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Establishing the Royal Air Force: A study of the military-political background

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ESTABLISHING THE ROYAL AIR FORCE

A STUDY OF THE MILITARY-POLITICAL BACKGROUND

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PREFACE

On April 1, 1918, in the midst of a long and bloody war the British government organized a new military service. Three years earlier the war had become stalemated in the trenches of France and successive, mammoth, grinding battles had succeeded only in destroying the youth of a generation. Partly in reaction to this trench-bound war of mud and misery the British turned to a new weapon which fought in the clean and free environment of the sky.

The new military service was the Royal Air Force. It combined all existing air units of the Royal Navy and the British Army into one new force, and made this force an independent agency of the government. For the first time, the skies were formally recognized as an arena for battle, the airplane was recognized as a weapon which could range and fight over all of an enemy nation, and airmen were acknowledged sole proprietors of a new military force--a force not tied in any way to traditional roles on the ground or at sea.

Great Britain was the only combatant in the first World War to form an independent air force. Great--and varied--significance has been attached to this fact. Advocates have long considered it an essential milestone in the evolution of air power. Detractors, still today, lament the decision.[1] However, not the decision to form the separate service, but what lay behind the decision is the subject of this study. There were many reasons, both political and military. Some carried great weight; others were minor. An understanding of these, I believe, is as important to the student of the history of air power as the theories of Douhet, Mitchell, or Trenchard.

I acknowledge with gratitude the debt which I owe to all members of the Department of History of the University of Omaha who have guided me. My special debt is to Dr. A. Stanley Trickett, Chairman of the Department, who has led me to a sense of history and to an understanding of historiography.

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[1]See, for example, Captain Donald MacIntyre, R. N., (Ret.), "Point of No Return," U. S. Institute of Naval Proceedings, XIIIC, No. 2, (Feb. 1964), 37ff.

I wish also to acknowledge the help of Group Captain John Garden, Royal Air Force, who was kind enough to criticize an early draft of this paper; and, finally, I must extend my thanks to the unsung heroes of every researcher's battle, the librarians of the University of Omaha and Offutt Air Force Base libraries, without whose assistance my research could not have been completed.

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CHAPTER I

THE BEGINNING: BALLOONS TO AIRPLANES

In the early dawn of July 25, 1909, a daring French aviator took to the air from a field at Les Baraques, near Calais. He was flying a small, frail monoplane of his own design, powered by a twenty-five horsepower Anzani engine. When he landed thirty-six minutes later in the Northfall Meadow by Dover Castle, he had become the first man to fly across the English channel, had won the prize of a thousand pounds sterling offered by the Daily Mail, and had destroyed the insularity of the British nation.[1]

The French pilot was Louis Bleriot, and his flight cast a long, but strangely obscure shadow across the course of British military history. The length of the shadow led directly to the air battle which, thirty years later, was to pose for the British nation one of its gravest threats, and to provide one of its finest hours. The obscurity of the

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1. Charles H. Gibbs-Smith, The Aeroplane: An Historical Survey of Its Origins and Development (London: Her Majesty's Stationery Office, 1960), p. 69.

shadow was mirrored in the minds of those military leaders who, for many years, failed to see the importance of the airplane and how it had destroyed England's traditional first line of defense, the sea.

British interest in military aviation can be traced to 1879 when a Balloon School was established at Chatham to instruct the Royal Engineers in military aeronautics. This school was the first attempt in Great Britain to exploit the air for military purposes.[2] The first battlefield use of balloons by the Army was in the Sudan in 1885, but the results were minor in the over-all operation.[3]

The next major step forward came during the Aldershot maneuvers held in 1889. During the maneuvers, a late evening reconnaissance by balloons led to the discovery of vital intelligence on the movement of opposing troops. As a result, a successful night attack was launched and the balloons

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2. Noble Frankland, A Short History of the Royal Air Force: Air Ministry Pamphlet 348 (London: Air Ministry, 1958), p. 3. This school was established almost 100 years after the first balloon experiments by the Mongolfier brothers in France in 1782-83. The French had pursued military uses of balloons and had formed a "Compagnie de Aerostiers" who were employed against the Austrians in 1794. See C. F. Snowden Gamble, The Air Weapon (3 vols.; London: Humphrey Milford, 1931), I, 8-17.

3. J. A. Chamier, The Birth of the Royal Air Force (London: Sir Isaac Pitman & Sons Ltd., 1943), p. 1.

gained new respect. Following the maneuvers, the Army formed special air sections.[4]

Balloons were next used in the South African War, but their efforts did little to change traditional military thinking as to their value. Leaders at both the War Office and the Admiralty were, in fact, so opposed to exploiting the air as a military medium that they refused several opportunities to investigate a new and exciting invention of two American brothers, the airplane.[5]

In 1908, A. V. Roe made the first airplane flight in England. However, when he, along with other pioneer airmen, asked the War Office for financial help to build airplanes, they were told by Colonel J. E. Seeley, the assistant to the Secretary of State for War, that the Government could not encourage aviation because, "we do not consider that aeroplanes will be of any possible use for war purposes."[6]

Between 1909 and 1911, and despite the lesson of Bleriot's flight, British heavier-than-air military aviation was limited solely to the efforts of individual officers. These officers flew at their own expense and with little

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4. Ibid. 5. Ibid., p. 2.
6. Ibid. See also Edward Lanchbery, A. V. Roe (London: The Bodley Head, 1956), p. 91.

official encouragement. Captain Bertram Dickson was the first British military officer to fly. He did so in a Henri Farman machine that had been purchased in France. In 1910, he was permitted to fly the airplane, at his own expense, during British Army maneuvers. His appearance led to bitter protests by Cavalrymen who claimed his only purpose was to frighten their horses. When some flights were cancelled because of adverse weather, the sceptics used the cancellations to cast doubt on the value of military aviation.[7] In February, 1911, in spite of the earlier problems, The Balloon School became the Air Battalion of the Royal Engineers.[8]

Aviation continued to develop rapidly in Europe throughout 1911. By November, the Prime Minister, looking to the future, asked the standing sub-committee of the Committee of Imperial Defence to review the status of British aviation. The Committee, under the chairmanship of Lord Haldane, was asked to consider all aspects of the future development of aerial navigation for naval and military purposes. In addition, the Committee was to recommend measures to provide an efficient British air service in coming years.

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7. Chamier, p. 4. See also Gamble, I, 144.
8. Frankland, p. 3.

