced fighter pilot. Each of his five novice fighter pilots had shot down a British aircraft with Boelcke himself earning his 27th aerial victory:

I engaged the leader's machine, which I recognized by its streamers and forced it down. My opponent landed at Equancourt and promptly set fire to his machine. The inmates were taken prisoner; one of them was slightly wounded. The pilot had to land because I had shot his engine to pieces.⁹⁹¹

One of the six pilots in Boelcke's flight, Leutnant Manfred von Richthofen, was ecstatic over his first aerial victory, one of the escorting FE 2b's. He described the encounter in his diary:

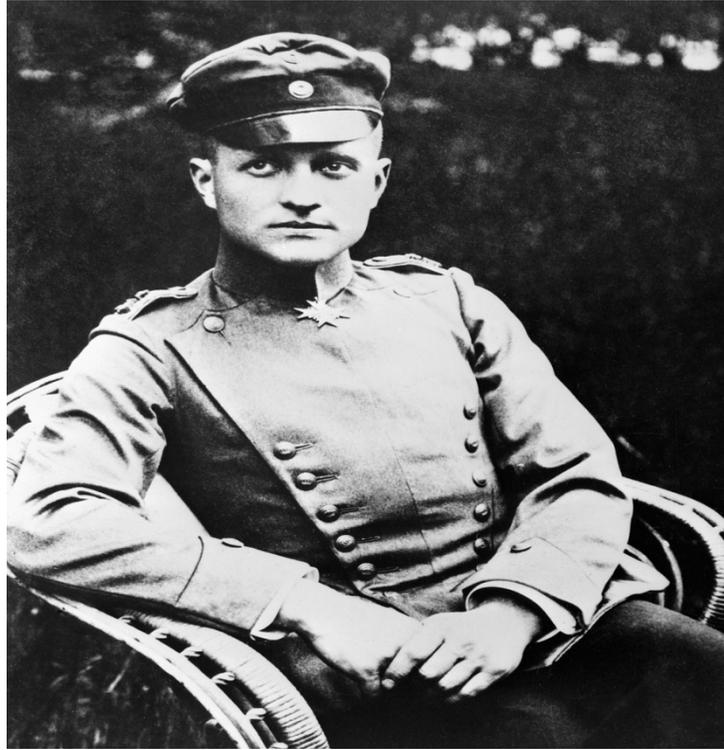
My Englishman twisted and turned, crossing my line of fire. It did not occur to me that there were other Englishmen in the squadron who could come to the aid of their hard-pressed comrade. There was only the growing thought: "He must fall, come what may!" Then, finally, there was a brief but advantageous moment. The enemy had apparently lost sight of me and flew straight ahead. In a fraction of a second I was sitting on his tail. I gave him a short burst from my machine gun. I was so close I was afraid I would ram him. Then suddenly, his propeller turned no more. Hit! The engine was probably shot to pieces, and he would have to land near our lines. Reaching his own positions was out of the question. I noticed the machine swaying from side to side; something was not quite right with the pilot. Also, the observer was not to be seen, his machine gun pointed unattended up in the air. I had no doubt hit him also, and he must have been lying on the floor of the fuselage. The Englishman landed near the airfield used by a neighboring squadron. I was so excited that I could not resist coming down, and I landed with such eagerness on this strange field that I almost went over on my nose. I landed near the Englishman and jumped out of my airplane. A group of soldiers was already streaming toward the fallen enemy. Arriving there, I found that my assumption was correct. The engine was shot to pieces, and both crewmen were severely wounded. The observer had died instantly, and

⁹⁸⁹ Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 56.

⁹⁹⁰ Number 60 Squadron air combat report, 17 September, 1916, AIR 1/2248/209/43/12, part II, NA.

⁹⁹¹ Johannes Werner, *Knight of Germany*, 211-212.

the pilot died while being transported to the nearest field hospital. Later I erected a gravestone to the memory of my honorably fallen enemies.⁹⁹²



Baron Manfred von Richthofen pictured here as a 24 year old Oberleutnant (First Lieutenant) in March, 1917. (IWM Q107381)

September 17th had been a very good day for Boelcke and his *Jasta*. Six British aircraft shot down, without loss to his flight. All total that day the RFC lost ten aircraft shot down with sixteen aircrew killed, wounded or missing while the *GAAS* had just four aircraft shot down.⁹⁹³ There was even better news for the *GAAS* in that the new aircraft had performed superbly in combat and more of them were en-route to the other fighter squadrons on the

⁹⁹² Manfred von Richthofen, *The Red Baron*. trans. Peter Kilduff. (New York: Doubleday & Company, Inc., 1969), 54-55.

⁹⁹³ Alex Revell, *British Single Seater Fighter Squadrons on the Western Front in World War I*, 40. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 262; and John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 259.

Somme. From 17 to 30 September, *Jasta 2* shot down twenty-five British aircraft for the loss of only three pilots.⁹⁹⁴

It did not take Trenchard and his leaders long to realize that this single day of intense air combat signified a turning point in the air campaign over the Somme.⁹⁹⁵ Based on the accounts of the four surviving aircrew from Number 11 Squadron, Trenchard believed that the Germans had assigned at least one new fighter squadron to the Somme sector. It was now evident that the Germans had in their possession, a faster, more maneuverable fighter, armed with two fixed, forward firing machine-guns. The commander of the RFC knew that the pendulum was swinging against his aircrews and without more advanced aircraft than those his squadrons were presently flying, the RFC's ability to maintain air superiority above the Somme was in jeopardy.⁹⁹⁶

By the end of September, the balance for the two air services had shifted heavily in favor of the Germans. For that month alone the RFC and the *Aviation Militaire* had had 127 aircraft shot down with the RFC suffering 134 aircrew casualties in the process.⁹⁹⁷ The Germans had lost just seventeen aircraft.⁹⁹⁸ Trenchard knew the numbers partly reflected the Germans advantage of being on the defensive but he also knew that by introducing several new fighters that were better than any of the aircraft the RFC was using, the Germans were now ready to challenge the British for air superiority. Trenchard notified Brancker that he expected the number of casualties to increase even higher as the air campaign grew in intensity.

⁹⁹⁴ Johannes Werner, *Knight of Germany*, 215.

⁹⁹⁵ Autobiographical Notes, Trenchard Papers, MFC 76/1/76, RAFM. See also Andrew Boyle, *Trenchard: Man of Vision*, 195; Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 56-58.

⁹⁹⁶ Andrew Boyle, *Trenchard: Man of Vision*, 195.

⁹⁹⁷ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 240-275. See also squadron air combat reports, September, 1916, AIR 1/1868/204/218/10 and AIR 1/845/204/5/374, NA; Trevor Henshaw, *The Sky Their Battlefield, 105-115*. The RFC casualties for September, 1916 were: 62 killed in action, 36 wounded in action, and 36 became prisoners of war.

⁹⁹⁸ Norman Franks, *Sharks Among Minnows*, 135.

With regard to the number of pilots that we have had and are asking for, I admit that the demand has been enormous. I cannot understand, however, why the demand calls forth letters of protest. We are fighting a very big battle, and fighting in the air is becoming intense. The fighting will increase, I regret to say, not decrease, and it is only a question of our keeping it up longer than the Hun. If we cannot do this, then we are beaten; if we do it, then we win. I must warn you now that in the next ten days, if we get fine weather, I anticipate a very heavy casualty list. There are many more German machines than there were, fast and much better pilots which have appeared on our front. I hope you will take this letter very seriously, but what is to be chiefly remembered is, that whatever we suffer the Huns are suffering more, and it is only by keeping up our pressure that we can hope to keep the Huns under to the extent that we have them under now.⁹⁹⁹

Brancker replied the next day: "I agree with every word of your letter and only wish that they would let us take pilots from Egypt or elsewhere in order to wear out the Huns." Though casualties were heavy, Brancker was not nearly as concerned as Trenchard but did warn. "If your casualties go on at the same rate as they have for the last 2 months, I think we can guarantee to keep you up to strength, but if they increase I am afraid that a shortage may occur."¹⁰⁰⁰

A related issue was the debate within the War Office and RFC Headquarters concerning the RFC's policy of publishing the names of its aircrew casualties in the press. An argument was made to reverse the policy in the hopes that the near-continuous debate on this contentious topic would recede if the names of those airmen who had been killed, wounded or listed as missing not appear in the daily papers. It was decided to continue publishing the names of RFC casualties. Brancker recorded happily: "I was glad to say we stuck to the policy of telling the truth."¹⁰⁰¹

⁹⁹⁹ Trenchard to Brancker, 21 September, 1916. Trenchard Papers, MFC 76/1/7, RAFM.

¹⁰⁰⁰ Brancker to Trenchard, 22 September, 1916, Message Number 254, Trenchard Papers, MFC 76/1/7, RAFM. In his concluding statement Brancker added a morbid comment that was also quite fallacious. "I rather enjoy hearing of our heavy casualties as I am perfectly certain in my own mind that the Germans lose at least half as much again as we do."

¹⁰⁰¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 134.

On 29 September, with Haig's approval, Trenchard drafted a letter to the War Office. In it he requested that the number of fighter squadrons attached to each of the BEF's five armies be immediately doubled from four to eight, which would give the RFC twice as many fighter squadrons as corps squadrons.¹⁰⁰² The next day Haig sent his own endorsement of Trenchard's request to General Sir William Robertson, Chief of the General Staff (CGS) at the War Office.

I have the honour to request that the immediate attention of the Army Council may be given to the urgent necessity for a very early increase in the numbers and efficiency of the fighting aeroplanes at my disposal. Throughout the last three months the Royal Flying Corps in France has maintained such a measure of superiority over the enemy in the air that it has been enabled to render services of incalculable value. The result is that the enemy has made extraordinary efforts to increase the number, and develop the speed and power, of his fighting machines. He has unfortunately succeeded in doing so and it is necessary to realize clearly, and at once, that we shall undoubtedly lose our superiority in the air if I am not provided at an early date with improved means of retaining it. . . . The result of the advent of the enemy's improved machines has been a marked increase in the casualties suffered by the Royal Flying Corps, and though I do not anticipate losing our present predominance in the air in the next three or four months, the situation after that threatens to be very serious unless adequate steps to deal with it are taken at once.¹⁰⁰³

With the RFC sustaining an increasing amount of casualties and feeling the effects from a shortage of aircraft due to the Royal Aircraft Factory being unable to meet its demands, both Trenchard and Henderson believed that immediate solutions had to be found to mitigate both the aircraft and aircrew shortage that the RFC was experiencing. One of the quickest ways of replacing both lost aircraft and crews was to request reinforcements from the RNAS.¹⁰⁰⁴ Lord Curzon, President of the Air Board, was himself an ardent supporter of the RFC to the point that his influence became almost detrimental to the army's air service in his meetings with A.

¹⁰⁰² Trenchard, 'Future Policy in the Air', AIR 1/71/15/9/125, NA. See Appendix B.

¹⁰⁰³ Haig to Robertson, 30 September, 1916, Haig Papers, NA. See also WO 158/13, NA. The message in its entirety can be found at Appendix D.

¹⁰⁰⁴ Henderson to Trenchard, Correspondence reference loan of RNAS squadrons, 1-20 September, 1916, AIR 1/916/204/5/87, NA.

J. Balfour, the First Lord of the Admiralty.¹⁰⁰⁵ Curzon had hand carried Haig's letter to the War Committee, reminding them of the Trenchard's shortage of fighter aircraft and demanded that the navy provide aircraft to the RFC. Though the Admiralty was still trying to convince the War Office that a 'strategic' bombing offensive against German industry was viable, both Curzon and General Henderson did their best to oppose the scheme, arguing that Trenchard needed every available aircraft to support Haig's Somme offensive.¹⁰⁰⁶

The Army Council responded by requesting assistance from the Admiralty. Realizing that the RFC was in fact reaching a critical stage in its air campaign over the Somme and that the RNAS did have fighter aircraft available, the Admiralty complied and within ten days of the request formed a new squadron from the RNAS Dunkirk command.¹⁰⁰⁷ One flight from each of the RNAS three wings was detached from their parent unit to form the new fighter squadron of 18 aircraft. The new unit, Number 8 (Naval) Squadron, was equipped with some of the best aircraft in the British inventory: six agile Nieuport 17's, six Sopwith 1 and 1/2 Strutter's and six of the latest fighter aircraft, the Sopwith Pup; a fast, highly maneuverable and easy to fly single-seat aircraft which would become one of the best fighter aircraft of the war.¹⁰⁰⁸ Naval 8, as the unit became known as, was attached to 5th Brigade, RFC and located at

¹⁰⁰⁵ The Air Board was a standing committee of senior political and military leaders that met from May through December, 1916 and was chaired by Lord Curzon. It followed Lord Derby's Joint War Air Committee (JWAC) and like its predecessor it had no real executive or decision making authority. Its purpose was to attempt to solve the problems of supply and procurement for Britain's two separate air services. In the Air Board's first report published in October, 1916, Curzon all but blamed the majority of the RFC's supply and manpower issues on the Admiralty. Despite much opposition from the Royal Navy, the Air Board provided a blue-print for the future on the management of aircraft supply. Though it had no impact on the RFC during the Battle of the Somme, Curzon's work and the results of the Air Board would be instrumental in forcing the two air services to work more closely with one another until the eventual merger of the two air services into the Royal Air Force occurred in April, 1918.

¹⁰⁰⁶ Henderson to Trenchard, Correspondence reference loan of RNAS squadrons, 1-20 September, 1916, AIR 1/916/204/5/87, NA. See also Haig to Robertson, 1 June, 1916, AIR 1/2265/209/70/1, NA; and Andrew Boyle, *Trenchard: Man of Vision*, 196.

¹⁰⁰⁷ *WITA*, Vol. II, 313-314.

¹⁰⁰⁸ Peter Lewis, *The British Fighter since 1912*, (London: Putnam & Company Limited, 1979), 75. See also Kenneth Munson, *Fighters 1914-1919: Attack and Training Aircraft*, 144-145.

Vert Galand airfield on 26 October.¹⁰⁰⁹ Though there were still signs of inter-service rivalry between the navy and army pilots, the addition of 18 battle-proven aircraft added much to the RFC's offensive capability. The unit flew its first patrol on 3 November and shot down twenty-four German aircraft for the loss of two pilots before the end of the year.¹⁰¹⁰ Though they would have little impact on the air campaign over the Somme, five other similarly equipped RNAS squadrons would be attached to the RFC over the next five months and would make a significant contribution to the RFC's subsequent air campaigns in the spring and summer of 1917.¹⁰¹¹

Though it had become evident by late September to Trenchard and the RFC that British air superiority over the Somme was being challenged more strenuously than ever before by the Germans, it was hard to convince German soldiers in the forward and support trenches of this. The 211th Reserve Regiment was located east of Pozieres and from a previous tour in the trenches on the Somme they

had become almost fatalistically resigned to enemy air dominance . . . even when later on our own planes take to the air to free us from our disagreeable tormentors, the British reconnaissance planes do not allow themselves to be disturbed, but strong enemy defensive formations pounce on our airmen who cannot dare to become seriously embroiled with such superior forces. This we had to endure all summer; from early to late enemy planes continuously overhead, watching every movement; work on the trenches as well as all arrivals and departures. Disgusting! Nerve-shattering!¹⁰¹²

Though many German soldiers fighting on the Somme might have thought that their air service was deficient in its duties and responsibilities to provide them direct support, it was becoming ever clearer to both Haig and Trenchard that the balance of power had shifted in the

¹⁰⁰⁹ WITA, Vol. II, 313-314. See also S. F. Wise, *Canadian Airmen and the First World War*, 391.

¹⁰¹⁰ Trevor Henshaw, *The Sky Their Battlefield*, 120-121. See also

¹⁰¹¹ WITA, Vol. II, 447-448.

¹⁰¹² '211 Reserve Regiment at the Somme, 7-18 September, 1916,' 158. As quoted in Wise, *Canadian Airmen and the First World War*, 383.

air war over the Somme. With the GAAS's introduction of the Albatros fighter aircraft the RFC was in jeopardy of losing its control of the sky.¹⁰¹³

Using a revolutionary new aircraft design, the German Albatros fighter's fuselage was built of semi-monocoque construction using plywood bent into place around longerons. The Albatros was thus both 'sleekly tapered and streamlined' like a shark's body.¹⁰¹⁴ It was quickly evident to the first British pilots that encountered it in late September that it was the most powerful fighter on the Western Front. Equipped with either a 150-hp Benz or 160-hp Mercedes engine, it had a maximum speed of 109 mph. With such a strong engine the aircraft was able to carry two 7.92mm LMG 08/15 Spandau machine-guns which were synchronized to fire through the two bladed propeller. Though impressive in just about all critical areas as compared to its British counterparts, the Albatros was still outnumbered by the DH 2 and FE 2b and it could not turn nearly as sharply as either of the primary RFC fighters.¹⁰¹⁵

Though the effectiveness of the Albatros D I had already been demonstrated by Boelcke's *Jasta* on 17 September, it was not just the several new types of fighter aircraft the Germans had introduced over the Somme that had caused Trenchard's concern. What he feared even more was the possibility that the GAAS might receive a change in leadership, someone who recognized that a defensive strategy was not working and who might use the introduction of the newer, more advanced fighter aircraft to alter the tactics the German air service was using so that they could challenge British air superiority. In his letter through Haig to the War Office Trenchard wrote: "Supposing the enemy, under the influence of some drastic reformer or some energetic leader, were now to change his policy and follow the example of the English and French, and were to cease using his aeroplanes as a weapon of

¹⁰¹³ Andrew Boyle, *Trenchard: Man of Vision*, 197. See also John H. Morrow, Jr., *The Great War in the Air*, 153; Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 60.

¹⁰¹⁴ Kenneth Munson, *Fighters 1914-1919*, 116-117.

¹⁰¹⁵ *Ibid.*, 98-99.

defence and to start a vigorous offensive and attack as many places as far behind our lines as he could.”¹⁰¹⁶ Trenchard’s fears were to become a reality and much sooner than he had expected.

The German High Command realized that the introduction of new aircraft was only one part of the solution to correct the imbalance of air power over the Somme. Having realized that a critical characteristic of the Somme battle was “the extraordinary increase in the importance of the air force to the battle on the ground. . . Control of the air over the battlefield had now become imperative for success,”¹⁰¹⁷ von Hindenburg selected General Ernest von Hoeppner, at the time commanding a reserve division, to take command of the GAAS and tasked him with “securing unity and method in the construction, concentration and use of all aerial means of waging war.”¹⁰¹⁸ Simply put, von Hoeppner was directed to restructure the GAAS so that it would not only challenge the RFC’s air superiority over the Somme, but would in fact wrest it away from the British along that sector of the Western Front.¹⁰¹⁹ The ‘drastic reformer’ and ‘energetic leader’ that Trenchard had both feared and anticipated had been found and though the new German air service commander’s task seemed herculean he would achieve results much quicker than either the German High Command or Trenchard anticipated.

Worse still for Trenchard and the RFC was the fact that the GAAS now possessed a core of highly trained and experienced squadron commanders like Oswald Boelcke whose *Jastas* were built around well-trained, experienced pilots. Most of these men like von Richthofen, Rudolf von Berthold, and Hans Muller to name a few, had many months of

¹⁰¹⁶ Sir Hugh Trenchard, ‘Future Policy in the Air’, 22 September, 1916, AIR 1/71/15/9/125, NA.

¹⁰¹⁷ Deutschland, Reichskriegsministerium, *Der Weltkriege 1914 bis 1918*, Band XI: *Die Kriegführung im Herbst 1916 und im Winter 1916/1917*. (Berlin, 1938), 109-110.

¹⁰¹⁸ Ibid. See also Ernest von Hoeppner’s *Germany’s War in the Air*, 80-81, and John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1918*, 278.

¹⁰¹⁹ John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1918*, 280.

operational experience as bomber or reconnaissance pilots before they were accepted to be trained as fighter pilots. Additionally by September, 1916, the *Jastas* were being equipped with the best fighter aircraft available at that time and opposing them were British aircrew that for the most part flew outdated aircraft and more importantly whose average training and experience level was vastly lower than their German counterparts. It is not difficult to grasp that because of the introduction of the Albatros, Fokker and Halberstadt fighters combined with the high levels of training and experience within the *GAAS* that by the fourth month of Britain's offensive on the ground, the battle for air superiority over the Somme was beginning to go in favor of the Germans.¹⁰²⁰ The final two factors: selection and training of aircrew must now be examined to understand their impact on the RFC's efforts to gain air superiority over the Somme and more importantly their role in enabling the RFC to attain what would prove to be a Pyrrhic victory at the conclusion of the air campaign.

¹⁰²⁰Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 56 and 60. See also John R. Cuneo, *Winged Mars, Vol. II: The Air Weapon, 1914-1918*, 265-267.



“The NCO Pilot”, Flight Sergeant W. G. Bennett, RFC (IWM Art 2397)

Chapter Six

SELECTION AND TRAINING OF RFC AIRCREW

From its humble beginnings as the Air Battalion in 1911, to its evolution into the RFC the following year, the thrill of piloting an aircraft attracted men from all walks of life within Britain and her Empire. Most of the prospective applicants had been fascinated by the lure of flight as youth and in the decade since the Wright Brothers first flight had followed the exploits of Bleriot, Grahame-White, Cody, and other daring aviation pioneers. They consumed the numerous articles published by the renowned aviation journals at the time, *The Aeroplane* and *Flight*, and what they found provided even greater impetus to pursue what, was considered both a mysterious and dangerous pastime. ‘Something deep within myself demanded adventure, an exploration into new and more exciting fields’ one prospective candidate from South Africa stated.¹⁰²¹

The purpose of the Air Battalion “was to create a body of expert airmen, organized in such a way as to facilitate the formation of units ready to take the field with troops and capable of expansion by reserve formations” in the event of war.¹⁰²² The first applicants were selected from volunteers from any branch within the British Army and the Royal Navy. Most but not all of these men came from Britain’s upper and middle class for the sole reason that they could afford to pay for their initial flight training at a civilian flying school. Graduating from a flying course and receiving a Royal Aero Club certificate would almost guarantee a prospective military pilot’s acceptance into the Air Battalion.¹⁰²³ It was not until war was declared that the civilian flying schools were closed or taken over by the War Office and the pre-war policy of making pilots pay for their initial flight training was abandoned. This decision paved the way for some few civilians and soldiers from the lower classes to apply to become pilots.

¹⁰²¹ K. Van der Spuy, *Chasing the Wind*. (Capetown: Books of Africa, 1966), 25.

¹⁰²² Air Historical Branch, *Air Publication 125: A Short History of the Royal Air Force* (London: HMSO, 1935), 9.

¹⁰²³ The majority of civilian flying schools charged a set rate of 75 pounds which the army and navy refunded upon earning the Royal Aero Club certificate and acceptance into the RFC.

From April, 1912 through April, 1916 the initial requirements for consideration to be trained as a pilot were:

1. Interview of prospective candidate by an RFC officer.
2. Possession of a Royal Aero Club certificate (RAeC).
3. Previous experience in aeronautics.
4. Good map-reader and field sketcher.
5. Good record as a soldier or sailor (at least two years service).
6. Aptitude for mechanics.
7. Pass medical examination which included a vision test.
8. Minimum age of 17; maximum age of 40 years of age.¹⁰²⁴

During the first year of the war, there were only three modifications to the selection process. The first occurred in 1915 when the decision was made to no longer require a RAeC as a prerequisite prior to entry. The RAeC still had to be earned before a pilot was fully certified, however.¹⁰²⁵ The second major change allowed civilians with or without aviation experience to apply directly to the RFC as well as enlisted men to join from the ranks.¹⁰²⁶ The third modification involved the minimum age limit. This was raised from seventeen years of age to eighteen.¹⁰²⁷

Much has been made by historians about the questions that were asked potential candidates during their initial interview. The first question should not have caught any of the

¹⁰²⁴ Air Historical Branch, *Air Publication 125: A Short History of the Royal Air Force* (London: HMSO, 1935), 9.

See also C.G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS, and RAF*, (Shrewsbury, England: Airlife Publishing Ltd., 2001), 38; and Denis Winter, *The First of the Few: Fighter Pilots of the First World War*, (Athens, Georgia: The University of Georgia Press, 1983), 19; Geoffrey Norris, *The Royal Flying Corps: A History*, 25; and Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 15.

¹⁰²⁵ Air Historical Branch, *Air Publication 125: A Short History of the Royal Air Force* (London: HMSO, 1935), 9.

¹⁰²⁶ *Ibid.*, 35-36 and 75.

¹⁰²⁷ Cecil Lewis, *Sagittarius Rising*, 9.

aspiring candidates by surprise: ‘Why do you want to join the Flying Corps?’ But it was the follow-up question that has received the most focus having to do with whether or not the applicant had any experience with horses. Lieutenant William Fry, an infantry officer from the Rifle Brigade who had spent the first year of the war in Flanders as an enlisted soldier, was not eager to return to the trenches and thought the RFC might provide better opportunities.

I was shown in to Colonel Warner, Personnel Staff Officer to the RFC, who asked me why I had volunteered. I gave him some sort of reason and then he asked if I could ride a horse and sail a boat. I said I could, although I had only been on a horse a few times and never been in a boat with sails.¹⁰²⁸

‘Can you ride a horse?’ does not seem to be a question that could measure whether or not the candidate had any aptitude for flying at first glance. But looking at it from the service’s prospective and the role of military aircraft in 1914, it does seem to be a logical one.¹⁰²⁹



William M. Fry, photographed in 1917 as a captain in the RFC. (RAFM)

¹⁰²⁸ William Fry, *Air of Battle*. (London: William Kimber & Co. Limited., 1974), 35-36.

¹⁰²⁹ Douglas H. Robinson, M. D., *The Dangerous Sky: A History of Aviation Medicine*, (Seattle, WA: University of Washington Press, 1973), 83.

It was believed that a positive experience with horses provided “a good ‘seat’, a natural equilibrium, and a sensitive pair of hands, [which] would have been among the qualities the RFC was looking for. Even more important perhaps, would be “the self-confidence necessary to control an animate object, and the ready acceptance of physical challenge.”¹⁰³⁰ It must be noted that many young men during this period of the twentieth century had no experience with driving an automobile or even a motorcycle. Many, regardless of class, would however, have had contact with horses as a means of transportation and thus the assumption could logically be made that if one did not have experience with horses or had had a bad experience with them than they might have trouble handling the controls of an aircraft. Many young adult British males within the upper and middle class spent countless hours around horses on a daily and weekly basis. It is not too strong to suggest that for many of these men horses were a critical element of their social as well as cultural lives in the early twentieth century. Not only did they ride them for pleasure but they also raced them, played polo and steeplechase on them, and conducted hunts from them. Those that entered the army with great experience with horses often gravitated towards the cavalry regiments. Thus it was believed that anyone who had the good ‘hands’ of a horseman would more than likely be able to make the transition towards piloting an airplane with little difficulty.¹⁰³¹

Second, the primary role of aircraft in 1914 was to conduct short and long range reconnaissance for the army, a role traditionally conducted by the cavalry. The argument was still being debated as to whether or not aircraft would eventually replace the cavalry. Most of the experts at the time did not believe so but the assumption could have been made that ‘seeing the writing on the wall’ cavalry officers would transfer to the RFC and capitalize on the technology and make their service still valuable.

¹⁰³⁰ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 21. See also Denis Winter, *The First of the Few: Fighter Pilots of the First World War*, 19.

¹⁰³¹ Douglas H. Robinson, *The Dangerous Sky: A History of Aviation Medicine*, 82-83.

An American cowboy from Sterling, Colorado, Frederick Libby had enlisted in the Canadian Expeditionary Force (CEF) in 1915 and after serving in a motor transport unit in France for several months decided to apply to the RFC on a whim. Receiving permission from his chain of command he was sent to RFC headquarters where he was interviewed by a Colonel Bennett.

Libby, we are glad to see you. This won't take long, it is only routine. Do you know anything about aeroplanes? Absolutely nothing, I answered. What makes you think you can fly? I don't know, I have never been near a plane. Can you ride a horse? Now, what a horse had to do with flying I didn't know, as horses don't fly, but here I was on safe ground, so I assured the colonel I was an expert with horses. This pleased him more than I expected, as he was the owner of several polo ponies, and we had a nice discussion about horses in general.¹⁰³²

Both Fry and Libby were accepted into the RFC. After serving in an infantry unit on the Western Front from 1914-1916 and gaining permission from his commanding officer to apply for transfer to the RFC, Norman Macmillan met with a senior RFC officer for his obligatory interview.

“Why do you want to transfer to the Royal Flying Corps?”

“Because I want to fly.”

“Can you ride?”

“I have ridden.”

“Have you sailed a boat?”

“Yes.”

“Do you know anything about internal-combustion engines?”

“I know the Otto cycle and two-stroke principles.”

“Have you driven motor cars or motor cycles?”

“Yes.”

“Do you know anything about flying?”

“I have read *Flight*, *Aeronautics*, *The Aero* and *The Aeroplane* since Bleriot flew the Channel. And I know something of Lanchester's books.”

The interviewing officer smiled. He knew the most aspirant pilots knew very little about flying. What they did know was only sufficient to whet their appetites. . . . “You'll do,” he said.¹⁰³³

¹⁰³² Frederick Libby, *Horses Don't Fly: A Memoir of World War I*. (New York: Arcade Publishing, Inc., 2000), 133.

¹⁰³³ Norman Macmillan, *Into the Blue*. (London: Jarrolds Publishers, Ltd., 1929), 15-16.

Macmillan was probably one of the most qualified candidates applying from outside the ranks of the RFC. Not many men had the breadth and depth of experience that he had and he was eagerly accepted for flying training.¹⁰³⁴

A direct lead-in from the second question on the candidate's familiarity and experience with horses led to the third question which usually focused on sports and athletic achievements. In the spring of 1915, Cecil Lewis left his school, Oundle, a year early at the age of seventeen to volunteer to be a pilot in the RFC. Lord Hugh Cecil, an RFC captain conducted his interview.

"So you were at Oundle?"

"Yes, sir."

"Were you in the Sixth?"

"Yes, sir-Upper Sixth. Er—a year under the average, sir."

"I see. How old are you?"

"Almost eighteen, sir (Liar! You were seventeen last month.)"

"Play any games?"

"Yes, sir. I got my School Colours at Fives, and I captained the House on the river. I should have got my House Colours for Rugger this year if I'd stayed; but—"

"Five, you say? You should have a good eye, then."

"Yes, I suppose so, sir." (Does Fives need a good eye? Well, he seems to think so. I'm getting on all right.)

"You're very tall."

"Six foot three, sir."

"I don't think you could get into a machine."

"Why, sir? (Oh, Lord! He's going to turn me down. He *mustn't* turn me down!)"

"Well, they're not built for young giants like you, you know."

"Couldn't I try, sir?"

A slow smile, a pause, then: "Yes, I suppose so. I'll write a note to the O.C. at Hounslow. And if it's all right, come and see me again."

"Oh, thank you so much, sir. I'm awfully keen, sir to—"

"I'm glad." He wrote rapidly. "Here take this with you and show it to the O.C. Hounslow."

"Thank you, sir. Good morning, sir."¹⁰³⁵

¹⁰³⁴ Norman Macmillan, *Into the Blue*, 15-16.

¹⁰³⁵ Cecil Lewis, *Sagittarius Rising*, 7-8.

Even though Lewis did not meet the age requirement, he was accepted into the RFC, based largely on his athletic achievements at school and his youthful eagerness. He would be one of many applicants who would be accepted into the flying service for these same reasons. Having been a member of a team and even better, having been a leader on a sports team, were considered more important by the RFC interviewer than whether or not the applicant had any 'Previous experience in aeronautics' or 'Aptitude for mechanics.'

Gwilym H. Lewis (no relation to Cecil Lewis) was just seventeen years old when the war began. Though born in Birmingham, England in 1897, Lewis came from a strong Welsh background. Coming from a family within the upper middle class, Lewis left Marlborough College and enrolled in the London University Officer Training Corps before being commissioned in the Northamptonshire Regiment in September, 1915.¹⁰³⁶ Within weeks he grew bored of the constant drilling and marching and requested a transfer to the RFC. His regimental commander was furious but allowed his transfer to go forward. During his interview he was informed that though he was very qualified (some college but more importantly he had had earned his 'House Colours' in rugby in his first year of school, which at that time was extremely rare and hard to do); there were no pilot vacancies. His interviewing officer, Major Warner advised him to earn his RAeC and that would guarantee him a seat in the next draft of pilot candidates.¹⁰³⁷

With his father paying the fee for his flying lessons at Hendon and flying a total of four hours with no dual-instruction, Lewis earned his certificate and was then assigned to Farnborough in January, 1916 for basic flying instruction.¹⁰³⁸ A month later he was assigned to Upavon and the CFS where he trained on the BE 2a, BE 2c and the FB 5 'Gunbus'. Earning

¹⁰³⁶ Gwilym H. Lewis, *Wings Over the Somme, 1916-1918*, 15.

¹⁰³⁷ Ibid.

¹⁰³⁸ Ibid.

his 'wings' on 23 April, 1916, Lewis was then assigned to the RFC's third DH 2 equipped squadron, Number 32.¹⁰³⁹ The unit flew to France on 29 May and arrived just in time to play an important role in attaining air superiority over the Somme just weeks before the ground offensive was to begin.¹⁰⁴⁰



Second Lieutenant Gwilym H. Lewis. (RAFM)

With the initial emphasis placed on earning the RAeC certificate in the years before the war, the Royal Aero Club had established a set of standards that all licensed flying schools had to provide their trainees in order for them to be awarded the flying certificate. Not only did the school have to provide flying instruction and training but theoretical and technical ground instruction as well.¹⁰⁴¹ The fact that the Royal Aero Club was the only aviation organization in Britain sanctioned to license a British pilot, both military as well as civilian,

¹⁰³⁹ Gwilym H. Lewis, *Wings Over the Somme, 1916-1918*, 15.

¹⁰⁴⁰ Ibid.

¹⁰⁴¹ C.G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS, and RAF*, 38-41.

ensured that the standards were established and adhered to in each of the schools conducting flying training.¹⁰⁴²

To earn his RAeC the student pilot had to conduct three separate flights around a five kilometer closed circuit course with each flight terminating with the engine of the aircraft being switched off at or before landing. The aircraft also had to come to a stop within 150 meters of a point previously identified by the student pilot. An official from the Royal Aero Club had to observe all three flights and approve they had been completed to standard.¹⁰⁴³ Prior to these three flights flying training consisted of several hours riding directly behind the instructor so that when ordered, the pupil could lightly place his hands over the instructors and get a 'feel' for the aircraft controls. This was followed by conducting five 'figure eights' just wide enough to ensure the candidate had to bank the aircraft. When the instructor believed that his student had the 'feel' of the aircraft the two exchanged seats.¹⁰⁴⁴ "The instructor sat in a slightly raised passenger seat immediately behind [the student] from which position he could barely reach forward to the stick with his right arm in order to help the student with the elevators and the ailerons; butt he had no control at all over the rudder or over the operation of the temperamental engine, except for what effect he could get by shouting into the student's ear."¹⁰⁴⁵

¹⁰⁴² The Royal Aero Club was granted authority to license all pilots in the United Kingdom effective 1 March, 1910. See C.G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS, and RAF*, 39.

¹⁰⁴³ Ibid, 39.

¹⁰⁴⁴ Ibid. 39-40.

¹⁰⁴⁵ Frank T. Courtney, *Flight Path*, 23-24. The initial requirements established by the Royal Aero Club in 1910 were revised in February, 1911. Instead of conducting three five kilometer circuits a pilot only had to make two but they had to be flown around two posts placed not more than 500 meters apart with the direction of flight being reversed at each turn so that the course became a series of five 'figures of eight.' A third circuit was still required which had to be flown at a height of at least fifty meters. All three landings had to be made with the engine off within fifty meters of a point identified by the student prior to take-off. In January, 1914 the altitude of the third circuit was raised to 100 meters and the engine had to be switched off at that height so that the entire descent, approach and landing was conducted dead-stick. These changes were made due to the advances in aircraft capabilities.

The flying course had three phases: ‘dual straights,’ ‘solo straights,’ and finally ‘circuits.’ The dual straights were conducted with the instructor and focused on taking off, flying to the end of the airfield and then landing and then repeating that sequence several times. This was then done by the student pilot ‘solo’ and passing this phase the instructor directed the student to fly circuits around the airfield. Prior to his first solo Frank Courtney’s instructor’s parting instructions were concise: “Shove off and break your blasted neck.”¹⁰⁴⁶

When the instructor believed his pupil was ready to solo he sent him aloft and hoped the student pilot applied what he had learned and did not damage the aircraft or kill himself in the process. Pemberton-Billing was able to solo in a day; Joubert de la Ferte soloed in one hour and fifty minutes; Brancker required thirteen hours over four weeks and Trenchard went solo after sixty-four minutes spread over thirteen days.¹⁰⁴⁷

Barring any serious mishaps the student pilot completed the three circuit flights each of five kilometers and attaining passing marks from the Royal Aero Club observer would earn his RAeC certificate. From there the next step was gaining acceptance into a course at the Central Flying School.

The RAeC certificate was first introduced in 1910 but its value began to be debated by the RFC leadership once the CFS graduated several courses of pilots in 1912 and 1913. Many RFC and RNAS instructors, especially those who had returned from a tour of duty in France and Flanders, argued that the training it took to earn the RAeC was of little practical value. They would have preferred that their students had had no previous flying experience before

¹⁰⁴⁶ Frank T. Courtney, *Flight Path*, 25.