Out of the Committee's deliberations came a proposal to remove the air arm from the Royal Engineers and form a British aeronautical service. The Committee recommended that this new service be made up of a Naval Wing, a Military Wing, and a Central Flying School for the training of pilots. It should, said the Committee, be called the Flying Corps. At the same time a permanent consultative body, to be called the Air Committee, should be established within the Government to deal with all aeronautical questions affecting both the Admiralty and the War Office.[9]

The Haldane Committee's recommendations received quick approval from the Prime Minister and the Cabinet. The Government recognized that the ultimate air missions of the Army and the Navy would be different, but felt that the separate Military and Naval Wings would permit proper development for both services. On April 13, 1912, a Royal Warrant was granted constituting the Royal Flying Corps, and on April 25, the Committee of Imperial Defence approved a final plan of organization. The R. F. C. was actually born on May 13, a single service with separate Naval and Military Wings. The Naval

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9. Walter Raleigh and H. A. Jones, War in the Air (6 vols. and appendices; Oxford: The Clarendon Press, 1922-37), I, 190.

Wing was to be serviced and administered by the Admiralty, the Military Wing by the War Office. The Flying School was jointly supported by both organizations.[10]

The strange new stepchild of the proud and distinguished British military services slipped into the world almost unnoticed. To the tradition-minded officers of the British Army and Royal Navy, who were aware of its coming, it was "just another craze for the shortsighted crank."[11] The opposition of some military leaders to the extension of warfare into a new dimension "amounted almost to mania."[12] The Chief of the Imperial General Staff, General Sir William Nicholson, considered aviation a useless and expensive fad, while another senior Army officer stated that modern war was already sufficiently complicated without the addition of the airplane.[13] The Army had no monopoly upon shortsightedness. Proposals to use airplanes for reconnaissance work for the fleet were rejected by the Sea Lords at the Admiralty with little or no consideration.[14]

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10. Frankland, p. 4.
11. Andrew Boyle, Trenchard (London: Collins, 1962), p. 99.
12. F. H. Sykes, From Many Angles (London: George C. Harrap & Company Ltd., 1942), p. 91
13. Ibid. See also Percy R. C. Groves, Behind the Smoke Screen (London: Faber and Faber Ltd., 1934), pp. 109-10.
14. Murray F. Sueter, Airmen or Noahs: Fair Play for Our Airmen (London: Sir Isaac Pitman & Sons Ltd., 1928), p. xxvi.

Despite the lack of enthusiasm on the part of the traditional military services, a War Office Committee under the leadership of Brigadier General David Henderson took control of the nucleus which had grown up under the Royal Engineers and began making plans to complete the Royal Flying Corps. By June, 1913, a Military Aeronautics Directorate was formed in the War Office with the Director General reporting to the Secretary of State for War. The R. F. C. organization now included, in addition to the Military and Naval Wings and the Central Flying School, the Royal Aircraft Factory at Farnborough, and an Aeronautical Inspection Department.[15]

With operational control remaining the responsibility of the traditional services, the need for a coordinating organization was apparent. This organization was the Air Committee. The Committee was formed in July, 1912, with Colonel Seeley, by this time the Secretary of State for War, as its chairman. The vice-chairman was Sir John Jellicoe, a Vice-Admiral and the Second Sea Lord. The other members were Brigadier General David Henderson, the Director of Military Training at the War Office; Captain Murray F. Sueter of the

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15. Raleigh and Jones, I, 415-16.

Royal Navy; Captain G. A. Gallard, the Director of the Operations Division, War Staff, Admiralty; Captain G. M. Paine, the Commandant of the Central Flying School; Commander C. R. Samson, Officer Commanding the Naval Wing, Royal Flying Corps; Major F. H. Sykes, Officer Commanding the Military Wing, Royal Flying Corps; Mervyn O'Gorman, the Superintendent of the Royal Aircraft Factory; N. E. Behrens, representing the Treasury; and Captain M. P. A. Hankey, member of the Committee of Imperial Defence, who acted as Secretary.[16]

The Committee's primary function was consultative, and it had great value as a meeting place for the leaders of British military aviation. Major problems common to all elements of the Royal Flying Corps could be dealt with by this body. However, it had no executive powers, and while it could advise, all decisions were still made at the Admiralty or the War Office.[17]

Plans for the Military Wing called for an organization of seven airplane squadrons, each to be equipped with twelve aircraft. There was also to be a kite and airship squadron and a communications element. The airship squadron was

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16. Gamble, I, 183, n. 1.
17. Raleigh and Jones, I, 212.

formed first, at Farnborough. Next came an airplane squadron, also formed at Farnborough, followed by other airplane squadrons at Salisbury Plain and at Netheravon.

Major operational emphasis in the Military Wing was on reconnaissance. Only the most visionary airmen could anticipate other, greater, and far more significant roles for the airplane in war. With a European war rapidly approaching, the Army saw its infant air arm as an extension of the traditional eyes and ears of the Cavalry. The immediate success of airplane reconnaissance during Army maneuvers soon proved it was far more than an extension of the Cavalry. It was its logical, and much more capable, successor.[18]

Despite these initial successes, however, appropriations for the Royal Flying Corps in 1912 and 1913 amounted to "barely half a million pounds sterling."[19] The size of this

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18. Chamier, p. 9. The most notable successes of aircraft in the reconnaissance role came during Army maneuvers in East Anglia in 1912, and during the "Concentration Camp" maneuvers at Netheravon in 1914. At East Anglia, twenty-four airplanes and one airship flew a total of 7,855 miles scouting for the Army. The Director of Military Operations at the War Office recognized the contribution of the airplane when he said: "There can no longer be any doubt as to the value of airships and aeroplanes in locating an enemy on land and obtaining information which could otherwise only be obtained by force." Cited in "Fifty Years of Military Aviation, 1912-1962," a Chronology published by the Air Ministry. (London: 1962), p. 2.

19. Boyle, p. 108.

sum meant that Henderson could spend no money for research and development and very little for aircraft procurement. As a result, private manufacturing slumped and, in the spring of 1913 with the war ever closer, the Military Wing could barely equip one squadron on a combat footing.[20] C. G. Grey, editor of The Aeroplane magazine was forced to admit in his end-of-the-year review that "as a whole, Great Britain is a bad third to France and Germany . . . " in military aviation.[21]

The Naval Wing's operational mission was much less well defined. The new addition to Britain's traditional first line of defense began life with only twelve aircraft. No more were to be purchased until research could prove aircraft useful as an adjunct to the fleet. This research program quickly led to flights from the sea on float-equipped aircraft, and, shortly after, to the first flights from the deck of a moving ship. These were made from the battleship Hibernia, steaming at ten-and-a-half knots. A Short biplane, equipped with a seventy horsepower Gnome engine, took off from a platform built over the ship's forecastle. The plane

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20. Ibid.
21. The Aeroplane, January 1, 1914, p. 3.

was piloted by Commander C. R. Samson.[22] A Naval aviator also carried out the first experiment in simulated bombing. Lieutenant Robert Gregory released a 300-pound weight from his aircraft and found, to his great relief, that it did not change the basic stability of the craft.[23] The Naval Wing also began to reinvestigate the use of airships, and carried out the first attempts to communicate between the ground and an airborne aircraft by means of wireless telegraphy.[24]

During 1912, the Air Committee decided to build five stations along the east coast of Scotland and England to be operated by the Naval Wing. These stations were for airships and airplanes working with the Fleet at sea.