¹⁰⁴⁷ According to Brancker the average amount of flying time to qualify as pilot and earn the Royal Aero Club certificate (RAeC) in 1913 was twenty five hours. The length it took to earn the certificate varied due to any number of variables: student aptitude, instructor and aircraft availability, but most especially the weather. Trenchard would have earned his certificate in a quarter of the time had the weather cooperated. See *Sir Sefton Brancker*, ed. Norman Macmillan, 38.

attending the CFS.¹⁰⁴⁸ With the almost monthly advances in flying technology and training, the requirement to own a civilian flying ‘license’ prior to entering a military flying school seemed irrelevant. Since it took nearly an hour to administer the final flying exam and when one was in progress all other flying training had to be suspended, the army finally said enough was enough. In October, 1915, Lieutenant Colonel W. G. H. Salmond, the commander of 5th Training Wing requested that the War Office take action to reduce “the lamentable waste of time’ the air tests caused by stopping all other flying training. He recommended that considerable time could be saved if the test was condensed from five figure-eight’s to just two. Surprisingly, perhaps because they had little choice in the matter, the Royal Aero Club approved the recommendation.¹⁰⁴⁹

After conducting a detailed analysis of the coursework being taught by the CFS and concluding that the military’s requirements were more demanding than that presented by the Royal Aero Club, the Club agreed to issue the certificate to a pilot who could produce evidence that he had graduated from a course given by the CFS.¹⁰⁵⁰

Two of the other requirements for pilot selection were ‘previous experience in aeronautics’ and ‘aptitude of mechanics.’¹⁰⁵¹ Though these two criteria allowed for much leeway in application, they did provide a small group of enlisted men the opportunity to become qualified as pilots. Men who had enlisted in the Air Battalion or RFC who had been motor vehicle mechanics, built or rode motor-cycles, worked with engines, or had any experience working with aircraft prior to entry into the military, were sought after and

¹⁰⁴⁸ *Sir Sefton Brancker*, ed. Norman Macmillan, 38. By not requiring the RAeC certificate instructors would be able to teach and enforce the critical skills of flying and would not have to deal with bad habits or poor techniques that the student pilot may have gotten from the civilian flying course that he attended to earn the required RAeC certificate.

¹⁰⁴⁹ HQ II Brigade to War Office, Letter dated 30 October, 1915, AIR 1/138/15/40/283, NA.

¹⁰⁵⁰ C.G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS, and RAF*, 40-41.

¹⁰⁵¹ Air Historical Branch, *Air Publication 125: A Short History of the Royal Air Force* (London: HMSO, 1935), 9

nominated for training as pilots. It was not uncommon in the first years of the war for an officer student pilot to have a non-commissioned officer (NCO) pilot as his instructor. During ground training at the RAF at Farnborough in the spring of 1916, Second Lieutenant William Fry recalled a class on the air-cooled RAF engine. The instructor was a “young sergeant pilot wearing wings and the ribbon of the Military Medal. He was named McCudden . . . He became famous as one of the most brilliant and successful of RFC Scout pilots, shooting down over fifty German aircraft . . . and winning the Victoria Cross and every other decoration it was possible at that time to win.”¹⁰⁵² Second Lieutenant Cecil Lewis’s flight instructor was a Sergeant Yates who authorized him to go solo after one and a half hours dual instruction. Lewis considered Yates an excellent instructor.¹⁰⁵³ Not only did he survive his solo he went on to advanced training on the Avro 504, the BE 2c and the FE 2b before being sent to France in March, 1916. Assigned to Number 3 Squadron he flew the Morane Parasol monoplane throughout the air campaign over the Somme.¹⁰⁵⁴

Though the selection process at the start of the war could be considered haphazard to some degree compared to the standards of later twentieth century wars, the British eventually established a Medical Research Committee, led by Major Martin Flack, Royal Army Medical Corps (RAMC).¹⁰⁵⁵ With headquarters in London, Flack’s primary duty was to advise the senior leaders of the RFC and RNAS on ‘aeromedical matters.’ He established six examination stations in England whose purpose was to conduct medical evaluations on all prospective applicants for both air services.¹⁰⁵⁶ With heavy emphasis on cardiovascular performance in response to vigorous exercise, Flack also introduced the ‘Flack bag,’ a device

¹⁰⁵² William Fry, *Air of Battle*, 38-39.

¹⁰⁵³ Cecil Lewis, *Sagittarius Rising*, 11.

¹⁰⁵⁴ *Ibid.*, 24-107.

¹⁰⁵⁵ Douglas H. Robinson, *The Dangerous Sky: A History of Aviation Medicine*, 84.

¹⁰⁵⁶ *Ibid.*

that supposedly could evaluate the ceiling to which a candidate could ascend to without oxygen.

Breathing in and out of a five litre bag, the subject gradually reduced the partial pressure of oxygen in the container while the exhaled carbon dioxide was absorbed by a canister of sodium hydroxide. Thus, within twenty or thirty minutes, the man would be breathing air with an oxygen partial pressure equivalent to that at high altitude. The length of time that the man was able to keep this up was noted; then a sample of the air in the bag was taken and immediately examined, and the percentage of oxygen in the bag was determined by careful analysis; and in this way it was very simple to determine to what altitude this man would be able to attain.¹⁰⁵⁷

The results of the initial Flack 'rebreather' tests found that "sixty-one percent of the men found fit for flying were able to tolerate an oxygen percentage equivalent to that found at 20,000 feet or above; twenty-five per cent were not able to tolerate more than the equivalent of 15,000 feet; and fourteen percent could not surpass more than 8,000 foot equivalent."¹⁰⁵⁸

During the air campaign over the Somme, the operational ceiling for RFC fighters was 9,000 feet for the FE 2b; 14,500 feet for the DH 2; and 15,000 feet for the Nieuport 11C.¹⁰⁵⁹ When it was realized that the Flack tests simulated an ascent at a greater rate than that of which the aircraft then being used by the RFC were capable of achieving, it bore no relationship to a pilot's ability to tolerate anoxia at higher altitudes during the conduct of air operations. It was only towards the last two years of the war that British medical officers realized that all aircrew required supplementary oxygen above 12,000 feet and without supplementary oxygen above 15,000 feet aircrew performance would become noticeable impaired and subsequently place

¹⁰⁵⁷ Douglas H. Robinson, *The Dangerous Sky: A History of Aviation Medicine*, 84. See also War Department, Stencil no. 1092, 'Problems in Aviation from the Point of View of Medical Officers Recently Returned from England, France, and Italy, and Outlining the Immediate Needs of our Service at Home and Abroad.' (Washington, D. C.: Government Printing Office, 20 April, 1918), 7.

¹⁰⁵⁸ *Ibid.*, 85

¹⁰⁵⁹ Jack Hennis and Bob Pearson, *Aircraft of World War I: 1914-1918*, 31-32 and 43. See also Kenneth Munson, *Fighters, 1914-1919*, 98-99 and 137.

the crew at great risk.¹⁰⁶⁰ Between 1914 and the air campaign on the Somme the false results gained from the Flack test reinforced the medical examiner's belief that healthy, young pilots and aircrew could fly at the ceiling of any RFC aircraft then in use without oxygen.¹⁰⁶¹

By the fall of 1916, the RFC had revised its medical examination for aspiring pilots along the lines of the French Air Service medical exams. A team of sixteen doctors led by Dr. Flack and Major Ernest G. R. Lithgow examined nearly two hundred applicants per day.¹⁰⁶² Starting with the heart it was then believed that "a pulse rate of 60 was thought good and one over 100 was bad."¹⁰⁶³ Next the lungs were tested followed by the spinning test in which the applicant was spun ten times in a chair over a twenty second period. After the chair was stopped the candidate's eyes were checked to see if the eyes became stabilized within a thirty second period. A fifteen minute interview was then conducted to identify the "slow-witted, the timid, the unstable, and the unreliable."¹⁰⁶⁴ In his *Examination of Aviation Candidates*, Dr. Flack wrote that "There is a type of facial expression one gets well acquainted with carrying out this sort of interview. It consists of a furtive look as if always expecting something unpleasant to happen, in marked contrast with the straight, decided expression of the crack fighter pilot."¹⁰⁶⁵

The vision test was an integral part of the medical examination. Excellent vision was deemed a pre-requisite for flight training and since the primary mission of the RFC was acknowledged to be reconnaissance it was only logical that a pilot have superior vision to conduct detailed reconnaissance operations. The vision test tripped up a number of prospective

¹⁰⁶⁰ Douglas Robinson, *The Dangerous Sky: A History of Aviation Medicine*, 92-93. See also Denis Winter, *The First of the Few*, 148.

¹⁰⁶¹ *Ibid.*, 85.

¹⁰⁶² Ian Perry, "Aviation Medicine in the Royal Flying Corps", *Cross and Cockade International*, Volume 39, Number 2, 2008, 107.

¹⁰⁶³ Denis Winter, *The First of the Few*, 23.

¹⁰⁶⁴ *Ibid.*

¹⁰⁶⁵ *Ibid.* See also Martin Flack, *Examination of Aviation Candidates*. (London: HMSO, 1919), RAFM.

candidates. Brancker failed his first eye test. “He is so short-sighted that he will be a danger to himself and everyone else if he is allowed to fly.”¹⁰⁶⁶ Had he not received a waiver from the War Office due to his position on the General Staff, this gifted leader would never have been accepted for flight training. Several days after the declaration of war, Frank T. Courtney, having already earned his RAeC certificate was ordered by the War Office to report to RFC headquarters. He was to be interviewed by none other than the new commanding officer at Farnborough, Major Hugh Trenchard.

“Do you have to wear those glasses? [Trenchard] roared.
“Yes, sir, “I said, “I’m a little shortsighted, but . . .” I was about to explain that my glasses had never bothered me in flying, but I didn’t get that far.
“Don’t try and tell me,” he boomed, “that you can fly with those things on.
Get out.”¹⁰⁶⁷

The interview had lasted a total of twenty seconds. Courtney then met with the medical officer and hoped to bluff his way through the exam but the doctor was convinced that anyone with less than 20/20 vision could not be a pilot.¹⁰⁶⁸ Returning to his previous position at the Grahame-White aircraft factory, several months passed before Courtney returned to Farnborough to work on a broken Morane aircraft fitting. A sergeant had observed his work and took him aside and asked if he had thought about joining the RFC. He told the NCO about his glasses and his interview with Trenchard. The NCO informed him that Trenchard had gone to France to take command of First Wing and if he enlisted as a mechanic he would be an NCO in short order.¹⁰⁶⁹ Courtney then interviewed with the Squadron Sergeant Major and Trenchard’s replacement, Major Ashmore. Three days later he was a 2d Class Air Mechanic in the RFC.¹⁰⁷⁰ A few short weeks later and primarily due to the shortage of pilots, Courtney was interviewed again, tested on his capabilities with the Maurice Farman ‘Longhorn’ and made

¹⁰⁶⁶ *Sir Sefton Brancker*, ed. Norman Macmillan, 36.

¹⁰⁶⁷ Frank T. Courtney, *Flight Path*, 30.

¹⁰⁶⁸ *Ibid.*

¹⁰⁶⁹ *Ibid.*, 31-32.

¹⁰⁷⁰ *Ibid.*

an instructor pilot. After several more weeks of successfully training new pilots he was notified he could “wear wings and given flight pay, the only 2d class Air Mechanic in the Royal Flying Corps” [who was a qualified pilot].¹⁰⁷¹

What type of man makes an excellent pilot? What qualities and skills was the RFC looking for in a pilot? Thirdly, did age play a role in determining the best pilots? Brancker provides a succinct answer to each of these questions.

The popular impression is that a special temperament is required for success in the air; it is rather assumed that an artistic temperament, a vivid imagination, carelessness and reckless daring are great assets in the psychology of a would-be pilot. . . I always found that the most useful pilot in war was the man who would have made the best officer in the old regular Army—that good old type which has won us the British Empire—unimaginative but absolutely reliable—courageous and honourable to a fault, rather stolid, devoted to the hardy sports of the hunting field and the jungle and caring nothing for the artistic side of life—this type could usually be trained into a useful pilot at almost any age within reason. But most unexpected people turned into good pilots. Age was always a debatable point. Young men naturally learnt more quickly and easily than those bordering on thirty, but they did not last as long under active service conditions. The demands of war forced us to train numbers of boys of eighteen, or even seventeen, to fly, and then send them straight off to the front, but I always said that the ideal fighting age was more like twenty-five. There is no doubt in my mind that for peace conditions the younger a man starts to fly the better. . . During the War, it paid us well to teach a certain proportion of older men, because they were invaluable as Squadron and Wing Commanders.¹⁰⁷²

On the subject of age, Henderson was fifty-one and Brancker was thirty-six when they earned their RAeC certificates but both qualified as pilots before the war and neither one of them would fly in combat. An excellent example of a successful fighter pilot who was considered ‘too old to be a Scout pilot’ was Edward Mannock who transferred from the Royal Engineers in 1916 and was accepted for flight training at the age of twenty-eight. Instructed by the newly promoted ‘Lieutenant’ James McCudden, Mannock completed his courses with honors and arrived in France on 1 April, 1917. Flying the Nieuport 17 and later the SE 5 (Scouting

¹⁰⁷¹ Frank T. Courtney, *Flight Path*, 34-35.

¹⁰⁷² *Sir Sefton Brancker*, ed. Norman Macmillan, 38-39.

Experimental) and SE 5a, he rose to become one of the most successful squadron commanders the RFC ever produced. He was thirty years old when he was shot down and killed by ground fire in July, 1918.¹⁰⁷³

As the war progressed, however, the trend of selecting younger men to be pilots became the norm. Within a few months after the Battle of the Somme ended, there were very few British pilots over the age of thirty flying combat operations. Of 100 RFC aircrew identified as killed in action, died of wounds or killed in a flying accident in the fall of 1917, 60% were twenty-two years old or younger.¹⁰⁷⁴ When the air war really began to intensify in the late summer and fall of 1915, it was quite evident to most RFC commanders that this new type of three-dimensional warfare would require the physical abilities and quick-witted brain-power that only young men possessed. A man between 18 and 25 with quick reflexes, an alert mind, and the ability to manhandle a temperamental aircraft at high altitudes, against an enemy whose aircraft at that time was both better armed and faster was what was required. But not all believed that that was the case. C. G. Grey, the editor of *The Aeroplane*, disagreed. His argument tied the question of age directly to the class that the pilot came from.

There is an idiotic theory that a man is too old at 30 if he wants to fly and that a howling little bounder of 20 is going to make a better officer aviator than a thoroughly sound sportsman of 32. The youngster may certainly fly more recklessly till his nerve breaks just as a mongrel dog will go yapping into a fight till he gets a damned good hiding but he will never make an officer and will never fly after a bad smash in the way the better class of man will do. Blood tells in a man as much as it does in a horse or a dog. Many a good chaser has come out of the shafts where it has found it way by bad luck and many a better officer aviator can be found in the ranks than among the brats of the well-to-do shopkeepers and business-like merchants such as are now

¹⁰⁷³ For further details on the remarkable story of Major Edward C. Mannock see Adrian Smith's *Mick Mannock, Fighter Pilot: Myth, Life and Politics*. (New York: Palgrave, 2001) and James M. Dudgeon. "Mick' The Story of Major Edward Mannock V C, DSO, M C, RFC, RAF. (London: Robert Hale, 1981).

¹⁰⁷⁴ WITA, *Appendices, XXXVII, Comparison, By Months, of British Flying Casualties (Killed and Missing) and Hours Flown: Western Front, July 1916 to July 1918*. See also Trevor Henshaw, *The Sky Their Battlefield*, 575.

entitled to swagger round in uniform and draw salutes from their social, mental, and moral betters.¹⁰⁷⁵

Another issue that would have long-term effects on the evolution of the RFC had to do with the rank of pilots. When the RFC was formed in 1912, the War Office established the Military Wing's force structure at seven squadrons with each squadron containing thirteen aircraft.¹⁰⁷⁶ With two pilots per machine and a reserve of equal strength that meant the Military Wing required 364 trained pilots as well as other administrative officers and approximately 180 enlisted men per squadron.¹⁰⁷⁷ The initial plan called for 182 of these pilots to be commissioned officers and the remaining 182 to be NCOs.¹⁰⁷⁸ Therefore, Brancker developed a policy to enlist and train a large number of NCO pilots. In his first draft he recruited six trained pilots to enter the RFC as sergeants.¹⁰⁷⁹ The War Office initially supported the idea of a half officer, half NCO system but before it could establish a program to achieve this, the Royal Navy literally 'torpedoed' the entire argument.

Almost immediately afterwards I heard that the Admiralty were giving all pilots Commissions! Expostulations and remonstrances were in vain; this ridiculous policy was adhered to and, perforce, the War Office had to follow suit, since if we had not everyone would naturally have gone to the Royal Naval Air Service in order to obtain a Commission. This system lasted till the end of the war; I was always opposed to it; but nothing could be done until real executive control over the two Services was established.¹⁰⁸⁰

Brancker's plan was however, partially adopted. A small number of NCO's were trained as pilots to allow the officers they flew with to conduct observation and reconnaissance, skills that at the time were considered more important than flying an

¹⁰⁷⁵ Denis Winter, *The First of the Few: Fighter Pilots of the First World War*, 25.

¹⁰⁷⁶ *WITA*, Vol. I, 203.

¹⁰⁷⁷ *Ibid.*, 204.

¹⁰⁷⁸ *Sir Sefton Brancker*, ed. Norman Macmillan, 79.

¹⁰⁷⁹ *Ibid.*

¹⁰⁸⁰ *Ibid.*

aircraft.¹⁰⁸¹ Twenty NCOs and enlisted men were enrolled in flying courses at the CFS in 1913. Fourteen passed and earned the rank of 2d Class Pilots.¹⁰⁸² One of the flying instructors, Captain E. L. Gerrard, fully supported Brancker's scheme and was eager to prove the NCO pilot program a success. One of his pupils, 'a burly sergeant of the Guards,' was having great difficulty with flying the dual control Maurice Farman aircraft. Gerrard briefed the NCO that if he failed to solo on his next flight he would be excused from the course and returned to his unit. "All right, climb in and go and break your blooming neck" Gerrard instructed. The NCO passed his solo flight and completed the course with passing marks and earned his 'wings' in the process.¹⁰⁸³

The experiment had mixed results primarily because of the bias towards enlisted men and their abilities as pilots that were inherent throughout the senior ranks of the British military just prior to and during the First World War. "The opinion has often been expressed that men chosen from the non-commissioned ranks of the army or the lower ratings of the navy do not make good pilots."¹⁰⁸⁴ To support this argument, military officials at the War Office and the Admiralty noted that as a result of slow promotions before the war, NCOs and Petty Officers were usually married men and of an age that greatly exceeded the much younger applicants the RFC and RNAS were looking for to be pilots. By having wives and families and being more mature, they would tend to think first and avoid taking risks. Therefore, the conclusion was made that for these reasons enlisted men would not make good

¹⁰⁸¹ John W. R. Taylor, *CFS: Birthplace of Air Power*. (London: Putnam, 1958), 42-43. See also *WITA, Vol. 1*, 204-205.

¹⁰⁸² *Ibid.*

¹⁰⁸³ John W. R. Taylor, *CFS: Birthplace of Air Power*, 42-43.

¹⁰⁸⁴ *WITA, Vol. 1*, 205-206.

pilots.¹⁰⁸⁵ Additionally, the authorities argued that since these NCOs and Petty Officers were experienced and well-trained their commanders would be reluctant to let them transfer. It was feared the men the army and navy would release for flight training were probably undesirables who they were trying to get rid of.¹⁰⁸⁶ Even the *Official History* recorded that the question of the rank of pilots had more to do with class than anything else.¹⁰⁸⁷

The War Office as well as the British Army's bias against the incorporation of large numbers of NCO pilots within its ranks was definitely one reason why the RFC was faced with a shortage of pilots during the first phase of the Battle of the Somme. Relying primarily on educated men from the upper and middle classes, the RFC faced intense competition with every other branch of the army who required men of the same caliber to serve as junior officers within their regiments. This was evident in the wake of the first few weeks of the ground campaign on the Somme after the army suffered massive casualties, most especially at the junior officer level. The RFC was to face its first of several manpower crises when its supply of pilots grew dangerously short of meeting the requirements dictated to man the squadrons in support of the air campaign.¹⁰⁸⁸

Though the Admiralty may have crushed Brancker's plan to train NCOs to be pilots, the door was never completely closed on the concept. Enlisted men within the

¹⁰⁸⁵ *WITA, Vol. I, 205-206.*

¹⁰⁸⁶ *Ibid.*

¹⁰⁸⁷ *Ibid.* In an effort to clarify the point made, the *Official Historian* wrote: "The question of the rank of pilots is really a social question, a question, that is to say, not of individual superiority but of smooth collaboration. If a whole squadron of the Flying Corps had been staffed, as was at one time suggested, by men picked from the non-commissioned officer ranks, there can be no doubt that it would have made a name for itself among the very best."

¹⁰⁸⁸ In November, 1915, C. G. Grey, editor of *The Aeroplane*, recommended that the majority of pilots entering the RFC should in fact be non-commissioned officers and should be promoted based on their performance as aviators. The recommendation was ignored by the War Office. See *The Aeroplane* 9, no. 18, (3 November, 1915): 542.

ranks of the RFC, who had served in operational or training squadrons as fitters, riggers, armorers, and in other roles, were able to apply to become observers and after so many hours of operational experience with a squadron they were often encouraged to apply for pilot training. Thus the RFC had more than a few NCO pilots, such as James T. B. McCudden, Herbert Bellerby, George Eddington, Archibald Whitehouse, and Cuthbert Baldwin. Like McCudden and Whitehouse, a fair amount of NCO pilots were commissioned and a select few went on to command flights and squadrons before the war ended.

Once the war began and well into 1915, the RFC received many of its prospective pilots from transfers from other army units. As the RFC expanded throughout the first and second year of the war it became obvious that this source of recruitment would not enable the RFC to fully man the increasing number of squadrons that were then being created. Because of the manpower, aircraft, and engine shortfalls the RFC was experiencing as it nearly doubled in size from the Battle of Loos to the start of the Somme offensive, Trenchard predicted that “the battle of the air will be won or lost at home.”¹⁰⁸⁹

Taping into all available manpower sources, the RFC began recruiting prospective aircrew from outside the United Kingdom. While efforts had been underway to begin flying schools in France and Egypt, there were also flying schools being established in Canada, Australia, and South Africa as well.¹⁰⁹⁰ At the start of the Somme offensive there were nearly eighty Canadian airmen in the RFC in France and

¹⁰⁸⁹ Trenchard to Derby, 19 March 1916, Trenchard Papers, MFC 76/1/81, RAFM.

¹⁰⁹⁰ In 1916, the War Office approved an offer from a consortium of Canadian industrialists and businessmen to build both an aircraft factory and an aviation school in Toronto at their expense. Both Australia and South Africa had established flying schools but needed military instructors and the CFS curriculum to ensure they were meeting the War Office Standards as established in 1912 and revised in 1916.

half of them were assigned to the headquarters, army, and corps wings that would participate in the air offensive. Approximately 10 percent of RFC aircrew at the front were Canadians and this number would remain constant throughout the air battle as more Canadian reinforcements arrived to keep pace with the RFC expansion program. Nearly all of the Canadian airmen had transferred from the Canadian Expeditionary Force (CEF).¹⁰⁹¹ A typical example was Trooper W.G. Barker. Enlisting in the 1st Canadian Mounted Rifles in Winnipeg in December, 1914, and after completing a machine gun course in England, he deployed to France with his unit in September, 1915. Giving up their horses, the men became infantrymen. Barker spent several tours in the trenches before applying for a transfer to the RFC. Passing his interview and with a good recommendation from his commanding officer, he was sent to Number 9 Squadron in March, 1916 as an observer under training. While on probation, Barker completed nine patrols during March and was then officially transferred from the CEF to RFC and accepted as an observer. In April, he was commissioned and transferred to Number 4 Squadron. In July, he was transferred to Number 15 Squadron where he participated in the entire air campaign over the Somme. By the time the campaign ended, Barker had won the Military Cross and was recommended for pilot training.¹⁰⁹²

Though commanders in the field might not be happy about losing good men from their units to the RFC neither the BEF nor CEF prevented transfer requests until they began experiencing heavy casualties during the Battle of the Somme. In October, 1916, two weeks after suffering its first major losses at the Battle of Flers-Courcelette, the Canadian Training Division in England was directed “to place a freeze on all

¹⁰⁹¹ S. F. Wise, *Canadian Airmen and the First World War, Vol. 1*, 365.

¹⁰⁹² Ibid.

transfers to the flying services until the reinforcement needs of the CEF had been met.”¹⁰⁹³

The infusion of pilots from nations within the British Empire played an important part in alleviating the manpower problem the RFC faced during the air campaign over the Somme and later as well. A quick survey of the nationalities of the pilots within one RFC squadron which supported the Fourth Army in 1916 is worth review. Number 24 Squadron had 145 pilots serve within its ranks during the war. From that total, twenty were Canadians, five were Australians, four were South Africans, two were from New Zealand (and eight were Americans).¹⁰⁹⁴ Nearly all RFC squadrons had similar compositions amongst its aircrew. It is not an exaggeration to state that without these men from the Dominions, the RFC would have had great difficulty overcoming the manpower crisis it faced in 1916.¹⁰⁹⁵

From its beginnings the RFC was focused on the manpower issue and though the air service had not expected the war to begin in August, 1914, it was in the process of building a force of nearly 200 pilots and aircraft with another 100 trained pilots and an additional 100 aircraft in reserve when the war began. Four squadrons, all of which were under strength in officers, men, and equipment were deployed to France within weeks of the outbreak of war. As the operational units deployed all that remained in England was the CFS whose purpose was to replace the casualties and build new squadrons.

¹⁰⁹³ War Office to CEF HQ, 18 October, 1916, 8-1-121, PAC, RG 9 III, vol. 35.

¹⁰⁹⁴ Denis Winter, *The First of the Few*, 20.

¹⁰⁹⁵ Ibid. See also G. E. Gibbs, Personal Memoir, AIR 1/2388, NA. Gibbs was a fighter pilot in Number 29 Squadron who achieved 14 victories during the war. He believed that by the last year of the war nearly 70% of his squadron's pilots were from Canada, Australia, New Zealand, and South Africa. It was his contention that the RFC could not have maintained its operational effectiveness without these large numbers of aircrew personnel from Britain's Dominions.

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(CWM 19930012-990)

As early as 1912, Henderson and Sykes had planned for an annual 'wastage' rate of at least 100% in both pilots and aircraft.¹⁰⁹⁶ Little did they expect that by following a continuous offensive strategy during the air campaign over the Somme the RFC

¹⁰⁹⁶WITA, Vol. I, 203-204.

would experience losses that exceeded 100 percent in several of its squadrons in just a matter of weeks.

One of Britain's first military aviation theorists, Colonel John E. Capper, an expert and advocate for airships and balloons and later commander of the Balloon School, argued as early as 1910 that aircraft pilots should be trained on subjects such as navigation, meteorology, photography as well as military skills.¹⁰⁹⁷ Many of his recommendations were reflected in the courseware for Britain's first military pilots.

The first military aviation course began in April, 1912 and was conducted in temporary buildings and hangars while the required buildings for the CFS were being built. The course as designed required twenty-five aircraft but in fact only had seven—two French and five British models. The first class consisted of officers from the army and navy who either understood the potential of aircraft in the next war or were seeking adventure from doing something new and dangerous.¹⁰⁹⁸

The course consisted of two phases. Phase I focused on reconnaissance from captive balloons, free balloons, and airships and lasted for four weeks from 10 April to 10 May. Phase II emphasized actual ground and flight training and last nearly three months, from 20 May through 15 August.¹⁰⁹⁹ Student pilots actually assembled and disassembled aircraft as well as engines so that they understood how the mechanics of flight was tied to the theory.

Much of the theoretical work which encompassed the theory of flight, aircraft design, engines, navigation, as well as map reading, instruments and photography took place in Phase I.¹¹⁰⁰ During each week the student pilots attended five lectures on theoretical work and before

¹⁰⁹⁷ Capper to Secretary of State for War, 27 October, 1910, Thomas Capper Papers, Liddell Hart Center, 111/2/2b.

¹⁰⁹⁸ Michael Paris, *Winged Warfare*, 218-219.

¹⁰⁹⁹ John W. R. Taylor, *CFS: Birthplace of Air Power*, 28.

¹¹⁰⁰ Air Historical Branch, *The Royal Air Force in the Great War*, 11.

the student pilot could graduate they had to pass nine examinations. Phase II focused primarily on the actual hands-on aspects of flying.¹¹⁰¹

The first course to be held at the CFS permanent site at Farnborough began on 17 August, 1912 and was completed on 5 December.¹¹⁰² The thirty-six officers that began to course were divided into four flights with army and navy officers distributed evenly throughout each flight.¹¹⁰³ Those officers who had entered the school without a RAeC certificate were provided elementary flying instruction until they were proficient enough to earn their certificate.¹¹⁰⁴ The practical exams included flying, map reading, compass, engines, and signaling. The theoretical exams were on the theory of flight, internal combustion engines, aerial reconnaissance, and the formation of troops.¹¹⁰⁵ Thirty-two of the thirty-six candidates graduated from the first CFS course with one officer being expelled for having no aptitude for flying, a second officer resigned, while two failed the course itself.¹¹⁰⁶

Student pilots initially began their flight training on the Maurice Farman dual control aircraft and after demonstrating their proficiency to their instructor they then moved on to fly solo in the same aircraft.¹¹⁰⁷ After completing several short cross-country flights they were then given dual control instruction on either an Avro or BE 2 and then flew solo on this aircraft. The final test was a long cross-country flight at which nearing the airfield on the homeward leg the pilot had to attain a height of 3,000 feet, turn off the engine and glide to a landing.¹¹⁰⁸ This was to test how well a pilot reacted in an emergency situation.

¹¹⁰¹ Air Historical Branch, *The Royal Air Force in the Great War*, 11.

¹¹⁰² Ibid.

¹¹⁰³ John W. R. Taylor, *CFS: Birthplace of Air Power*, 28.

¹¹⁰⁴ Ibid., 30.

¹¹⁰⁵ Air Historical Branch. *A Short History of the Royal Air Force*, 11.

¹¹⁰⁶ John W. R. Taylor, *CFS: Birthplace of Air Power*, 32.

¹¹⁰⁷ Air Historical Branch. *A Short History of the Royal Air Force*, 11.

¹¹⁰⁸ John W. R. Taylor, *CFS: Birthplace of Air Power*, 39.

The length of the course was reduced from seventeen weeks to thirteen in 1913 to allow for maintenance on the few available aircraft the CFS possessed.¹¹⁰⁹ Four courses were conducted that year and though it was originally intended that the training would include flights in free balloons and dirigibles, since none were available, this part of the training was eliminated from the curriculum.¹¹¹⁰ Even before the war began the CFS did not have the number of aircraft or instructors to meet the demand of student-pilots for both the Military Wing and the Naval Wing. The school was forced to send a number of pilots who had already earned their RAeC certificate to operational squadrons to receive their military flying training.¹¹¹¹

When the war began, there was an immediate need for more pilots and both Henderson and Brancker realized that the CFS would not be able to provide the numbers required. To provide for the increase, the War Office assumed control of the civilian airfield and its facilities at Brooklands and set up a second military aviation school at Netheravon.¹¹¹² In the fall of 1914 pilots were recalled from France to fill instructor positions and later the RFC formed Reserve Aeroplane Squadrons (RAS) at Farnborough and Netheravon.¹¹¹³ The RNAS followed the example established by the army and took control of the civilian schools at Hendon and Eastbourne. In January, 1915 the system was reorganized again as more RAS were formed. The purpose of these new squadrons was to serve as elementary flying schools

¹¹⁰⁹ John W. R. Taylor, *CFS: Birthplace of Air Power*, 51. See also Air Historical Branch. *A Short History of the Royal Air Force*, 11.

¹¹¹⁰ Ibid.

¹¹¹¹ Air Historical Branch, *The Royal Air Force in the Great War*, 12.

¹¹¹² John W. R. Taylor, *CFS: Birthplace of Air Power*, 61. See also *Sir Sefton Brancker*, 73.

¹¹¹³ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 38. See also *WITA, Vol. I*, 431.

which included basic flying training the associated theoretical and technical ground instruction as well.¹¹¹⁴

Once a student-pilot completed his elementary course at a RAS, he was either sent to the CFS or to a Service squadron which was in the final stages of preparing to deploy to France or Flanders. Once there it was expected that the student-pilot would spend up to eight weeks flying just one type of aircraft, rather than a wide variety of machines which had been the norm in the past. Because it was serving the role of an advanced flying school, the number of pilots in a Service Squadron might be as high as fifty percent above its required strength.¹¹¹⁵ Eventually the surplus would be taken away to form a new squadron and the parent unit would then deploy. This system of training would last long after the end of the air campaign over the Somme.¹¹¹⁶

This system of using 'Service' squadrons for teaching advanced flying training placed a large burden on the units whose primary mission was to prepare for combat operations. If there was a conflict between practicing tactical training and conducting advanced pilot training for new pilots, the advanced training took precedence.¹¹¹⁷ This was a major reason why many RFC pilots lacked the tactical flying skills required when they arrived in France. The problem would grow even worse as technological advancements in aircraft, engines, and even weapons systems placed an enormous burden on partially trained pilots who had to

¹¹¹⁴ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 38. See also War Office letter 87/4469, 9 January, 1915, AIR 1/1288/204/11/53. NA.

¹¹¹⁵ Ibid.

¹¹¹⁶ A simplistic example follows: Number 8 Squadron begat Number 13 Squadron which then spawned Number 22 Squadron which was the nucleus for Number 45 Squadron which then created Number 64 Squadron. See C.G. Jefford, *Observers and Navigators*, 38 and *WITA, Vol. I*, 238-239. This process actually began two years before the start of the war when the first RFC squadrons were doubled by taking a flight from one squadron to build a second squadron.

¹¹¹⁷ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 39.

assimilate not only the technological changes that were taking place but also the constantly evolving doctrine of aerial combat as well.¹¹¹⁸

By 1915, most of the instructors responsible for training new pilots had some experience flying over the Western Front but few of them could be regarded as experts. Both before and during the air campaign over the Somme, the majority of instructor pilots in Britain were considered to be in a 'resting' status since they were not in operational squadrons overseas. Though several instructors at the CFS, such as Captain's Gerrard and Fulton, had several years of flying experience each, neither had any background or training experience teaching men with either little or no experience how to fly. "They did things instinctively without being able to explain how they were done, and the young pilot really had to teach himself all that was to be known beyond simple turns and landings."¹¹¹⁹ The fact that more pilots were killed in training accidents than were killed by the enemy is evidence that serving as a flying instructor at the CFS was more stressful than serving with an operational squadron in France. Nearly 8,000 pilots were killed in the UK learning or teaching others how to fly against 6,166 pilots, who were killed in action or died of wounds sustained in combat between August, 1914 and November, 1918.¹¹²⁰ It is no wonder that flying instructors often termed their student pilots as 'Huns.'¹¹²¹

With his return from France in December, 1915, Brancker supported the idea of centralizing the flying training units in England by combining the two separate training brigades (II and V), to form one organization. On 9 March, 1916 this was done and the

¹¹¹⁹ *Sir Sefton Brancker*, ed. Norman Macmillan, 37-38.

¹¹²⁰ Denis Winter, *First of the Few*, 36.

¹¹²¹ Nigel Steel and Peter Hart, *Tumult in the Clouds: The British Experience of the War in the Air, 1914-1918*, 84.

Training Brigade was established with the highly respected Brigadier General Jack M. Salmond selected to command the new formation.¹¹²² At the same time a Home Defence Wing was also created.

Having examined French flying training programs while commanding 3rd Wing in France, Brancker realized that Britain's principal ally was using much more advanced flying instruction than the CFS was. After studying French methods on aerial fighting conducted at their school at Cazaux, Brancker directed that a suitable place be found within Britain to establish an aerial gunnery school and after much effort Loch Doon in Ayrshire was selected but before it became operational, temporary aerial gunnery schools were established at Hythe and Turnberry.¹¹²³

The school at Hythe was established in September, 1915 (the second month of the 'Fokker Scrouge') and by the end of that same year the RFC's School for Instruction was organized at Reading to relieve the congestion when the number of pilot candidates exceeded the accommodations available at the CFS and its satellite airfields.¹¹²⁴

A week prior to the start of the air campaign on the Somme, the senior leadership of the RFC (Trenchard and Brancker, with much input from the Wing and Squadron commanders) established revised minimum standards that pilots must achieve before earning

¹¹²² Salmond commanded No. 3 Squadron when the war began through the spring of 1915. His reputation became almost legendary after an incident during the Battle of Neuve Chapelle in March, 1915. An aircraft was being loaded with bombs for an upcoming mission when one of the bombs was dropped and exploded, destroying the aircraft and killing eleven men and seriously wounding another four. Salmond forbade any one from his squadron to go near the wreckage as it was found that not all of the bombs had detonated. During the night, Salmond single-handedly removed the remaining bombs and buried them away from the airfield. During the Battle of Loos, Salmond commanded Second Wing. Promoted to Brigadier General in late 1915, he took command of II Brigade when the RFC reorganized in January, 1916. Salmond's brother, Geoffrey would also serve a significant role within the RFC during the First World War, most especially in the Middle East. See Anne Baker, *From Biplane to Spitfire: The Life of Air Chief Marshal Sir Geoffrey Salmond*, (London: Pen & Sword Books, 2003).

¹¹²³ The RFC experienced countless difficulties in the development of the aerial gunnery school at Loch Doon and in 1918 the project was finally abandoned because of excessive costs and poor climate.

¹¹²⁴ Air Historical Branch. *A Short History of the Royal Air Force*, 11.

their wings and being sent to a squadron overseas. There were six criteria, all of which had to receive a passing mark to graduate from the CFS.

A. *Qualification Tests in Flying required as of March 23, 1916:*

1. The pilots must have spent at least fifteen hours in the air solo.
2. He must have flown a service aeroplane satisfactorily.
3. He must have carried out a cross-country flight of at least 60 miles successfully. During this flight he must land at two outside landing places under the supervision of an officer of the Royal Flying Corps.
4. He will climb to 6,000 feet and remain at that height for at least fifteen minutes after which he will land with his engine stopped, the aeroplane first touching the ground within a circular mark of fifty yards diameter.
5. He will make two landings in the dark assisted by flares. [The CFS and Administrative Wing commanders had the authority to dispense with this test if the weather conditions caused an unwarranted delay].
6. He will attain a standard of eight words a minutes signalling on the buzzer [Morse code].