Late in 1912, activities of the Naval Wing were withdrawn from the supervision of the Director of Naval Ordinance, and an "Air Department" was formed by the Board of Admiralty. Captain Murray Sueter, a pioneer aviator, was made its director. A weakness which was to have far-reaching results

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22. In December, 1911, Samson, then a Lieutenant, became the first man to fly from a ship when he took off in a Short biplane from a platform built on the deck of the Africa. The ship was anchored in Sheerness Harbor at the time. See Gamble, pp. 159-60.

23. Ibid., pp. 180-81.

24. Ibid., p. 183. Airship development in the Navy had been halted in 1911 following the disaster of the Mayfly, a poorly built, rigid airship which was destroyed before her first flight.

was built into the organization at this time when Sueter was made responsible to all the various Sea Lords for different parts of his job. He was required, for example, to report to the First Sea Lord on matters of employment and tactics, to the Second Sea Lord on personnel and training problems, and to the Third Sea Lord on questions of supply and materiel. It was soon apparent that he was required to serve too many masters.[25]

Research and experiments by the Naval airmen continued, but acceptance of the use of aircraft by the senior officers of the fleet was virtually non-existent. The Admiralty staff thought the airplane had possible future importance, but little present value for war. Winston Churchill, the First Sea Lord, foresaw development of aircraft which could play a defensive role, could scout at sea, and could repel enemy airships. But the Naval leaders who stood to gain the most from the new weapon, the sea force commanders, almost to a man refused to recognize its existence.[26]

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25. Ibid., pp. 201-202.

26. Criticism of the Admiralty and its shortsighted air policy was not confined to the years before the war, but continued throughout the period under study. Writing in The Aeroplane on March 13, 1918, C. G. Grey commented: "Everyone fully recognizes the magnificent work done by units of the Royal Naval Air Service, especially when they have formed practically independent commands under young and energetic

As the two wings of the Royal Flying Corps began to cautiously advance their military usefulness by small steps at the cost of experiment and investigation, they began to diverge in purpose and direction. The first major dividing point was the Royal Aircraft Factory. This organization, a part of the R. F. C., was charged primarily with performing experimental work, the testing of aircraft and engines, and general research into the realm of flight.[27] However, due largely to the aggressive leadership of its superintendent, Mervyn O'Gorman, the factory soon began manufacturing aircraft. When one of these, the B. E. 2, proved superior to all others for military purposes during the Military Aeroplane Trials, the factory and O'Gorman quickly earned the enmity of the private aircraft builders. The Military Wing, equipping its squadrons with the B. E. 2, turned more and more to the Royal Aircraft Factory for its aircraft. The Naval Wing, pursuing a wide range of experimental programs, relied almost entirely upon private aircraft manufacturers. This apparent dichotomy was to prove later to be the greatest

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officers, but wherever the influence of the Admiralty has been felt in the past in connection with aviation the effect has been truly lamentable."

27. The charter of the Royal Aircraft Factory was stated in the Royal Warrant of April 13, 1912.

of blessings. But it was the beginning of a lengthy and torrid debate which was carried on for years.[28]

Only at the Central Flying School on Salisbury Plain where Navy Captain G. M. Paine commanded, assisted by Major Hugh M. Trenchard, was there unity of purpose in the two different groups which made up the R. F. C. Paine, an early airman who had been released by the Navy to run the school, drafted Trenchard from the student body to be his assistant. Trenchard, a forty-year-old Major, had battled official Army disapproval of his age as well as his own poor health to learn to fly. In drafting him, Paine pointed out that there were three times as many Army as Navy students in the school, and an Army Adjutant was urgently needed. Trenchard attacked the job with a characteristic firmness of purpose, adapting the best procedures from the regulations of both services.[29] Paine and Trenchard worked smoothly together,

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28. Virtually every issue the author examined of The Aeroplane magazine covering the years 1914 through 1918 contained an attack on the Royal Aircraft Factory. These ranged from innuendoes and sly comments to all-out attacks and accusations of criminal neglect in connection with aircraft accidents. The Aeroplane was the principal trade publication of the time; hence, the attacks must be judged carefully. As the issues of C. G. Grey's magazine became progressively fatter, primarily with the advertisements of aircraft manufacturers, his attacks on the Royal Aircraft Factory became more scathing.

29. Boyle, pp. 96-100.

and the school functioned well and produced aviators for both Wings of the Royal Flying Corps.[30]

A problem of divided command was inherent in the original organization of the Royal Flying Corps, and there was no force in the early days to hold it together. The most important question was whether control of the air service should be invested in the Air Committee or should remain with the War Office and the Admiralty. As we have seen, the Air Committee had advisory powers only. The Admiralty, holding operational control, was quick to establish full jurisdiction over the Naval Wing. The Haldane Committee's recommendation, approved by the Cabinet, was that the "British Aeronautical Service /should/ . . . be regarded as one and . . . designated 'The Flying Corps'." But the Admiralty did not support this decision.[31]

After a few references in official documents to the "Royal Flying Corps, Naval Wing," the title was quickly dropped from use, and the Admiralty began using the title "The Royal Naval Air Service."[32] Continued independent

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30. The Navy, however, never ceased training pilots at its independent school at Eastchurch. See W. E. deB. Whittaker, "The Royal Flying Corps in 1913," The Aeroplane, January 1, 1914, p. 13.

31. Chamier, p. 8. See also Gamble, I, 266.

32. Raleigh and Jones, I, 206.

action on the part of the Admiralty led, in July, 1914, to official recognition of the Royal Naval Air Service as an independent organization, with a constitution of its own and complete jurisdiction over the separate Naval flying school at Eastchurch and the air stations on the coast. A decision made by a government committee, approved by the Cabinet and confirmed by a Royal Warrant, had been reversed by the unilateral action of a powerful and independent Government department. As a result, the fledgling air service approached the summer of the European war split into two sickly and divided forces. "Such was the political power of the Admiralty."[33]

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33. Gamble, I, 266.

CHAPTER II

AIR BATTLES AND AIR BOARDS

The Royal Flying Corps and the Royal Naval Air Service entered the First World War on eager wings, but with untried and ill-equipped forces. The ambitious plans made in 1912 for a Flying Corps of eight squadrons equipped with 300 airplanes and manned by 300 pilots had foundered on the rocks of government economy. Instead of eight full-strength squadrons, there were four squadrons, all still being organized. Less than 100 serviceable aircraft were available, and considerably fewer than 100 trained and qualified pilots could be called upon.[1] The Royal Aircraft Factory was producing about two airplanes per month, and the production of private builders was even more limited. These aircraft were hand-constructed by skilled workmen. No satisfactory aircraft engine had ever been produced in Britain.

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1. Norman MacMillan, Sir Sefton Brancker (London: William Heinemann Ltd., 1935), p. 54. L. G. S. Payne in his excellent compilation, Air Dates (New York: Frederick A. Praeger, Inc., 1957), p. 20, says that immediately before the war Britain had 179 aircraft, France had about 1,500, and Germany had 1,000. These are total airplanes, not necessarily military aircraft.

Nowhere in the country was there the type of manufacturing experience required to build and supply a combat air force.[2]

As soon as the war began, General Henderson left his post in the Military Aeronautics Directorate of the War Office and took command of the R. F. C. in the field. Major Sykes, who had commanded the Military Wing, became Henderson's Chief of Staff, and Major Sefton Brancker was appointed Henderson's deputy to take charge at home in the Military Aeronautics Directorate. Sykes was replaced in the Military Wing by Major Hugh Trenchard who had been second in command at the Central Flying School.

Henderson stripped the flying school of aircraft and pilots and gathered every other airworthy airplane he could find. His efforts brought together a force of sixty-three aircraft which flew the channel to France for duty with the Army Expeditionary Force.[3]

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2. MacMillan, Brancker, p. 55.

3. F. H. Sykes, Aviation in Peace and War (London: Edward Arnold & Co., 1922), p. 45. Sykes says the home force was so completely stripped because "we considered it essential to dispatch at once to France every available machine and pilot, because both political and military authorities were of the opinion that for economic and financial reasons a war with a great European power could not last more than a few months."

Trenchard and Brancker, left behind, were faced with the immediate and very serious problem of finding aircraft and instructors to train new pilots. In addition, replacement aircraft and pilots were needed to join the units in France. The two men made a valiant assault on their supply problems, using unorthodox methods, commandeering what they needed, and continually prodding the Royal Aircraft Factory. They began to slowly piece together a training force.

Brancker almost immediately found that he was having trouble obtaining needed raw materials for the Royal Aircraft Factory. The Royal Naval Air Service, using the vast purchasing power of the Admiralty, was rapidly buying up the available supply of many scarce materials for private manufacturers. Private builders were turning out some good new equipment, but the Government factory was still the primary supplier for the R. F. C.[4] The War Office, falling continually behind in its own ambitious supply program for the ground forces, had little concern for the needs of the young flying corps, and Brancker was left to battle for the needed materials on his own.

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4. Andrew Boyle, Trenchard (London: Collins, 1962), p. 137. See also Walter Raleigh and H. A. Jones, War in the Air (6 vols. and appendices; Oxford: The Clarendon Press, 1922-37) I, 169.

Meanwhile, in France, Henderson's young force drew its first blood on August 25. Three unarmed aircraft of the Number 2 Squadron, spotting an opposing German scout, downed the enemy airplane by flying round and round above it until the pilot was forced to land.[5]

All activity of the Royal Flying Corps in France was linked directly to the fluctuating fortunes of the ground forces. The Squadrons of the Military Wing were organized to support the Army, and they immediately began reconnaissance missions over the rapidly shifting battlefront.[6] As the British Army retreated before the hard-driving German attack, the Squadrons of the R. F. C. retreated also. Pilots took off to fly over the nearby front and returned to find their operating base being moved rapidly back to a new location.

The broad operational potential of the new weapon was quickly exploited. By September, the pilots of the R. F. C. were using wireless telegraphy communications to direct artillery batteries at the battle of the Aisne. Observers

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5. Payne, p. 20.

6. The first reconnaissance mission of the war was flown from Maubeuge on August 19. Taking part were Captain P. Joubert de la Ferte of the No. 3 Squadron in a Bleriot, and Lieutenant G. W. Mapplebeck of the No. 4 Squadron in a B. E. 2. See "Fifty Years of Military Aviation, 1912-1962," A Chronology published by the Air Ministry. (London: 1962), p. 3.

began taking photographs of battle lines and enemy fortifications, the beginnings of aerial photography. Also in September, the first Maurice Farman two-seat pusher biplane equipped with a machine gun arrived in France. Its appearance heralded the end of the early cavalier air battles in which passing pilots fired at each other with their service pistols.[7]

By the end of November, it was apparent that the R. F. C. would have to expand to match the growth of the Army ground force. On November 29, the original Military Wing was disbanded and new Wings were formed in France to be attached to each Army Corps. The Farnborough Squadrons, the Depot, the Aircraft Park, and the Record Office at home were grouped together as the Administrative Wing.[8]

The untried new force had come through its first tests with great courage and had begun to forge the tactics with which to fight this strange type of war. The Army was beginning to accept the value of the airplane for artillery spotting and for reconnaissance. The reorganization tied the air weapon ever closer to the Army and the ground mission. But thoughtful men were beginning to question if the new weapon was being well and wisely used.

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7. Ibid.

8. Ibid.

As the second year of the war began, the pilots of the R. F. C. continued to experiment and develop new tactics. In January, the first Experimental Photographic Section was formed under Lieutenant J. T. C. Moore-Brabazon. By March, this new technology had advanced so quickly that the assault on Neuve Chapelle was based entirely on maps prepared from photographic reconnaissance.[9]

On March 10, the first interdiction air bombing took place when R. F. C. aircraft attacked the railways at Courtrai, Menin, Lille, Douai, and Don with twenty-five and one-hundred pound bombs. The objective of the attacks was to delay the advance of enemy reinforcements.[10]

Supply problems, particularly shortages of shells and ammunition, began in early 1915 to plague all the British military forces. The R. F. C., attempting to organize new squadrons as rapidly as possible and to simultaneously replace the combat losses which were growing larger daily, was having great difficulty.[11] In August, 1915, Lieutenant Colonel

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9. Moore-Brabazon, in his light-hearted autobiography The Brabazon Story (London: William Heinemann Ltd., 1956), p. 63, claims he was given the responsibility because he was the only knowledgeable amateur photographer in his squadron.

10. "Fifty Years of Military Aviation," p. 3. Interdiction here is used to describe any attack designed to halt the movement of supplies or reinforcements to the front lines.

11. Air Commodore J. A. Chamier, remembering these days during World War II in The Birth of the Royal Air Force

Robert Brooke-Popham, who had replaced Sykes as Chief of Staff in France, wrote a memorandum which surveyed the entire problem. He pointed out that while the Army Expeditionary Force had grown from four divisions to thirty during the first year of the war, the R. F. C. had increased only from four squadrons to eleven. And this, he said, was despite the air weapon's ever-expanding role. He wrote:

> 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 of success.[12]

Something, obviously, had to be done. On August 19, Henderson, the R. F. C.'s most senior officer, selected Trenchard as his successor and returned to the War Office to do battle over the problems of men and material for the expanding air service.