Further Training:

Newly qualified flying officers who may remain with squadrons at home are to be given every opportunity of gaining air experience. They should be made to fly in bad weather on all possible occasions; and they should practice landing over a tape of ten feet from the ground; bomb-dropping over the camera obscura, fighting in the air, night flying in formation. Wireless work and photography should be practiced where feasible.¹¹²⁵

The directive added that each advanced training squadron had to kept up to strength with twenty student pilots in each, even if that meant pushing pilots from the preliminary training squadrons to the advanced training squadrons before they were fully prepared. Additionally, it was no longer a requirement for a student pilot to possess a RAeC to enter the CFS but the certificate had to be earned before graduating from the advanced training squadron. Finally,

¹¹²⁵War Office Directive to G.O.C 6th Brigade, Commander, CFS, and O.C. Administration Wing, 23 March, 1916, AIR 1/387/15/231/28, NA; subsequently formalized at the CFS as *Qualification Tests in Flying*, 1-2. AIR 1/131/15/40/218, NA. See also *WITA*, Vol. III, 295-298; and Air Historical Branch, *The Royal Air Force in the Great War*, 154.

the commanders were notified that they “should not hesitate to recommend the removal of any pupil who shows either lack of keenness or ability, always bearing in mind that a pupil who is above average in keenness and audacity will almost always make a very good pilot if given time.”¹¹²⁶

Burke as commandant of the CFS strongly recommended that the standard be 50 hours instead of the 15 that was proposed. Brancker argued that this was not feasible. “I am absolutely with you in principle, but I fear that at the moment we cannot make graduation more difficult than laid down in the draft which I sent you. Already the output [of pilots] is not equal to the demand, and thanks to too rapid expansion during the past six months we are very nearly bankrupt at the moment. The standard has been allowed to drop too low, hence my memorandum, but the time has not come yet to raise it to a really satisfactory basis.”¹¹²⁷

Lieutenant Colonel Hugh C. T. Dowding, commander of the Administrative Wing, argued that the requirement to land within a circular mark of fifty yards was “desirable but 90% of RFC pilots could not do this now at the first attempt. 50 yards circumference is 8 yards radius.” He also recommended that aerial photography, wireless and formation flying be added to the curriculum. Dowding’s recommendation’s of adding the additional three tasks to the training curriculum were approved and included in the War Office directive.¹¹²⁸

Shortly after the RFC leadership formalized the revised graduation requirements for pilots, three additional qualification certificates were introduced, all of which were in addition to the RAeC.

Certificate A consisted of a written examination on the theory of flight, RFC organization, and artillery co-operation procedures.

¹¹²⁶ *Qualification Tests in Flying*, 3, AIR 1/131/15/40/218, NA.

¹¹²⁷ Brigadier General W. S. Brancker to Lieutenant Colonel C. J. Burke, 21 March, 1916, War Office 87/7094, NA.

¹¹²⁸ *Ibid.*

Certificate B consisted of tests of practical skills involving aircraft engines, rigging, Morse code, machine guns and the like.

Certificate C involved flying tests conducted in accordance with instructions issued locally by Wing Commanders.¹¹²⁹

Certificates A and B had to be earned in sequence but the flying test could be done at any time. Once a prospective pilot had earned all three certificates, the student was awarded his Graduation Certificate of the RFC by the CFS. The War Office was then informed of the candidate's qualification and shortly thereafter the new pilot would be 'gazetted' (his achievement being published in the *London Gazette*) as a Flying Officer. Once he was gazetted he was entitled to wear his 'wings.'¹¹³⁰ In June, 1916 Certificates A and B were combined into a single Certificate A which had to be earned before starting flying training.

Months after these changes in flying training were put into effect, several senior leaders within the RFC claimed that new pilots were still being sent to France without having attained the necessary competencies and skills that would enable them to accomplish their missions and stay alive in the process. P. R. C. Groves, a close friend and ally of Frederick Syke's, was highly critical of Trenchard's leadership during the war and what Groves believed was a refusal to enforce the training standards established by his own headquarters in France.

I discovered, from personal visits to all the principal training centres in Great Britain, that pupils were being sent out wholesale to France before they had acquired even the minimum standard of proficiency necessary for active service. Pilots were being dispatched overseas while the standard of their aerial gunnery was such that they had only the most remote chance of hitting another machine in the air, and when their flying experience was so limited that they could neither manoeuvre nor keep formation. Many, indeed, left for

¹¹²⁹ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 40. See also AIR 1/1273/204/9/148, NA.

¹¹³⁰ Ibid. Both the War Office and the RFC routinely reminded training units that the wearing of 'wings' was conditional until the orders were published which then made it official. As C.G. Jefford notes that the "illicit practice" of wearing flying badges was encouraged within the training squadrons to give some credibility to newly qualified pilots who were selected to become flying instructors before being 'gazetted.' C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 40.

the front without ever having flown the type of service machine which they would be called upon to take over the lines.¹¹³¹

Another officer who was critical of Trenchard and what he believed were major shortcomings with the pilot training program was L. E. O. Charlton. Having started the war as a flight commander in Number 3 Squadron under Major J. M. Salmond, Charlton commanded Number 8 Squadron during the Battle of Aubers Ridge in May, 1915. When Brancker became Director of the Air Organization in March, 1916 he made Charlton his G. S. O. 1 responsible for all General Staff duties. Brancker credits Charlton for making several recommendations that led to major changes within both the pilot and observer training programs.

Another new feature we introduced about this time [December, 1915-January, 1916] was a course of ground training for pupils before they ever went near an aerodrome. . . This was Charlton's idea and it certainly proved useful. Reading was our first ground training school, but we afterwards took over several of the Colleges at Oxford, a military camp at Denham, and various buildings elsewhere as our numbers increased. At these schools everyone joining the Flying Corps underwent a period of intensive training in rigging, engines, signalling, artillery observation, musketry, and discipline, and had to

¹¹³¹ P. R. C. Groves, *Behind the Smoke Screen*. (London: Faber and Faber, Limited, 1934), 124-125. Groves blamed Trenchard and RFC Headquarters in France for the failure to enforce the standards. "all [of my] protests to this course [of action] were met with the reply that the policy was dictated by military necessity." Groves argued that "There was in fact no such necessity." After inspecting the RFC training centers in Britain, Groves was sent to Egypt where he was given command of the "finishing Wing of the training organization in Egypt, which comprised four squadrons devoted respectively to Aerobatics, Aerial Gunnery, Bombing, and Artillery Co-operation. "This enabled me personally to ensure that no pupil instructed in Egypt should be passed out for active service until he had achieved the requisite standard of efficiency." In March, 1918, Groves returned to Britain where he became the Director of Flying Operations at the Air Ministry. Conducting an investigation on the issue of pilot reinforcements being sent to France, he found that 51% of pilots were still being sent to the Western Front without having attained the minimum standards that had been established by the RFC. Groves was a career Army officer who had given little thought to the use of aircraft and aerial warfare prior to the First World War. A close friend of Frederick Sykes, it was because of Sykes' influence that Groves was able to enter the RFC in 1914. Being both a friend and ally to Sykes proved to be Groves undoing for when Sykes resigned as Chief of the Air Staff in 1918, Groves was left without a sponsor and his days in the RAF were numbered. Though he became a firm believer in strategic bombing towards the end of the war and during the inter-war period, Groves was an outspoken critic of Trenchard and his use of the 'incessant offensive policy' throughout the war. As a supporter of Sykes, one must wonder whether or not Groves criticism of Trenchard's aerial strategy was based on professional differences or was it in fact because Trenchard was Sykes arch-nemesis in all things pertaining to the use of air power during the war. In his book , *War From the Air* published in 1935, Groves was damning of Trenchard's attrition based offensive strategy and argued that it did more to hurt British aircrew morale than it ever did to achieve air superiority during the Battle of the Somme and after.

pass a definite standard before being allowed to join a flying station to learn to fly.¹¹³²

Charlton replaced Brancker as the Director of Air Organization (DAO) in January, 1917 when Brancker was appointed Deputy Director-General of Military Aeronautics (DDGMA). On one occasion, Charlton had threatened to resign from the Directorship over the policy of reinforcing squadrons in France with newly-trained pilots. He later wrote:

At that time there were many hundreds of youths at various training stations throughout the country learning to fly and learning, also, the art of fighting in the air and the other necessary accomplishments that went with flying. They were being fattened for the front. Flying Corps headquarters in France was constantly demanding supplies of these youths in fives, tens, and twenties, according as the need arose, and sometimes there were enough ready and to spare. But at other times there was a scarcity, and the alternative of a confession, on the part of those responsible for home training, of failure to keep pace with the demand was to send over the half-trained and hope for the best. The proceeding was almost mechanical and quite as inhuman. The great thing was on no account to fail to supply the goods. . . . to detail any who could only just fly and knew nothing beyond seemed to [Charlton] to be little short of murder. So [Brancker] put his foot down, as he had a perfect right to do, and made it a rule that none should go to France who could not satisfy him, or one of his principal assistants, that they were certified in every way possible.¹¹³³

Charlton's decision was unpopular and as expected met with much resistance. He received three young pilots in his office who had received orders to leave for France the following day. None of the three had completed their training so he cancelled their orders and sent them back to their flying school. Within thirty minutes he was notified that his decision had been overturned by the War Office. It was then that he offered his resignation but was told that since he was only a staff officer he was "as such bound to carry out orders, even though he disagreed on grounds of conscience."¹¹³⁴

¹¹³² *Sir Sefton Brancker*, ed. Norman Macmillan, 121-122.

¹¹³³ L. E. O. Charlton, *Charlton: An Autobiography*, (London: Penguin Books, Limited, 1938), 238-240.

¹¹³⁴ *Ibid.*, 238-239. Charlton returned to France in October, 1917 to take command of V Brigade, RFC. He commanded that unit until the end of the war in November, 1918.

Though far from perfect, pilot training improved during 1916. This was due to several reasons. The fact that there were more aircraft available, there were more airfields, and more instructors who were more experienced, combined with a more rigorous and realistic training program that now included ground training schools, aerial fighting schools as well as aerial gunnery schools. Brancker once more gave the lion's share of credit to Charlton for his efforts in improving the pilot training program within the RFC. "Colonel Charlton deserves undying honour for the initiative, imagination and energy that he displayed in their creation."¹¹³⁵

The training of pilots would be a constant thorn in Trenchard's side until one outspoken squadron commander took matters into his own hands. Major Robert Smith-Barry was a flight commander in Number 60 Squadron when his squadron commander was shot down and killed on the third day of the Somme offensive. Assuming command of the squadron, Smith Barry had spent most of 1915 as a flying instructor at Gosport, and was considered one of the best flying instructors in the RFC.¹¹³⁶ In the month before the Somme campaign began, Number 60 Squadron received several replacement pilots who were only partially trained. Smith Barry refused to allow them to be assigned to deep penetration patrols behind the German lines until they had proven their proficiency with their aircraft and could fly in formation. He confronted Trenchard over the issue of untrained pilots. "They've only seven hours flying, sir, and it's bloody murder [to send them across the lines untrained]" Smith-Barry is reputed to have shouted at the RFC commander.¹¹³⁷ Convinced that the flying courses being conducted by the CFS were not nearly sufficient enough to prepare pilots for the

¹¹³⁵ *Sir Sefton Brancker*, ed. Norman Macmillan, 138.

¹¹³⁶ Smith-Barry had been a pilot in Number 5 Squadron when war was declared. He was badly injured in an aircraft crash in France in mid-August 1914 and spent the rest of 1914 and the winter of 1915 recovering from injuries. Persuading doctors to pass him fit for flying he was assigned to Gosport as an instructor. Instructing during the day, he flew anti-Zeppelin patrols at night. In April, 1916 he was successful in transferring to Number 60 Squadron which was then in training prior to deployment to France.

¹¹³⁷ F. D. Tredrey, *Pioneer Pilot: The Great Smith Barry Who Taught the World How To Fly*. (London: Peter Davies Limited, 1976), 52-53.

rigor of air combat that they would experience in France or elsewhere, Smith Barry set about making recommendations that would have a major impact on how British pilots were trained during the last two years of the war. He was convinced “that only a completely new approach to flying training would produce the kind of pilots that scout squadrons needed to master the German opponents, and whenever he met Trenchard or members of his staff he told them so.”¹¹³⁸

The increase in RFC casualties in the fall of 1916 can be linked directly to the insufficient training received by pilots at that time but the casualty rate grew proportionately even higher when the GAAS introduced three new fighter aircraft in September, all of which outclassed the majority of British fighters then operating over the Western Front.¹¹³⁹

Along with pilots, the RFC understood before the war began that it was going to require trained observers if it was to accomplish the air service’s primary mission of aerial reconnaissance. The need for trained observers within the RFC can be traced to 1913 when the first commander of the Military Wing, Major Frederick H. Sykes, proposed the publication of four documents that would become the RFC’s first doctrine. Two of them, the *Training Manual* and *War Manual*, addressed the duties and responsibilities of both the pilot and observer. The problem with Sykes’ doctrine was that it did not identify who the observer should be. Was the observer a second pilot? Or was he a specialist, specifically trained in the art and science of observation and reconnaissance?

In June, 1913, the *War Manual* was revised and published as the RFC’s *Training Manual, Part II* (Military Wing). The major revision that specifically applied to observers read that

¹¹³⁸ F. D. Tredrey, *Pioneer Pilot: The Great Smith Barry Who Taught the World How To Fly*, 52-53.

¹¹³⁹ RFC casualties (killed in action, wounded in action, and prisoner of war) increased from 82 in August, 1916 to 137 in September. The new aircraft which entered service for the GAAS were the Fokker D I and DII, the Albatros DII, and the Halberstadt DII; all were biplanes armed with two synchronized machine guns.

Pilots will always be provided from the personnel of the Royal Flying Corps; officers for duty as observers will be provided by the Royal Flying Corps, or temporarily from the General Staff and other units, as occasion demands.¹¹⁴⁰

The doctrine implied that pilots would still be responsible for conducting duties as observers because there were no plans to establish a trained force of professional observers. During the 1912 Army Maneuvers, Trenchard, Sykes and Brancker found themselves serving as airborne observers and the during the 1913 Army Maneuvers, most of the officers assigned to be observers were inexperienced pilots or students from the British Staff College on temporary loan to the RFC for the exercise.¹¹⁴¹ Captain G. S. Shephard had flown as both a pilot and observer during the 1913 maneuvers and argued that pilots made poor observers for two reasons. First, they disliked riding as passengers and second, they spent most of their time focusing on what the pilot was doing instead of performing observation duties. Shephard recommended that observers should be experienced officers from outside the RFC. He added that if they had some mechanical knowledge that would also be of value in case the aircraft experienced mechanical failure away from the airfield. It would also be helpful if the observer had flown several times with the same pilot to ensure familiarity and develop teamwork. Finally, he recommended that the observer should be equipped with a compass “as the observer is ultimately held responsible for finding the way.”¹¹⁴²

As war clouds loomed over Europe the War Office directed that the RFC train a small cadre of officers to serve as observers. The first course began on 13 July, 1914 at Netheravon and was made up of ten infantry officers. A second course was scheduled to begin the second

¹¹⁴⁰ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 4. See also *RFC Training Manual, Part II* (Military Wing), June, 1913, AIR 1/785/204/558, NA.

¹¹⁴¹ *Sir Sefton Brancker*, ed. Norman Macmillan, 42. See also C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 4.

¹¹⁴² C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 5. See also *Memoirs of George Shephard*, ed. Shane Leslie, (London: Privately published, 1924). See also Marvin L. Skelton’s article on Shephard’s comments on the training of observers in *The Cross and Cockade Journal*, Vol. 8, No. 1, (Spring, 1977).

week of August but was cancelled when the War Office suspended further observer training on 31 July just four days before Britain declared war on Germany.¹¹⁴³

During the first year of the war the ‘observer’ in most RFC aircraft was actually another pilot. The first observer to be killed in action, Lieutenant C. G. G. Bayly, was a pilot riding in the second seat of an Avro from Number 5 Squadron which was conducting a reconnaissance mission on 22 August, 1914.¹¹⁴⁴ As additional pilots arrived in France, several of them served as observers. Shortly after taking command of First Wing, Trenchard notified his replacement back in Farnborough that he was against the idea of using pilots as observers.

In my opinion it is absolutely unnecessary for the squadrons out here to have more pilots. 15 pilots per squadron is ample and we should get 9 observers who are not pilots to go with them, as it is manifestly a waste of time to train a man as a pilot and then when he comes out here not to allow him to fly a machine, and only use him as an observer. . . .¹¹⁴⁵

Trenchard had a valid point. If the aircraft was shot down, then the RFC lost two trained pilots instead of one. Realizing the RFC was critically short of observers, the War Office devised several creative schemes in the hopes of solving the problem. One such scheme involved the recruitment of six cadets from the Royal Military College, Sandhurst. They were gazetted as subalterns and sent to France, arriving there in mid-November. By December a total of twenty-three officers had arrived in France who were assigned to be observers, most had little if any experience with aircraft.¹¹⁴⁶

For most of the first year of the war the RFC obtained the majority of its observers from volunteers from the army. These men were attached to the RFC and obtained their training at the squadrons they were assigned to. Most of this training was conducted ‘on the job’ by flying over German-controlled territory on actual observation missions.

¹¹⁴³ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 5.

¹¹⁴⁴ *Ibid.*, 7.

¹¹⁴⁵ *Ibid.* See also Trenchard to Ashmore, 4 December, 1914, Air 1/1283/204/11/13, NA.

¹¹⁴⁶ *Ibid.*

Headquarters, RFC began its own recruiting campaign in late 1914 by allowing wing commanders to coordinate directly with the Royal Artillery to attach two artillery officers to each of their squadrons for a period of three weeks. The goal was to coordinate and promote the advantages of aerial observation and the direction of artillery fire. It was also intended to develop an understanding between the two branches on what they could do for one another but more importantly develop a long-term relationship between the RFC and the artillery. It was hoped that artillery officers would also see the numerous advantages the RFC could provide their branch and this might cause them to transfer to the flying corps.¹¹⁴⁷

Fearing that some of their quality artillery officers might be ‘borrowed’ permanently, HQ, Second Army wrote to Henderson, then commanding the RFC. To assuage their fears, the RFC chief of staff, Sykes, informed the artillery community within Second Army that there were to be two classes of observer. The first were those who were fully trained and who were “attached permanently” to the RFC. The second group of observers would consist of those officers who were temporarily attached to the RFC, whether they were trained or not. The officers on loan from the artillery were classified in the second category. Sykes did add that once the artillerymen were trained it was hoped that they would agree to transfer to the RFC whereupon their attachment would become permanent otherwise it was not cost effective to train an observer only to have him return to his original unit after his training was complete.¹¹⁴⁸

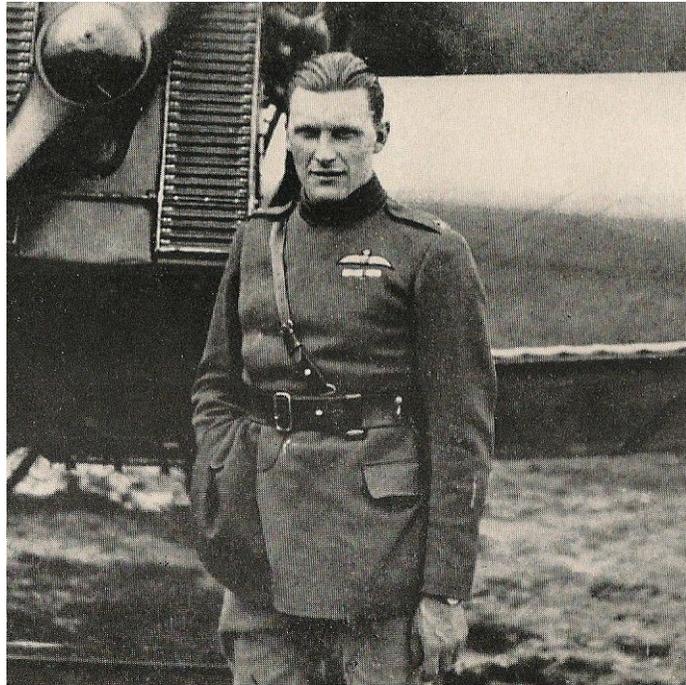
One such volunteer was Second Lieutenant Sholto Douglas. Commissioned into the Royal Horse Artillery in August, 1914, Douglas had spent less than two months with his battery in France when his request for transfer to the RFC was approved by his commanding

¹¹⁴⁷ C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 10. See also

HQ, RFC Routine Orders for 27 December 1914, 5 and 6 January, 1915. AIR 1/829/204/5/219, NA.

¹¹⁴⁸ Ibid, 11. See also HQ, RFC Letter G/155/1, 4 January, 1915,. AIR 1/2148/209/3/199, NA.

officer. He was to report to Number 2 Squadron for a three week trial period. If he did well his transfer would become permanent. Douglas's intent was to become a pilot and believed that by first serving as an observer he would become that much more proficient at flying an aircraft when the time came. Douglas survived his probationary period and his transfer became permanent in late January, 1915.¹¹⁴⁹



Sholto Douglas (pictured as a squadron commander in 1918) (RAFM)

Not all prospective observers came directly from army units; some such as A. J. Insall were already in the RFC. Insall was attending the University of Paris when the war began. He immediately returned home and enlisted in the University and Public Schools Brigade of the Royal Fusiliers in August, 1914 but then transferred to the RFC for flight training. He was taught by an NCO pilot and to his own surprise soloed after just fifty minutes. He was

¹¹⁴⁹ Sholto Douglas, *Years of Combat*, 57.

awarded his RAeC after meeting each of the stated requirements shortly thereafter.¹¹⁵⁰ Sent to Netheravon he joined the nucleus of Number 11 Squadron which was being formed with the intent of being the first fighter unit in the RFC. Insall was injured while making practice landings in a Maurice Farman when the landing gear hit a deep rut and the aircraft flipped over on top of him. After a ten-day grounding he found that he was unable to land the aircraft without getting physically ill.¹¹⁵¹ Over a three day period he made seven attempts to land his aircraft but had to relinquish control to the instructor-pilot. The only solution was to give up his dreams of becoming a pilot and with War Office approval he became an observer.¹¹⁵² It is not known how many pilot-candidates either failed flight training or voluntarily dropped from the CFS to become observers but surely Insall was not alone in taking this path to becoming an observer.

To ensure that observers were proficient in their duties, RFC HQs approved a formal training course of three weeks and directed the 2d and 3rd Wing to conduct the training. All of the prospective observers came from the Royal Artillery. Many of the observer candidates were found to be of low caliber and out of twenty-four men, the training cadre recommended that only ten be retained and assigned to squadrons as observers. Not pleased with the initial results, Sykes recommended to Henderson that there should be three categories of observers instead of two. The first category called for a select group of eight well trained men per squadron who would be permanently attached to the RFC. The second category would entail an additional two men per squadron who were in training and would serve as an initial reserve. The third category would consist of fully trained men who would return to their parent unit but

¹¹⁵⁰ A.J. Insall, *Observer: Memoirs of the RFC, 1915-1918*. (London: William Kimber and Co. Ltd, 1970), 29-32.

¹¹⁵¹ *Ibid.*, 38-44.

¹¹⁵² *Ibid.*, 44.

would be attached back to the RFC to carry out a specific task or mission to support their own unit commander's operations. They would also form a second reserve.¹¹⁵³

Sykes recommendation was approved by BEF HQs and the RFC conducted a second observer's course in April, 1915 for an additional sixteen artillery officers. Though the RFC preferred officers to serve as observers, a number of NCOs were also approved for training. Most of these men had served in front line units in the trenches. Because of their 'aptitude and enthusiasm' the RFC expanded the use of NCOs to serve as observers.¹¹⁵⁴ Many of these NCOs, such as James McCudden, and the Americans, Arthur Whitehouse and E. M. Roberts, became qualified observers and after surviving a tour of operations over the Western Front were sent back to England for pilot training and eventually were commissioned.

In August, 1915, RFC HQs formalized the qualifications for an officer to be certified as a trained observer, identifying five critical areas they were required to be proficient in.

Although it is undesirable to lay down hard and fast rules as regards the qualifications of observers, it is considered that the same general standard of proficiency should be maintained throughout the RFC. Normally an officer should not be recommended for grading as a qualified observer unless:

- a. He knows the Lewis Gun thoroughly.
- b. Can use the RFC camera successfully.
- c. Can send and receive by wireless at the rate of 6 words a minute with 98% accuracy.
- d. Knows the method of co-operation between aeroplanes and artillery thoroughly.
- e. Has carried out two reconnaissances or has ranged batteries successfully on two occasions.¹¹⁵⁵

¹¹⁵³ Frederick Sykes, *From Many Angles*, 148-150. See also HQ, RFC Letter G/155/1, 4 January, 1915, AIR 1/2148/209/3/199, NA.

¹¹⁵⁴ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 11.

¹¹⁵⁵ HQ, RFC Memorandum to Wing Commanders, 29 July, 1915. AIR 1/997/204/5/1241, NA. Lieutenant Colonel H. M. R. Brooke-Popham, serving as the RFC's G. S. O. 1, developed this guidance for the commanders of the 1st, 2^d and 3rd Wing to ensure that all units were using the same standards for

A month prior to the new guidance being issued, the RFC approved a distinctive single-wing badge attached to an oversized “O” to be awarded to flying personnel who had qualified as observers. Though a small step aimed at improving the status of observers in the eyes of the rest of the RFC, most especially pilots; the awarding of the observers wing was meant to recognize the important role the observer served in two-seater aircraft.¹¹⁵⁶ With the arrival of the Vickers FB5 pusher fighter to France in the summer and fall of 1915, the observer’s role became even more critical since it was the observer who by operating the aircraft’s machine gun controlled the aircraft’s offensive as well as defensive firepower.

Since the cancellation of the second observer course and the start of the war there had been no ‘official’ courses conducted back in England. Each RFC squadron was expected to train its own observers and until the summer of 1915 that meant standards varied. Second Lieutenant C. F. A. Portal having transferred from the Royal Engineers to the RFC as an observer was assigned to Number 3 Squadron in July, 1915.¹¹⁵⁷ Already proficient in using Morse code and map reading (on the ground), he was directed by his flight commander to familiarize himself with the Lewis machine gun as they would be flying in two days time over enemy lines. Receiving a cursory introduction to the ‘Artillery Code’ being used by the squadron, Portal was considered ‘proficient’ enough to conduct his first mission. His pilot, Captain T. O. B. Hubbard, though an experienced pilot, who had spent the previous three

observer qualification. Prior to this directive, wing commanders were developing their own standards. In 2d Wing, Lieutenant Colonel C. J. Burke had published similar but different standards to the commanders of Numbers 1, 5, and 6 Squadrons on 19 April, 1915, AIR 1/920/204/5/884, NA. See also Air Historical Branch, *The Royal Air Force in the Great War*, 74.

¹¹⁵⁶ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 18.

¹¹⁵⁷ *Ibid.*, 12.

years as an instructor at the CFS, had just arrived in France and had no operational experience himself.¹¹⁵⁸

Having never been in an aircraft before, Portal's first encounter with anti-aircraft fire was an enlightening experience. The pair got lost twice but managed to find their way back to their own airfield.

At the time, it did not appear strange that a reconnaissance should be performed by a pilot who had only once before flown the type of aeroplane used (and wrecked it) and never been over the objective or any other part of the enemy's lines, accompanied by an observer who had never been in the air at all.¹¹⁵⁹

After several more reconnaissance missions, Portal received a thirty minute briefing on the theory and methodology of directing artillery from the air. Along with his pilot he then was sent out on two artillery co-operation missions. Upon landing, he was notified that he was now a fully trained aerial observer. Portal's experience would prove to be the norm for most observers and not the anomaly prior to the Battle of the Somme.¹¹⁶⁰ As Royal Air Force historian C. G. Jefford has identified "A new observer was simply thrown in at the deep end. Whether he succeeded on learning to swim in his strange new environment, and how strongly, depended almost entirely upon his enthusiasm, aptitude and resourcefulness, reinforced by any advice that might be offered by his sympathetic colleagues."¹¹⁶¹

E. M. Roberts, an American from Minnesota, had joined the Canadian Expeditionary Force and served with a transport unit behind the lines.¹¹⁶² He requested a transfer to the RFC hoping he would have a more direct impact in the fight against the Germans. His transfer was approved and he too was assigned to Number 3 Squadron. Like Douglas, he spent a

¹¹⁵⁸ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 12.

¹¹⁵⁹ Ibid. See also AIR 1/ 2386/228/11/1, NA.

¹¹⁶⁰ Ibid.

¹¹⁶¹ Ibid. See also S. F. Wise, *Canadian Airmen and the First World War*, 364-365.

¹¹⁶² E. M. Roberts, *A Flying Fighter: An American Above the Lines in France*. (New York: Harper & Brothers Publishers, 1918), 16-25.

probationary three weeks learning the skills of his trade. Unlike Douglas however, Roberts spent the first week in the trenches with an infantry unit. Upon returning to his squadron he was taken aloft on his first reconnaissance mission and he too also got quite a shock when several anti-aircraft shells exploded near his aircraft. Upon landing he was then sent to an artillery battery for a week where he learned in great detail how the battery operated. Returning to his squadron he spent the third week learning what was required of an aerial observer. Though less dangerous than the first two weeks, Roberts found that he had to work “fourteen hours each day” in order to comprehend and remember everything that was taught him about wireless telegraphy, Morse code, the Lewis gun, as well as the conduct of artillery direction from the air.¹¹⁶³ Roberts was quick to realize that his time spent with both the infantry and artillery was instrumental to gaining a perspective on what those on the ground experienced and how the RFC could best support them.¹¹⁶⁴ The attachment of observers to artillery batteries would become a common practice as the war progressed. It was most beneficial in the development of a professional working relationship between the squadrons and the batteries involved.

As RFC squadrons concentrated on training their observers during the summer of 1915, the RFC’s doctrinal manual was revised a second time. During the middle of June copies were distributed amongst the squadrons in France for comment. Chapter three addressed the needs and requirements for trained observers.

Observation from aeroplanes can be carried out by the pilot single-handed, but as undivided attention is necessary for observing, it is usually advantageous to carry a passenger who is free to devote his whole attention to this task.

The observer requires air experience and special training. He should have good eyesight, and possess sufficient military knowledge to enable him to recognize units of all arms in their various formations, and to be able to

¹¹⁶³ E. M. Roberts, *A Flying Fighter: An American Above the Lines in France*, 110-111.

¹¹⁶⁴ *Ibid.*, 97-111.

discern the most probable places in which to search for them. He should be able to read Morse code.¹¹⁶⁵

This revision to the doctrine was significant because the RFC now officially recognized that it required trained personnel and not just a second pilot or a grounds crewman to perform the duties of an observer. The revised doctrine also stated that “as the attention of the observer is necessarily absorbed by his work in watching the ground, it is the special duty of the pilot to keep a lookout in the air for hostile aircraft.”¹¹⁶⁶ By the time of the Somme battle the role of pilot and observer would virtually be reversed as the air war greatly intensified and the observer, armed with one or two Lewis guns would be responsible for searching the sky for enemy aircraft while the pilot focused on the terrain below them.

In March, 1916 a select group of five observers were sent to Brooklands for training and the results were so favorable that the War Office asked all prospective observers volunteering for duty in France to attend the Brooklands course prior to deployment.¹¹⁶⁷ HQ, RFC did not accept the offer, believing that once these observers were trained they would be kept in England as instructors or the observers would be allowed to enter pilot training without ever serving in an operational squadron. In reality, Trenchard had two good reasons for ensuring that RFC HQ’s had the final say over observer training. First, he wanted his squadron commanders to train and certify their own observers, and second, Trenchard believed the training taking place back in England was not meeting the needs of the operational units in France. On at least one occasion in the weeks leading up to the Somme offensive, Trenchard

¹¹⁶⁵ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 15. See also *Flying Training Manual, Part II*, June, 1915, AIR 1/785/204/558, NA.

¹¹⁶⁶ Ibid. See also *Flying Training Manual, Part II*, June, 1915, AIR 1/785/204/558, NA.

¹¹⁶⁷ Ibid., 31.

had sent a letter to Brancker complaining about the inadequate wireless telegraphy training his observers were receiving.¹¹⁶⁸

Though RFC HQs had elected not to have their observers participate in the training being conducted at Brooklands, men selected for observer training from units in England attended the course in ever increasing numbers starting in the spring of 1916.¹¹⁶⁹ Men who were experienced observers such as Second Lieutenant C. Court Treatt who was serving as an Assistant Adjutant with Number 1 Reserve Squadron at Farnborough, and observing what he identified as inadequacies with the training, submitted his own recommendations for a comprehensive training program for observers.

- a. It was impractical to train pilots and observers within the same unit.
- b. An observer training school needed to be adjacent to a large training centre for troops of all arms, to facilitate the co-ordination of realistic co-operation exercises.
- c. It was essential that observers be provided with a substantial amount of practical flying experience.
- d. There was a need for a special school, similar to those at Reading and Oxford, to provide an introductory aviation course designed to meet the specific requirements of observers.¹¹⁷⁰

Three weeks later the War Office notified Treatt that his proposal had been read but that it was determined to not be feasible for implementation at that time. In fact the RFC would not act

¹¹⁶⁸ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 15. See also HQ RFC Letter CRFC 2047G, 15 May, 1916, AIR 1/266/204/9/61, NA. Trenchard complained that large numbers of W/T aerals were being lost because recently arrived observers were forgetting to wind them back into the aircraft prior to landing. He also stated that the blame for the losses must be shared with the pilot, many of whom had little operational experience themselves when the incidents occurred.

¹¹⁶⁹ Ibid. 32.

¹¹⁷⁰ Ibid. See also Second Lieutenant C. Court Treatt to War Office, 3 April, 1916, AIR 1/404/15/231/45, NA.

upon Treatt's proposal until January, 1918 when a preparatory course was established especially for observers.¹¹⁷¹

As the Battle of the Somme began in July, the training process began to coalesce for observers in England. After graduating from initial training at Oxford or Reading, observers were assigned to a semi-operational squadron which was nearing completion of its tour at an advanced flying training school. They then were attached to Brooklands or Hythe to attend a three week course and once this was completed a few were sent to France to replace casualties while the majority returned to their original squadrons until the squadron completed its training and was sent overseas.

When the RFC's air campaign began over the Somme in April, 1916, Trenchard's staff was confident that there were sufficient numbers of officers identified that were waiting for vacancies to become observers. But neither Trenchard nor his subordinate commanders had expected that the RFC's aircrew casualties would continue to increase to alarming numbers as the battle for air superiority intensified. Demand for trained observers quickly outstripped the number available back in England. Realizing the manpower shortage was getting worse, the War Office directed HQ, VI Brigade that it had to increase the number of NCOs and enlisted men as gunners to fill "up to 50% of the establishment" of two-seater fighters squadrons.¹¹⁷²

In May both RFC HQs and the War Office agreed that since the majority of men applying to be air gunners were enlisted men or NCOs then serving in units in France, that upon transfer to the RFC and prior to going to Hythe to attend a gunnery course, they should

¹¹⁷¹C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 15.

¹¹⁷²Ibid., 34. See also War Office to HQ, VI Brigade, FS/444 (MA1), 26 April, 1916, AIR 1/1169/204/5/1/1291, NA.

be sent to Reading to attend a ground course where they would be fully inculcated into the flying service.¹¹⁷³

Just prior to the start of the ground offensive and several months into the battle, two policy decisions were enacted that would have severe repercussions on the RFCs ever increasing manpower shortages. These two decisions influenced Trenchard and Brancker to increase the number of NCOs that could serve as observers and gunners as there weren't enough officers available within the squadrons to fill the vacancies caused by the increased number of casualties that had occurred in France between April and June. The first decision took place in June when Haig notified the War Office on 15 June that to properly support the still expanding army, the RFC would need to be doubled in size from twenty-seven to fifty-six squadrons.¹¹⁷⁴ This request was approved with little debate. The second decision occurred in September when the total number of observers in each squadron was increased from twelve to eighteen with the stipulation that "not more than twelve will be officers, the remainder to be Serjeants."¹¹⁷⁵

With the number of volunteers from the army requesting transfer to the RFC failing to keep pace with the demand for observers and gunners, the War Office in October made the decision to select potential candidates from amongst soldiers that were being recruited from army units into the RFC in England.¹¹⁷⁶ At the same time it was realized that gunners would be required for all types of aircraft then in service and not just those designated as fighters. It is critical to note that these men were recruited specifically to fill the need for aerial gunners and not as trained observers. It would not be until February, 1917 that the RFC began to

¹¹⁷³ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 34.

¹¹⁷⁴ *WITA, Vol. I*, 450.

¹¹⁷⁵ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 34. See also War Office Directive, 8 September, 1916, AIR 1/405/15/231/46, NA.

¹¹⁷⁶ *Ibid.*

recruit and train men to be specifically aircraft machine gunners and it was at that time the designation of “gunner observer” was replaced with that of “aerial gunner.”¹¹⁷⁷

After his transfer from the CEF was approved and having passed his initial interview with a senior RFC officer, American Frederick Libby was hoping he would receive several weeks leave before reporting to a squadron. But because of the recent start of the Somme offensive, Libby was directed to report to his new squadron within twenty-four hours where he would serve as an observer. Arriving at his new unit at 0730, on 15 July, 1916, Libby was escorted by the squadron sergeant major to meet the commanding officer who was in conversation with two of his pilots near the aircraft hangars.

“Welcome to Twenty-third Squadron, Libby.” This before the sergeant could open his mouth. “Libby we need observers. This is Lieutenant Price and Lieutenant Hicks, both of whom are in need of a good observer. What do you know about a machine gun?” Up to now no one has ever mentioned machine guns, so, when I assure the major I know nothing, he shows no shock, but immediately tells the sergeant major to take me to the gunnery sergeant for a half hour instruction and shooting on the gun range, then to bring me back and Lieutenant Price would take me up for twenty minutes practice shooting at a gallon petrol can on the field.¹¹⁷⁸

After his training session with the Lewis gun and his first flight in an aircraft (FE 2b), which included air-to-ground target practice with the Lewis gun against empty fuel cans, Libby was given passing marks by Lieutenant Price and several observers on the ground. He was then notified that he would go on his first operational flight at 1500. Borrowing flying coat, helmet, goggles and gloves, the neophyte observer met the pilot he would be flying with, Lieutenant Hicks. Libby notified Hicks that he wasn’t sure if he could tell the difference between friendly and enemy aircraft.

¹¹⁷⁷C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 35. See also AO 336, 13 February, 1917. The designation of “aerial gunner” was used to identify trained NCO machine-gunners who were then serving in two-seater fighter squadrons, AIR 1/997/204/5/1241, NA.

¹¹⁷⁸Frederick Libby, *Horses Don’t Fly*, 135-136.

This Libby, you will learn, but be on the safe side, have a roving eye, don't let any ship get in a position to shoot us down. If he is friendly, he will show his colors. Unless he does, let him have it. And tomorrow, if you will go to the adjutant's office, he will show you silhouettes of all ships, both the enemy and ours. I suggest you study three of our enemy ships, the Fokker, Roland and Albatros. These are the most deadly the Germans have at present. They are faster and have much more maneuverability than our ships, unless it is our Nieuport. And of these we don't have many. As for our FE 2b, the enemy have a wholesome respect for it. A good observer can shoot from any angle and has a wonderful range of vision with the front gun. The rear gun is to keep Fritz off your tail when returning home across the lines.¹¹⁷⁹

Libby and Hicks were part of a flight of five FE 2b's tasked with conducting a three-hour reconnaissance east of Arras. Within moments of crossing the front lines into German-controlled territory, Libby's FE 2b was attacked by a German fighter. Reacting almost instinctively, the American fired his Lewis gun and emptied the entire drum of forty-seven rounds at the German fighter. He didn't realize until after they had safely returned and landed back at their airfield that he had shot down the German aircraft in flames.

From seven-thirty this morning I have left my motor lorries [his previous unit] . . . have made the trip to Twenty-third Squadron, have been up twice and in contact once with the elusive Hun and have nothing but luck.¹¹⁸⁰

Three weeks later, Libby was commissioned and along with his pilot, the recently promoted Captain Price, was transferred to Number 11 Squadron which was also using the FE 2b. In four days the pair shot down four German aircraft and by the end of the Battle of the Somme, Libby was credited with having shot down ten enemy aircraft in just over three months. He was then sent back to England to undergo pilot training.¹¹⁸¹

¹¹⁷⁹Frederick Libby, *Horses Don't Fly*, 139.

¹¹⁸⁰Ibid., 147.

¹¹⁸¹Christopher Shores, Norman Franks and Russell Guest, *Above the Trenches: A Complete Record of the British Fighter Aces and Units of the British Empire Air Forces, 1915-1920*, (London: Grub Street, 1990), 239-240.



Frederick Libby (pictured as a Captain in 1917).

Another American, Arthur Whitehouse, was born in England but raised in the United States and upon Britain's declaration of war he sailed back to Britain where he joined the British Army. After serving some months with the Northamptonshire Yeomanry in France as a machine gunner, Whitehouse transferred to the RFC in the hopes of being sent back to England to be trained as a fighter pilot. He was shocked when he realized that instead of pilot training he was sent to an operational squadron where he would serve as an aerial gunner.¹¹⁸² Much of his training was conducted in the air against the GAAS but when he was not flying reconnaissance or escort patrols with one of several pilots he did undergo some intense periods of training on the ground.

We were given more instruction in the Vickers gun as well as in the air-type Lewis. At times we were shown the various aerial cameras and how to use them. Map-reading and some primary instruction in Morse code were also given . . . All these periods of instruction were used to grade us. After the tests the results were considered, and when we had put in our fifty hours over the

¹¹⁸²Arthur Whitehouse, *The Fledgling: An Autobiography*. (New York: Duell, Sloan and Pearce, 1964), 130-132.

line we could claim our observer's wing. . . above all we were first class machine gunners. We were blindfolded and placed behind Lewis guns and timed to see how fast we could take them apart and assemble them again. This was to teach us to clear stoppages and replace parts without ever taking our eyes off enemy planes. . . We sat and stared at wall maps of the front until we could recite from memory the position of every German aerodrome, kite balloon, and antiaircraft battery on our front. . . We were told how much ground a German regiment took up while marching along a road, we learned how to trace new battery positions by the marks made by their wheels through the grass and the general designs of their earthworks. We were given the latest ground-strip signals used by the infantry to denote their positions during an attack or a retreat. . . we were learning to be observers and to become efficient in the ancient art of killing.¹¹⁸³

While the air campaign over the Somme was taking place approximately twenty observers a month were being trained in England at the Wireless School at Brooklands and with more emphasis being placed on the aviation aspect of the training the course was renamed the Wireless and Observers School in October, 1916.¹¹⁸⁴ The curriculum was revised extensively in August with the students broken down into two groups. The first group, Group A, consisted of men who had less than six hours of flying time. The second group, Group B, contained men who had more than six hours of flying experience.¹¹⁸⁵

After completing a theoretical indoctrination at one of the Schools of Instruction the observers in training spent three weeks studying topics such as the Clock code, directing artillery from the air, using Morse code, conducting aerial photography, as well as intense training with the Lewis gun, as well as many more practical subjects.¹¹⁸⁶ The course culminated with several flying exercises and examinations. The observers were then sent to a

¹¹⁸³ Arthur Whitehouse, *The Fledgling: An Autobiography*. (New York: Duell, Sloan and Pearce, 1964), 130-132. Whitehouse served in Number 22 Squadron for over a year accruing more than 400 hundred hours in two-seater fighters as an aerial gunner. His primary reason for transferring to the RFC was realized in January, 1918 when he was sent back to England to be commissioned and attend pilot training. After the war he became an aviation writer of some distinction, producing more than three dozen books under the name of Arch Whitehouse.

¹¹⁸⁴ Air Historical Branch, *The Royal Air Force in the Great War*, 155.

¹¹⁸⁵ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 44.

¹¹⁸⁶ *Ibid.*

gunnery course at Hythe. Each observer had to be tested on four subjects before he could be sent to an operational squadron. The four exams covered “co-operation with artillery; the use and care of wireless equipment; photography and the care of the RFC camera; and the use and care of machine guns.”¹¹⁸⁷ Once the observers arrived in France they had to be certified at the brigade or wing level. The end result was that for the RFC, during the later phases of the Battle of the Somme, observers were better trained than their predecessors were in the first two years of the war.

The RFC also trained observers to operate from captive kite balloons. Balloons had several advantages over aircraft in that they could remain aloft all day and night if required. Furthermore, balloon observers did not have to concern themselves with the duties of an aerial gunner and protecting the aircraft. More importantly, whereas an aircraft observer had to use Morse code to communicate with the a ground station or artillery battery, the balloon-observer used a telephone set that was linked by cable to a ground exchange and thus could talk directly to the battery commander, another balloon observer and if necessary to the Corp commander that he supported.¹¹⁸⁸ Another major difference between the two was that a balloon observer was equipped with a parachute while aircrews were not.¹¹⁸⁹

Selection criteria to be a balloon observer was the same as for an aircraft observer but the training requirements, though in some ways similar, were also different in that there was much more focus on the operation of the balloon as well as observing from it.¹¹⁹⁰ Ground training began with the history of ballooning in peace-time and war, map-reading, use of

¹¹⁸⁷ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 45.

¹¹⁸⁸ Goderic Hodges, *Memoirs of a Balloonatic*, (London: William Kimber and Co., Limited, 1972), 10-11.

¹¹⁸⁹ C. G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, and RAF*, 62.

¹¹⁹⁰ *Ibid.*, 60-61.

Morse code and the telephone, as well as observation and directing artillery fire.¹¹⁹¹ The second phase consisted of hands-on training with the balloon itself, first the German designed *Drachen* type (a huge sausage shaped hydrogen filled balloon with a single air-filled rudder on the underside at the rear of the balloon) and later the French designed Caquot type (shorter than the *Drachen* with two tail fins and a third fin attached to the rear bottom of the balloon).¹¹⁹² Initial ascents were done with several other observer-candidates and an instructor until the instructor believed the trainee was ready to ‘solo.’ Most of the training was conducted during daylight hours but to become a fully qualified balloon observer or ‘balloonatic’ the trainee had to conduct at least one ascent at night. Once the night ascent was completed satisfactorily the observer could apply for his Aeronaut’s Certificate from the Royal Aero Club.¹¹⁹³ The RFC established two Advanced Balloon Schools (ABS), with one at Larkhill and the other at Lydd.¹¹⁹⁴ During the Somme offensive the RFC had a total of twenty-two kite balloon sections in operation to provide support of Rawlinson’s Fourth Army.¹¹⁹⁵

Though the training of pilots and observers was being improved in England, as well as France, it was that same training program that would be a nagging problem for Trenchard and his subordinate commanders throughout the air offensive and many months afterwards with consequences that none of the British military leaders, most especially Trenchard, predicted.

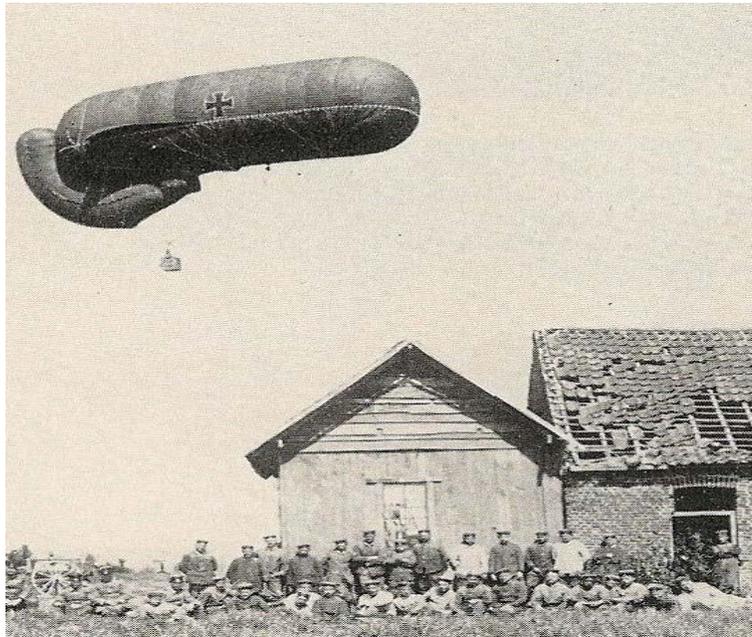
¹¹⁹¹ Goderic Hodges, *Memoirs of a Balloonatic*, 21-23.

¹¹⁹² *Ibid.*, 24-33.

¹¹⁹³ *Ibid.*, 45-46.

¹¹⁹⁴ Goderic Hodges, *Memoirs of a Balloonatic*, 21-23.

¹¹⁹⁵ Air Historical Branch, *The Royal Air Force in the Great War*, 120-121. Very little has been written about the RFC observation balloon sections and the experiences of the men who served as observers. Two notable works on the subject are Goderic Hodges, *Memoirs of an Old Balloonatic* (London: William Kimber and Company Ltd., 1972) and Alan Morris, *The Balloonatics* (London: Jarrolds), 1970.



German *Drachen* Observation Balloon, Western Front.
<http://www.firstworldwar.com/airwar/observation>

Linked directly to Trenchard's strategy of maintaining a continuous and incessant air offensive at all costs, the RFC commander had no one to blame but himself that his airmen were sent to the Somme unprepared for the changing combat conditions they were to face in the last eight weeks of the air campaign. Trenchard had hoped that his casualties would decrease when the RFC gained domination in the air over the Somme but with the resurgence of the *GAAS* in mid-September, it was the lack of training tied to a faulty strategy that led to unintended consequences for the RFC after the Somme campaign was over.



De Havilland DH 2's of Number 32 Squadron, Vert Galand airfield, Summer, 1916. (IWM Q11897)

Chapter Seven

A BRITISH HAWK FALLING: THE END OF THE AIR CAMPAIGN, OCTOBER-NOVEMBER, 1916

As the RFC and *Aviation Militaire* wrested aerial superiority away from the GAAS in the spring of 1916 and maintained it throughout the summer, Colonel Hermann von Lieth-Thomsen was forced to transfer a number of combat formations from Verdun to strengthen the beleaguered squadrons on the Somme front. This transfer included two *Kampfgeschwadern*, two *Feldflieger Abteilungen*, one *Kampfstaffel* and one *Artillerie Flieger Abteilung*.¹¹⁹⁶ Just as Trenchard was demanding more and better fighter aircraft from his government for the RFC, the German High Command directed a series of changes which included a major reorganization of the GAAS itself. On 10 August, 1916, Lieth-Thomsen ordered the formation of the first *Jagdstaffeln* (Fighter Flight) and the next day recalled Boelcke with orders to organize and take command of *Jagdstaffel 2* on the Somme front.¹¹⁹⁷ Each of the new *Jagdstaffeln* were to be manned with experienced pilots from the *Feldflieger Abteilungen* and *Kampfgeschwadern* as well as the *KEKs*, many of whom who would be recruited personally by the squadron commanders. The *Jagdstaffeln*'s purpose was purely offensive; they were to attack enemy aircraft, most especially, the British two-seaters that were conducting artillery observation and direction as well as kite balloons.¹¹⁹⁸ By doing so they would allow their own army co-operation aircraft the time required to complete their missions.

More and larger changes followed. With Hindenburg's promotion to Chief of the General Staff (CGS) on 29 August and with Ludendorff serving as his quartermaster general, there had been even greater emphasis placed on the role of the aircraft for future operations. Only three days after taking command of the German Army, Hindenburg submitted a revised plan to the War Ministry which entailed the total mobilization of German industry towards

¹¹⁹⁶ Alex Revell, *Pictorial History of the German Army Air Service, 1914-1918*, 35.

¹¹⁹⁷ Alex Imrie, *German Fighter Units: 1914-May 1917*, 21. See also John H. Morrow, Jr., *The Great War in the Air*, 152-153.

¹¹⁹⁸ Alex Revell, *Pictorial History of the German Army Air Service, 1914-1918*, 41.

weapons production.¹¹⁹⁹ The new CGS identified and prioritized five war industries that he believed would greatly assist the army in overcoming the Allies numerical superiority in manpower. Artillery and artillery ammunition were the first two critical areas that had to increase production, followed by machine guns, trench mortars and aircraft.¹²⁰⁰

Hindenburg, acting on the recommendations of Lieth-Thomsen and his assistant Major Wilhelm Siegert, directed that the GAAS begin to shift more fighter squadrons from Verdun to the Somme in early September in an attempt to end the RFC's air superiority in that sector.¹²⁰¹ As the newly created *Jagdstaffeln* relocated to their new airfields they began receiving the first new Albatros and Fokker fighters as well. With the return of Oswald Boelcke to take command of *Jagdstaffel 2 (Jasta 2)*, it was less than two weeks before the new aircraft were tested in combat. Six Albatros fighters led by Boelcke encountered several flights of RFC aircraft on 17 September and shot down six British planes without loss.¹²⁰² It was a portent of things to come.

With the transfer of units and the influx of new fighter aircraft the Germans had 885 aircraft on the Western Front by mid-October, nearly half of them were dedicated to provide support to the German First and Second Armies on the Somme.¹²⁰³ Though still numerically outnumbered in overall numbers of aircraft by the British and French, the increase in better

¹¹⁹⁹ John H. Morrow, Jr., *The Great War in the Air*, 159-165.

¹²⁰⁰ John H. Morrow Jr., *German Air Power in the World War*, 61. Morrow provides a convincing argument that Hindenburg and Ludendorff's realization of the critical importance of incorporating military aviation in a more effective way to support the ground commander was linked to his decision to announce the Hindenburg Plan which effectively initiated total mobilization of the German economy in an attempt to win the war before the United States entered the conflict.

¹²⁰¹ Ernest von Hoepfner, *Germany's War in the Air*, 72-73. See also John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 258-60.

¹²⁰² *WITA, Vol. II*, 281.

¹²⁰³ John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 260.

designed and better armed fighter planes was proof positive that allied air superiority was about to be seriously challenged for the first time since the Battle of the Somme had begun.¹²⁰⁴

The second major change entailed the total reorganization of the *Fliegertruppe* and this occurred on 8 October, 1916, when OHL issued a decree signed by Kaiser Wilhelm:

The increasing importance of the air war requires that all air-fighting and defense forces in the army, in the field and in the hinterland, be united in one agency. To this end I command: The centralized improvement, preparation, and employment of this means of warfare will be assigned to a "Commanding General of the Air Forces," who will be directly subordinate to the Chief of the General Staff. The "Chief of Field Aviation," with the dissolution of that post, becomes "Chief of Staff to the Commanding General of the Air Forces."¹²⁰⁵

The Kaiser's edict absorbed all flying units that had been under the command of the *Feldflugchef* as well as units that were closely related to army aviation.¹²⁰⁶

General Ernst von Hoeppner, a cavalry officer who had served as Chief of the General Staff for both the 2d and 3rd Army's, and at the time of the decree was serving as the commander of the 75th Infantry Division, was selected to be the *Kommandierenden General der Luftstreitkräfte* (Commanding General of the Air Forces), or *Kogenluft*.¹²⁰⁷ Having served as the Chief of Field Aviation, Leith-Thomsen became Hoeppner's Chief of Staff and Major Siegert was promoted from acting *Feldflugchef* to become the *Inspekteur der Fliegertruppen* (Inspector General of the Air Service).¹²⁰⁸ Hoeppner was thus given a unified command that was in many ways organized similar to the RFC and similar to the command relationship between the RFC and the RNAS, the German Naval Air Service remained separate and apart from Hoeppner's command. Additionally, as part of the reorganization, the GAAS also

¹²⁰⁴ John H. Morrow, Jr., *The Great War in the Air*, 153.

¹²⁰⁵ John H. Morrow Jr., *German Air Power in the World War*, 70. See also Karl Kohler, "Auf dem Wege Zur Luftwaffe," *Wehrwissenschaftliche Rundschau* 16, no. 1 (January, 1966), 553. In his book, *Germany's War in the Air*, von Hoeppner states that the decree was issued on 6 October, 1916.

¹²⁰⁶ Alex Revell, *Pictorial History of the German Army Air Service, 1914-1918*, 39.

¹²⁰⁷ John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 278.

¹²⁰⁸ *Ibid.*, 278-279.

received a new title: *Luftstreitkräfte* (Air Force).¹²⁰⁹ Hoepfner, Lieth-Thomsen and Siegert would form a triumvirate that would mold and build the *Luftstreitkräfte* into one of the most effective air forces of the First World War.

Realizing he must move quickly if the Germans were to have any chance of ending British air superiority, Hoepfner began clarifying missions and roles of for each type of flying unit. The *Flieger Abteilungen* were assigned the role of conducting long range reconnaissance for Army Headquarters.¹²¹⁰ As newer and faster armed biplanes became available such as the Albatros C III and the Halberstadt D II, these units received them as well as improved cameras that could photograph larger areas of the battlefield in a single exposure. The *Flieger Abteilungen (A)* units were tasked with providing support to ground units while the *Kagohl* units focused on both tactical and strategic bombing.¹²¹¹ With the initial success of the *Kagohls* that were conducting daylight bombing of London and other British cities, Ludendorff directing that Hoepfner expand the number of bomber squadrons within the force.¹²¹² The *Jastas* primary purpose was to engage the RFC and *Aviation Militaire* in air combat as well as provide escort and protection to the reconnaissance and bombing aircraft and to this end Hoepfner began increasing the number of *Jagdstaffeln* with the intent of having a total of thirty-six by spring, 1917.¹²¹³

It was soon evident to the OHL that within the first two weeks of taking command von Hoepfner and his command team were making great strides in the restructuring of the *Luftstreitkräfte*. By mid-October there were 38 squadrons with 333 aircraft supporting the

¹²⁰⁹Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 61. See also Trevor Henshaw, *The Sky Their Battlefield*, 116-117; and John H. Morrow, Jr., *The Great War in the Air*, 159.

¹²¹⁰Alex Revell, *Pictorial History of the German Army Air Service, 1914-1918*, 40.

¹²¹¹*Ibid.*, 41.

¹²¹²*Ibid.*

¹²¹³John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 280.

German First Army alone, of which 45 were fighters. These aircraft were primarily engaged with the RFC while the German Second Army had 207 aircraft supporting it, of which 44 were fighters, most of which were engaged against both the *Aviation Militaire*.¹²¹⁴ In total, out of 885 German aircraft on the Western Front, 540 (61%) of them were located on the Somme.¹²¹⁵ Opposing these air units, the RFC's 3rd, 4th and 5th Brigades had 383 aircraft, of which only 73 were fighters consisting of primarily DH 2's, FE 2b's, and Nieuport 11's.¹²¹⁶ Though the RFC might have had 45 more aircraft than the *GAAS* squadrons supporting the German First Army, quantity was no longer the key factor. The RFC did not have a fighter plane that could effectively compete with the Albatros DI fighter, either in performance or firepower.¹²¹⁷

When it was realized that Four *Jagdstaffeln* were assigned to the Somme sector in September but only one was sent to Verdun, Trenchard was convinced that the Germans first priority for air support was to the Somme sector and that reinforcing the Verdun sector with air units was a distant second.¹²¹⁸ By concentrating his available fighter units on the Somme von Hoepfner was intent on challenging the RFC for control of the sky.

The organization of single-seater planes into pursuit squadrons made it possible to concentrate them at decisive points on the battlefield and made it possible to exercise personal influence on their training and employment. The number of pursuit planes and their technical performance together with the leadership and valor of their pilots, were, from now on, to assume the first role in aerial combat and the struggle for air supremacy.¹²¹⁹

¹²¹⁴John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 260.

¹²¹⁵Ibid.

¹²¹⁶Alex Revell, *British Fighter Unit: Western Front, 1914-1916*, 39.

¹²¹⁷Ibid.

¹²¹⁸*WITA, Vol. II*, 283.

¹²¹⁹Ernest Von Hoepfner, *Germany's War in the Air*, 81.

This massing of fighter aircraft opposite the British Fourth Army, allowed the Germans to achieve temporary air superiority when supporting local counter-attacks on the ground. With the introduction of the *Jagdstaffeln* and the Albatros D I and D II fighters and well as the Fokker D I and the Halberstadt fighters, the *Luftstreitkräfte* began the process of wresting air superiority away from the RFC before the battle concluded.¹²²⁰

It was largely through the vision and planning of Hoepfner, Lieth-Thomsen and Siegert as well as the airmen who executed their plans led by the likes of squadron leaders such as Boelcke and Immelmann that made the *Luftstreitkräfte* such an effective force. Historian John Morrow, Jr. rightfully credits this team of air power experts for the development and expansion of the *Fliegertruppe* into the *Luftstreitkräfte*.¹²²¹ Early historical accounts on the GAAS give most of the credit to von Hoepfner and overlook the work of Lieth-Thomsen and Siegert.¹²²² One can make the assumption that this was largely because von Hoepfner was one of the first to write a history of his nation's air service immediately after the war.¹²²³ That these German leaders were able to transform Germany's air service into a much more capable combat force while fighting the RFC during its air campaign over the Somme is a testament to not only their leadership but also to their ability to influence the German High Command in shaping the future development of German air power for the remainder of the war.¹²²⁴

With a more advanced pilot training program than either the British or the French air services and combined with the introduction of faster and better armed aircraft, von Hoepfner

¹²²⁰John Morrow, Jr., *German Air Power in World War I*, 62.

¹²²¹*Ibid.*, 71.

¹²²²John R. Cuneo, *Winged Mars, Vol. II, The Air Weapon, 1914-1916*, 278-280.

¹²²³Ernest von Hoepfner, *Germany's War in the Air*, first published in 1921.

¹²²⁴John H. Morrow, Jr. *German Air Power in World War I*, 70-72. See also John H. Morrow, Jr. *The Great War in the Air: Military Aviation from 1909 to 1921*, 148-165.

directed the *Jastas* to concentrate their efforts against the British over the Somme.¹²²⁵ If September had witnessed the beginnings of a shift in the balance of power between the RFC and the *Luftstreitkräfte*, October provided even more evidence that the RFC's air superiority was in jeopardy and the steady increase in aircrew casualties began to take a toll on RFC morale.¹²²⁶ For Trenchard, morale was the critical component of his aerial strategy. As far back as late-1914 when he had taken command of the First Wing, he had realized the importance of maintaining aircrew morale while conducting a continuous offensive-based strategy.¹²²⁷

Having seen his principles tested and proven correct by the *Aviation Militaire* at Verdun, Trenchard was thus convinced that only by employing an offensive strategy in the air could the RFC provide the proper support to the BEF and its operations on the ground. With the Germans content with assuming a defensive posture in the air as well as on the ground, Trenchard was determined to take the war to the enemy and the deeper his forces could attack behind enemy lines the better. As one noted historian identified, Trenchard's air strategy "[was the] classic exposition of the doctrine of the offensive."¹²²⁸

As has been noted, Trenchard, like so many of his peers in the British Army in the years before the First World War, was a firm believer in 'the cult of the offensive.' The writing's of Ardent du Picq, Colonel G. F. R. Henderson, de Grandmaison and General Sir Ian Hamilton all dealt with the criticality of the moral force in war, especially during offensive

¹²²⁵ Ernest von Hoepfner, *Germany's War in the Air*, 74-77.

¹²²⁶ In September, 1916, the RFC suffered 137 aircrew casualties with another 104 casualties in October. A total of 173 aircraft were lost from combat action during that eight week period. AIR 1/845/204/5/374 and AIR 1/845/204/5/375, NA.

¹²²⁷ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 103-106. See also Malcolm Cooper, *The Birth of Independent Air Power*, 71-81; Trevor Wilson, *The Myriad Faces of War*, 368-370; and Robert F. Grattan, *The Origins of Air War: The Development of Military Air Strategy in World War I*, 181-182.

¹²²⁸ David Divine, *The Broken Wing*, 85.

operations.¹²²⁹ It was deemed one of the most important, if not most critical factors to attaining victory. Hamilton wrote that “War is essentially the triumph, not of a chassepot over a needle-gun, not a line of men entrenched behind wire entanglements and fire swept zones over men exposing themselves in the open, but of one will over a weaker will . . . the best defence to a country is the army formed, trained and inspired by the idea of attack.”¹²³⁰ The side with the stronger will and better morale would win out in the end. All agreed that with the advent of modern weaponry on the twentieth century battlefield victory would come at great cost. Casualties were expected to be heavy. The German theorist Wilhelm Balck wrote that “Great victories are, as a rule, accompanied by great losses.”¹²³¹ British theorist Colonel F. N. Maude agreed when he wrote “The chances of victory turn entirely on the spirit of self-sacrifice of those who have to be offered up to gain opportunity for the remainder . . . in other words the true strength of an Army lies essentially in the power of each, or any of its constituent fractions to stand up to punishment, even to the verge of annihilation if necessary.”¹²³² Every soldier in the British Army had been trained and indoctrinated that not only were they to fight for their country when directed to do so but if necessary they would die for it as well. Haig, along with the majority of his subordinate commanders (to include Trenchard), understood

¹²²⁹Michael Howard, “Men Against Fire: The Doctrine of the Offensive in 1914”, *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, ed. Peter Paret, (Princeton: Princeton University Press, 1986,) 510-522.

¹²³⁰Michael Howard, “Men Against Fire: The Doctrine of the Offensive in 1914”, *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, ed. Peter Paret, 521. See also Ian Hamilton, *Compulsory Service: A Study of the Question in the Light of Experience*, 2d ed. (London, John Murray, 1911), 121. T. H. E. Travers found that the British Army’s Field Service Regulations of 1909 purported similar thought: “The success of the decisive battle is not predetermined by material or environmental causes, but by the exercise of human qualities directed by the will-power of individuals.” Quoted in Tim Travers, “The Offensive and the Problem of Innovation in British Military Thought 1870-1915,” *Journal of Contemporary History* 13, no. 3 (July, 1978).

¹²³¹Ibid. See also Wilhelm Balck, *Tactics*, 4th ed. (Fort Leavenworth, Kansas, 1911), 194.

¹²³²Ibid., 521-522. See also F. N. Maude, *Evolution of Modern Infantry Tactics*, (London: Hugh Rees, 1904), x.

that the concept of sacrifice was a critical factor embedded within any offensive-based strategy.¹²³³

In his 'Future Policy in the Air' memorandum, Trenchard concluded that "the sound policy then which should guide all warfare in the air would seem to be this: to exploit the moral[e] effect of the aeroplane on the enemy, but not to let him exploit it on ourselves. Now this can only be done by attacking and by continuing to attack."¹²³⁴

In a memorandum written after the Battle of the Somme for army, corps and divisional commanders, Trenchard identified why in his mind the only logical strategy to use in the air was an offensive one.

Fighting on the ground from the strategical point of view may be offensive or defensive, or a combination of the two, but in the air the offensive is the only policy which can give success. The aeroplane is essentially an offensive and not a defensive weapon. Owing to the unlimited space in the air and the free manoeuvring possible in all three dimensions, the accidents of wind and cloud and to the difficulty of one machine seeing another, no number of aeroplanes acting on the defensive will prevent a hostile pilot of initiative and determination from reaching his objective.¹²³⁵

The memo proceeds to explain that by using fighter aircraft to conduct offensive patrols against the enemy air service while corps squadron aircraft conduct "bomb raids by night and day", the RFC was able to provide the best possible support to ground units as was evidenced by its conduct during the Somme campaign.¹²³⁶ Furthermore, by using an offensive policy, the RFC was able to attain and maintain aerial superiority over the enemy. In projecting to the future, as he had the previous September, Trenchard wrote that "Hard fighting is inevitable and heavy casualties are bound to occur, but it is confidently anticipated that the same policy will produce the same results as soon as a spell of settled fine weather enables the offensive to

¹²³³ Michael Howard, "Men Against Fire: The Doctrine of the Offensive in 1914", *Makers of Modern Strategy from Machiavelli to the Nuclear Age*, ed. Peter Paret, 524.

¹²³⁴ RFC HQ Memorandum, 'Future Policy in the Air', 22 September, 1916. AIR 1/522/16/12/5, NA.

¹²³⁵ Memorandum from Commander, RFC to Army, Corps and Divisional commanders, 1-3, 8 April, 1917. Trenchard Papers, MFC 76/1/26, RAFM.

¹²³⁶ Ibid.

be pursued over a period sufficient to subject the enemy to a continuous strain.”¹²³⁷ Trenchard was willing to adhere to a strategy of attrition, just as the ground commanders on both sides were, in the belief that the side that demonstrated the stronger morale, would win.

On the subject of casualties suffered by the RFC during the conduct of its “relentless and incessant offensive” air strategy, the *Official Historian* of the Royal Air Force contends that British aircrew understood that heavy casualties were not only expected as a result of taking the fight to the enemy but they were also accepted as well.

Every pilot along the [Western] front knew that the Flying Corps could maintain an offensive only at the expense of heavy casualties. That these casualties would exceed those inflicted on the enemy was accepted. Suppose the Royal Flying Corps, admitting the enemy’s temporary superiority, had fallen back on the defensive; what would have been the result? This defensive policy had been tried by the German air service at Verdun and again during the Somme battles and had proved disastrous. The morale of the enemy airmen had been sapped and their service discredited in the eyes of the German army. Furthermore, defensive flying had offered no sort of defence either to the airmen or to the ground formations below them. . . . An air service which confines its flying to its own territory may save aeroplanes forced down damaged, but the armies suffer. Their positions are open to reconnaissance and attack by the enemy airmen. The morale of the troops is adversely affected by the attention of the hostile aeroplanes. The artillery of the army whose air service is flying defensively is inadequately registered, the opposing defences are not photographed, and there may be no close reconnaissance. But an inferior air service which maintains the initiative of the offensive may force the enemy to fight over his own territory, and no matter how strenuously the enemy fights he cannot prevent some part of the reconnaissance, photography, and other work being accomplished.¹²³⁸

This statement was written years after the war and it seems intent on adjudicating Trenchard’s decision and insistence at following an offensive strategy even though it meant his squadrons would suffer significant losses in the process. It must be remembered that Trenchard’s foremost aim was to provide air support to the BEF, wherever and whenever they requested it.

The RFC commander was also very cognizant of the fact that while the air service lost several

¹²³⁷ Memorandum from Commander, RFC to Army, Corps and Divisional commanders, 4, 8 April, 1917. Trenchard Papers, MFC 76/1/26, RAFM.

¹²³⁸ *WITA*, Vol. III, 339-341.

hundred airmen every few months; the army was suffering thousands of casualties each week during the Somme offensive. Though addressing the RFC's role and the high casualties it suffered in support of the BEF during the Battle of Arras in the spring of 1917, the *Official Historian* may have just as well been addressing the true purpose of the RFC during the Battle of the Somme. "That cooperation might be assured only by aggressive tactics, and the cost, though it must be high, was not to be counted. Pilots and observers went into the battle sustained by the knowledge that they were helping the men on the ground."¹²³⁹

How much did the lack of adequate flying training contribute to the RFC's casualty list? Several weeks before the Somme offensive ended, the issue was raised at a meeting of the Air Board in London. Reviewing the number of RFC training casualties which had occurred in September it was found that 31 officers and other ranks had been killed and 33 had been injured in flight schools overseas, while 12 had been killed and 15 injured in England. Colonel Salmond, commander of the Training Brigade, added that another 14 had been killed in the first two weeks of October but they were a small proportion of the 1,800 aircrew undergoing training.¹²⁴⁰ When the topic was raised about whether or not the Admiralty could 'loan' several more RNAS squadrons to the RFC, the Navy delegate, Rear Admiral Tudor, asked Trenchard "whether, if the Navy provided more squadrons, the Royal Flying Corps would be enabled to give its pilots longer training. It was his impression, he said, that the casualties among military [Army] pilots were partly due to the shortness of their training."¹²⁴¹ Trenchard responded by stating that though the RFC had suffered 100 percent casualties in 18 weeks, it took only one casualty for every hundred times an aircraft crossed the German lines, compared to one in three for the infantry when it crossed the lines. He therefore concluded that the

¹²³⁹ *WITA*, Vol. III, 341.

¹²⁴⁰ Air Board minutes, 27th meeting, 26 October, 1916, Air Historical Branch, Ministry of Defence. See also *WITA*, Vol. V, 468.

¹²⁴¹ *Ibid.*

number of aircrew losses was not linked to the “inexperience of pilots except, perhaps on long-distance work.”¹²⁴² Henderson agreed with Trenchard by stating that the “shortness of training was a consequence of the number of casualties and not the casualties of the shortness of training.”¹²⁴³ Thus both Trenchard and Henderson believed that the high casualty rate was due to the conduct of continuous offensive operations on the German side of the line against a rejuvenated enemy air service and was not the result of too few flying hours in training as Rear Admiral Tudor believed.

It is difficult to understand Trenchard’s and Henderson’s perspective. Tudor’s query was both clear and logical. Issues concerning the RFC aircrew training programs, most especially pilot training, had been on-going throughout 1916. It was brought to the public’s notice on 22 March by Member of Parliament Noel Pemberton-Billing in a speech in the House of Commons in which he proclaimed “that quite a number of our gallant officers have been murdered rather than killed.”¹²⁴⁴ Pemberton-Billing had served in the RNAS and seen action in the air over the Western Front in the first year of the war and knew something of the plight of the RFC airmen when he argued that the RFC was suffering unsustainable casualties by flying in antiquated aircraft that had little to no chance against the Fokker Eindecker and its synchronized machine gun(s). Along this same argument he questioned the viability of the training the RFC pilots received and whether or not it was adequately preparing them for the rigors of air combat. He was on record for stating that at the CFS flight schools “hardly a day goes by but two or three pilots are killed in this country.”¹²⁴⁵ Trenchard’s headquarters had

¹²⁴²Air Board minutes, 27th meeting, 26 October, 1916, Air Historical Branch, Ministry of Defence.

¹²⁴³Ibid.

¹²⁴⁴Peter Hart, *Somme Success*, 62.

¹²⁴⁵“Debate on the Consolidated Funding Bill,” *The Aeroplane*, April 11, 1917, 842. Pemberton-Billing’s numbers were exaggerated but at times in 1915 and 1916 the RFC did suffer a loss figure of as much as one death per 90 hours of flying. The number of RFC pilots killed in training accidents for the three month period of December, 1916 through February, 1917 was 58. This number dropped off substantially once the Smith-Berry training reforms were put into place in mid-1917. Throughout the

received numerous complaints from subordinate commanders, most especially in the latter stages of the air campaign, that the pilots they were receiving from the CFS were only partially trained and did not have the requisite skills for combat flying. Brigadier General J. F. A. Higgins, commander of III Brigade, reported that the pilots he received in his fighter squadrons from England were just sufficiently trained to conduct take-offs and landings without damaging their aircraft.¹²⁴⁶ He had little confidence in their ability to conduct any of the missions his squadrons had to conduct over the line and warned Trenchard that they posed a great risk to themselves and even a greater risk to the men they were to fly with. Higgins recommended that the RFC emulate the *Aviation Militaire* and establish a flying school for frontline combat training and use dual-control trainers as well.¹²⁴⁷

In November, Major Robert Smith-Barry, then a flight commander in Number 60 Squadron, sent Trenchard a paper suggesting the use of dual-control trainers and the establishment of a flying school for instructors. It is to Trenchard's credit that he listened to his subordinate commanders and acted on their recommendations. Four weeks later Smith-Barry was sent back to England to implement his recommendations and revamp the RFC's pilot training program.¹²⁴⁸

Even the RAF *Official Historian* seemed to disagree with Henderson and Trenchard's statements about the correlation of training time to casualties. Though addressing the high number of casualties the RFC experienced at the beginning of its air campaign over Arras, H. A. Jones could just as well have been describing the high losses suffered by the RFC in the last four weeks of the Somme offensive:

last year of the war, the RFC/RAF suffered one death for every 790 hours of flying. See *WITA, Vol. I*, 425-426, S. F. Wise, *Canadian Airmen and the First World War*, 107; and Denis Winter, *First of the Few*, 36-38.

¹²⁴⁶ Memorandum from III Brigade to RFC Headquarters', 10 October, 1916, AIR 1/997/204/5/1241, NA.

¹²⁴⁷ Ibid.

¹²⁴⁸ F. D. Tredrey, *Pioneer Pilot: The Great Smith Barry who Taught the World How to Fly*, 53-55.

On the five days from the 4th to the 8th of April [1917], seventy-five British aeroplanes fell in action with a loss in flying personnel of 105 (nineteen killed, thirteen wounded, and seventy-three missing). In addition there was an abnormally high number of flying accidents in which, in the same brief period, fifty-six aeroplanes were wrecked and struck off the strength of the squadrons. *These heavy losses by accidents were due in part to insufficiency of training which had been speeded up to the danger point* (author's italics) and in part also to the strain imposed on pilots who had to meet in the air an enemy equipped, with few exceptions, with superior fighting machines.¹²⁴⁹

This was evidence that by achieving air superiority before and during the air campaign over the Somme, and pursuing relentless offensive operations, the exceedingly high number of RFC aircrew casualties caused long-term unintended consequences on the organization as a whole that were only magnified in the air campaigns that followed the Somme.

According to Eric Ash, Trenchard's concept of morale was based on two tenets. First, it was his intent to maintain 'positive morale' with RFC aircraft supporting the ground forces and being seen by army units in the conduct of their assigned missions such as observing and directing artillery fire, flying contact patrols, and engaging and defeating any enemy aircraft that were bold enough to venture over the British lines. He believed that by accomplishing their missions, the RFC enjoyed 'positive morale' and in turn caused the enemy to have 'negative morale' from the results of the actions taken by the RFC against the Germans.¹²⁵⁰ There was some truth to this concept. Numerous captured enemy documents and prisoners of war informed RFC intelligence that when only British aircraft were seen above the German trenches, German morale suffered.¹²⁵¹ Second, with the arrival of the DH 2 and the FE 2b fighter aircraft in the spring of 1916, the RFC was able to defeat the 'Fokker Scrouge' and begin the period of RFC dominance in the sky above the Somme. 'Positive morale' was

¹²⁴⁹ WITA, Vol. III, 334-335.