Trenchard's concept of air warfare was to maintain a constant offensive at all costs. He believed that only by

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(London: Sir Isaac Pitman & Sons, Ltd., 1943), p. 63, says: "The early stages of the war were fought mainly on French machines and entirely on French engines and German magnetos; and the R. N. A. S. entered into direct competition with the R. F. C. for these French supplies. Not only did friction arise, but the French themselves were hard put to it to supply their own requirements. For example, of 150 LeRhone engines ordered for the last quarter of 1915, only ten were delivered."

12. Raleigh and Jones, II, 143.

continually attacking the opposing forces, maintaining constant patrols, and by operating to the greatest extent possible behind the enemy lines could the airplane be an effective weapon. He immediately began to instill this belief in his commanders and in the pilots of the R. F. C. It was the root of his statement on future air policy, issued from his Advanced Headquarters in France on September 22, 1916. In it he said:

> The sound policy . . . 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.[13]

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13. The entire statement is published as Appendix IX of Raleigh and Jones, II, 472-74. Trenchard's constant offensive doctrine has been severely criticized by his contemporaries, writing after the war. Sykes says, in From Many Angles (London: George G. Harrap & Company Ltd., 1942), p. 220, that "Trenchard had been an exponent of the battering-ram tactics beloved by G. H. Q. and kept up a continuous offensive. Spectacular dog fights over the German lines achieved little strategic effect and resulted in grave losses." Sholto Douglas, who served as a Squadron Commander in France under Trenchard and later became a senior R. A. F. Commander, says in Years of Combat (London: Collins, 1963), pp. 179-80, that "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. . . . I have always felt that we would have been much better off if we had had fewer squadrons manned by pilots who were better trained and who had greater experience; and quite a few of us who served on the western front and who were later to become senior commanders of the Royal Air Force felt the same way about Trenchard's policy

Trenchard's doctrine of the constant offensive placed new and unprecedented demands upon the young flying service. Coming, as it did, with the introduction of a new German fighter--the Fokker--it brought the R. F. C. to its darkest hour of the war. To provide the offensive force needed to keep up continuous pressure on the Germans, Trenchard demanded more and more squadrons. These demands could only be met by shortening the training period in England for pilots, and by increasing pressure upon the Royal Aircraft Factory to produce more aircraft. These were the conditions when the Germans introduced the Fokker to the air battle over the trenches. The superiority of this German single-seat fighter was felt immediately. It was based on a striking technological

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of driving so hard and almost regardless of cost." Chamier, p. 199, says: "The doctrine of the offensive, associated forever with the name of Trenchard, was the correct one from the point of view of morale as well as of material results, but an active offensive in the air at all times and places regardless of need or object was a stupidity for which we paid dearly in lives." General Percy R. C. Groves in Behind the Smoke Screen (London: Faber and Faber, Limited, 1934), p. 124, calls the sending of inadequately trained pilots to the front "the most pitiful of all the hidden scandals of the war." Groves maintains that Trenchard's offensive policy led to the sacrifice of untrained pilots, and the excessive losses of men and aircraft for no significant purpose. He says that because of the R. F. C.'s loss rate of three-to-one as opposed to the Germans, the shortage of aircraft was aggravated and the day when they could be used for a strategic offensive was further delayed.

development--the ability to fire a machine gun straight forward, through the propellor. The unhappy combination of the superior new German fighter and of Trenchard's hurriedly trained pilots brought soaring casualty rates to the R. F. C.

This situation continued until May, 1916, when the first group of Sopwith one-and-one-half Strutter two-seat fighters was sent to France. This high-performance aircraft was built for the Naval Wing under its policy of encouraging development by private contractors. It could fire forward through the propellor and also from a Lewis gun mounted in the rear seat. With its appearance, the balance was slowly re-established.[14]

Trenchard further decentralized the organization of the R. F. C. in January, 1916, when each Army in France was allotted two Wings, organized as an Air Brigade. One wing was to carry out routine Army Corps work and the other to

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14. The story of the Fokker ascendancy is, of course, too large to be more than touched upon in this paper. Interestingly, Admiral Mark Kerr in his Land, Sea and Air (London: Longmans, Green and Co., Ltd., 1927), pp. 180-81, gives much credit to the individual efforts of the great war ace, Albert Ball, in countering the morale effects of the Fokker. He says: "Ball, in his old machine, with his wonderful genius for flying and straight shooting, proceeded to change the atmosphere of doubt and fear. . . . He took on the Fokker singly or in numbers, and shot them down without fear or favour. . . . Our morale was restored and we held our position in the air until the advent of our new machines."

conduct the fighting, bombing, and distant reconnaissance.[15] The result was to link the air weapon ever closer to the ground war.

The "Fokker scourge" left deep marks on the R. F. C. The losses in men and aircraft brought increased pressure on the supply and training establishments at home. The growing casualty lists led to questions in the House of Commons and to criticism by the press. The British people wanted to know why a badly battered R. F. C. was being mauled by a seemingly superior enemy.[16] An investigation was demanded, and early in 1916 a Committee of Inquiry, the Bailhache Committee, was appointed to look into the government's air policies. The Sea Lords at the Admiralty chose not to testify. As a result the investigation concentrated on the Royal Flying Corps, ignoring the Royal Naval Air Service which had followed a far different course through the first two years of the war.

When the war began in 1914, the Naval Wing of the original Royal Flying Corps had split away and had become the Royal Naval Air Service. The first wartime move of the

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15. "Fifty Years of Military Aviation," p. 4.

16. John R. Cuneo, The Air Weapons, 1914-1916, Vol. II of Winged Mars (Harrisburg: Military Service Publishing Co., 1947), p. 285.

R. N. A. S. was to concentrate forces in the area of the Humber and the Thames and from Immingham to Clacton in anticipation of German airship attacks from Belgium. A coastal patrol was initiated on August 8 for the whole of the east coast.[17]

The key to the early participation of the Royal Naval Air Service in the war lies in the personality of Winston Churchill. Churchill, while serving as First Lord at the Admiralty, assumed great control over the activities of the Naval Air Service and developed it along his own unorthodox but ambitious lines.[18]

Churchill foresaw the demands which would be made upon the R. F. C. in a European land war and anticipated that the role of defending England from air attack would fall to the Navy by default. When Henderson took every available aircraft and pilot to France in 1914, Churchill's Naval airmen immediately prepared to defend the home island. This step was formally recognized at a Cabinet meeting on September 3, when Lord Kitchener asked Churchill and the Admiralty to assume responsibility for the air defense of Britain.[19]

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17. Raleigh and Jones, I, 360.