¹²⁵⁰ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 104

¹²⁵¹ Trenchard Papers, MFC 76/173, RAFM. See also "Extracts from The Experiences of the German 1st Army in the Somme Battle" by General von Below, AIR 1/911/204/5/838, NA.

achieved within RFC units when they realized they had gained aerial superiority over their counterparts and this spread to British units on the ground who enjoyed the results of this superiority by rarely being interfered with by German aircraft. This ‘positive morale’ however, had to be earned on a daily basis throughout the summer and fall. Much of the success the RFC attained though could be attributed to the fact that the GAAS was poorly organized, outnumbered and not equipped to deal with the RFC’s air offensive for the first five months of the air campaign.¹²⁵² By maintaining constant aerial superiority, the RFC experienced a steady increase in aircrew casualties with each passing week of the ground offensive. Once the GAAS began the reorganization of its force structure and received more advanced aircraft than the British and French possessed, the ‘positive morale’ that the RFC had experienced began to wane.¹²⁵³

To ensure morale remained positive within his squadrons throughout the air campaign, Trenchard established a personnel policy of ‘No empty chairs at breakfast.’ Within hours of RFC headquarters having been informed that a squadron had suffered casualties, replacement aircrew were enroute to that squadron. Regardless of what Henderson and Trenchard told their political leadership and the Royal Navy, this often meant sending pilots who were only partially trained to front-line squadrons before they were ready to fly combat operations. Though it was understood that the surviving pilots and observers aircrew would mourn their lost friends and comrades, Trenchard could not allow the increasing number of casualties to impact the overall mission. Thus replacement aircrews had to fill the seats in the

¹²⁵² Ernest von Hoepfner, *Germany’s War in the Air*, 67-71.

¹²⁵³ Eric Ash, *Sir Frederick Sykes and the Air Revolution, 1912-1918*, 105.

mess as quickly as possible and more importantly, the cockpits of aircraft, to ensure that offensive operations could be maintained.¹²⁵⁴

Trenchard's vision of maintaining a constant air offensive regardless of losses is supported by a pilot from Number 43 Squadron, Lord Balfour of Inchrye who flew a Sopwith 1 and 1/2 Strutter during the Battle of the Somme. "Most of our casualties were fairly new pilots. They couldn't keep in formation. . . . They were very trying, very hard times. Trenchard came round the Squadron and we thought he was going to tell us how sorry he was for our casualties and what fine chaps we were. Not a bit of it. He said: "You've never finished your job, get on and do more than you are doing" and very nearly told us all off. He did it in a very charming way and it was far better for morale than trying to condone the casualties and console you."¹²⁵⁵

A critical sub-component of morale for Trenchard was the welfare of his aircrew. Aside from the increasing number of pilots and observers who were killed, wounded or went missing and became prisoners of war with each passing week of the air campaign, there were other factors that contributed heavily to the well being of each airman taking part in the offensive. On the positive side RFC aircrew "were never under fire for more than six hours a day. When we returned to our aerodromes the war was over. We had a bed, a bath and a mess with good food and peace until the next patrol. Though we always lived in the stretch or sag of nerves, we were never under bodily fatigue, never filthy, never verminous or exposed to the long, disgusting drudgery of trench warfare."¹²⁵⁶ Though it was true that the life of a fighter, bomber, or reconnaissance pilot was not nearly as arduous as that of his infantry counterparts, as identified in the above passage by RFC pilot Cecil Lewis, aircrew experienced a physical

¹²⁵⁴ Alan Clark, *Aces High: The War in the Air over the Western Front, 1914-1918*, (New York: G. P. Putnam's Sons, 1973), 81. See also Andrew Boyle, *Trenchard: Man of Vision*, 190; and C. G. Jefford, *Observers and Navigators and other non-pilot aircrew in the RFC, RNAS and RAF*, 30.

¹²⁵⁵ Peter H. Liddle, *The Airman's War, 1914-1918*. (Poole, England: Blandford Press, 1987), 56.

¹²⁵⁶ Cecil Lewis, *Sagittarius Rising*, 137.

strain that the infantryman and artilleryman on the ground did not: the strain that was imposed by flying continuous combat sorties six to eight hours a day for weeks at a time. During the fight for control of the sky over the Somme it became the squadron commander's responsibility to identify when each of his pilots and observers needed a 'rest' from operations. It would not be until late 1917 that the RFC assigned a medical officer to each RFC Brigade for the purpose of determining the physical and mental well-being of aircrew.¹²⁵⁷

Until then the squadron commander maintained a close watch on his men. As the following quote attests, squadron commanders soon became experts at identifying when a pilot or observer needed a break from combat: "Shaking hands unable to pick up cups of tea. Twitching eyelids. Men constantly glancing at the clock or unable to keep still. A double Dubonnet before a patrol. Lapses of memory and blurred vision. Meals returned untouched."¹²⁵⁸ All were indications that the individual was probably experiencing what would be termed 'battle fatigue' in the Second World War. Other indicators included the inability to sleep or incessant nightmares of being shot down in flames.¹²⁵⁹ The pilot's cockpit in nearly all RFC aircraft flown during the Somme offensive was located either directly in front of or behind the engine or fuel tank. A single bullet or spark from a ricochet could turn the highly flammable dope-covered fabric, which encased the wings and the fuselage, into a torch within seconds. Since RFC airmen were not issued parachutes they had basically two choices: go down with their burning aircraft and be burnt to ashes or fling themselves from the burning machine to a certain death.¹²⁶⁰ It was the possibility of a death by flames that many airmen struggled with, each in their own way. The fear of such a death and the nightmares it caused can be found in the diaries maintained by many pilots and observers throughout the

¹²⁵⁷Douglas H. Robinson, *The Dangerous Sky*, 90.

¹²⁵⁸Denis Winter, *The First of the Few*, 145.

¹²⁵⁹*Ibid.*, 145-146.

¹²⁶⁰Alan Clark, *Aces High: The War in the Air over the Western Front*, 75.

war. Some pilots, like James McCudden and Major Edward ‘Mick’ Mannock, carried a revolver or pistol with them, not to be used against the Germans if forced down behind enemy lines, but to be used on themselves if their aircraft ever caught fire.¹²⁶¹

Flying at altitudes well above 10,000 feet, which by the Battle of the Somme was the norm and not the exception, without oxygen and experiencing the intense cold at those altitudes, often 30 to 40 degrees below zero Fahrenheit, not only impacted the airman’s mental capacities but also severely impacted the physical as well.¹²⁶² Oxygen deficiency caused severe headaches, increased the blood pressure, and caused eye and ear problems but while in the air the most dangerous effect was that it dulled the pilot’s thinking as well as his reactions.¹²⁶³ Again, it would not be until late 1917 that RFC medical officers identified the many dangers of flying at altitude and began experiments testing the use of oxygen on aircrew.¹²⁶⁴

The cockpits of all RFC aircraft were open to the elements and unheated so the danger of suffering severe frostbite was a possibility with every flight. Pilots wore several layers of flying clothing in an attempt to ward off the intense cold. Long leather coats were worn over uniform and coveralls along with thigh length fleece-lined boots. Several sets of gloves protected the hands while fur-lined leather helmets and scarves protected head and neck. The face was covered in whale-oil or a leather face-mask but aircrew complained that the face-mask limited visibility and the eyes, covered by goggles, were always the aircrew’s first defense against enemy aircraft. After the Somme the RFC would develop electrically heated flying suits for bomber crews and an RNAS pilot would develop a one-piece overall that gave

¹²⁶¹James M. T. B. McCudden, *Five Years in the Royal Flying Corps, and The Personal Diary of ‘Mick’ Mannock*, ed. Frederick Oughton, (London: Neville Spearman, 1966).

¹²⁶²Denis Winter, *The First of the Few*, 148-149.

¹²⁶³*Ibid.*

¹²⁶⁴Douglas H. Robinson, *The Dangerous Sky*, 92.

greater protection against cold than all other flying clothing developed by either air service.

By late 1917 it was adopted by many aircrew in both air services.¹²⁶⁵

Fear of death, the intense cold, the lack of oxygen, as well as flying six to eight hours a day against an enemy who was often equipped with faster and better armed aircraft combined to cause what would be identified as 'flying fatigue' or 'war neurosis.' Captain Dudley Corbett, Royal Army Medical Corps (RAMC), was responsible for RFC aircrew patients at the 24th General Hospital in Etaples, France. He was one of the first medical officers to identify 'flying fatigue' and his initial findings are worth covering in detail.

A man first notices that he is beginning to feel generally tired, and that he has lost some of his original keenness. His sleep does not refresh him. He gets occasional headaches. Later he does not get off to sleep quite so well as he did, or he may get off fairly soon, and yet wake up early in the morning. He may lose his appetite . . . his sleep may be troubled with dreams of flying and fighting, and nightmares of all kinds. He may notice that he is getting irritable, and that he cannot stand the society of his friends 'en masse,' but prefers to go off by himself and read. He probably feels quite fit and keen in the air, but has to force himself to go up. After landing, he may be shaky and feel utterly exhausted . . . To keep himself going, he may rely on alcohol, and although this tendency is rare, but he nearly always smokes too much, for which no one can blame him. He may cease to take trouble about his flying and fighting tactics. Tired pilots have confessed to me that they have got into a frame of mind, when, if they meet any enemy machine, they feel that they must either turn tail or go for it recklessly; they cannot trouble to think about maneuvering. I am not sure that many good pilots have not met their end from sheer carelessness. They become too tired to think.¹²⁶⁶

¹²⁶⁵The Sidcot flying suit was developed almost by accident by Flight Sub-Lieutenant Sidney Cotton, 3 Wing, RNAS during the winter of 1916. Working on his aircraft in a grease impregnated overalls he found after several hours in the exposed air that was both comfortable and warm out in the elements. He took his stained overall to a clothing designer, J. Evans of Robinson and Cleaver Limited and they developed a flying suit that consisted of an outer layer of proofed khaki twill over a rubbered muslin inter-lining and a mohar liner. The suit had a fur collar and an externally buttoned chest flap that fastened on the right. The wrists and ankles had buttoned cuffs and large open pockets were placed above each knee. After the RFC and RNAS merged to become the Royal Air Force on 1 April, 1918, the Sidcot flying suit became standard issue for all aircrew. See Andrew Cormack and Peter McCormack, *British Air Forces, 1914-1918, Vol. II*, (Oxford: Osprey Publishing, 2001), 36-39.

¹²⁶⁶Douglas H. Robinson, *The Dangerous Sky*, 100-101. See also War Department, *Stencil no. 1092*, Major James L. Birley RAMC, 'Memorandum on the Effects of High Flying Under Active Service Conditions,' 27 March, 1917, 21.

Corbett's recommended course of action to alleviate the condition was to prescribe 'regular rest days' for pilots and observers as well as the establishment of rest stations at least ten miles from the airfields they operated from. Aircrew believed to be suffering from 'flying fatigue,' minor illnesses or the emotional effects suffered from crashing an aircraft were to be sent to the rest stations for several days before returning to their squadrons.¹²⁶⁷

RFC Headquarters did establish what by army standards was considered a generous leave policy for aircrew flying in France and Flanders. "Each man received fourteen days leave in England every three months, and could expect to be reassigned home after five or six months in fighter, long-range reconnaissance, and bomber squadrons, and after seven to nine months in artillery observation squadrons."¹²⁶⁸ It was believed that a trained fighter pilot could fly between 150 and 300 hours before he needed a rest and artillery observation pilots 350 to 450 hours before they also needed to be rotated back to the UK.¹²⁶⁹

Trenchard delegated the decision of when aircrew required leave down to his squadron commanders but he also worked closely with his wing commanders and Brancker on rotating experienced leaders back to England where they could get a rest and at the same time use their operational experience to train new aircrew. An analysis of Trenchard's daily correspondence to Brancker during the Battle of the Somme finds that a key point of discussion in many of the letters and dispatches focused on which pilots in France needed to be sent home for a rest and who in England should be sent out to France as replacements to

¹²⁶⁷Douglas H. Robinson, *The Dangerous Sky*, 100-101. See also War Department, *Stencil no. 1092*, Major James L. Birley RAMC, 'Memorandum on the Effects of High Flying Under Active Service Conditions,' 27 March, 1917. When Corbett's recommendations were put into effect in 1917 nearly 48 percent of those airmen diagnosed with 'flying fatigue' or 'flying sickness' were returned to full flying duty and an even larger percentage returned to partial duty.

¹²⁶⁸Ibid.

¹²⁶⁹Ibid. On the issue of aircrew stress, fatigue and leave see also Denis Winter, *The First of the Few*, 189-191; John H. Morrow, Jr., *The Great War in the Air*, 171-173; Lee Kennett, *The First Air War, 1914-1918*, 146-148; and Ralph Barker, *The Royal Flying Corps In France: From Mons to the Somme*, 195-202.

ensure that there was no let-up in conducting the air campaign.¹²⁷⁰ Several brief examples provide evidence of Trenchard's management of his aircrew. "I am sending you Darwin who has done splendidly but is undoubtedly tired and weary. Only today he went on a long bombing raid of 4 ½ hours, and he has been on most of the long bombing raids. I wonder if you could put him into a fighting squadron with some fast scouts . . ."¹²⁷¹

A week after the battle ended Trenchard was already planning for the air campaign to support the British spring offensive in 1917. "I am arranging to send Patrick, Henderson, and later on other good scout pilots home now. I hope you will see they are really put into Squadrons of the new and powerful types of machines like the De Havilland 4, the De Havilland 5 and the S. E. 5 . . . It is essential that we have all the star turns next year in order to retain the supremacy. Of this I am certain you will agree, and if you will really see that these pilots are put into proper squadrons it will give them two or three months at home and bring them out with renewed vigour on new types of machines."¹²⁷² Though Trenchard's primary focus at all times during the air campaign was to ensure that the RFC maintained air superiority over and behind the German lines, it was this same objective which led to the high number of casualties that the RFC suffered which subsequently forced him to nearly micro-manage many of the assignments of the replacements that Brancker sent to France. It was the high casualty rate that brought further ire on Trenchard from both political as well as military leaders.

One of the harshest critics of Trenchard's offensive strategy was Brigadier General P. R. C. Groves, a staunch ally of Frederick Sykes, who would serve as Director of Flying Operations in 1918 under Sykes after Sykes became Chief of Air Staff. Groves was serving on

¹²⁷⁰Trenchard to Brancker, 1 March-1 December 1916, Trenchard Papers, MFC 76/1/26, RAFM.

¹²⁷¹Trenchard to Brancker, 23 September, 1916, Number 252, Trenchard Papers, MFC 76/1/26, RAFM.

¹²⁷²Trenchard to Brancker, 29 November, 1916, Number 387, Trenchard Papers, MFC 76/1/26, RAFM.

the RFC staff in Egypt during the air campaign over the Somme but would later argue that Trenchard used a “schoolboy policy to which the RFC was sacrificed”¹²⁷³ and because of the heavy casualties it suffered the only morale that was adversely affected by conducting continuous offensive operations was that of the RFC aircrew.¹²⁷⁴ ‘For psychological and technical reasons the air arm was far too delicately tempered a weapon for battering ram tactics [from 1915 through 1917]. Yet to such it was committed in an unremitting offensive. . . This unremitting ‘aggressive policy at all costs’, which it was easy enough to order, culminated . . . in the balance being tipped not against the German Air Force but against our own.”¹²⁷⁵ To further support his argument, Groves used articles from officially sanctioned war correspondents as well as entries from the RAF’s *Official History* to support his contention that Trenchard had used the wrong strategy and by doing so had very nearly destroyed the RFC.¹²⁷⁶ But again, Groves was critical of the strategy *only* after the war was over.

One of the most recognizable correspondents that Groves used to support his argument was Philip Gibbs, who by 1915 had become one of only five official war correspondents attached to the BEF. By the Battle of the Somme, Gibbs had earned an excellent reputation from both political and military leaders as well as the soldier in the ranks.¹²⁷⁷ One of the passages that Gibbs wrote that Groves used to buttress his case stated that

General Trenchard, their supreme chief, believed in an aggressive policy, at all costs, and was a Napoleon in the war in the skies, intolerant of timidity, not squeamish of heavy losses if the balance was tipped against the enemy. Some young flying men complained to me, bitterly, that they were expected to fly or die over the German lines, whatever the weather, or whatever the risks. Many of them repeated escapes from anti-aircraft shells and hostile craft, lost their nerve, shirked another journey, found themselves crying in their tents, and were sent back home for a spell, by squadron commanders,

¹²⁷³P. R. C. Groves, *Behind the Smoke Screen*, 134.

¹²⁷⁴*Ibid.*, 107

¹²⁷⁵*Ibid.*

¹²⁷⁶ *Ibid.*, 107, 112-115, and 125-126.

¹²⁷⁷ Paul Fussell, *The Great War and Modern Memory: The Illustrated Edition*, (New York: Sterling Publishing Co., Inc., 2009), 107.

with quick observation for the breaking point; or made a few more flights, and fell to earth like broken birds.¹²⁷⁸

In writing about the strategies used by both the RFC and GAAS over the Somme, Gibbs added that “There were times when our flying-men gained an absolute supremacy . . . as a rule, and by order, the German pilots flew with more caution, not wasting their strength in unequal contests. It was a sound policy, and enabled them to come back again in force and hold the field for a time by powerful concentrations. But in the battles of the Somme our airmen, at a heavy cost of life, kept the enemy down a while and blinded his eyes.”¹²⁷⁹ Gibbs’ observation of what was taking place above the Somme in the summer of 1916 was accurate and it is easy to see why Groves would use the writing of one of Britain’s few sanctioned war correspondents to support his argument.

Probably the most damning of all statements of Trenchard’s offensive strategy however came from an officer in Number 1 Squadron. “Trenchard follows the good military principle of repeating any tactics that have not been actually disastrous-and often those that have-again and again, regardless of the fact that the enemy will probably think out some very good reply, until they really are so disastrous that they have to be abandoned.”¹²⁸⁰ This squadron operated north of the Somme in the Ypres sector and was only indirectly involved in the battle. Its crucible experience occurred the following year. In one week in May, 1917 the squadron lost nine aircraft, four of which were shot down attacking German observation balloons in a single morning. From 15 February through 1 July, 1917 the squadron lost 36

¹²⁷⁸Philip Gibbs, *Now It Can Be Told*. (New York: Garden City Publishing Company Inc., 1920), 387.

¹²⁷⁹*Ibid.*, 349.

¹²⁸⁰Peter Hart, *Somme Success*, 128.

aircraft due to enemy action. In sum the squadron suffered 200% casualties during that four month period.¹²⁸¹

Trenchard was no fool. He understood more than most that his strategy of a “relentless and incessant” offensive was costly in both lives and aircraft. Regardless of the intrigue and inquiry concerning the validity of the strategy that was taking place within the War Office and Parliament, he stayed firmly focused on his stated objective which was to maintain air superiority over the Somme during the ground offensive.¹²⁸² He firmly believed that by following this strategy it would keep the *Luftstreitkräfte* on the defensive and allow the BEF to conduct its operations without interference from the enemy air service. Unlike air power strategists of the inter-war and Second World War periods, Trenchard never argued that air power would be decisive in its own right. He was a realist who understood the strengths and shortcomings of the technology then available and advocated that the RFC could provide critical support to the ground forces in assisting them in the accomplishment of their tasks.¹²⁸³ By using aircraft to conduct both tactical and strategic reconnaissance, observe and direct artillery fire, contact patrols with the infantry, bombing of command and control facilities, logistics centers as well as air combat to prevent the enemy air service from doing the same to friendly forces, Trenchard believed that air power could provide the army on the modern battlefield valuable support to assist it in achieving its objectives.¹²⁸⁴ It was these same tenets that would eventually evolve into the concepts of air superiority, offensive and defensive operations in the air as well as interdiction and close air support that nearly every air force involved in the Second World War would use to conduct their own air campaign. These same

¹²⁸¹ During the Battle of the Somme, Number 1 Squadron was commanded by Major G. F. Pretyman and was equipped with 8 Morane Parasol monoplanes, 5 Morane biplanes, 3 Nieuport single-seat fighters and 2 Nieuport two-seater reconnaissance/bombers. In February, 1917 the squadron was converted to single-seat fighters and re-equipped with the Nieuport 17.

¹²⁸² Andrew Boyle, *Trenchard: Man of Vision*, 186-188.

¹²⁸³ Malcolm Cooper, *The Rise of Independent Air Power*, 71.

¹²⁸⁴ *Ibid.*, 71-73.

tenets would be used in Korea, Vietnam, the Arab-Israeli Wars, the first Gulf War and are still in use by modern air forces today.¹²⁸⁵

The beginnings of the last phase of the Somme offensive witnessed several attacks by the Fourth Army which were conducted on 7, 12, and 18 October, but none were successful.¹²⁸⁶ What was worse, a pattern was discernable in the results. Prior to and during each attack, bad weather had hampered the RFC from observing for the artillery which prevented the bombardment from being as effective as it could have been.¹²⁸⁷ Steady rain began to turn the ground into a morass, making it extremely difficult for the infantry, and even more so for the artillery, to advance.¹²⁸⁸ It was during the first week of October that British forward units noticed a change in what was taking place in the skies over the Somme battlefield. With an increasing regularity low-flying German aircraft were crossing the British lines and strafing front-line units and then returning to their own lines unopposed by RFC fighter squadrons. “Our aircraft were not as bold or efficient as usual” a Canadian battalion commander recorded.¹²⁸⁹

Haig and Rawlinson still demanded and expected positive results from the infantry. Further attacks against the Transloy Line occurred on 23, 28, and 29 October but none of them were successful.¹²⁹⁰ The Fourth Army had fought its way into a valley by the end of September and since that time had been trying to fight its way out. Though thick fog and low clouds obscured the battlefield, flights of German aircraft flew at tree-top level over Fourth

¹²⁸⁵ For the evolution of air power theory and doctrine see John H. Warden’s *The Air Campaign: Planning for Combat* (London: Brassey’s, 1989); William W. Momyer’s *Air Power in Three Wars: WWII, Korea, and Vietnam* (Washington D. C.: United States Air Force, 1978) and *Air Force Doctrine Document 1*, (Washington, D. C.: Department of the Air Force, 17 November, 2003).

¹²⁸⁶ *WITA, Vol. II*, 300-304. See also Wilfrid Miles, *Military Operations: France and Belgium, Vol. II*, 439-447.

¹²⁸⁷ Trevor Prior and Robin Wilson, *Command on the Western Front*, 252.

¹²⁸⁸ *Ibid.*, 255.

¹²⁸⁹ S. F. Wise, *Canadian Airmen and the First World War*, 386.

¹²⁹⁰ Trevor Prior and Robin Wilson, *Command on the Western Front*, 255.

Army units and were not molested by RFC aircraft. Trenchard tried to alleviate some of the pressure on his squadrons by bombing German airfields and key logistic centers in the German rear area. The results were almost predictable. “A bombing raid of the 3rd Brigade consisting of 16 bombing machines and an escort of 14 was attacked on its way to Vraucourt by at least 30 Germans, chiefly fast scouts. The enemy attacked from the front, and our scouts dived and got to close quarters with them. As the fight progressed the escort got gradually below the bombing machines. Meanwhile the enemy was reinforced and the bombers were attacked from both sides. Numerous individual fights ensued.”¹²⁹¹ The RFC lost three BE 2cs, and two DH 2s shot down and two other DH 2s were damaged but landed safely behind the British lines. Aircrew casualties were two killed, five wounded, and seven missing in action, later confirmed to be prisoners of war.¹²⁹²

Haig realized that the worsening weather and the onset of winter would end the campaign before the year was over. He thus committed his army to another series of attacks to gain the high ground that the Transloy Line was situated on.

The prospects for future operations were now extremely bleak. Incessant rain had turned the battlefield into a quagmire. Only with the greatest difficulty could ammunition for the guns and food and water for the troops reach the front. The mud confined all traffic supplying the Fourth Army to a single road from Longueval to Flers.¹²⁹³

During the last two weeks of October, the *Luftstreitkräfte* made determined efforts to prevent British reconnaissance and artillery observation from accomplishing their missions deep behind the German lines. The RFC daily communiqué for 20 October reported more than 80 air combats taking place.¹²⁹⁴ British casualties were three pilots killed, five wounded, and

¹²⁹¹ RFC Communiqué Number 61, 9 November, 1916, AIR 1/ 2265/209/70/1, NA. See also *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 306-307.

¹²⁹² Trevor Henshaw, *The Sky Their Battlefield*, 124. See also *Royal Flying Corps, 1915-1916*, 306-307.

¹²⁹³ Trevor Prior and Robin Wilson, *Command on the Western Front*, 255.

¹²⁹⁴ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 287-289.

another three missing in action.¹²⁹⁵ With the increase of German air activity, Trenchard made the decision to transfer three corps and two fighter squadrons operating in the Ypres sector in Flanders south to the Fourth Army sector on the Somme.¹²⁹⁶ The fighter squadrons, Numbers 29 and 32 were equipped with the DH 2. Additionally, two new squadrons, Number 41 equipped with FE 8's and Number 46 with Nieuport two-seaters arrived from England on 13 and 26 October, respectively.¹²⁹⁷ The FE 8 was very similar to the DH 2 in both design and armament but was already obsolete as compared to the Albatros and Halberstadt fighters.¹²⁹⁸ Lieutenant Gwilym Lewis, a fighter pilot with Number 32 Squadron, noted the increased aggressiveness in the German pilots.

It so happens that just at present we are living in busy times. The Huns are making the best effort to take over the air supremacy they have made since July, and a lively time they are giving we poor wretched DH pilots who are responsible for keeping them back. . . . [T]he good days of July and August, when two or three DHs used to push half-a-dozen Huns onto the chimney tops of Bapaume, are no more.¹²⁹⁹

From 22 through 31 October, the RFC was only able to fly five of the ten days due to extreme bad weather but still lost 18 aircraft in that span with twenty-four aircrew killed, six wounded and six more taken prisoner.¹³⁰⁰ The British fighter squadrons, now for the most part flying obsolescent aircraft, were finding it more and more difficult to protect the corps aircraft from being attacked by the superior German fighters. The BE 2 series two-seater squadrons were

¹²⁹⁵ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 289.

¹²⁹⁶ Trevor Henshaw, *The Sky Their Battlefield*, 120. The corps squadrons were Number 5, 7, and 18. Number 5 and 7 Squadrons flew the BE 2d and Number 18 flew the FE 2b.

¹²⁹⁷ *Ibid.*

¹²⁹⁸ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 287-289.

¹²⁹⁹ Cecil Lewis, *Wings Over the Somme, 1916-1918*, 77-78.

¹³⁰⁰ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 292-300.

suffering nearly 40% casualties and all total nearly 90% of all RFC casualties for the month of October were inflicted by the German *Jastas* which were led by men of Boelcke's caliber.¹³⁰¹

Lewis's reflective comment above confirms that the fact that he, as well most of the aircrew in the RFC, had come to realize that the *Luftstreitkräfte* was increasing its efforts to regain some measure of air superiority over the Somme before winter set in. Of more concern to the British airmen was the realization that their patrols were engaging larger numbers of German aircraft over the British lines, which had been almost unheard of before late September. Witnessing first-hand the increased aerial activity and predicting (albeit several weeks after the fact) that the Germans were about to increase their efforts to regain mastery of the air over the Somme, the Military Correspondent of *The Times* reported during the second week of November that:

One of the chief evidences of the new activity has been the great aerial battle, wherein some 70 aeroplanes were engaged, which the official *communiqué* has already mentioned. It took place between 9 and 10 o'clock on the morning of November 9 well over the German lines in the direction of Vaux-Vraucourt, north-east of Bapaume, whither certain of our aeroplanes were bound on a bombing expedition. With them were fighting machines and scouts, making in all a fleet of 30. Near the villa of Mory, just before reaching Vaux-Vraucourt, they sighted an enemy squadron somewhat outnumbering themselves, the actual strength being something from 36 to 40 aeroplanes. We [the British] attacked at once. Some of our machines were flying at a higher level than the enemy, and they plunged headlong to join in the general engagement, which was fought at an average height of not much above 5,000 feet. Of the *melee* which followed it is impossible to get any coherent account, for no man in it had time or thought for anything except the enemy machines with which he was engaged; but for 20 minutes there raged among the clouds such a battle as the world has never seen: an inextricable tangle of single combats, of darting, swirling machines, the air filled with the roar of 70 propellers and the chatter of guns. Four of our machines were lost. . . in the ships that came home, one brought a dead observer and two others, with

¹³⁰¹ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 292-300. See also Trevor Henshaw, *The Sky Their Battlefield*, 119-123 and Alex Revell, *British Single-Seater Fighter Squadrons on the Western Front in World War I*, 43.

wounded pilots, had difficulty in beating up against the wind and landing in our lines.¹³⁰²

RFC aircrew claimed three German aircraft destroyed and three more badly damaged. British losses were even higher than reported by *The Times* correspondent. The RFC in fact lost three bombers and four fighters shot down during the air battle.¹³⁰³ Of greater significance was the fact that this air engagement had involved such a large number of aircraft; all total more than seventy took part. It was in fact the largest air battle of the war yet seen.¹³⁰⁴ It was a demonstration of what would become the norm in the skies over the Western Front in the last two years of the war.

As the *Luftstreitkräfte* strove to wrest air superiority away from the RFC it suffered a terrible blow to its tactical leadership at the *Jagdstaffeln* level. On 28 October, two DH 2's from Number 24 Squadron, piloted by Lieutenants Knight and McKay, were attacked by Boelcke and eleven other fighter aircraft from *Jasta 2* over Pozieres. Knight was flying at 8,000 feet and McKay was about 1,500 feet below him when the German fighters dove from a height of 10,000 feet onto the two British aircraft. Lieutenant Knight received most of the focus of the German pilots as at least eight of them began to pursue him. A melee ensued as Knight and McKay skillfully avoided the combined strength of twenty-four machine guns mounted on twelve Albatros D IIs that were being flown by some of Germany's best fighter pilots. Two of the Albatros fighters dove upon Knight and without seeing one another until the last possible moment made just the slightest contact with one another. Boelcke's wingman,

¹³⁰² 'The Air War: Renewed Enemy Activity', *The Times*, 13 November, 1916, 9. www.timesonline.co.uk/tol/archive. Accessed on 21 July, 2010. See also the official communiqué for 9 November, 1916, contained in *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 306-307.

¹³⁰³ RFC War Diary, September-December, 1916, AIR 1/1184/204/5/2595, NA. See also Trevor Henshaw, *The Sky Their Battlefield*, 124-125.

¹³⁰⁴ *Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 304.

Leutnant Erwin Bohme recorded the split-second decisions that had to be made when aircraft operated in a life or death situation during a dog-fight.

Boelcke and I just got one Englishman between us when another opponent, chased by friend Richthofen, cut across us. Quick as lightening, Boelcke and I both dodged him, but for a moment our wings prevented us from seeing anything of one another—and that was the cause of it. How am I to describe my sensations from the moment when Boelcke suddenly loomed up a few meters away on my right! He put his machine down and I pulled mine up.¹³⁰⁵

Von Richthofen was sickened by what he saw take place immediately after his squadron commander's collision with Leutnant Bohme's aircraft.

Boelcke drew away from his victim and descended in large curves. I had not the feeling that he was falling, but when I saw him descending below me I noticed that part of his planes had broken off. I could not see what was happening afterwards, but in the clouds he lost an entire plane. Now his machine was no longer controllable. It fell accompanied all the time by Boelcke's faithful friend [Bohme].¹³⁰⁶

In the chaos of the fight, Bohme's landing gear had made contact with Boelcke's top wing. After the collision occurred the remaining German aircraft broke off their attacks against the two RFC pilots who then turned westwards to return to their airfield unmolested. It would be several days before Knight and McKay would learn that the Albatros fighter with the damaged wing had actually crashed only minutes after the collision had taken place, its pilot killed. They also learned that at the controls of the Albatros had been the renowned *Jasta* commander Oswald Boelcke.

In less than eight weeks on the Somme, Boelcke had shot down twenty British aircraft, bringing his victory total to forty just two days before he was killed.¹³⁰⁷ As an

¹³⁰⁵ Johannes Werner, *Knight of Germany*, 229.

¹³⁰⁶ Manfred Von Richthofen, *The Red Air Fighter*, (London: Greenhill Books Lionel Leventhal Limited, 1990), 96-97.

¹³⁰⁷ Christopher Campbell, *Aces and Aircraft of World War I*, (New York: Crown Publishers, Inc., 1981), 44-46. See also Air Historical Branch, *The Royal Air Force in the Great War*, 131.

innovator and teacher of fighter tactics, Boelcke had no peer within the *Luftstreitkräfte*. He led his Jasta with skill and courage, earning the respect of his own army and air service as well his opponents, the aircrews of the RFC.¹³⁰⁸ In leading his squadron he played a significant role in challenging the RFC's superiority over the Somme. During the battle, he had developed seven tenets for air combat which became known as the *Dicta Boelcke*, the standard reference for German pilots on air fighting and fighter tactics. It would be issued to a new generation of fighter pilots during the Second World War.¹³⁰⁹ The pilot who had been involved in the mid-air collision with the *Jasta 2* squadron leader provided a fitting epitaph for what the loss of Boelcke meant to the *Luftstreitkräfte*.

A harder blow could not have befallen us. . . Only very gradually do we realize what a gap our Boelcke leaves and how the soul of our entity had departed with him. In every respect he was our unique master. He exercised a forceful influence on all who came in contact with him, including his superiors, purely by virtue of his personality and the naturalness of his character. He could lead us anywhere he pleased. When he was with us, we never felt that anything could possibly go wrong, and so we succeeded in practically everything we did. In this last month and a half he has enabled us to put over sixty enemy machines out of action. The superiority of the English waned daily. Now we others must look to it that his triumphant spirit does not depart from the Staffel.¹³¹⁰

If the Germans could derive any good news from Boelcke's death it was the legacy that the squadron commander had left his pilots. He had been a mentor, coach and trainer and as an expert tactician he had taught his lessons to the men of *Jasta 2* so well that in the coming year, many of his pupils would equal or surpass his number of aerial victories and just as many would rise to command flights and squadrons within the *Luftstreitkräfte*.¹³¹¹ All would give Boelcke full credit for teaching them how to lead and command men in the air. In his honor,

¹³⁰⁸ Richard P. Hallion, *Rise of the Fighter Aircraft 1914-1918*, 64.

¹³⁰⁹ Aaron Norman, *The Great Air War*, 108-109. See also Christopher Campbell, *Aces and Aircraft of World War I*, 45.

¹³¹⁰ Johannes Werner, *Knight of Germany*, 232.

¹³¹¹ Alex Imrie, *German Fighter Units: 1914-May, 1917*, 39.

Jasta 2 was renamed *Jasta Boelcke*. Boelcke's value to the overall German war effort was captured well by Captain Hans Ritter:

Under the leadership of Boelcke the German Jagdstaffels accomplished the wonderful feat of gradually checking the activities of the enemy aircraft to such an extent, despite their numerical superiority, that our own reconnaissance machines were eased of their burdens and could work again; at the same time they had sufficient forces left to put a very perceptible check on the activities of the enemy artillery planes that hitherto worked practically unmolested. . . . The attacks of the Entente lost a considerable amount of thrust when their unconditional supremacy of the air was abolished.¹³¹²

Though the RFC would honor the memory of their dead German nemesis, the battle for air superiority over the Somme remained in the balance. As October turned to November, and with Haig realizing he could expect little more from Rawlinson's exhausted Fourth Army, the BEF commander, chose Lieutenant General Hubert Gough's Fifth Army (formerly the Reserve Army) the task of capturing Beaumont Hamel before winter arrived.¹³¹³

The accomplishments of the RFC during the remainder of the offensive were not as spectacular as those they had achieved in the spring and summer.¹³¹⁴ For sheer tenaciousness, its pilots and observers struggled through horrendous weather to support the Fourth Army flying dangerously low to register the guns, conduct reconnaissance and attack infantry and supply convoys with their machine-guns and bombs. There was no doubt that the British infantry suffered much worse from the weather and the conditions it caused, but during every hour of daylight, the soldiers knew that the RFC would be above them, providing whatever support was required. No matter the cost.¹³¹⁵

¹³¹²Johannes Werner's *Knight of Germany*, 217.

¹³¹³Martin Gilbert, *The Somme: Heroism and Horror in the First World War*, 222-224.

¹³¹⁴WITA, Vol. II, 314.

¹³¹⁵Ibid., 314.

The final ground attack took place on 13 November when the Fifth Army captured Beaumont Hamel and the remainder of the Thiepval-Ginchy Road.¹³¹⁶ The Battle of the Somme officially came to a close on 18 November when Haig called a halt to offensive operations (see Map 3). Fighting continued for another twenty-four hours until ‘abominable’ weather conditions brought the fighting to a halt.¹³¹⁷ The battlefield had become a quagmire from the continuous rains, which had begun falling from early October on.

From Boelcke’s death to the end of the Battle of the Somme *Jasta 2* was commanded by Leutnant Stefan Kirmaier and the squadron shot down twenty-five RFC aircraft in just three weeks. On 22 November, Kirmaier was shot down and killed by Captain John “Jock” Andrews and Second Lieutenant K. Crawford, both of Number 24 Squadron.¹³¹⁸ The Albatros D II fell behind the British lines, another sign that the *Luftstreitkräfte* was willing to take the offensive when it saw fit to do so and not remain strictly on the defensive as it had for the most part during the first five months of the air campaign.¹³¹⁹

The next day, less than a week after the Somme offensive was officially declared over by Haig, an aerial combat took place between one of the RFC’s most accomplished pilots and a relatively unknown German aviator of the *Luftstreitkräfte* that would have major repercussions for the RFC, both in the near-term as well long-term future.

¹³¹⁶Michael Chappell, *The Somme, 1916: Crucible of a British Army*, 114.

¹³¹⁷*Ibid.*, 118-119. See also Chris McCarthy, *The Somme: The Day-by-Day Account*, (London: Arms & Armour Press, 1993), 152-162.

¹³¹⁸Alex Imrie, *German Fighter Units: 1914-May, 1917*, 37.