18. David Lloyd George, War Memoirs of David Lloyd George (6 vols; Boston: Little Brown and Company, 1933-37), IV, 105.

19. Winston S. Churchill, The World Crisis 1911-1918 (4 vols; London: Odhams Press Limited, 1932), I, 265.

The main German air threat to England came from the fleet of Zeppelins which had been developed before the war. Churchill was certain the Germans would attempt to operate these airships from bases near the Belgian coast and, from there, would attack England. The best defense against these attacks, he believed, was to deny the Belgian bases to Germany and, this failing, to be prepared to attack the airships on the ground in Belgium. He ordered Royal Naval Air Service aircraft to operate from Dunkirk and Calais to carry out this mission. To protect the Dunkirk air squadrons and any forward air fields which might be established, Churchill ordered the formation of patrols of armored motor cars. These were to operate within 100 miles of Dunkirk. Since the motor car patrols were formed to protect the air squadrons, Captain Murray Sueter, the veteran Naval airman, was placed in command. Soon the Royal Naval Air Service was operating eight squadrons of armored Rolls Royce automobiles across the French and Belgian countryside, fighting probably the last engagements of movement in a war which was quickly becoming stagnated in the trenches. By the end of October, the trenches of both armies extended to the sea. The armored cars could not maneuver in the battlefield, and the

immediate mission of the R. N. A. S. Armored Car Squadrons came to an end.[20]

The research and experiments which had characterized the activities of the R. N. A. S. before the war continued after hostilities began. In 1914, a torpedo-carrying seaplane was demonstrated for Churchill, and in 1915 three torpedoes were fired from airplanes against enemy ships in the Dardanelles and three hits were scored.[21] But full development and procurement of this weapon was blocked by the Sea Lords until much later in the war.[22]

In 1915, with the fall of the Asquith Ministry, Churchill left the Admiralty. The development of the Air Department, under Captain Sueter, had been accomplished

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20. Ibid., I, 267-73. The armored car battles of the R. N. A. S. squadrons are certainly one of the most fascinating episodes of the entire war. More fascinating still is the development from the armored cars of one of the major new weapons of the war, the tank. The early research on this vehicle was a direct result of the experience of the armored car crews in finding that they could be halted when the German cavalry dug trenches across the roads. Churchill determined that if they could not go around the enemy defenses, they must be able to go over them. Development of the tank was the result. He says, on p. 271, "The air was the first cause that took us to Dunkirk. The armoured car was the child of the air; and the Tank its grandchild."

21. Murray F. Sueter, Airmen or Noahs: Fair Play for Our Airmen (London, Sir Isaac Pitman & Sons Ltd., 1928), p. 56.

22. Ibid.

largely with Churchill's blessing and through his encouragement. His methods were unorthodox, but successful. When Arthur Balfour succeeded Churchill, he immediately changed the organization of the air service, replacing the various functions of supply and operations under the corresponding departments of the Admiralty.[23] Design and procurement of aircraft was split among the several departments and placed under the supervision of men who had little or no knowledge of aircraft or flight.[24] As a result, many important developments in air warfare were delayed. These included the air-launched torpedo, the aircraft carrier, reconnaissance, wireless communications, and the construction of the Handley Page bomber.[25]

In the new atmosphere at the Admiralty, the naval air defense effort gradually withered away. The Sea Lords had never favored Churchill's air-mindedness. They saw the entire air effort as "unrelated to the classic traditions of naval warfare."[26]

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23. Regulations for the reorganization of the Royal Naval Air Service were approved by the Board of the Admiralty in July, 1915. They stated in part: "The Royal Naval Air Service is to be regarded in all respects as an integral part of the Royal Navy, and in future the various air stations will be under the general orders of the Commander-in-chief or Senior Naval Officers in whose district they are situated." Cited in Raleigh and Jones, I, 485.

24. Ibid., II, 353-54. 25. Sueter, pp. 228-30.

26. Boyle, p. 122.

As the war continued, the most significant early program of the R. N. A. S.--a plan to bomb Germany--was thwarted when the R. F. C., facing chronic shortages of equipment and battered by the Fokker scourge, was unable to meet its minimum commitment of squadrons for the battle of the Somme. Trenchard, in desperation, requested and received eighty of the Naval Service's Sopwith aircraft. This was the force which had been built for the raids against Germany. The R. N. A. S.'s ambitious plans had to be cancelled. But, for the Royal Flying Corps, the Naval Wing's policy of encouraging private aircraft manufacturers had saved the day.[27]

Despite its timeliness, this temporary diversion of Naval aircraft to the use of the Royal Flying Corps was not the ultimate answer to the supply problems which continued to plague Trenchard. These shortages were rooted, at least in part, in the continuing competition between the War Office and the Admiralty for all available resources. Henderson and Brancker at the War Office were finding it more and more difficult to keep the Royal Aircraft Factory supplied with essential raw materials for aircraft production. The two services were competing also for aircraft engines which were

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27. Raleigh and Jones, II, 452.

available in the early stages of the war only from France. There was no pooling of technical developments, inventions, or experiments. Lloyd George, in his post-war memoirs, charged that "the net result . . . was overlapping, inefficiency, and a seriously swelling casualty list."[28]

In an attempt to remedy the situation, the Government, in early 1916, created the Joint War Air Committee under the chairmanship of Lord Derby and with members from the War Office and the Admiralty. This organization was given the task of coordinating questions of design and supply for both air services and, by doing so, to draw the two closer together. However, the Committee was given no executive authority and, after a few months of ineffective wrangling, was disbanded. In resigning, Lord Derby said that the amalgamation of the two services was the only ultimate solution to the problem. However, he added, the creation of a single air service was probably too difficult a measure to attempt during the war.[29]

Public criticism of the administration of the air services continued. The Bailhache Committee began hearings

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28. Lloyd George, IV, 106.
29. Raleigh and Jones, VI, 4.

in May.[30] After taking evidence for several weeks, the group issued a report in August which cleared the air leaders of any dereliction, but was extremely critical of the military supply system. The Board's report said:

> We see no reason against having one Equipment Department charged with the equipment of both the Army and Navy flying services. There would no doubt be inter-service jealousy to contend with, but that should not be allowed to stop a much-needed reform.[31]

There were other critical reports. Lord Montagu, writing in a periodical, attacked the Royal Aircraft Factory, saying its output had been "negligible," and charging that it had a "discouraging influence on the development of aircraft."[32] He continued his criticism, claiming in a speech that the time had arrived when the air service should be capable of independent action and that the two air services should be placed under one united control as "an Imperial Air Service".[33]

Lord Milner, soon to become a member of the War Cabinet, confined his criticism to his notebooks, where he wrote that "the chief difficulty seems to be that there is no unified direction or well thought-out air policy."[34]

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30. The Times (London), May 11, 1916, p. 5.
31. Cited in Boyle, p. 194.
32. Lord Montagu of Beaulieu, "Aviation Present and Future," Edinburgh Review, CCXXIV, No. 475 (July 1916), 144.
33. The Times (London), May 10, 1916, p. 5.
34. John Evelyn Wrench, Alfred Lord Milner, 1854-1925 (London: Eyre and Spottiswoode, 1958), p. 308.

On May 11, Lord Derby's Joint War Air Committee was succeeded by the first Air Board with Lord Curzon as its president. This body was given somewhat broader powers to coordinate the production and supply efforts of the two air services, but still had no executive authority. The Board was directed to arrange for the free exchange of technical information and to eliminate competition between the two departments. However, all disputes which arose between the Admiralty and the War Office had to be referred to the War Committee.[35]

In July, the Somme offensive began, and Trenchard increased his pleas for equipment to carry on the air battle in France. In August, with the Air Board making every effort to fill Trenchard's requests, Curzon discovered that the Admiralty planned to spend three million pounds sterling on an independent program of air expansion. His bitter protests to Balfour brought only the rejoinder that the Admiralty had no intention of surrendering its planning authority to the Air Board.[36]

As a result of this incident, the Air Board issued a report criticizing the Admiralty and condemning its lack

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35. "Fifty Years of Military Aviation," pp. 4-5.
36. Boyle, p. 193.

of cooperation. The report, dated October 23, 1916, said in part:

> No expansion of the work of the Air Board, no complete fulfillment of the charge with which it was entrusted, and no adequate provision for the urgent necessities of the future, are . . . possible, so long as the Admiralty adopts its present attitude towards the Air Board, and so long as the administration of the branch of the air service which is in the hands of the Admiralty is conducted on the present lines.[37]

Publication of this report led to the exchange of a series of acrimonious letters between Curzon and Balfour. Finally, the War Committee, meeting on November 27 and 28, agreed to make major changes in the powers of the Air Board. These were in the draft stage when the Asquith Government fell, but they received formal approval by the new ministers of the Lloyd George coalition on December 22, 1916. The changes provided that the Ministry of Munitions should be responsible for design and supply of aircraft, and that the Air Board should allocate all available material resources between the Admiralty and the War Office. Along with the broadened authority, the Air Board got a new leader when Lord Cowdray succeeded Curzon as president. The New Ministries and Secretaries Act, 1916, which brought the second Air

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37. "First Report of the Air Board," as cited in Lloyd George, IV, 108.

Board into being, provided that: "For the purpose of this Act the President of the Air Board shall be deemed to be a Minister appointed under this Act, and the Air Board a Ministry established under this Act."[38] The first faltering step toward the creation of a new air service had been taken.

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38. Cited in "Fifty Years of Military Aviation," p. 5. See also Hilary St. George Saunders, Per Ardua (London: Oxford University Press, 1945), pp. 218-19.

CHAPTER III

AIR RAIDS AND REPERCUSSIONS

On January 7, 1915, Admiral von Pohl, Chief of the German Naval Staff, sent a memorandum to the Kaiser urging that Germany's fleet of airships be used to attack and bomb England. London, he maintained, was a defended area with large military establishments. Air raids on the city would be permissible under the Geneva Convention and would be militarily sound. Of course, he said, the German airship commanders would make every effort to avoid historical buildings or private property. After considering the proposal for two days, the Kaiser approved the bombing of England, but specified that the attacks be confined to munitions factories, arsenals, shipyards, and military establishments. London, he decreed, was not to be bombed.[1]

On January 19, a pair of German Zeppelins crossed high over the east coast of England and dropped the first

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1. John R. Cuneo, The Air Weapon, 1914-16, Vol. II of Winged Mars (Harrisburg: Military Service Publishing Co., 1947), p. 354.

bombs on Yarmouth and King's Lynn, Norfolk. London was not spared for long. On May 31, a German airship, armed this time with William II's reluctant approval, passed over the British capital at a great height and dropped its load of bombs on the northeast sector of the city.[2]

In this way began one of the most controversial aspects of the war in the air. For over a year, the giant Zeppelins crossed over the English countryside with virtual immunity, riding well above the feeble efforts of the opposing British fighters to reach them. Actual military damage caused by the airships was negligible, but the people were aroused. The raids brought constantly increasing pressure on the government and on the military services.

As we have seen, immediately after the war began, Churchill accepted responsibility for the air defense of the island kingdom as part of the mission of the Royal Naval Air Service. His unorthodox, but direct, method of attacking this problem was to seek out the German airships on the

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2. Kenneth Poolman, Zeppelins Against London (New York: The John Day Co., 1961), pp. 35-36. This was the LZ38, commanded by Hauptman Linnarz. The Times for June 1, 1915, p. 8, noted only that a German airship had been "near" London and that a large number of fires had been set, and then printed the text of a government statement prohibiting any publication of news of the raid.

ground in Belgium and to attempt to destroy them there.[3] This tactic met with some early successes, but it made no provision for attacking the high-flying airships which did find their way over England. The problem was simple enough. The Zeppelins, awkward and hard to handle on the ground, when airborne operated at altitudes which the fighters could not reach. Coupled with this deficiency in aircraft performance was a serious shortage of anti-aircraft artillery pieces and a shortage of the large search lights essential to spot the raiders during a night attack.[4] It made little difference which service had the responsibility for air defense of the home island. Until suitable equipment could be made available, little could be done.

From the first, the immunity with which the giant airships traversed England's skies brought harsh criticism of the Royal Flying Corps. As the criticism mounted in volume, Lord Kitchener, the Secretary of State for War, moved to head it off. He directed the R. F. C. to work out a method of attacking the German airships despite General

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3. Lord Hankey, The Supreme Command, 1914-1918 (2 vols; London: George Allen and Unwin, Ltd., 1961), I, 239.

4. Ibid., I, 240.

Henderson's protests that air defense was the Navy's responsibility.[5]

With the heavy demands of the Expeditionary Force and the needs of the training school already taking every available machine, Colonel Sefton Brancker now had to locate aircraft for the defense mission. By diverting men and machines from other tasks, an initial token effort was established with aircraft at Joyce Green and Brooklands. Later, a reserve squadron was established at South Farnborough.[6]

In mid 1915, when Balfour succeeded Churchill at the Admiralty, one of his first acts was to request that the War Office assume responsibility for air defense of the home island. The War Office, no better equipped than the Navy to carry out this mission, agreed to Balfour's proposal, but the actual transfer was not concluded until early 1916.[7]

The military value of these first Zeppelin raids was questionable. However, the effect on the morale of the

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5. In a description of one of the earliest raids, General Headquarters, Home Forces, lists, under the title "Action of Airplanes," six sorties flown by R. N. A. S. aircraft, and adds significantly: "Royal Flying Corps. No action." Cited in Poolman, p. 65.

6. Ibid., pp. 73-75.

7. Boyle, Trenchard's biographer, blames the delay for the transfer of responsibility on "the prevailing spirit of indecisiveness in Whitehall." See Andrew Boyle, Trenchard (London: Collins, 1962), p. 159.