¹³¹⁹Jon Guttman, *Pusher Aces of World War I*, 45.

Four DH 2's of Andrews' A Flight took off from Number 24 Squadron's airfield at Bertangles, near Amiens, to conduct a patrol over the Fourth Army front. A midday rain had just stopped falling and C Flight had recently returned from its morning patrol after escorting two reconnaissance aircraft to German-held Bapaume. The British pilots reported seeing large formations of German fighters east of Bapaume as they returned towards the British lines.¹³²⁰

Number 24's squadron commander, Major Lanoe Hawker surmised that the Germans were lying in wait for the next flight of British reconnaissance aircraft. Despite the order forbidding squadron commanders from flying over the lines into enemy territory, Hawker made the decision to accompany A Flight as its fourth member. Led by Andrews, the flight also included Lieutenants John H. Crutch and Robert H. M. S. Saundby; all four were very experienced fighter pilots.¹³²¹

At 1310 Crutch's DH 2 developed engine trouble and he signaled Andrews that he was returning to base. A Flight crossed the lines at 11,000 feet at 1330. The remaining three pilots noticed an air battle in progress over Grandcourt between several British Nieuport fighters and a flight of German Albatros fighters. When Andrews turned his flight to assist the Nieuports the Germans spotted the DH 2's and disengaged from the fight and headed east.¹³²²

Twenty minutes later Andrews spotted two German Roland two-seater observation aircraft flying below the British flight at 6,000 feet northeast of Bapaume. He gave the signal to attack. "I attacked two Hostile Aircraft (HA) just North East of Bapaume and drove them East when I observed two strong patrols of HA Scouts above me."¹³²³ Realizing that the reconnaissance aircraft had been bait for a trap, Andrews estimated that an entire German squadron was diving on the three DH 2's who were deep behind German lines. He quickly

¹³²⁰Tyrrel M. Hawker, *Hawker V. C.*, 230.

¹³²¹Ibid.

¹³²²*Royal Flying Corps, 1915-1916*, ed. Christopher Cole, 323.

¹³²³Number 24 Squadron air combat report, 23 November, 1916, AIR 1/1221/204/5/2634, NA.

decided his only course of action was to turn westwards and lead his flight back to base as fast as possible.¹³²⁴

Andrews and Saundby made a wide right turn, but Hawker, either because he thought Andrews was turning back due to engine trouble or because he was intent on pursuing the retreating enemy aircraft



Captain John 'Jock' Andrews, Number 24 Squadron, November, 1916. (RAFM)

¹³²⁴Number 24 Squadron air combat report, 23 November, 1916, AIR 1/1221/204/5/2634, NA.

that had been engaging the Nieuports, continued to fly east. Realizing that the German squadron was drawing ever nearer to Hawker, Andrews continued the circle instead of breaking for home, with Saundby still off his right wing, then went after Hawker, hoping to head off the German attack.¹³²⁵ Andrews fired twenty-five rounds at one of the German aircraft when it was less than one hundred feet above and behind Hawker. The enemy fighter fell into a steep dive, but more importantly, Hawker turned his head and realized he had become a target for at least ten German Albatros D II's. No one has been able to ascertain why Hawker continued to pursue the two retreating Roland aircraft. It may have been because he had lost situational awareness and became fixated on shooting down the German aircraft and was simply following his own dictum of "Attack Everything."¹³²⁶

Andrews came under attack within seconds, several bullets tearing into his engine and gas tank of his DH 2. His engine stopped, but he managed to turn west, putting his plane into a steep dive in an attempt to glide back to British lines. Taking one last look behind him, he saw Hawker flying in circles with a lone German fighter at about 3,000 feet.¹³²⁷ One of the Germans pursued Andrews, but Saundby got behind the unsuspecting enemy and emptied most of a 97-round drum from his Lewis gun into his wings. The Albatros fell into a spin. Saundby waved to his flight leader and then turned eastwards in search of other enemy aircraft. Two miles inside the German lines, Hawker was engaged in a deadly ballet with a lone D II piloted by Manfred von Richthofen who since his initiation against the RFC as a fighter pilot eight weeks before had earned ten aerial victories. As the two antagonists circled with each striving to get on the other's tail, the German quickly realized that he was up against

¹³²⁵ Tyrrel M. Hawker, *Hawker V. C.*, 232.

¹³²⁶ *Ibid.*, 182.

¹³²⁷ *Ibid.*, 232. For the initial account of the engagement between von Richthofen and Hawker I have relied on the air combat reports completed by Captain John Andrews and Lieutenant Robert H. M. S. Saundby as well as von Richthofen himself.

a very experienced pilot.¹³²⁸ Nevertheless, he thought if he was patient the Englishman would eventually run low on fuel and have to make a break for the British lines. Von Richthofen later recorded that the two antagonists “circled twenty times to the left, and then thirty times to the right. Each tried to get behind and above the other.”¹³²⁹ Accounts vary but most aviation historians agree that the air battle lasted nearly thirty minutes with neither pilot gaining an advantage over his opponent.¹³³⁰

As the two fighters continued to circle they gradually descended from 5,000 feet to less than 300 feet. With the DH 2 running low on fuel, Hawker made the decision to make a dash for the British lines. Richthofen snapped his Albatros into a tight bank and went straight for the Englishman’s tail. Both men were flying less than 150 feet over the pockmarked battlefield. Hawker zigzagged first left then right hoping to present a more difficult target but at the same time he lost precious speed. A stream of machine-gun fire tore past his left wing, then past his right.¹³³¹

With the DH 2 less than a quarter mile from the British trenches and after using up nearly 900 of his 1,000 rounds of ammunition; and also having had to clear two jammed guns in the process, von Richthofen drew to within sixty feet of the DH 2, squeezed the trigger and watched as his rounds struck the British aircraft’s engine and cockpit. The DH 2 straightened for a moment before nosing downward, crashing into a water-filled shell-hole less than one hundred yards from the British lines.¹³³² Major Lanoe Hawker, VC was dead, a single bullet had hit him in the back of the head. Richthofen later wrote that he took great pride in shooting down “the English Boelcke.”

¹³²⁸Manfred von Richthofen. *The Red Air Fighter*, 101.

¹³²⁹ Ibid.

¹³³⁰ Alex Revell, *Victoria Cross: WWI Airmen and their Aircraft*, 33. See also Trevor Henshaw, *The Sky Their Battlefield*, 127; and Aaron Norman, *The Great War in the Air*, 54.

¹³³¹ Tyrrel M. Hawker, *Hawker V. C.*, 235.

¹³³² Ibid., 236.

My Englishman was a good sportsman, but by and by the thing became a little too hot for him. He had to decide whether he would land on German ground or whether he would fly back to the English lines. Of course, he tried the latter, after endeavoring in vain to escape me by loopings and such tricks. At that time my first bullets were flying around him, for so far neither of us had been able to do any shooting. When he had come down to about 300 feet he tried to escape by flying in a zigzag course, which makes it difficult for an observer on the ground to shoot. That was my most favorable moment. I followed him at an altitude of from 250 to 150 feet firing all the time. The Englishman could not help falling. But the jamming of my guns nearly robbed me of my success. My opponent fell shot through the head 150 feet behind our line.¹³³³

German infantry buried Hawker next to the wreckage of his DH 2 and sent the serial number of his aircraft along with its Lewis gun to von Richthofen as trophies. Hawker's grave was lost during the following two years of near continuous fighting in the area around Bapaume. It was von Richthofen's 11th victory but more importantly, the air combat between Hawker and the young German ace was a significant event in that the results confirmed that to both the British and the Germans that unless the RFC received a better fighter aircraft than the Albatros or the Halberstadt fighters, it would only be a matter of weeks before the RFC's superiority in the air over the Somme came to an end.

On the day that Hawker was killed but prior to being informed of the death of one of his premier squadron commander's, Trenchard provided an assessment of his German counterpart to Brancker. As he had predicted, the new commander of the *Luftstreitkräfte* was allowing his squadrons to take offensive action as was evidenced by the number of air battles that were now taking place behind the British lines.

You will be glad to hear that the new dictator the Germans have appointed has been bustling the German Flying Corps a good deal more, with the result we got two machines across the lines when you were out here, four, if not five, yesterday, and I believe one or two today, but I have not heard for certain. This dictator was the Chief of the Staff to the 2nd German Army all through the battle of the Somme and fighting opposite to us. Therefore he knows the

¹³³³Manfred von Richthofen, *The Red Air Fighter*, 101-102.

importance of aeroplanes and has seen the ineffectual work of his. So we may now expect a great improvement in the German Flying Corps.¹³³⁴

Within hours after the air combat between Hawker and von Richthofen, RFC Headquarters posted Hawker as 'Missing' and within days it was confirmed that Hawker had in fact been killed in action.¹³³⁵ The circle was complete. In June, the Germans had lost their premier fighter pilot in Max Immelmann, only two weeks before the start of the Somme offensive. It was an event which signified that the RFC had in fact regained air superiority. Then in late October the renowned *Jasta* leader, Oswald Boelcke was killed. Now the death of Hawker was proof that the pendulum had swung back in favor of the Germans. Probably of greater significance, however, was the fact that the DH 2, which had eclipsed the Fokker Eindecker in the spring and summer, had now been surpassed by the Albatros and Halberstadt fighters.¹³³⁶

The day after Hawker had been shot down and killed Trenchard notified Brancker and the War Office of the squadron commander's loss with a single sentence: "You will be sorry to hear that Hawker is lost." He then summarized both the successes and losses of the RFC for the day. "Yesterday was another great day of aerial fighting and we crashed five Germans for certain on their side of the lines, and several others went down hit. We lost three machines; one was a Naval one—the first one."¹³³⁷ Trenchard and most of his commanders knew that no

¹³³⁴Trenchard to Brancker, 23 November, 1916, Message Number 368, Trenchard Papers, MFC 76/1/7, RAFM.

¹³³⁵Ibid.

¹³³⁶Richard P. Hallion, *Rise of the Fighter Aircraft, 1914-1918*, 68. See also James M. T. B. McCudden, *Flying Fury: Five Years in the Royal Flying Corps*, 124.

¹³³⁷Trenchard to Brancker, 24 November, 1916, Message Number 370. Trenchard Papers, MFC 76/1/7, RAFM. A year after the end of the war, Trenchard wrote a Forward to *A History of Number 24 Squadron* compiled by Captain A. E. Illingworth. In it he paid a fine tribute to Hawker. "No. 24 Squadron came under my command about February, 1916. This Squadron was commanded by that great leader, Major Hawker, V.C., and within a very short time of its arrival in France, it showed itself worthy of its leader and maintained a great reputation through the battles of the Somme in 1916. . . The loss of its commander was a great blow, but the Squadron carried on in the way Major Hawker would have expected of it." General E. B. Ashmore who commanded the 4th Brigade, RFC and was Hawker's commanding officer sent a letter to Hawker's parent less than a week after the squadron commander failed to return from his afternoon patrol. In it he gave some semblance of hope that Hawker may have been taken prisoner. Though the RFC had dropped several messages requesting information on German

matter how a good a fighter pilot Hawker was, flying an aircraft that was outmatched by at least three more advanced German models; in engine speed, maneuverability and fire-power, had meant his doom. For the RFC, air superiority, not only above the Somme, but the entire Western Front, was over unless they received better aircraft than those the Germans were equipped with. To make matters worse the heavy casualties of the last month of the air campaign was causing the RFC commander even greater concern that it had during the summer and fall. "The pilot question is making me very uneasy. If we are going on with this fighting all through the winter every fine day and lose on an average each fine day anything between 8 and 12 pilots either killed, wounded or missing we shall have to take drastic steps I think to get pilots from the Navy. There is no doubt they have some good pilots."¹³³⁸

Brancker had met with Trenchard at his headquarters in France the week before Hawker's death and upon his return to England provided Lord Curzon an assessment that fully supported the RFC commander's concerns.¹³³⁹ Brancker acknowledged the impact of the reorganization of the German air service and its achievements in staving off defeat in July and August during the air campaign over the Somme. He concluded with a dire warning that unless the RFC received more advanced aircraft in the coming months the *Luftstreitkräfte* would in all likelihood prevent the Allied air services from gaining aerial superiority prior to

positions it was not until July 1917 that the German Army confirmed that Hawker had been killed in action on 23 November, 1916 in an air combat with von Richthofen.

¹³³⁸ Trenchard to Brancker, 24 November, 1916, Message Number 372. Trenchard Papers, MFC 76/1/7, RAFM. Two weeks later, Trenchard informed Brancker that "There is no doubt that the Albatros Scout is faster than all our F.E. 2b's, F.E. 8's, De Havillands and B.E. 12's and it also maintains its speed fairly well at height. Also there is no doubt that as it has two guns firing ahead it can bring more powerful fire to bear, and in the event of a jamb it can use a second gun. It also carries more ammunition than any of our machines. The Albatros Scouts however is not so fast as the Halberstadt." Trenchard to Brancker, 7 December, 1916, Message Number 401, Trenchard Papers, MFC 76/1/7, RAFM.

¹³³⁹ Brancker to Lord Curzon, 21 November, 1916, Trenchard Papers, MFC 76/1/7, RAFM. See also *Sir Sefton Brancker*, ed. Norman Macmillan, 136.

the next Allied offensive that was already in the initial planning stages to occur in the spring of 1917.

The situation as regards Fighting Aeroplanes is most disquieting . . . there is no doubt in my mind . . . that the Germans have certainly two and probably three new types of Fighting Aeroplanes which are superior in performance to the majority of ours and which are flying at over 100 miles an hour at 10,000 feet. These German machines have appeared in considerable numbers and are not, therefore, the preliminary machines of experimental types, but standard and properly developed Fighting Aeroplanes. . . they completely outclass our F. E. 8's, De Havilland Scouts, and F. E. 2's. . . The creation of what is practically a Minister for Air in Germany is a very significant sign. The Germans have suffered severely at our hands from the air during the Somme offensive. Never before has aircraft been used so continuously and so effectively for independent offensive action, let alone so thoroughly in co-operation with the artillery and infantry. Obviously Germany must have realized their inferiority in this respect and grasped the enormous importance of aerial supremacy on the battle field. To me, the creation of this Air Minister indicates that Germany intends to devote all possible energy to obtaining aerial supremacy on the Western Front, even at the expense of their other arms. Unless British Aviation can carry more weight in the eyes of Government than it does at present, we must be prepared to face a very ugly situation at the beginning of next spring.¹³⁴⁰

Two weeks later Trenchard confirmed Brancker's observations with some detailed analysis of the new German aircraft, several of which were provided to the RFC when the German airmen were wounded and forced to land behind the British lines. In his opening statement Trenchard predicted that the RFC would be "in for a very bad time if we do not have a few fast machines out here, and I am afraid it will mean that I shall have to ask the Chief to ask for a lot of Naval Squadrons because they certainly seem to have faster machines than we have."¹³⁴¹ Trenchard was referring to the Sopwith 1 and 1/2 Strutter and the smaller and more agile Sopwith Pup, the latter having been assigned to 'Naval 8' Squadron in October, 1916.¹³⁴²

¹³⁴⁰Brancker to Lord Curzon, 21 November, 1916, Trenchard Papers, MFC 76/1/7, RAFM.

¹³⁴¹Trenchard to Brancker, 7 December, 1916, Message Number 400, Trenchard Papers, MFC 76/1/7, RAFM.

¹³⁴²Ibid. The Pup had received its name from General Brancker who upon seeing it next to a Sopwith 1 and 1/2 Strutter had exclaimed "Good God, Your 1 and 1/2 Strutter had a pup." See S. F. Wise, *Canadian Airmen and the First World War*, 391.



Albatross DII fighter aircraft, circa late 1916. (IWM Q54406)

In its short time at the front it had attained much success against the Albatros, Fokker, and Halberstadt fighters that it had encountered.¹³⁴³

There is no doubt that the Albatross Scout is faster than all of our F. E. 2b's, F. E. 8's, De Havillands and B. E. 12's and it also maintains its speed fairly well at height. Also there is no doubt that it has two guns firing ahead it can bring more powerful fire to bear, and in the event of a jam it can use a second gun. . . German prisoners lately captured state that they are bringing out a single-seater Albatross Scout with a 230 hp. Mercedes in it which will be faster than anything on the front. The prisoners also stated that the present Albatross is faster than the Nieuport at a height, but it does not climb as well. I think this is correct. The only squadrons I have at present which are good enough for fighting are one squadron of single-seater Nieuports, one squadron of F.E. 2d's [and] by converting No. 1 Squadron into single-seater Nieuports, I get three fighting squadrons. By converting No. 19 into SPADS I get 4, the Naval Squadron of 8 Sopwiths makes 5, you are going to send me out another

¹³⁴³ Trenchard to Brancker, 7 December, 1916, Message Number 400, Trenchard Papers, MFC 76/1/7, RAFM. The Pup had received its name from General Brancker who upon seeing it next to a Sopwith 1 and 1/2 Strutter had exclaimed "Good God, Your 1 and 1/2 Strutter had a pup."

squadron of 8 Sopwiths which makes six fighting squadrons. I think I shall have to try and get 3 or 4 Squadrons of better machines from the Navy which I will talk to you about when I come home. This will make nine fighting squadrons and we must have 20.¹³⁴⁴

Had the *Luftstreitkräfte* pressed its advantage it could very well have defeated the combined efforts of the RFC and the *Aviation Militaire*. Fortunately for the Allies, the Germans were content to remain on the defensive. Though they established some semblance of superiority in the air when and where they chose, the *Luftstreitkräfte* never achieved the dominance that the RFC had attained from April through September. This was probably in part because of the realization by von Hoepfner that the Germans could never match the numerical superiority of the British and French air services that would have enabled them to overwhelm the Allies in the air.¹³⁴⁵

The Battle of the Somme officially ended on 18 November, 1916. The fighting had lasted for 140 days and the casualties for the three major combatants were horrific.¹³⁴⁶ As best as can be determined the British/Dominion forces suffered a total of 432,000 men killed, wounded or missing or about 3,600 for every day of the battle.¹³⁴⁷ The British Fourth and Fifth Army “had advanced exactly six miles and were still four miles short of Bapaume, which the cavalry had hoped to take in the opening attack.”¹³⁴⁸ The French suffered 204,253 total

¹³⁴⁴Trenchard to Brancker, 7 December, 1916, Message Number 401, Trenchard Papers, MFC 76/1/7,

¹³⁴⁵Ernest von Hoepfner, *Germany's War in the Air*, 73. See also John H. Morrow, Jr., *German Air Power in World War I*, 71. Morrow argues that by the second month of the Battle of the Somme, both the British and French aviation industries had surpassed German aircraft production quantitatively and qualitatively. “By the end of the summer, [1916] chief of field aviation [Leith-]Thomsen had given up all hope of ever achieving numerical air superiority.”

¹³⁴⁶Martin Middlebrook, *The First Day on the Somme*, (New York: W. W. Norton & Company, Inc., 1972), 301.

¹³⁴⁷Robin Prior and Trevor Wilson, *The Somme*, (New Haven, CT: Yale University Press, 2005), 300; Malcolm Brown lists British and Empire casualties at 419,654 and German casualties between 437,000 and 680,000; see. Malcolm Brown, *Imperial War Museum Book of the Somme*, (London: Sidgwick & Jackson, 1996), 252.

¹³⁴⁸Martin Middlebrook, *The First Day on the Somme*, 301.

casualties and the Germans between 460,000 and 600,000.¹³⁴⁹ At the cost of more than 1.3 million men, an area twenty-five miles long and seven miles deep had changed hands.¹³⁵⁰ For a number of reasons, including unseasonable weather, the offensive on the Somme had ended in stalemate as the Allies did not gain the objectives that they had set out to capture on either side of the Somme. Haig, however claimed the Battle of the Somme as a victory. In his dispatch of 23 December, 1916, titled “The Opening of the Wearing-Out Battle”, the BEF commander reiterated that the three objectives he had established for the offensive had been accomplished.¹³⁵¹ First, the BEF had relieved the pressure on Verdun. Second, the BEF had assisted the Italians and the Russians by preventing the “further transfer of German troops from the Western front” to the other theaters of operation, and thirdly, the “enemy’s strength had been considerably worn down.”¹³⁵² In the same dispatch Haig wrote:

Anyone of these three results is in itself sufficient to justify the Somme battle. The attainment of all of them affords ample compensation for the splendid efforts of our

¹³⁴⁹ Historians continue to debate the number of casualties suffered by the German armies during the Battle of the Somme. Sir James Edmonds, the British Army’s official historian identified that German losses on the Somme were as high as 680,000 and that the British and French losses combined were 623,907. See *Official History*, 1916, Vol. II, xvi. Holger Herwig claims that there were 465,000 German casualties but the consensus for many of the Revisionists historians is that it was more likely between 500,000 and 600,000. A. H. Farrar-Hockley believes that the number is around 600,000 as does Andrew A. Wiest. See A.H. Farrar-Hockley, *The Somme*, (London: Severn House Publishers, 1964), 212 and Andrew A. Wiest, *Haig: The Evolution of a Commander* (Washington, D.C.: Potomac Books, 2005), 63 as well as Martin Pegler, *Attack on the Somme: Haig’s Offensive, 1916*, (London: Pen & Sword Books, Ltd., 2005), 123. Robin Prior and Trevor Wilson have more recently entered the debate by stating the total number of German casualties inflicted by the British alone is probably much closer to 230,000 based on evidence that Winston Churchill received from the German Reichsarchiv in the 1920’s when he was conducting research for his book *The World Crisis*. See Robin Prior and Trevor Wilson, *The Somme*, (New Haven, CT: Yale University Press, 2005), 301. In his seminal work on Field Marshal Haig, *Ordeal of Victory*, John Terraine argued that the numbers presented by Churchill were grossly incorrect and that Churchill as well as Lloyd George had “fallen into the trap of believing propaganda” and that the numbers presented by Sir James Edmonds in the British *Official History* were in fact much closer to the truth. See John Terraine, *Ordeal of Victory*, (Philadelphia: J. B. Lipponcott Company, 1963), 235-236. The actual numbers may never be known as the German records were destroyed by Allied bombing during the Second World War.

¹³⁵⁰ Christopher Martin, *Battle of the Somme* (East Sussex, England: Wayland Publishers Ltd., 1987), 103.

¹³⁵¹ John Boraston, (ed.), *Sir Douglas Haig’s Despatches, December 1914-April 1919*. (London: J. M. Dent and Sons Ltd., 1979), 51.

¹³⁵² *Ibid.*

troops and for their sacrifices made by ourselves and our Allies. They have brought us a long step forward towards the final victory of the Allied cause.¹³⁵³

Recent historical research has challenged Haig's contention that the Somme was a British victory. Robin Prior and Trevor Wilson have argued that Haig and his staff began planning for an offensive on the Somme *before* the Germans attacked the French at Verdun. Instead of attacking towards the French sector south of the Somme to assist his hard-pressed allies, Haig directed the Fourth Army to attack towards the north-east and away from the French which only then forced the Germans to transfer divisions away from Verdun.¹³⁵⁴ Thus, according to Prior and Wilson, only indirectly did the British relieve pressure from the French forces fighting at Verdun. They further argue that Haig's forces did not prevent the transfer of German units to reinforce the other theaters of war during the Battle of the Somme, stating the "Fifteen German divisions left for the east during the course of the battle and this number proved quite capable of overrunning Rumania when that country rashly entered the war on the Allied side."¹³⁵⁵ And finally, Haig's claim that the German Army had suffered significant damage because of the 'one continuous battle' was also in error. The error was not so much in the number of casualties inflicted on the German armies facing the BEF but in the fact that Haig had originally planned for a breakthrough on the Somme and not for an attrition battle that would last many months.¹³⁵⁶ Even the British Army's *Official Historian* surmised that

¹³⁵³ John Boraston, (ed.), *Sir Douglas Haig's Despatches, December 1914-April 1919*. (London: J. M. Dent and Sons Ltd., 1979), 51.

¹³⁵⁴ Robin Prior and Trevor Wilson, *The Somme*, (New Haven, CT: Yale University Press, 2005), 305. Prior and Wilson site the second Allied commanders conference held at Joffre's headquarters at Chantilly on 14 February, 1916, where Joffre directed Haig to plan for a combined British-French attack on either side of the Somme to take place in late spring, early summer.

¹³⁵⁵ *Ibid.*, 306.

¹³⁵⁶ In his diary entry of 18 January, 1916, Haig wrote that he met with Generals Kiggell and Butler to discuss future plans on the Western Front and that "the principles we must apply are: (1) Employ sufficient force to wear down the Enemy and cause him to use up his reserves. (2) Then, and not till then, throw in a mass of troops (at some point where the Enemy has shown himself to be weak) to break through and win victory." See Gary Sheffield and John Bourne (ed.), *Douglas Haig: War Diary and Letters, 1914-1918*, (London: Weidenfeld & Nicolson, 2005), 179.

“The Somme offensive had no strategic object except attrition.”¹³⁵⁷ He went further to argue that “Even a complete breakthrough, unless carried very far, would not have led to an interruption of the main German communications . . . and the Allies would have found themselves between two German Armies with intact communications.”¹³⁵⁸

During the offensive Haig had approved four separate attacks during each of the three phases of the campaign whose aim was to cause a rupture of the German positions leading to a breakout which he believed would then result in victory for the Allies and possibly end the war, the first of which was the initial attack that began the battle.¹³⁵⁹ It was not until late October, when it was obvious that the Somme campaign would have to be ended because of the increasingly poor weather that Haig began openly discussing his intent for a war-winning offensive in 1917.¹³⁶⁰ Malcolm Brown supports both Prior and Wilson’s contentions and argues that Haig “saw the main purpose of the campaign as attritional rather than that of achieving an outright breakthrough.”¹³⁶¹ Like so many of his peers in the British, French and German armies, Haig was intent on winning the decisive battle that would end the war and he planned for the attack on the Somme to do just that. Noted historian John Terraine has argued rather convincingly that the Battle of the Somme “was a victory; and at the same time, of course it was a disaster. It was above all a human disaster, because in the in four and a half months of its duration the three largest Powers of Western Europe sustained losses amounting

¹³⁵⁷ Sir James E. Edmonds, *History of the Great War: Military Operation- France and Belgium, 1916*, (Macmillan and Co., Limited), 31.

¹³⁵⁸ Ibid.

¹³⁵⁹ Robin Prior and Trevor Wilson, *The Somme*, 306. The dates for these four attacks identified by Haig were 1 July, 14 July, 15 September and 21 October. See *Sir Douglas Haig’s Despatches, December 1914-April 1919*, ed. John Boraston, 25-48.

¹³⁶⁰ *Douglas Haig: War Diaries and Letters, 1914-1918*, ed. Gary Sheffield and John Bourne, (London: Weidenfeld & Nicolson, London, 2005), 245-246.

¹³⁶¹ Malcolm Brown, *The Imperial War Museum Book of the Somme*, (London: Sidgwick & Jackson, 1996), 253..

to a million and a quarter men.”¹³⁶² Furthermore, he states that “within the terms of reference of the 1914-1918 War, the Battle of the Somme was an unquestionable Allied victory, mainly a British one, because it laid the essential foundation for the final defeat of the Germans in the field.”¹³⁶³ The pressure that the BEF and the French armies applied on the Somme during the summer and fall of 1916 did prove to be a vital element in the weakening of the German Army. Though it would take another two years until final victory was achieved, the Battle of the Somme was the beginning of the end for the Kaiser’s Army. As the German senior military leadership later acknowledged “The Somme was the muddy grave of the German field army, and of the faith in the infallibility of German leadership.”¹³⁶⁴

The casualties suffered by the RFC during the air campaign over the Somme were significant, most especially because their replacements were only partially trained and thus the vast majority was unprepared for the rigors of air combat. From 1 April to 30 June, 1916, 81 aircrew were killed, wounded or missing. These casualties occurred during the RFC’s efforts to attain air superiority before the ground offensive began. During the Fourth Army’s offensive from 1 July to 18 November, the RFC suffered 499 aircrew killed in action, wounded, or captured. Another 268 aircrew were non-battle casualties primarily a result of flying accidents, severe illness, or exhaustion.¹³⁶⁵ The RFC had lost more aircrew in the battle than it had on strength at the start of the offensive: 499 versus 426. In comparison the

¹³⁶² John Terraine, *Ordeal of Victory*, (Philadelphia: J. B. Lippincott Company, 1963), 229.

¹³⁶³ *Ibid.*, 230.

¹³⁶⁴ *Ibid.*, 232. See also Reichsarchiv, *Der Weltkrieg, 1914-1918, Elfter Band: Die Kriegführung im Herbst 1916 und im Winter 1916/1917 – Vom Wechsel in der Obersten Heeresleitung bis zum Entschluss zum Rückzug in die Siegfried Stellung* (Berlin: E. S. Mittler und Sohn, 1938), 355.

¹³⁶⁵ Trevor Henshaw, *The Sky Their Battlefield*, 575. See also *WITA, Vol. II*, 471. Alex Revell has arrived at a casualty list that is less than those most referenced by most historians. He asserts that 308 pilots and 104 observers became combat casualties for a total of 417. See *British Fighter Units, Western Front: 1914-1916*, 44. See Appendix D for further details.

Luftstreitkräfte suffered 359 aircrew losses.¹³⁶⁶ The RFC also lost more aircraft than it had to start the battle with. On 1 July, the RFC had 410 serviceable aircraft. During the course of the campaign 190 aircraft were shot down, and another 592 were damaged and required extensive repairs or were removed from service due to obsolescence, bringing the total losses to 782 aircraft.¹³⁶⁷ Though its claims were much higher, the RFC destroyed 164 German aircraft and damaged and forced to the ground another 205 enemy machines.¹³⁶⁸ If there was any good news for the RFC it was the fact that the air service continued to expand during the battle. On 1 July there were 27 squadrons in France of which ten were equipped with fighters. By the end of the offensive the RFC had expanded to 38 squadrons with 550 operational aircraft. It is significant to note however, that only eight of these squadrons were equipped with single-seater fighters.¹³⁶⁹

The British aircraft industry would be able to replace the large losses of RFC aircraft suffered over the Somme, most especially as the industrial base in Britain was re-organized under the Ministry of Munitions in 1917. The bigger issue though was the high number of aircrew casualties and the resultant impact on morale that would have far-reaching impact on the RFC in the air campaign that followed the Battle of the Somme.

¹³⁶⁶John H. Morrow, Jr., *The Great War in the Air*, 173.

¹³⁶⁷*Ibid.*

¹³⁶⁸*Ibid.*, 174.

¹³⁶⁹Trevor Henshaw, *The Sky Their Battlefield*, 128.

“If by the Spring the Germans are able to do in the air one quarter of the work carried out by our air forces during the last months of the Somme battle, it is to be feared that the inevitable result will be a universal and irresistible demand for defence and protection; the abandonment of our offensive and consequently the loss of our superiority in the air.”¹³⁷⁰

Chapter Eight

CONCLUSION: AN ASSESSMENT OF BRITAIN'S AIR CAMPAIGN OVER THE SOMME: A PYRRHIC VICTORY?

¹³⁷⁰Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 202.

Though Rawlinson's Fourth Army failed to achieve the objectives Haig had directed them to during the Battle of the Somme, what of the RFC? Was the RFC successful in accomplishing its assigned missions to support Haig's ground offensive? According to the *Official Historian* of the Royal Flying Corps, H. A. Jones, as well as historians Peter Hart, Hilary St. George Saunders and Ralph Barker, the RFC did win a major victory in the air above the Somme.¹³⁷¹ Based on Jones' definition of 'victory' it is difficult to disagree with his findings.¹³⁷² The RFC did achieve air superiority in the spring and early summer of 1916 and then fought a daily battle to maintain it for nearly the entire five-month ground campaign.

Did the RFC accomplish their assigned mission of providing the best possible support to Rawlinson's Fourth Army during the Somme offensive as the *Official Historian* would lead one to believe? Haig, Rawlinson and Trenchard had agreed before the start of the battle that the RFC would be required to accomplish six key tasks. These six tasks were (1) Aerial reconnaissance, (2) Aerial photography, (3) Observation and directing artillery, (4) Bombing, (5) Contact patrols to support the infantry, and (6) Air combat against the *German Army Air Service*.

Both tasks of aerial reconnaissance and aerial photography were accomplished with ever improving skill and with little interference from the GAAS, primarily because the RFC had won air superiority over the Somme several weeks before the battle began. 19,000 photographs were taken by the RFC during the five-month campaign. From these negatives

¹³⁷¹WITA, Vol. II, 323. See also Peter Hart, *Somme Success*, 222-223; Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 111-112; Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 222-225.

¹³⁷²Jones quantifies victory in the air over the Somme as: 1) the air battle was fought in the majority over enemy territory; and 2) the GAAS maintained a defensive policy throughout the entire air campaign even when the amount of German aircraft nearly equaled the RFC and their fighter aircraft were superior in performance to those of the RFC during the last eight weeks of the offensive. See WITA, Vol. II, 324.

420,000 prints were made and issued to army and subordinate headquarters for use in planning their future operations.¹³⁷³ New and revised maps were also made from the photographs and were issued down to company and platoon level.

By accomplishing both of these tasks on a daily basis, the RFC provided invaluable information and intelligence to Rawlinson and his subordinate commanders, both before and during the conduct of the battle. Prior to each attack the corps squadrons photographed the entire area to be attacked to assist in the rehearsals that were conducted down to battalion level. They reported on the condition of the wire obstacles, the enemy trenches and even on the probable strength of the enemy at critical strong points, such as the Quadrilateral, Courcellette, Martinpuich, and Flers. There were at least two instances where the RFC identified newly dug trenches (the German Third Line between Pozieres and Bapaume on 14 July and a new trench system built 300 yards forward of the Switch Line which III Corps was about to attack during the second phase of the battle) and reported them in time to allow infantry commanders to alter their attack plans. Had this not been done these two attacks would more than likely have met with disaster.

The third task, deemed the most important by Rawlinson, was that of observing and directing artillery fire which provided the most direct support to Rawlinson's Fourth Army during the battle (and by the last two months of the campaign, Gough's Fifth Army also). The work of the pilots and observers of the RFC, in training and cooperating with the artillery, demonstrated advances and skills never before accomplished in combat. In October, General Gough had written:

During all the three months of fighting, the Air Service had been increasingly active and efficient. Fighting was not confined to operations on the ground . . . Much went on in the air. Gradually and surely our Air Service established a moral and material superiority over the enemy though at the cost of many gallant young lives. But the

¹³⁷³WITA, Vol. II, 472.

work done was invaluable-especially in the direction of “blanketing” the enemy’s observation of his artillery fire, while they assisted, guided, and directed ours most helpfully. No one of the complicated miscellany of services which comprise a modern army so commanded the respect and admiration of the infantry as did our air service.¹³⁷⁴

A number of German army and corps commanders reported that the success of the British infantry, especially the 14 July battle that captured the Bazentin Ridge and the 15 September battle that captured Flers, was largely due to the superiority of British air and artillery cooperation. The German Quartermaster General, Erich von Ludendorff, acknowledged that the British were supreme in the field, using their aircraft to coordinate effective artillery fire on German units. “On the Somme the enemy’s powerful artillery, assisted by excellent aeroplane observation and fed with enormous supplies of ammunition, kept down our own fire and destroyed our artillery.”¹³⁷⁵

In a letter to his commander-in-chief towards the end of the battle, Rawlinson quoted figures to quantify how the RFC had in fact provided great assistance to his ground forces:

Between the 23rd of July and the 29th of October 1,721 shoots were observed from the air on to enemy batteries, bringing destruction or damage to 521 of them, and silencing 307 others, and that, in addition 281 observations were made of bombardments of enemy trench systems. These figures do not include many shoots based on aeroplane reports, nor shoots directed against troops in movement. The reports on attack days, on the relative positions of our own troops and of hostile troops, furnished by aeroplane observers during the operations, have been remarkably accurate.¹³⁷⁶

Rawlinson added that his experiences with the RFC during the Somme offensive brought home to him the enormous importance of aircraft and artillery cooperation and directed the necessity for even greater advancements in the future with the RFC. In the same letter, Rawlinson submitted a proposal that the RFC corps squadrons should be placed under the

¹³⁷⁴ Hubert Gough, *The Fifth Army* (London: Hodder and Stoughton, 1931), 149.

¹³⁷⁵ Erich von Ludendorff, *Ludendorff’s Own Story*, Vol. 1 (New York: Harper and Brothers Publishers, 1919), 316.

¹³⁷⁶ *WITA*, Vol. II, 324-325.

direct control of the Corps Artillery commander. The First Army commander, General Sir H.

S. Horne supported Rawlinson, stating that:

The operations on the Somme had proved that tactical success is largely dependent on superiority in artillery and supremacy in the air . . . and until the direction and control of artillery fire from the air is placed in the hands of the artillery we shall not gain full advantage from our superiority in guns and ammunition.¹³⁷⁷

Haig allowed much debate and discussion through December, 1916 but he did not believe that Rawlinson's or Horne's proposals were justified. He was very pleased with the RFC's performance during the Somme battle, especially so with its accomplishments in observing and directing artillery missions throughout the campaign. He saw no need to change a system that in his opinion had been extremely effective under combat conditions. Air to artillery command and control would remain an RFC responsibility.¹³⁷⁸ Any shortcomings between the two services he believed could be overcome by the exchanging of experienced liaison officers.

The techniques and procedures used by the RFC to observe and direct artillery in support of the Fourth Army were codified and made doctrine. Haig's headquarters issued *Cooperation of Aircraft with Artillery* in late December 1916. The tenets and principles in the document remained in effect for the remainder of the war, only being revised to incorporate minor adjustments due to improved technology.¹³⁷⁹

The conduct of bombing missions also brought much more significant results than even the BEF or RFC had planned or hoped for. Bombing was much more concentrated than the raids conducted in 1915 and now including night missions. During the course of the battle, the RFC bombed 298 targets, dropped nearly 13,000 bombs in the first four days of the battle

¹³⁷⁷ *WITA, Vol. III*, 307-310.

¹³⁷⁸ For further details on the debate between Haig and his subordinate commanders over the control and use of air power see David Jordan and Gary Sheffield's illuminating essay "Douglas Haig and Airpower" in *Airpower Leadership: Theory and Practice*, ed. Peter W. Gray and Sebastian Cox, (London: The Stationary Office, 2002), 273-278.

¹³⁷⁹ 'Co-Operation of Aircraft with Artillery,' HQs, RFC, December, 1916, RAFM.

alone and 292 tons overall, in support of the Fourth Army.¹³⁸⁰ Targets of critical importance to the conduct of the battle for the Germans, such as the railway networks at Marcoing, Epehy, and Velu, were bombed repeatedly with significant results. The most notable was the ammunition train at Aubigny-au-Bac, which was blown up by aircraft from Number 7 Squadron on 1 July. Another was the train station at St. Quentin where the German 22nd Reserve Division was prevented from entraining and moving to the Somme front as hastily needed reinforcements, when their train was destroyed along with most of the division's arms and ammunition. The logistics centers of Cambrai and Bapaume were also continuously targeted and attacked. Supply centers at Grevillers, Irlles, Le Transloy, Rancourt, St. Leger, and many others were also bombed repeatedly, as were both the First and Second Army headquarters.

As spectacular as the results of some of these incidents were, the greatest value Trenchard's bombing campaign provided Rawlinson's army was its' impact on the morale of the German soldier. Every day that the weather was fair, RFC squadrons, flying in formation, could be seen flying across the German lines to attack targets deep in the enemy rear area. The same aircraft were seen returning within hours; usually having accomplished their mission with minimal losses. It was only late in the campaign where bomber losses became severe, forcing Trenchard to provide escorts for them. However, there is ample evidence from German prisoners and captured documents that during the battle this in fact instilled a "spirit of defenseless" in many German infantrymen and caused much anger against the GAAS for allowing the bombing to occur. At the same time it was extremely rare for the German infantry to see their own aircraft providing them support anywhere near the front lines, let alone crossing into British territory.¹³⁸¹

¹³⁸⁰WITA, Vol. II, 472.

¹³⁸¹Air Historical Branch, *The Royal Air Force in the Great War*, 127-129.

The RFC flew contact patrols daily to support the infantry and though the system was not perfect, much was learned by both the infantry and the airmen, as the battle progressed. The techniques and procedures developed by the RFC and infantry units during the Somme battle would continue to evolve for the remainder of the war. Rawlinson and his subordinate commanders were extremely impressed by the accuracy of the reports they received from the contact patrols regarding the progress and location of attacking units and also on the actions and disposition of the enemy forces. The contact patrol pilots normally flew at heights ranging from 500 to 1,000 feet, often putting themselves at risk to not only enemy fire but also friendly artillery fire. It is almost unbelievable that during some of the most intense artillery barrages in history, that took place during the Somme offensive, only one RFC aircraft was shot down by friendly fire. The wind itself often caused more problems for the contact patrols than the enemy did. The prevailing winds in northern France were westerly and often-times British pilots had to turn into the wind while over enemy lines and remain almost stationary while their observers noted what they saw. Such a sitting target always drew a barrage of fire.¹³⁸²

Ludendorff gave further praise to the RFC and its system of contact patrols, stating that during the Somme campaign British aircraft had caused great havoc amongst the German infantry by flying very low and using their machine-guns on the troops crowded in the trenches. The wide- spread negative effect on troop morale was far more of an impact on his forces than the casualties that occurred from the low level attacks.¹³⁸³

The sixth and final task assigned to the RFC was engaging the GAAS in air combat and preventing its fighters from interfering with RFC Corps squadrons. Trenchard believed this task was of critical importance and was the one mission that would enable air superiority.

¹³⁸²Air Historical Branch, *The Royal Air Force in the Great War*, 125-126.

¹³⁸³Erich von Ludendorff, *Ludendorff's Own Story*, Vol. 1, 319.

He also believed that the other five tasks could not be accomplished without achieving it. Since the RFC engaged an offensive strategy throughout the air campaign, seeking out enemy aircraft was termed ‘offensive patrolling.’ The offensive patrols were of two kinds. Those provided by the army squadrons- Number 22 (FE2bs) and Number 24 (DH 2s) of the IV Brigade, flying behind the German front lines but still within sight of the corps squadron aircraft; and two, the headquarters squadrons, Number 60 (Moranes), Number 27 (Martinsyde Scouts), and Number 70 (Sopwith 1 and 1/2 Strutter) which flew up to twenty miles behind the German front lines. IV Brigade was reinforced by five other squadrons from III Brigade to conduct both types of offensive patrolling during the duration of the Somme battle.¹³⁸⁴

Before the battle, and up until late August, 1916, it was rare for the RFC to encounter German aircraft that were seeking a fight. The work of the offensive patrols began to steadily increase once the *Jagdstaffeln* were formed and equipped with the new Albatros, Fokker, and Halberstadt fighters in September and October. The RFC strategy to seek combat, regardless of location or odds, was quite incomprehensible to the pilots of the *Luftstreitkräfte*. Lieutenant Baldemus, shot down and made prisoner just after the Battle of the Somme ended, commented to his RFC interrogator on the contrast between the British and German pilots:

You seem to be magnetically attracted to any German aeroplane you see, and never weigh the situation. I saw one of your machines take on one Fokker, then two Fokkers, then three Fokkers, before being shot down at Lille. We do not look for fights unless it is our duty. With us a machine should return without a fight, unless it is specifically sent up to fight. To return without a fight and with our work done, is the task with us.¹³⁸⁵

British fighter pilots, led by men like Hawker and Rees, could not fathom this type of thinking. To them it bordered on the edge of cowardice.¹³⁸⁶ The RFC embedded in its aircrew an aggressive and direct approach to air combat. Hawker’s orders issued the day before the

¹³⁸⁴ Air Historical Branch, *The Royal Air Force in the Great War*, 129.

¹³⁸⁵ John H. Morrow Jr., *The Great War in the Air*, 170-171.

¹³⁸⁶ L. W. B. Rees, *Fighting in the Air: The Official Combat Technique Instructions for British Fighter Pilots, 1916-1945*, (London: Arms and Armour Press, 1978), 8-9.

start of the offensive was both simple and typical of that aggressive approach: “Attack everything.” It was this aggressive attitude that was stressed at all times by the leaders of the RFC and the enforcement of a continuous offensive strategy at all costs that brought about the results that would prove nearly catastrophic for the RFC in the air campaign that followed the Battle of the Somme. Add an ineffective training program which forced partially-trained aircrew, flying aircraft that were in many cases obsolete against a well trained, more technologically equipped enemy and it was a combination of these elements which earned the RFC a Pyrrhic victory in its air campaign over the Somme in the fall of 1916.

Having addressed how the RFC accomplished the six missions it was assigned by the BEF prior to and during the Somme offensive it is also appropriate to review briefly each of the five critical factors used throughout this study and the role they served in enabling the RFC to attain and maintain air superiority during the air campaign. More importantly though is how each of these factors led to the Pyrrhic victory over the Somme and consequently led to the RFC’s outright defeat by the *Luftstreitkräfte* in the ensuing air campaign over Arras in April, 1917.

The first factor was strategy which was the most critical factor of the five analyzed, heavily impacting each of the other four factors as well as setting the conditions for the planning and execution of the air campaign itself. Trenchard has often been criticized for maintaining a continuous offensive strategy, even after he was aware that RFC lost the technological edge when the Germans introduced better fighter aircraft than those possessed by the RFC in September, 1916. His memorandum, “Future Policy in the Air,” published that same month only hardened his position of maintaining the offensive by reiterating his belief that the aircraft was an offensive weapon and not a defensive one, arguing that regardless of developments

in German aircraft performance or air policy, the RFC must attack and continue to attack. His strategy of 'relentless and incessant' offensive action had forced the Germans to take a defensive position in the air. Trenchard had notified his chain of command that if and when a visionary leader took command of the GAAS, or the enemy developed better and faster aircraft, the RFC would become even more aggressive, regardless of losses, to ensure the British Army received the support it requested from its air service.¹³⁸⁷

The RFC's offensive strategy which advocated unrelenting offensive patrols, deep behind enemy lines in aircraft that no longer possessed the technological advantage they had held during the first two stages of the Somme offensive, especially after the introduction of the *Jagdstaffeln*, was a major reason for the large number of aircrew losses the RFC suffered in the last three months of the campaign. In September, the RFC suffered 134 aircrew casualties, the highest number of casualties suffered in one month during the eight month air campaign.¹³⁸⁸ Although he understood the ramifications of not having more advanced aircraft as well as highly trained aircrew, Trenchard refused to consider altering his strategy or doctrine after the start of the air campaign. And yet, on three occasions in September alone, the RFC commander informed Haig and the War Office about the inadequate and outdated aircraft and poorly trained crews that he was receiving from England.¹³⁸⁹

In contrasting Trenchard's incessant application of offensive operations to the theoretical, Liddell Hart's axioms on strategy are found to be applicable.

¹³⁸⁷ RFC HQ Memorandum, 'Future Policy in the Air,' 22 September, 1916, AIR 1/522/16/12/5, NA.

¹³⁸⁸ Trevor Henshaw, *The Sky Their Battlefield*, 115.

¹³⁸⁹ Trenchard to Haig, 15 September, 1916, Autobiographical Notes, Trenchard Papers, MFC 76/1/61, RAFM; RFC HQ Memorandum, 'Future Policy in the Air,' 22 September, 1916, AIR 1/522/16/12/5, NA; and Trenchard to Robertson, 30 September, 1916, Trenchard Papers, MFC 76/1/8, RAFM. See also Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 178-183.

If the enemy is certain as to your point of aim he has the best possible chance of guarding himself—and blunting your weapon. If, on the other hand, you take a line that threatens alternative objections, you distract his mind and forces. . . the absence of an alternative is contrary to the very nature of war. . . To be practical, any plan must take into account of the enemy's power to frustrate it; the best chance of overcoming such obstruction is to have a plan that can be easily varied to fit the circumstances met; to keep such adaptability, while still keeping the initiative, the best way is to operate along a line which offers alternative objectives . . . A plan, like a tree, must have branches—if it is to bear fruit. A plan with a single aim is apt to prove a barren pole.¹³⁹⁰

By constantly adhering to his offensive strategy and its 'attack at all cost' mantra, Trenchard only increased the number of casualties his force suffered during the last two months of the air campaign. Even when the Germans achieved the technological edge in fighter aircraft in mid-September, Trenchard would not fathom relinquishing the initiative or ordering a pause in the continuation of his offensive strategy. He was well aware of the costs in men and aircraft in maintaining his directed strategy and chose to defend his decision to adhere to with his superiors regardless of the consequences and at the same time disregard the politicians and subordinate officers who questioned it.

There were several military and civilian leaders, both in England and France, who suggested that he reconsider his strategy as well as the doctrine being used during the Battle of the Somme if simply to allow the RFC some respite to rest and train aircrew and allow more time for the delivery of advanced aircraft.¹³⁹¹ As for the political and military leadership who were running the war from London, though they may have disagreed with Haig and Trenchard's myopic focus on continuing offensive operations at an increasingly high cost in human life, they were not willing to direct a change in the strategy on the ground or in the air.

¹³⁹⁰ B. H. Liddell Hart, *Strategy*, (London: Faber & Faber, 1954), 330-331.

¹³⁹¹ The most influential political leaders who opposed Trenchard's strategy included Arthur Balfour and Lord Curzon. Within military channels senior RFC leaders such as Frederick Sykes, P. R. C. Groves and L. E. O. Charlton as well as RFC fighter pilot Harold Balfour, future Under-Secretary of State for Air during the Second World War, were also strongly opposed to the advocacy of a "relentless and incessant' offensive policy.

Just like Haig and many of the other British generals in command on the Western Front, Trenchard was a full supporter of conducting a war of attrition and he, along with most of the British and French commanders believed they would win the war using an attrition based strategy.¹³⁹²

By adhering to his strategy, Trenchard is rightfully deserving of two criticisms. The first concerns his willingness to accept an extremely high casualty rate that repeatedly exceeded the RFC's ability to provide trained replacements for those casualties. Regardless of what Trenchard and Henderson told the military and political leadership on the subject, the high rate of casualties suffered during the air campaign was a direct cause for RFC aircrew being rushed to the front only partially trained which only exacerbated the problem that much more. Second, in relations to the Principles of War, by focusing predominantly on the offense, Trenchard totally ignored the principle of mass or concentration of his available forces, which the *Luftstreitkräfte* very effectively demonstrated on several occasions in the last six weeks of the battle. With the birth of the *Luftstreitkräfte* and its almost immediate impact on restoring the balance of power to the Germans in the skies over the Somme, which Trenchard had foreseen, a wiser leader would have been adaptable enough to change his strategy and conserve his limited resources of both aircrew and aircraft. By doing so he would have allowed his pilots the valuable time they need to complete their training and at the same time provided the industrial base the additional time it required to produce the more advanced aircraft that Trenchard incessantly demanded. By rigidly focusing on the maintenance of offensive operations "The RFC had discovered the inherent paradox of offensive power. Attacks on enemy targets, either strategic or tactical, will undoubtedly force him to divert

¹³⁹²Michael Howard. "Men Against Fire: The Doctrine of the Offensive" in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, NJ: Princeton University Press, 1986), 524-525. See also Tim Travers, *The Killing Ground: The British Army, The Western Front and the Emergence of Modern Warfare, 1900-1918*, (London: Allen & Unwin, 1987), 37-55.

more resources to air defence. But the more successful the policy in forcing the enemy on to the defensive, the more difficult and costly it becomes to inflict proportional damage on the original targets.”¹³⁹³ Trenchard’s offensive strategy was thus not only inflexible it became dogmatic to the point that the British would adhere to it for the remainder of the war.

Throughout the air campaign the RFC incorrectly believed it was shooting down more German aircraft than it actually was primarily because aircrew reports were accepted by RFC intelligence officers as fact. Since the majority of air combats took place far behind the German lines there were often few witnesses that could corroborate pilot and observer claims of German aircraft shot down or destroyed. Many German aircraft reported as nearing the ground out of control or having been shot down in fact were able to land undamaged.¹³⁹⁴ The events of 17 September however, in which the RFC lost ten aircraft along with their crews in an afternoon, alerted Trenchard and his squadron leaders that these heavy casualties, compounded by the new German fighter, had tipped the balance of losses in the *Luftstreitkräfte*’s favor.¹³⁹⁵

Arthur Gould Lee, a fighter pilot with Number 46 Squadron in 1917-1918, summed up very candidly the strengths and weakness of Trenchard’s strategy for the Somme campaign and the remainder of the war.

General Trenchard was right to sustain an offensive spirit. Where he erred was in identifying this with an offensive strategy which was, in effect, a territorial offensive. To him, as to his staff, and most of his senior commanders, for a British aeroplane to be one mile across the trenches was offensive; for it to be ten miles over was more offensive. Influenced perhaps by naval doctrines-“seek out and destroy the enemy” and “our frontiers are the enemy coasts”-he applied them to the air, not appreciating that they were largely irrelevant in a three dimensional sphere. In the air fighting of World War I, despite the siege-like situation on the ground, it was not a fighter aeroplane’s position in relation to a line of defences that measured the offensive spirit

¹³⁹³Tony Mason, *Air Power: A Centennial Appraisal*, (London: Brassey’s, 1994), 30.

¹³⁹⁴Malcolm Cooper, *The Birth of Independent Air Power*, 76.

¹³⁹⁵John H. Morrow, Jr., *The Great War in the Air*, 171.

but the aggressive will of its occupants to attack the enemy wherever he was encountered, at whatever odds.¹³⁹⁶

Trenchard weathered the criticism both at home and in France on his adherence to the offensive strategy and remained in command of the RFC in France until January, 1918. He was convinced that only by maintaining a continuous air offensive would the Allies and most especially the British, be able to control the skies over the battlefield. Nearly two years after the Somme offensive had ended, Trenchard was 'directed' to take command of the Independent Air Force and tasked to carry out the strategic bombing of German cities. His comments on receiving this assignment tell much about his inflexibility as well as his dogmatic style of thinking. "I have stood firm for 3 ½ years now, first against one lot and then against another, and I have guided the development of the Air Service in battle and in this bombing, and I have not diverted right or left from my principles, so I shall try to carry out to the end if they will only allow me to do so. . ."¹³⁹⁷

In all fairness to Trenchard however, it must be remembered that prior to the start of the war he had very little training to prepare him for the great challenges of commanding the army's newest branch, one that grew exponentially as the war proceeded unabated. Everything from strategy and tactics to training, doctrine, logistics and command and staff procedures, had to be learned by experiencing it firsthand and much of what was learned came the hard way: by trial and error in combat on a scale never experienced before and in a medium in which everyone was a neophyte.¹³⁹⁸

¹³⁹⁶ Arthur Gould Lee, *No Parachute: A Fighter Pilot in World War I* (New York: Harper and Row Publishers, 1968), 217.

¹³⁹⁷ Trenchard Diary extracts, cited in Hyde H. Montgomery, *British Air Policy between the Wars, 1918-1933* (London: William Heinemann Limited, 1976), 43.

¹³⁹⁸ Tony Mason, *Air Power: A Centennial Appraisal*, (London: Brassey's, 1994), 28. I would be remiss if I did not thank Air Vice Marshal Tony Mason, RAF, for reminding me of the daunting challenges that army officers like Henderson, Sykes and Trenchard faced, as did all of the leaders of the major European air services, in attempting to create both a vision and a purpose for their organizations at the outbreak of the First World War and beyond.

The offensive took a severe toll of RFC squadrons during the campaign. Number 70 Squadron, which flew long-range reconnaissance and offensive patrols in one of the best aircraft the British had at the time, the Sopwith 1 and 1/2 Strutter, suffered casualties between August and October that set a record within the RFC. After nine weeks in action, only nine of the original thirty-six pilots and observers had survived combat operations. Twenty-seven aircrew, plus twenty replacements, were killed in action, wounded, missing, or prisoners of war. The youngest casualty had been seventeen, the oldest just twenty-two.¹³⁹⁹

Trenchard was not overly concerned about the casualty rate at the beginning of the campaign when he reported that the RFC was conducting three missions daily against two percent losses. Most of the British leadership including Haig, Henderson, Trenchard, and Brancker presumed that the casualties would not continue at that level. Yet the RFC lost 20 percent of its force in the first week of July alone. The losses did drop over time but they remained sufficiently high—111 aircrew for the month of July, to cause concern about the availability of trained replacements. At the end of the battle Trenchard admitted that the RFC squadrons in France had suffered 100 percent casualties from 15 June to 1 November, his aircrew suffered only one casualty for every hundred flights over the enemy lines, compared to one in three for the infantry when it left the trenches during an attack.¹⁴⁰⁰ If nothing else, these statistics would have helped as part of a recruiting campaign for the RFC. The *Official Historian* was much more accurate when he summed up the RFC's high casualty rate during the battle: "The offensive which was relentlessly pursued in the air by the British air service was about four times more costly than the defensive policy adopted by the Germans."¹⁴⁰¹

¹³⁹⁹ RFC Aircraft and Personnel Casualty Reports, AIR 1/844/204/5/373, AIR 1/845/204/5/374, AIR 1/845/204/5/375, NA. See also Alan Bott, *An Airman's Outing with the RFC, June-December, 1916* (Elstree, Hertfordshire, England: Greenhill Publishing), 216.

¹⁴⁰⁰ John H. Morrow, Jr. *The Great War in the Air*, 174.

¹⁴⁰¹ *WITA*, Vol. V, 471. See also Trevor Wilson, *The Myriad Faces of War* (New York: Polity Press, 1986), 370. The *Official Historian*, H. A. Jones further stated that "The average wastage during the

The *Luftstreitkräfte* on the other hand, by using a flexible defense, maintained a distinct advantage over the British in the war of attrition that was taking place in the air during 1916. By fighting almost always above their own territory, the Germans seldom engaged in air combat unless under their terms. If a German aircraft was damaged or the pilot wounded, and he could land his plane, both pilot and machine could be repaired and put back into the fight. If a British pilot or crew found themselves in the same circumstances the best they could hope for was to spend the rest of the war in a prisoner of war camp. This cumulative saving of personnel would prove even more significant when in 1918 the Germans began to issue parachutes to their aircrew; something the RFC leadership refused to do except to their balloon observers. The Germans were thus able to maintain their investment in experienced, highly trained airmen, while the British, continually weakened by ever increasing levels of attrition, were not.¹⁴⁰²

The second factor, the organization of the RFC itself, had unforeseen consequences on the outcome of the air campaign. Undergoing several structural changes in the first year of the war alone, the RFC established Wings to enable decentralization for the sole purpose of ensuring it could provide the best possible tactical support to the infantry units of the BEF. At the same time the organization maintained its autonomy as an air service with its own chain of command. This reorganization did in fact prove to be critical to the future development of the RFC in that it provided the required organizational framework necessary for the even greater expansion which took place on a nearly continuous basis over the course of the following three years.

Somme battle was at the rate of 300 per cent although it was nearer 400 per cent for the period subsequent to the arrival of the new German fighters in September.”

¹⁴⁰²Malcolm Cooper, “The Development of Air Policy and Doctrine on the Western Front 1914-1918,” *Aerospace Historian* (Spring, March 1981): 45-46.

By the time the air campaign began in early April, 1916, the evolutionary changes in its organizational structure enabled the RFC to be adaptable to the changing nature of air warfare and in turn assisted the organization to accomplish its primary objective of attaining air superiority over the Somme prior to the ground offensive. The one decision involving the organizational structure that did have a potential negative impact on the RFC's performance during and after the Somme air campaign was the decision to enlarge every squadron from fourteen to eighteen aircraft. This decision was made just prior to the beginning of the air campaign and though not completed until well into the battle, the fact that the RFC was suffering a shortage of aircrew was only exacerbated by this decision. Add to the fact that the high casualty rate resulted in a high demand for replacements which then reduced the amount of time pilots and observers spent in training squadrons, it can be argued that by increasing the amount of aircraft and aircrew in every squadron during the battle, Trenchard should have considered delaying this change in organizational structure until after the air campaign or better still after the changes in aircrew training he had directed had a chance to produce better trained airmen and the more advanced fighter aircraft such as the SE 5, Bristol F2b Fighter and the Sopwith Camel were ready for operational service in France.

The third factor, leadership, also played a critical role in the RFC achieving air superiority before and during the battle as well as the events which took place following the Somme air campaign. The three key leaders: Henderson, Trenchard and Brancker enforced the strategy of 'continuous and relentless offensive' operations at all costs which though it gained them air superiority over the Somme from May through September, 1916, it was these same leaders who refused to amend or alter the offensive strategy which led to near-disaster in the air campaign that followed the Somme in the spring of 1917.

In his dispatches to the War Office after the Somme battle had concluded, Haig provided evidence that he was more than pleased with the performance of the RFC (and its leadership) in supporting his ground units. He also reminded the military and civilian leadership who were directing the Allied war effort of the criticality of maintaining ‘mastery of the air’ for all future operations.

The admirable work of the Royal Flying Corps has been a very satisfactory feature of the battle. Under the conditions of modern war the duties of the Air Service are many and varied. They include the regulation and control of artillery fire by indicating targets and observing and reporting the results of rounds; the taking of photographs of enemy trenches, strong points, battery positions, and of the effect of the bombardments; and the observation of the movements of the enemy behind his own lines.

The greatest skill and daring has been shown in the performance of all these duties, as well as in bombing expeditions. . . Not only has the work of the Royal Flying Corps to be carried out in all weathers and under constant fire from the ground, but fighting in the air has now become a normal procedure, in order to maintain the mastery over the enemy’s Air Service. In these fights the greatest skill and determination have been shown, and great success has attended the efforts of the Royal Flying Corps.¹⁴⁰³

Haig may not have been an advocate for air power when the war began but by the end of the Battle of the Somme he had become a firm believer that effective air support was required to allow the ground forces to pursue their objectives unimpeded from the enemy’s air service.

Primarily because Trenchard did his utmost to ensure the RFC provided the maximum support to the army at all times, Haig supported Trenchard during his entire time as commander of the BEF. When Trenchard left command of the RFC in early January, 1918 to become Chief of the Air Staff, Haig had nothing but praise for his trusted air advisor. “I recall with gratitude the magnificent work done during the fighting of 1916 and 1917 by Major-General Sir Hugh H. M. Trenchard, at that time commanding the Royal Flying Corps. The influence exerted by this

¹⁴⁰³ *Sir Douglas Haig’s Despatches, December 1914-April 1919*, ed. J. H. Boraston, 54.

able and distinguished officer upon the moral[e] and the development of the British Air Service and in the creation of its splendid traditions can scarcely be exaggerated.”¹⁴⁰⁴

To Trenchard’s credit, he took command of the air service when it faced a crisis with the advent of the ‘Fokker Scrouge’ in the fall of 1915 and established the conditions for the RFC to not only end that period of German dominance in the air by the spring of 1916 but enabled his own force to gain air superiority over the Somme in less than eight weeks leading up to the start of the British ground offensive. Trenchard may not have been one of the truly gifted captains in military history but he provided a strong and unwavering vision when the RFC needed it most. No other individual in the RFC offered the leadership and drive that he brought to it. As one RAF historian later wrote of Trenchard’s performance during the Somme offensive “By taking the fight to the enemy even when losses seemed prohibitive, Trenchard stuck to his principles, relying on the tenacity and resilience of his aircrews. They never failed him.”¹⁴⁰⁵

In sum, all three leaders: Henderson, Trenchard, and Brancker, served critical roles in planning leading and resourcing the RFC in its air campaign over the Somme. Under their leadership the RFC achieved air superiority over the Somme before and during the majority of the battle. But it was these same three leaders who were also directly responsible for the severe losses suffered by British aircrew because they failed to modify or adjust their thinking in terms of the strategy they directed the RFC to adhere to, most especially when the *Luftstreitkräfte* began to achieve dominance in the skies over the Somme in the autumn of 1916. It was this failure in critical thinking by the senior leadership of the RFC would also led to the near catastrophic results of the RFC’s subsequent air campaign over Arras in April-May, 1917.

¹⁴⁰⁴ Sir Douglas Haig’s *Despatches, December 1914-April 1919*, ed. J. H. Boraston, 53.

¹⁴⁰⁵ Ralph Barker, *The Royal Flying Corps in France: From Mons to the Somme*, 189.

The fourth and fifth elements, selection and training, are tied directly to each other and are also inextricably linked to the other three factors. Arguably one of the shortcomings in the selection of aircrew that the RFC leadership can be faulted for and which would have alleviated part of its manpower shortage before and during the Somme air campaign was the fact that it did not rely more on NCO pilots like the French and German air services did.¹⁴⁰⁶ In February, 1916 there were approximately thirty NCO pilots serving in squadrons in Britain, most of who were still in flight training status.¹⁴⁰⁷ At the same time there were only three NCO pilots serving in operational squadrons in France and despite the massive expansion that the RFC experienced during the Battle of the Somme and into 1918, there were never more than three percent NCO pilots in operational squadrons in France.¹⁴⁰⁸ Throughout the air campaign the RFC continued to select a few NCOs to become pilots and maintained this practice for the remainder of the war. The selection of NCOs to serve as pilots was not however considered a solution to overcome the shortages the RFC experienced both during and after the Somme campaign.

There was at least one long-term benefit of using NCOs as pilots, most especially for the post-war Royal Air Force (RAF). In 1924 while serving as Chief of Air Staff, Trenchard convinced the government to create auxiliary squadrons made up of reserve pilots and ground crews. This was the beginning of what would become the Auxiliary Air Force designed to serve as a reserve for the RAF.¹⁴⁰⁹ Many of these part-time pilots were NCOs and it was this reserve force which became the RAF Volunteer Reserve (RAFVR) in 1936 and would provide huge dividends for the RAF in the first year of the Second World War. In the summer and fall

¹⁴⁰⁶ Williamson Murray, *War in the Air, 1914-1945*, (New York: Smithsonian Books, 2005), 44-45. See also John H. Morrow, Jr., *The Great War in the Air*, 167.

¹⁴⁰⁷ C.G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, RAF*, 77.

¹⁴⁰⁸ *Ibid.*

¹⁴⁰⁹ Andrew Boyle, *Trenchard: Man of Vision*, 498. See also C.G. Jefford, *Observers and Navigators and Other Non-Pilot Aircrew in the RFC, RNAS, RAF*, 130.

of 1940 when the RAF prevented the *Luftwaffe* from gaining air supremacy during the Battle of Britain, it was largely due to the efforts of a small professional force of approximately 2,400 pilots and aircrew, many of whom had served with auxiliary squadrons before the war. Of this number, more than 800 were NCO pilots who constituted one third of the pilots then serving in RAF Fighter Command.¹⁴¹⁰ It is fair to say that had the RFC/RAF leadership made the decision to stop using NCOs to serve as pilots in the First World War as well as the inter-war period, the RAF may very well have lost the Battle of Britain due to a shortage of trained and capable pilots.¹⁴¹¹

Even before the air campaign began over the Somme it had become evident to Trenchard's subordinate squadron, and brigade commanders that newly arriving pilots from England were insufficiently trained. The primary reasons for this were attributed to a shortage of qualified instructors and the bad weather in England which prevented flying on many days. To address the deficiencies in training, Trenchard transferred Brigadier General J. M. Salmond back to England to take command of the V Brigade and in effect serve as the senior aircrew trainer in the RFC.¹⁴¹²

By May, 1916 the RFC had realized the criticality of training pilots in air fighting techniques as well as night flying. The establishment of the School of Aerial Gunnery at Hythe was the first of many that would train future RFC fighter pilots in the art of air combat. By the end of the Somme campaign, Salmond established even more rigorous training requirements with solo hours increasing from fifteen to twenty for qualification and as many

¹⁴¹⁰ Peter North, *Eagles High: The Battle of Britain 50th Anniversary*, (London: Leo Cooper Limited, 1990), 7.

¹⁴¹¹ Len Deighton, *Fighter: The True Story of the Battle of Britain*, (Edison, N. J.: Castle Books, 2000), 43-45. See also Philip Kaplan & Richard Collier, *The Few: Summer 1940, The Battle of Britain*, (London: Blandford Press, 1989), 22; and *The Battle of Britain Then and Now*, ed. Winston G. Ramsey, (London: Battle of Britain Prints International Limited, 1985), 758-791.

¹⁴¹² Salmond took command of VI Brigade on 9 March, 1916, which then absorbed V Brigade. Four months later in July, 1916 the VI Brigade became the Training Brigade and a year later in August, 1917 became the Training Division.

as twenty-eight depending on the type of aircraft the pilot was to fly in combat.¹⁴¹³ Salmond also reorganized the instruction provided both aircraft and balloon observers as well. In September, 1916, the Wireless School at Brooklands was placed under control of the Training Brigade and reorganized into the Wireless and Observers School and in December, Salmond directed the formation of a Kite Balloon Training Wing as well.

To overcome the impact of poor weather on flying within the confines of the United Kingdom, Henderson, Brancker and Salmond were able to organize and establish pilot training in Egypt, Canada, and once the United States entered the war in April, 1917, in Texas also. During the Battle of the Somme the RFC established three reserve squadrons in Egypt with the majority of pilot candidates being accepted from army units in Egypt, Salonika, Mesopotamia, and India. By July, 1917, when the War Office approved the doubling in size of the RFC, an additional Training Wing consisting of five squadrons was established. Once Salmond received the required number of training aircraft he believed was required to support the additional training squadrons, he was confident that by January, 1918 the RFC could produce 180 fully trained pilots each month thanks in large part to the training and good weather in Egypt.

Additional flying schools in Canada funded by the British on the condition that the Dominion government sanction and support an aircraft factory, were established north and east of Toronto in 1917 at Camp Borden and Deseronto respectively. By the end of the year there were five squadrons training at Camp Borden and an additional five training at Deseronto. By mid-September 1917, the RFC established a headquarters at Fort Worth, Texas and moved five American Air Service squadrons that had been training in Canada to one of three airfields in established in Texas. A School of Aerial Gunnery, developed on the same

¹⁴¹³ *WITA, Vol. III, 296-297.*

organizational lines as that at Hythe, was also established at Borden Camp and one of the airfields in Texas as well. By 1918, Canada alone was sending on average 200 trained pilots a month to England.¹⁴¹⁴

Between the leadership and vision provided by Salmond and the technical and tactical expertise provided by Robert Smith-Barry who Trenchard sent back to England in December, 1916 to reorganize and restructure flying training, the RFC spent considerable time and resources improving its aircrew training programs during, but most especially after, the air campaign over the Somme. It was a slow but steady process and unfortunately for the RFC the benefits of the revised training programs would not have a major impact on the force as a whole until well after the disastrous air campaign at Arras in 1917.

Although the RFC suffered high losses because it rigidly adhered to an offensive strategy throughout the Somme campaign, when the battle ended, the RFC still controlled the skies above the Somme.¹⁴¹⁵ One could argue that this was because the *Luftstreitkräfte* chose when and where to contest Britain's domination and was biding its time until the good weather returned in the spring of 1917 and the next ground offensive took place.¹⁴¹⁶ Though Rawlinson's Fourth Army did not achieve all of its objectives, the RFC accomplished all of

¹⁴¹⁴S. F. Wise, *Canadian Airmen and the First World War*, 593. Wise, the Official Historian for the Royal Canadian Air Force, has identified a total of 13, 345 Canadians who served in the RFC and RNAS between 4 August, 1914 and 31 March, 1918. See also *WITA, Volume V*, 467. For further details on the RFC training program in Texas see Don Clark, *Wild Blue Yonder: The "300" Yankee Warbirds in Canada, Texas, and France*, (Seattle, Superior Publishing Company, 1972); and James L. Hudson, *Hostile Skies: A Combat History of the American Air Service in World War I* (Syracuse, New York: Syracuse University Press, 1968).

¹⁴¹⁵Geoffrey Norris, *The Royal Flying Corps: A History*, 175-176. See also Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 111; Alex Revell, *British Fighter Units, Western Front: 1914-1916*, 44; and Alex Revell, *British Single-Seater Fighter Squadrons on the Western Front in World War I*, 45.

¹⁴¹⁶Alex Imrie, *German Fighter Units, 1914-May 1917*, 39-41. See also Trevor Henshaw, *The Sky Their Battlefield*, 126.

the missions and tasks set by the BEF and Fourth Army commanders. In doing so, Trenchard and his airmen earned the respect and admiration of the BEF's leaders.¹⁴¹⁷

Further evidence that the British air campaign over the Somme was a Pyrrhic victory is provided by the RFC's experience in the air campaign that immediately followed the Battle of the Somme. From the end of the Haig's offensive and all through the winter of 1916-17, poor weather caused a steady reduction in air activity for both sides, but casualties for the RFC increased with each passing month. From 1 December, 1916 to 30 March, 1917 the RFC suffered 371 aircrew killed, wounded or prisoners of war.¹⁴¹⁸ That was more than the combined casualties for the first five months of the air campaign over the Somme when the RFC wrested air superiority away from the GAAS.¹⁴¹⁹ Beginning in January, 1917 there was a notable increase in air combats taking place *behind* the British lines as opposed to behind the German lines. The *Luftstreitkräfte* was demonstrating that it was willing to use offensive tactics when and where it chose.¹⁴²⁰

During this same period it was becoming more and more obvious to Trenchard as well as Haig (promoted to Field Marshal in January) that the *Luftstreitkräfte* was threatening once again to achieve air superiority and if this occurred it would have a major impact on the BEF's spring offensive in the Arras sector. In mid-January Trenchard was informed by Brancker that two squadrons of the new and advanced Bristol Fighter could not be delivered to France as planned because of labor issues at the factories in England, Trenchard became incensed.

You are asking me to fight a battle this year with the same machines as I fought it last year. We shall be hopelessly outclassed, and something must be done. I am not panicking, but the Hun is getting more aggressive. I warned you fairly as far back as last September, and the Chief [Haig] also warned you in November. And I warned the Air Board personally on 12th December. All I can say is that there will be an outcry from all the pilots out here if we do not

¹⁴¹⁷ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 112.

¹⁴¹⁸ Trevor Henshaw, *The Sky Their Battlefield*, 575.

¹⁴¹⁹ See Appendix D.

¹⁴²⁰ WITA, Vol. III, 320-321. See also Alex Imrie, *German Fighter Units 1914-May 1917*, 41.

have at least these few squadrons of fast machines, and what I have asked for is absolutely necessary.¹⁴²¹

Trenchard notified Haig's Chief of Staff, General L. E. Kiggell, of his concerns in writing and subsequently Haig informed the Chief of the Imperial General Staff, General William Robertson, on the severity of the issue over the continual postponement of the twenty new squadrons that the War Office had approved be formed and sent to France by spring, 1917, most of which were to be equipped with faster, better armed and more maneuverable fighter aircraft then in development.

It appears to me necessary to bring to the notice of the War Cabinet the state of the Air Service in France. On the 15th of January I informed the War Cabinet, at the conference in London, that this service would probably not be fully ready for an offensive by the 1st April. To-day the situation appears to be worse than I hoped. . . . I was informed officially by the War Office on the 15th November, 1916, that the establishment of 56 squadrons was approved in principle, and I was furnished with a forecast of the estimated rate of supply. . . [Based on what was promised and what is expected to arrive in France by 7 March]. . . . The result may be summarized as under:

- (i) There will be no reserve of Corps Squadrons, and five squadrons which should have been new type [aircraft] will be old type [aircraft].
- (ii) There will be a shortage of from four to seven fighting squadrons below what is promised and of seven to ten below what I asked for, and in addition two squadrons which should have been new type will not have been converted from old type.

The position as regards fighting squadrons in particular is most serious. Our fighting machines will almost certainly be inferior in number and quite certainly in performance to those of the enemy. In view, therefore of the marked increase in number and efficiency of the German aeroplanes it appears that we cannot except [*sic*] to gain supremacy in the air in April, and it is even possible that it may pass to the enemy.

The seriousness of this situation cannot be overrated, and its possible effect on the results of our operations will no doubt be fully realised by the War Cabinet.¹⁴²²

¹⁴²¹ Andrew Boyle, *Trenchard: Man of Vision*, 209.

¹⁴²² Trenchard to Chief of Staff, 11 February, 1917; Haig to Chief of the Imperial General Staff, 13 February, 1917, AIR 1/522/16/12/5, NA. See also Andrew Boyle, *Trenchard: Man of Vision*, 210-211.

Trenchard would have been happy had he received half of those ‘expected’ squadrons before the spring offensive. On 1 January he commanded thirty-nine squadrons on the Western Front, but only twelve were categorized as “suitable for escort work, offensive patrols and general air combat.”¹⁴²³ Even more concerning to Trenchard and his commanders was the fact that only five of these squadrons, equipped with Nieuport 17s and Sopwith Pups, were capable of engaging the Albatros and Fokker bi-plane equipped *Jastas* on equal terms.¹⁴²⁴ The War Office was only able to send to France six new squadrons before the start of the Arras air campaign and these arrived incrementally between 17 January and 27 March. Additionally the Admiralty had finally agreed to transfer three RNAS fighter squadrons to the RFC so desperate had Trenchard become for aircraft and pilots. Of the six RFC squadrons, four were two-seater all purpose aircraft; one was to be used solely for night bombing operations; and one was equipped with single-seater fighters. Two of the two-seater all purpose aircraft squadrons were equipped with brand new models, the first was the RE 8 which eventually would replace all of the obsolete BE2c aircraft in France over the next year and the second was the Bristol F2b Fighter.¹⁴²⁵ Although both aircraft would later prove to be able to hold their own against the best German fighters and did quite well in combat in the hands of a well trained crew, the two new machines initially performed poorly during the Battle of Arras, primarily because of the lack of

¹⁴²³ S. F. Wise, *Canadian Airmen and the First World War*, 395.

¹⁴²⁴ *Ibid.*

¹⁴²⁵ Trevor Henshaw, *The Sky Their Battlefield*, 132-148. See also *WITA, Vol. III, Appendix XII*, 413. The squadrons were Number 43 (Sopwith 1 and 1/2 Strutter) arrived 17 January; Number 3, RNAS (Sopwith Pup) arrived mid-March; Number 59 (RE 8) arrived 13 February; Number 1, RNAS (Sopwith Triplane) arrived 15 February; Number 55 Squadron (DH 4) arrived 6 March; Number 48 (Bristol F2b) arrived 8 March; Number 66 (Sopwith Pup) arrived 18 March; Number 100 (FE2b) arrived 21 March; and Number 8, RNAS (Sopwith Triplane) arrived 27 March.

familiarity of the machine by its crews.¹⁴²⁶ Of the seventy-seven RE 8's that entered the battle, fifteen were shot down and of the eighteen Bristol Fighters that took part in the battle nine were shot down with six shot down during the Bristol Fighter's initiation into the air war on 5 April in a single air combat with Von Richthofen's *Jasta 2*.¹⁴²⁷

With the weather improving in March the level of air combat between the RFC and the *Luftstreitkräfte* increased in ferocity and intensity, harbingers of what was to come with the air campaign during the Battle of Arras. The *Official Historian* recorded that the RFC was forced to deal with "an onslaught that surpassed all previous experience."¹⁴²⁸ Because of the pressure the German *Jastas* were putting on the RFC's I Brigade, on 19 March, Trenchard was forced to commit the squadrons of III and V Brigades to assist I Brigade whose mission was to support the BEF's First Army, slated as the main effort for the spring offensive. The *Jastas* effectiveness is evidenced by the number of casualties they inflicted on the British squadrons in less than four weeks. For the month of March the RFC had 120 aircraft shot down, with 59 of those crashing behind the British lines.¹⁴²⁹ The *Luftstreitkräfte* lost just seven aircraft.¹⁴³⁰ On the eve of the Battle of Arras it was evident to both the British and German air commanders that the new Albatros DIII fighter was the dominant aircraft in the skies above France and Flanders.¹⁴³¹ As an example, on 9 March von Richthofen's Albatros DIII equipped *Jasta 2* engaged 8 FE 8 pusher fighters from

¹⁴²⁶ Hilary St. George Saunders, *Per Ardua: The Rise of British Air Power, 1911-1939*, 135. See also *WITA, Vol. III*, 351-352.

¹⁴²⁷ Trevor Henshaw, *The Sky Their Battlefield*, 151. See also Norman Franks, Russell Guest and Frank Bailey, *Bloody April . . . Black September*, 17.

¹⁴²⁸ *WITA, Vol. III*, 321.

¹⁴²⁹ Andrew Boyle, *Trenchard: Man of Vision*, 212. See also *WITA, Vol. III*, 322; and Richard P. Hallion, *Rise of the Fighter Aircraft*, 70.

¹⁴³⁰ Alex Imrie, *German Fighter Units: 1914-May, 1917*, 42.

¹⁴³¹ Richard P. Hallion, *Rise of the Fighter Aircraft*, 69.

Number 40 Squadron. The FE 8 had arrived in France in August, 1916 and was obsolete by the time it saw its first combat.¹⁴³² Four of the British aircraft were shot down and the remaining five were all damaged and forced to land behind the British lines. In one air engagement one RFC squadron had lost nearly fifty percent of its effective strength.¹⁴³³

On 26 March, 1917, ten days before the start of the air campaign, Trenchard provided his intent to his subordinate commanders:

The aim of our offensive will therefore be to force the enemy to fight well behind, and not on, the lines. This aim will only be successfully achieved if offensive patrols are pushed well out to the limits of Army reconnaissance areas, and the G.O.C. looks to Brigadiers to carry out this policy and not give way to requests for close protection of corps machines except in special cases when such machines are proceeding on work at an abnormal distance over the lines. The aerial ascendancy which was gained by our pilots and observers on the SOMME last year was a direct result of the policy outlined above, and with the considerable addition to our strength provided by the new type fighting squadrons now available the G.O.C. feels confident that a similar ascendancy will be gained this year.¹⁴³⁴

Trenchard directed that his army squadrons force the German *Jastas* “away from the immediate battle area so as to ensure the greatest measure of freedom to the corps aeroplanes.”¹⁴³⁵ Additionally all enemy observation balloons, rail centers and airfields were to be attacked. To enable artillery-observation and reconnaissance aircraft the ability to operate without interference from enemy fighters, Trenchard’s staff designed a twenty mile wide quadrilateral shaped intercept zone that extended fifteen miles behind the German lines. At specific times there were as many as fifty single-seater fighters patrolling this area and twenty-five two-seater fighters providing protection to the artillery and reconnaissance aircraft.¹⁴³⁶

¹⁴³²Kenneth Munson, *Fighters 1914-1919*, 100.

¹⁴³³Alex Revell, *British Single-Seater Fighter Squadrons on the Western Front in World War I*, 55.

¹⁴³⁴S. F. Wise, *Canadian Airmen and the First World War*, 398. See also Memorandum, HQ RFC to all brigades and 9 Wing, 26 March, 1917, AIR 1/1008/204/5/1283, NA.

¹⁴³⁵WITA, Vol. III, 334.

¹⁴³⁶S. F. Wise, *Canadian Airmen and the First World War*, 400.

Primarily because of the heavy casualties sustained from December to March, Trenchard did not begin the RFC's air campaign to support the BEF's attack at Arras until five days before the start of the ground offensive.¹⁴³⁷ The RFC held the advantage in total aircraft over the *Luftstreitkräfte*, 754 to 264 on the Western Front as well as in the numbers of single-seater fighters or fighter-reconnaissance aircraft available, 385 to 114, but numbers only tell part of the story.¹⁴³⁸ The real advantage went to the Germans with the more technologically advanced aircraft and the better trained and more experienced aircrew.

The tactics used by the RFC described by Trenchard above had worked very well during the air campaign over the Somme but at Arras they met with abject failure. On the Somme the RFC had the more technologically superior aircraft until the last eight weeks of the offensive but over Arras the *Luftstreitkräfte* held that advantage. The grim results did not surprise Trenchard as he had fairly predicted and informed his chain of command, both military and political, what might happen to the RFC if it was not equipped with enough combat capable aircraft to oppose the advancements made by the *Luftstreitkräfte*. In the first five days of the air campaign which began on 4 April, the RFC had 75 aircraft shot down with a loss of 105 aircrew. Sixty percent of those losses were from the corps squadrons conducting aerial photography or artillery observation and direction missions.¹⁴³⁹ On 6 April alone twenty British aircraft were shot down with 23 aircrew killed and another 14 taken prisoner.¹⁴⁴⁰ Even more worrisome to Trenchard and his commanders was the fact that a further 56 aircraft were lost to flying accidents. The resulting strain on aircrew nerves and morale can be imagined.¹⁴⁴¹ It can only be guessed at as to how many of those accidents were caused by untrained or exhausted pilots. Thus in the first week alone the RFC had lost 131 aircraft. Trenchard's aide,

¹⁴³⁷ Andrew Boyle, *Trenchard: Man of Vision*, 212.

¹⁴³⁸ John H. Morrow, Jr., *German Air Power in the First World War*, 91. See also *WITA*, Vol. III, 334.

¹⁴³⁹ Trevor Henshaw, *The Sky Their Battlefield*, 150.

¹⁴⁴⁰ Alex Revell, *British Single-Seater Fighter Squadrons on the Western Front in World War I*, 59-63.

¹⁴⁴¹ *WITA*, Vol. III, 335.

Maurice Baring correctly foresaw what the RFC was to experience in the coming weeks at Arras when he recorded in his diary on 7 April that “Fighting in the air on a battle scale had begun. We had not got the necessary number of fighter machines. Du Peuty gave us enough Nieuports to supply a whole squadron. It was evident that we should not get through the battle and do the work of the Armies without severe loss.”¹⁴⁴²

After the heavy losses suffered by his squadrons in March and the first five days of his air campaign over Arras, Trenchard should have reconsidered the purpose of his ‘incessant and continuous offensive.’ As Alex Revell has identified an “offensive policy is unsuited to a technically inferior side.”¹⁴⁴³ It would have been wise and prudent for the RFC commander to scale back his offensive strategy and surge his fighters when and where they were needed instead of sending them deeper and deeper behind enemy lines to seek a fight. But that was not how Trenchard operated, most especially when Haig’s ground forces were attacking and required constant air support. Another reason Trenchard did not alter his strategy was because he believed the RFC was inflicting severe losses on the *Luftstreitkräfte*. On 6 April he notified Haig that his squadrons were ‘getting on top of the Huns.’¹⁴⁴⁴ In reality the German air service had only lost six aircraft in the first week over Arras.¹⁴⁴⁵

For the RFC April became the deadliest month of the war. The *Official Historian* recorded that “In no other month throughout the war was the Royal Flying Corps so hard pressed, nor were the casualties suffered so heavy.”¹⁴⁴⁶ All total the RFC lost 245 aircraft shot down by the *Luftstreitkräfte* or German ground forces during that thirty day period out of 821 operational aircraft at the start of the battle. The *Luftstreitkräfte* lost just 66, a British to

¹⁴⁴² Maurice Baring, *Flying Corps Headquarters, 1914-1918*, 212.

¹⁴⁴³ Alex Revell, *British Single-Seater Fighter Squadrons on the Western Front in World War I*, 63.

¹⁴⁴⁴ Trenchard to Haig, 8 April, 1917, MFC 76/1/76, RAFM.

¹⁴⁴⁵ Alex Revell, *British Single-Seater Fighter Squadrons on the Western Front in World War I*, 59-63.

¹⁴⁴⁶ WITA, Vol. III, 370.

German loss ratio of four to one.¹⁴⁴⁷ The human cost was staggering as well: 435 British aircrew had become casualties in six weeks of air combat with 211 killed in action or died of wounds; another 108 had become prisoners of war, as well as 116 being wounded out of a starting strength of 854 men with 754 aircrew actually assigned to squadrons on 1 April.¹⁴⁴⁸ Compared to the RFC's casualty totals for the five month Somme offensive of 499, the air campaign over Arras had been nearly catastrophic. It was because of this extremely high cost in aircrew lives that the month of April, 1917 became known as 'Bloody April' to the aircrew who survived it.¹⁴⁴⁹

The air campaign over Arras continued on until the ground battle was called to a halt on 17 May. In a span of eight days the RFC lost two of its most famous and respected fighter pilots. On 29 April, Major H. D. Harvey-Kelly, squadron commander of Number 19 Squadron and renowned for being the first British pilot to land in France after war was declared, was shot down after engaging von Richthofen's *Jasta 2*.¹⁴⁵⁰ A week later, Captain Albert Ball with 44 victories to his credit, was killed after an aerial combat with Lothar von Richthofen. Ball had forced the German to crash land with a disabled engine but then flew into low clouds. His aircraft was observed by two German officers on the ground to exit the clouds inverted less than two hundred feet above the ground and crash.¹⁴⁵¹ Trenchard's aide, Maurice Baring

¹⁴⁴⁷ Norman Franks, Russell Guest and Frank Bailey, *Bloody April . . . Black September*, 110-111. See also Alan Morris, *Bloody April*, (London: Jarrolds Publishers Ltd., 1967), 194; John H. Morrow, Jr., *German Air Power in the First World War*, 91; and David C. Cooke, *Sky Battle 1914-1918*, 152-153. Morris and Morrow as well as other aviation historians argue that the RFC's aircraft losses were 151 for the month of April but the research done by Franks, et al. presents a convincing argument that their numbers are the most accurate.

¹⁴⁴⁸ Ibid.

¹⁴⁴⁹ Alan Morris, *Bloody April*, 16.

¹⁴⁵⁰ Alex Revell, *British Fighter Units: Western Front, 1917-1918*, (London: Osprey Publishing Ltd., 1978), 7.

¹⁴⁵¹ Colin Pengelly, *Albert Ball, VC: The Fighter Pilot Hero of World War I*, (South Yorkshire, England: Pen & Sword Books, Ltd., 2010), 196-198.

observed that Ball's death "cast a gloom through the entire Flying Corps."¹⁴⁵² Trenchard himself wrote that Ball was "one of the most daring, skillful and successful pilots the Flying Corps has ever had."¹⁴⁵³ Ball was just twenty years of age when he was killed.¹⁴⁵⁴

German losses from 31 March to 11 May totaled 68 with thirty-three killed, sixteen missing and nineteen wounded.¹⁴⁵⁵ Critical to note is that because of losses and delays in providing replacement aircraft to the eight *Jastas* primarily engaged with the RFC squadrons in the Arras sector during the month of April, there were on average only seven operational fighters available on a daily basis per *Jasta* as compared to a British fighter squadron that had between 14 and 18 aircraft.¹⁴⁵⁶ This meant that the *Luftstreitkräfte* was only able to put 56 fighter aircraft in the air against the RFC at any given time during the first four weeks of the air campaign. It was these few aircraft that inflicted such heavy casualties on a force that outnumbered it by at least three to one throughout the battle.¹⁴⁵⁷

In sum, the near catastrophic losses the RFC suffered during 'Bloody April' 1917 can be traced directly back to the air service's eight month long air campaign over the Somme in 1916 and the Pyrrhic victory against the *Luftstreitkräfte* that was the result of it. Each of the five factors analyzed throughout this paper: strategy, organization, leadership, selection and training of aircrew, influenced the results of the first air campaign conducted by the RFC

¹⁴⁵² Maurice Baring, *RFC Headquarters, 1914-1918*, 221.

¹⁴⁵³ AIR 1/ 1905/204/229/5, NA.

¹⁴⁵⁴ Ball was one of the very few British pilots who received major press coverage during his operational career and whose name was as widely known in Germany and France as it was in Britain. Like many of his peers he transferred from an infantry regiment to join the RFC in January, 1916, after having earned his RAeC. He flew the BE 2c before transitioning to the Nieuport fighter and shot down 30 German aircraft and 1 balloon during the air campaign over the Somme. One of the most decorated RFC pilots during the Battle of the Somme, he shot down another thirteen aircraft during the Battle of Arras. After his death he was awarded the Victoria Cross posthumously. Of the four biographies of Ball, the most detailed is Colin Pengelly, *Albert Ball VC: The Fighter Pilot Hero of World War I*, (South Yorkshire, England: Pen & Sword Books Ltd. 2010).

¹⁴⁵⁵ S. F. Wise, *Canadian Airmen and the First World War*, 407. See also 'Functions and Tactics of German Air Service, Spring of 1917, Particularly During Arras Battle, April-May, 1917,' AIR 1/9/15/1/22, NA.

¹⁴⁵⁶ Alex Imrie, *German Fighter Units: 1914-May 1917*, 42.

¹⁴⁵⁷ Ibid.

during the Battle of the Somme and just as critically set the conditions for the disaster that befell the RFC during the Battle of Arras which followed. Trenchard's insistence of adhering to a continuous offensive strategy in both air campaigns, in which he demanded results regardless of the cost in aircrew's lives, as well as an organization that was under constant expansion and a selection process that focused too much on class and rank instead of ability and experience, combined with a training system that was not allowed to adequately prepare aircrew for combat operations resulted in the high casualty rate that the RFC incurred during the air campaigns over the Somme and Arras.

While the ground campaign failed to accomplish most of its stated objectives, the Somme air campaign was a victory for the RFC, albeit a Pyrrhic one. The cost in terms of aircrew casualties served only to be a forerunner of what was to occur on even a more costly scale in the air campaign that followed in April, 1917 during the Battle of Arras.

APPENDIX A

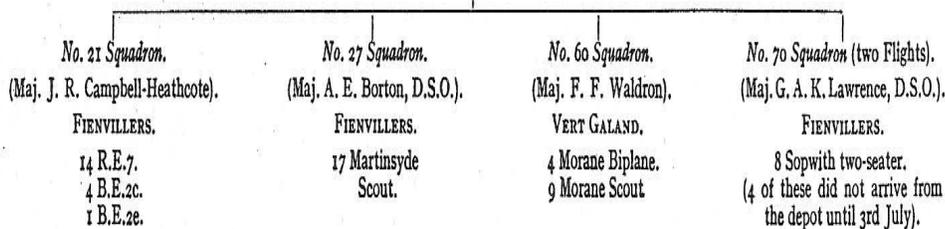
ORDER OF BATTLE OF THE ROYAL FLYING CORPS ON 1st JULY 1916 (SOMME)

General Officer Commanding: Major-General H. M. Trenchard, C.B., D.S.O., A.D.C.

St. ANDRÉ-AUX-BOIS (Advanced Headquarters: FIENVILLERS).

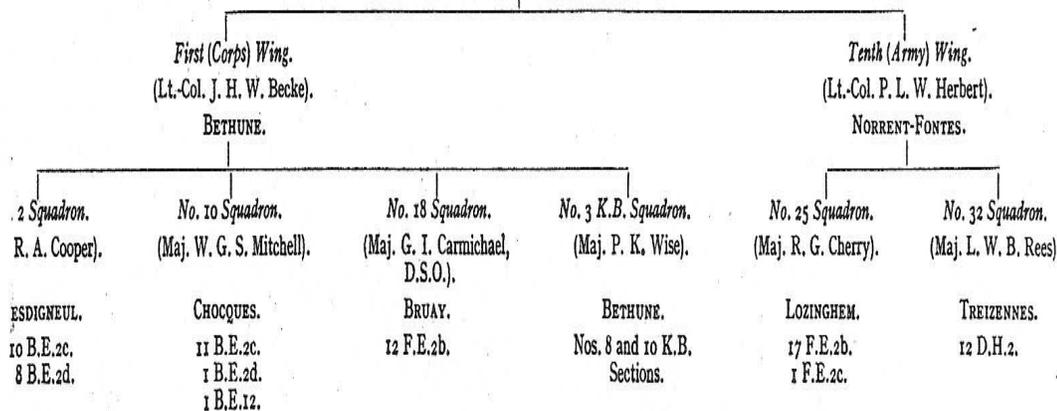
Ninth (Hq.) Wing.
(Lt.-Col. H. C. T. Dowding).

FIENVILLERS.



I BRIGADE.

(Brigadier-General D. le G. Pitcher).
CHÂTEAU WERPPE, 1 m. N.E. of CHOQUES.

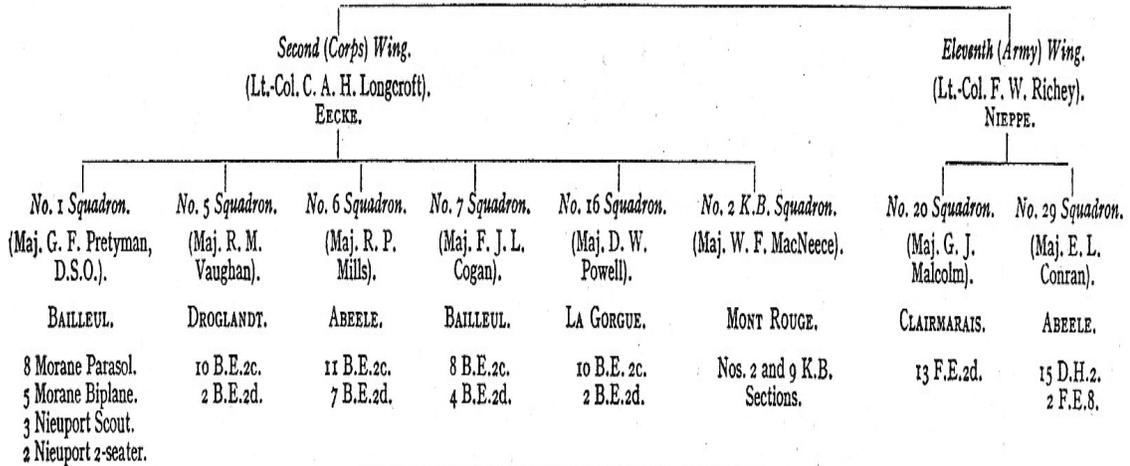


First Army Aircraft Park (Maj. G. C. Ross-Mumby)—AIRE.

II BRIGADE.

(Brigadier-General T. I. Webb-Bowen).

OXELAERE.

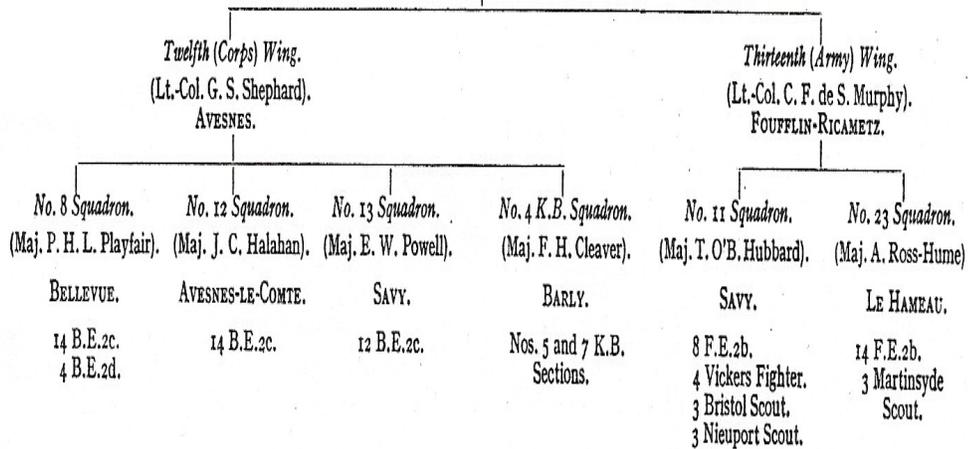


Second Army Aircraft Park (Major D. G. Conner)—HAZEBROUCK.

III BRIGADE.

(Brigadier-General J. F. A. Higgins, D.S.O.).

CHÂTEAU DE SAINS.

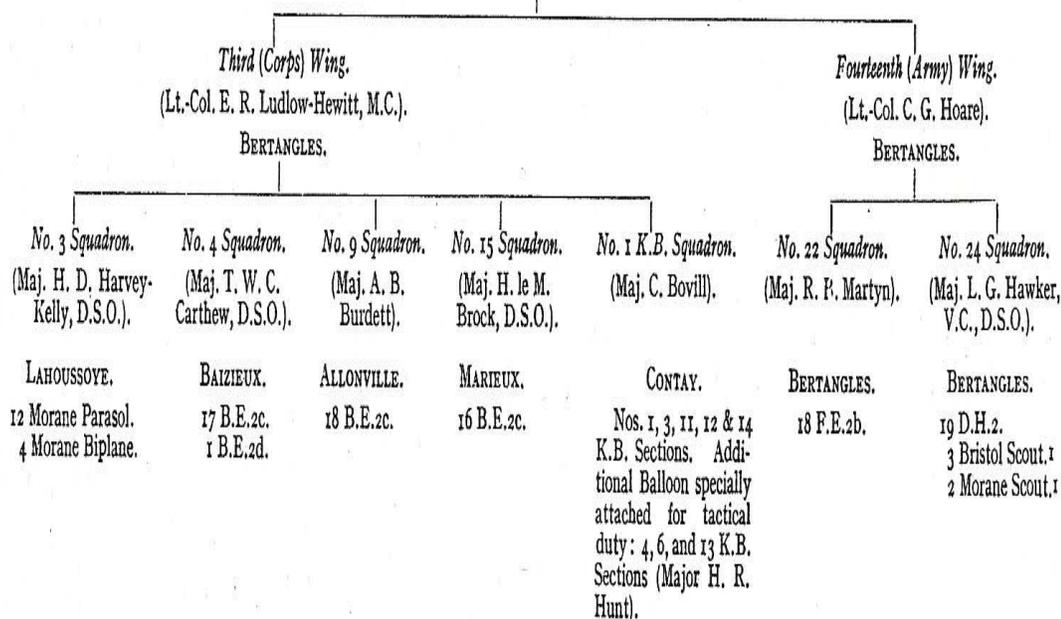


Third Army Aircraft Park (Major F. H. Kirby, V.C.)—FRÉVENT.

IV BRIGADE.

(Brigadier-General E. B. Ashmore, C.M.G., M.V.O.)

LES ALENÇONS.



¹ Attached from the squadrons of Third (Corps) Wing.

Fourth Army Aircraft Park (Major A. Fletcher)—BEAUVAIL.

No. 1 Aircraft Depot (Maj. A. Huggins)—ST. OMER (127 aeroplanes, including unserviceable).

Engine Repair Shops (Maj. G. B. Hynes)—PONT DE L'ARCHE, ROUEN.

No. 2 Aircraft Depot (Maj. R. C. Donaldson-Hudson)—CANDAS (89 aeroplanes, including unserviceable).

R.F.C. Port Depot (2nd Lieut. J. M. Patten)—BOULOGNE.

Strength: 27 Squadrons.
421 Aeroplanes.
(Additional, 216 Aeroplanes at Aircraft Depots.)
4 Kite Balloon Squadrons.
14 Balloons.

APPENDIX B

FUTURE POLICY IN THE AIR (SEPTEMBER 1916)

Since the beginning of the recent operations the fighting in the air has taken place over the enemy's line, and visits of hostile aeroplanes over our lines have been rare. It is hoped that this state of things may continue, but as one can never be certain of anything in war, it is perhaps an opportune moment to consider what policy should be adopted were this state of affairs to change, and were the enemy to become more enterprising and more aggressive.

It is sometimes argued that our aeroplanes should be able to prevent hostile aeroplanes from crossing the line, and this idea leads to a demand for defensive measures and a defensive policy. Now is the time to consider whether such a policy would be possible, desirable, and successful.

It is the deliberate opinion of all those most competent to judge that this is not the case, and that an aeroplane is an offensive weapon and not a defensive weapon. Owing to the unlimited space in the air, the difficulty one machine has in seeing another, the accidents of wind and cloud, it is impossible for aeroplanes, however skilful and vigilant their pilots, however powerful their engines, however mobile their machines, and however numerous their formations, to prevent hostile aircraft from crossing the line if they have the initiative and determination to do so.

The aeroplane is not a defence against the aeroplane; but it is the opinion of those most competent to judge that the aeroplane, as a weapon of attack, cannot be too highly estimated.

A signal instance of this fact is offered to us by the operations which took place in the air at Verdun. When the operations at Verdun began, the French had few machines on the spot. A rapid concentration was made, and a vigorous offensive policy was adopted. The result

was that superiority in the air was obtained immediately, and the machines detailed for artillery co-operation and photography were enabled to carry out their work unmolested, but as new units were put into the line which had less experience of working with aeroplanes, a demand arose in some quarters for machines of protection, and these demands were for a time complied with. The result was that the enemy took the offensive, and the French machines were unable to prevent the hostile raids which the enemy, no longer being attacked, was now able to make. The mistake was at once realized and promptly rectified. A policy of general offensive was once more resumed, and the enemy at once ceased to make hostile raids, all his time being taken up in fighting the machines which were now attacking him. Superiority in the air was once more regained.

On the British front, during the operations which began with the battle of the Somme, we know that, although the enemy had concentrated the greater part of his available forces in the air on this front, the work actually accomplished by their aeroplanes stands, as compared with the work done by us, in the proportion of 4 to 100. From the accounts of prisoners we gather that the enemy's aeroplanes have received orders not to cross the lines over the French or British front unless the day is cloudy and a surprise attack can be made, presumably in order to avoid unnecessary casualties. On the other hand, British aviation has been guided by a policy of relentless and incessant offensive. Our machines have continually attacked the enemy on his side of the line, bombed his aerodromes, besides carrying out attacks on places of importance far behind the lines. It would seem probable that this has had the effect so far on the enemy of compelling him to keep back or to detail portions of his forces in the air for defensive purposes.

When Lille station was attacked from the air for the first time no hostile aeroplanes were encountered. The second time this place was attacked our machines encountered a

squadron of Fokkers which were there for defensive purposes. This is only one instance among many.

The question which arises is this: Supposing the enemy, under the influence of some drastic reformer or some energetic leader, were now to change his policy and follow the example of the English and French, and were to cease using his aeroplanes as a weapon of defence and to start a vigorous offensive and attacks as many places as far behind our lines as he could, what would be the sound policy to follow in such a case? Should we abandon our offensive, bring back our squadrons behind the line to defend places like Boulogne, St. Omer, Amiens, and Abbeville, and protect our artillery and photographic machines with defensive escorts, or should we continue our offensive more vigorously than before? Up to now the work done by the Germans compared with that done by our aeroplanes stands, as we have seen, in the proportion of 4 to 100; but let us suppose that the enemy initiated a partial offensive in the air, and that his work increased, compared with ours, to a proportion of 30 or 50 to 100, it is then quite certain that a demand for protective measures would arise for protective squadrons and machines for defensive patrols.

One of the causes of such demands is the moral effect produced by a hostile aeroplane, which is out of all proportion to the damage which it can inflict.

The mere presence of a hostile machine in the air inspires those on the ground with exaggerated forebodings with regard to what the machine is capable of doing. For instance, at one time on one part of the front, whenever a hostile machine, or what was thought to be a hostile machine, was reported, whistles were blown and men hid in the trenches. In such cases the machines were at far too great a height to observe the presence of men on the ground at all, and even if the presence of men observed it would not lead to a catastrophe. Again, a machine which was reported in one place would certainly, since it was flying rapidly, be shortly

afterwards observed in another part of the lines and reported again, but the result of these reports was often that for every time the machine was sighted a separate machine was reported, leading at the end of the day to a magnified and exaggerated total.

The sound policy then which should guide all warfare in the air would seem to be this: to exploit this moral effect of the aeroplane on the enemy, but not let him exploit it on ourselves. Now this can only be done by attacking and continuing to attack.

It has been our experience in the past that at a time when the Germans were doing only half the work done by our machines that their mere presence over our lines produced an insistent and continuous demand for protective and defensive measures.

If the Germans were once more to increase the degree of their activity even up to what constitutes half the degree of our activity, it is certain that such demands would be made again.

On the other hand, it is equally certain that, were such measures to be adopted, they would prove ineffectual. As long as a battle is being fought, any machine at the front line has five times the value that the same machine would have far behind the lines.

If the enemy were aware of the presence of a defensive force in one particular spot he would leave that spot alone and attack another, and we should not have enough machines to protect all the places which could possibly be attacked behind our lines, and at the same time continue the indispensable work on the front.

But supposing we had enough machines both for offensive and defensive purposes. Supposing we had an unlimited number of machines for defensive purposes, it would still be impossible to prevent hostile machines from crossing the line if they were determined to do so, simply because the sky is too large to defend. At sea a number of destroyers will have difficulty in preventing a hostile destroyer, and still more a hostile submarine, from breaking

the blockade. But in the air the difficulty of defence is still greater, because the area of possible escape is practically unlimited, and because the aeroplane is fighting in three dimensions.

The sound policy would seem to be that if the enemy changes his tactics and pursues a more vigorous offensive, to increase our offensive, to go farther afield, and to force the enemy to do what he would gladly have us do now. If, on the other hand, we were to adopt a purely defensive policy, or a partially offensive policy, we should be doing what the French have learnt by experience to be a failure, and what the rank and file of the enemy, by their own accounts, point to as being one of the main causes of their recent reverses.

Moreover, in adopting such a policy it appears probable that the Germans are guided by necessity rather than by choice, owing to the many fronts on which they now have to fight, and owing also to the quality and the quantity of machines they have to face on the Western Front alone. Nevertheless, one cannot repeat too often that in war nothing is certain, and that the Germans may, either owing to the pressure of public opinion, or the construction of new types of machines, or the rise of a new leader, change their policy at any moment for a more aggressive one.

Advanced Headquarters
Royal Flying Corps
22 September 1916¹⁴⁵⁸

¹⁴⁵⁸ AIR 1/522/16/12/5, NA.

APPENDIX C

HAIG'S LETTER TO THE WAR OFFICE (30 SEPTEMBER 1916)

I have the honour to request that the immediate attention of the Army Council may be given to the urgent necessity for a very early increase in the numbers and efficiency of the fighting aeroplanes at my disposal. Throughout the last three months the Royal Flying Corps in France has maintained such a measure of superiority over the enemy in the air that it has been enabled to render services of incalculable value. The result is that the enemy has made extraordinary efforts to increase the number, and develop the speed and power, of his fighting machines. He has unfortunately succeeded in doing so and it is necessary to realize clearly, and at once, that we shall undoubtedly lose our superiority in the air if I am not provided at an early date with improved means of retaining it. Within the last few days the enemy has brought into action on the Somme front a considerable number of fighting aeroplanes which are faster, handier, and capable of attaining a greater height than any at my disposal with the exception of one squadron of single-seater Nieuports, one of F.E. Rolls Royce, and one of Sopwiths, -the last mentioned being inferior to the enemy's new machines in some respects though superior in others. All other fighting machines at my disposal are decidedly inferior. The result of the advent of the enemy's improved machines has been a marked increase in the casualties suffered by the Royal Flying Corps, and though I do not anticipate losing our present predominance in the air for the next three or four months, the situation after that threatens to be very serious unless adequate steps to deal with it are taken at once. I have directed the G.O.C. Royal Flying Corps in France to put forward a statement of our estimated requirements.

In a personal letter to Sir William Robertson, Chief of the Imperial General Staff, written the same day, Sir Douglas Haig pointed out that the increase in RFC losses in the last

two weeks of September meant that “we were now doing less distant fighting with the result that an increasing number of German machines now come up to the lines, and a few cross them, whereas practically no German machines crossed the line in the first two months of the battle. It is the fighting far behind the enemy’s lines that tells most.”¹⁴⁵⁹

¹⁴⁵⁹ *WITA, Vol. 2, 296-297.*

APPENDIX D

ROYAL FLYING CORPS STATISTICS FOR THE BATTLE OF THE SOMME 1 JULY–17 NOVEMBER 1916

Aircraft

Serviceable on 1 July:	410 (219 were artillery spotting aircraft)
Serviceable on 17 November	550 (299 were artillery spotting aircraft)
Destroyed (combat or in accidents)	782
Missing	190
Completely rebuilt at Depot	173
Returned to England	178
Flown to England	57
Flown from England	867
Flown from Paris	139
Average rate of replacement in squadrons (per month)	10
Engines repaired at Pont de l'Arche	537

Pilots

Available on 1 July	426
Available on 17 July	585
Killed, wounded, or missing	308
Non battle casualties	268

Observers

Killed, wounded, or missing.	191
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RFC Aircrew Losses on the Western Front during the Air Campaign over the Somme,
April to November, 1916¹⁴⁶⁰

MONTH	KIA	WIA	POW	Total Casualties
April	6	10	8	24
May	11	5	7	23
June	11	16	7	34
July	40	38	26	104
August	33	25	24	82
September	63	34	40	137
October	50	27	27	104
November	36	27	15	78
TOTAL	250	162	154	586

Squadrons

1 July	27
17 November	35

Balloons

1 July	14
17 November	35

Wireless

Ground stations	542
Operators on 1 July	689
Operators on 17 November	883
Operator casualties	27
Aircraft fitted with	306

¹⁴⁶⁰ RFC Personnel Casualty Reports, AIR 1/844/204/5/369 through AIR 1/845/204/5/376, NA. It has been determined that 499 of the 586 casualties occurred over the Somme. The other 87 casualties occurred in the skies over Flanders, particularly the Ypres sector. The table above does not take into account the 268 non-battle casualties identified in Chapter Eight.

Bombing

Raids with definite targets	298
Number of bombs dropped	17,600
Weight of bombs dropped	292 tons

Photography

Photographs taken	19,000
Prints of photographs made	420,000

Artillery Co-operation

Targets registered with air observation	8,612
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Hostile aircraft

Destroyed	164
Driven down damaged	205

APPENDIX E

“Too Many Casualties”

Marshal of the Royal Air Force Sholto Douglas, Lord Douglas of Kirtleside

“The Battle of Arras in 1917 and the heavy casualties that it cost the Royal Flying Corps provided me with the most anxious period that I was to know during the whole of my life in the Air Force. During the two years that I spent as Commander-in-Chief of Fighter Command in the Second World War, I was called upon to wage an offensive fighter campaign against the Luftwaffe that reminded me only too vividly of what had happened to us in the early spring of 1917. Our casualties had been much worse in the first war, but in 1941-42 I could not expect the young fighter pilots under my command to know much about that.

But the severity of our losses early in 1917 was not entirely due to the superiority of the German fighters. The continued demand for an increase in the numerical strength of the Royal Flying Corps was still leading to new pilots being sent to the front with far from enough training, or even with sufficient hours of bare experience in the air, and it was in addition to the need for replacements for the squadrons already in the thick of the fighting. Because of what I found then, as one of the squadron commanders who had to accept these raw replacements, I came to feel very strongly about what I considered was a short-sighted policy, and I have been given no reason to change that view.

I am quite aware that Boom Trenchard was admitting as early as the beginning of 1916 that the pilots coming out to the front were insufficiently trained, and also that his complaint did lead to a great improvement in the system of training at home. But

his insistence that there should be at the same time a rapid formation of more and more squadrons for service at the front went a long way towards undermining that system; and that magnificent eagerness of Trenchard's to use the air for offence against the enemy led him, quite unintentionally, to make greater demands on the new pilots than were justified.

In the spring of 1917 the squadrons of the Royal Flying Corps outnumbered those of the German Air Force by about two to one; but numbers alone did not spell superiority. I have always felt that we would have been much better off if we had greater experience; and quite a few of us who served on the Western Front and who were later to become senior commanders in the Royal Air Force felt the same way about Trenchard's policy of driving hard and almost regardless of cost.¹⁴⁶¹

¹⁴⁶¹ Sholto Douglas, *Years of Combat: A Personal Story of the First War in the Air*, (London: Collins, 1963), 179-180.

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