British people and, through them, the effect on the Government, was significant. Londoners, particularly, were hard hit by the savage shock of the bombings. As the raids increased in tempo in the fall of 1915, the intensity of public feeling grew. Sir John Slessor, the first man to attack a Zeppelin in the air, and later a Marshal of the Royal Air Force, wrote that following a raid on October 13, 1915, conditions in East London were "not far removed from panic".[8] The Times noted in an editorial, "to create panic has always been one of the chief objects of these /air/ invasions. They have now caused almost 700 casualties, chiefly amongst civilians."[9]

The Government took defensive measures. Lighting restrictions were extended from London over all the eastern, central and northwestern areas of England. "Experience gained from the Zeppelin raid of January 31, /1916/ shows that this extension . . . is necessary," The Times reported.[10] But as the lights went down, so did the spirits of the people. The nuisance value of the Zeppelin could not

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8. The statement is on p. x of the Foreword which Slessor wrote for Poolman's book.

9. The Times (London), February 2, 1916, p. 9. The casualty figure was high.

10. Ibid. February 9, 1916, p. 8.

be ignored. Even an isolated raid over the midlands alarmed the public seriously.[11]

However, despite its psychological value in England's skies, the Zeppelin was a poor military weapon. It was extremely subject to the whims of the weather, easily damaged in turbulence, and was at the mercy of adverse wind conditions. By the fall of 1916, the pilots of the R. F. C., with improved equipment and new tactics, brought the huge airships within range of their guns. On September 23, Lieutenant W. Leefe Robinson, flying a B. E. 2C of one of the newly-formed Home Defense Squadrons, attacked the Schutte-Lanz S. L. 11 in a daring night battle and brought it down in flames near Cuffley. For his feat, he was awarded the Victoria Cross.[12]

Other victories by the R. F. C. followed, and these, coupled with numerous accidental losses by the Germans, led, in late 1916, to a decline in the Zeppelin raids. The German airmen, however, were not finished. The Zeppelins were replaced by the Gotha, a twin-engine bombing airplane

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11. Boyle, p. 160.

12. "Fifty Years of Military Aviation, 1912-1962," a Chronology published by the Air Ministry (London: 1962), p. 5.

superior to anything the allies had. The Gothas immediately began night and, later, daylight attacks on London.

The raids by the Gothas, just as the airship raids, had little direct military value. However, the effect of flights of enemy bombers appearing over London in mid-day, wending their way across the city and bombing indiscriminately as they went, brought the British people to the brink of panic. The value of the raids in slowing production of munitions--the vital element in the war of the trenches--while incalculable, was undoubtedly very significant.

On June 13, 1917, a flight of twenty-one Gothas attacked England in a daring daylight raid. Fourteen of the bombers made their way to London where they dropped 118 high-explosive bombs, one directly on the Liverpool Street station. Nearly 150 people were killed and 350 injured. Ninety British fighters rose to attack the bomber formation, but not a single Gotha was brought down.[13]

This raid seriously aroused the people, but when the Gothas struck again on July 7, public opinion boiled over in threats against the Government and its leaders. The most popular British newspaper declared:

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13. Raleigh and Jones, V, 26-28.

> Since the Dutch burned Chatham 250 years ago . . . there has not been a more discreditable event in our military history. . . . There is not a single redeeming fact. The story is altogether humiliating.[14]

Another journal complained that defense squadrons had been withdrawn from London to put on an exhibition for the King in France, and that still other aircraft had been taken from their defense duties to escort Princess Mary when she went to visit Southend.[15]

Members of the Air Board watched the attack from the balconies of the Hotel Cecil where their offices were located. To them and to the other members of the Government, the press, and the public, the weakness of the nation's air defenses was only too apparent. When the War Cabinet met a few hours after the raid, it was in an atmosphere of glum recrimination.[16]

The Chief of the Imperial General Staff, Sir William Robertson, wrote to General Douglas Haig, commanding the forces in France, that the Cabinet meeting was unbelievable. "One would have thought that the world was coming to an end," said the Field Marshal. "I could not get in a word edgeways."[17]

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14. Daily Mail, July 9, 1917, as cited in J. M. Spaight, Air Power and War Rights (3d ed. rev.; London: Longmans, Green and Co., 1947), p. 7.

15. The Star, July 23, 1917, as cited in Spaight, p. 8.

16. Boyle, pp. 223-24.

17. Sir William Robertson, Soldiers and Statesmen, 1914-1918 (2 vols; New York: Charles Scribner's Sons, 1926), II, 17.

The Prime Minister, recalling his feelings on the day of the raid, said:

> There was no way of preventing these enemy planes from coming over. The most effective measure . . . was to furnish a powerful air fleet for home defence . . . and to carry out reprisal raids on enemy cities on a scale which would convince them that this form of warfare was a bad business. For both of these purposes, large numbers of planes were needed.[18]

During the course of the war, the German raiders attacked England on 103 separate missions and dropped 8,579 bombs weighing over 270 tons. The attacks resulted in the deaths of 1,404 persons and injuries to 3,416 others. Monetary damage reached almost three million pounds sterling.[19] Twenty-five of these raids were directed against the London metropolitan area, and these resulted in 670 deaths and 1,960 injuries. Over two-thirds of the monetary damage was done in the London area.[20]

Assessment of the actual value of the raids has ranged from that of Kapitanleutnant H. Hollender, a German airship commander, who claimed that 500,000 men and enormous

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18. David Lloyd George, War Memoirs of David Lloyd George (6 vols.; Boston: Little, Brown and Co., 1933-37), IV, 115.

19. With neat British precision, the official historian has worked this out to 0.56 casualties per bomb dropped, and a monetary damage of 345 pounds sterling per bomb dropped. The figures are in Raleigh and Jones, Appendices, p. 164.

20. Ibid.

numbers of guns and aircraft were kept immobilized,[21] to those of the patriotic writers who maintained that the raids actually strengthened British morale.[22] Certainly the truth fell somewhere between. The raids caused a serious drop in production of war materials, not only in the vicinity of London, but, according to the official historian, "also in the midlands and in the north."[23] Sykes thought that the psychological effect was far greater than the actual casualties but that any air raid warning caused a "serious diminution of output" of war materials. This extended, he said, beyond the locality raided and lasted well after the raid had ended.[24] Field Marshal Robertson noted the tendency for London residents of the East End to panic during the raids and the scurrying search for refuge which, in late

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21. The German Air Force in the Great War, comp. George Paul Neumann (London: Hopper and Stoughton, Ltd., n.d.), p. 123.

22. Cuneo, p. 361, says: "It is loosely stated in many sources that the raids actually raised the British morale. This is sheer nonsense." However, the young Sholto Douglas, recuperating at home after an aircraft accident in France, recalled that, "although the people at home were disturbed over the casualties, and rightly horrified that the Germans should have staged these raids, I did not find that the home front was in any way shaken." Sholto Douglas, Years of Combat (London: Collins, 1963), p. 211.

23. Raleigh and Jones, III, 245-47.

24. Frederick Sykes, From Many Angles (London: George G. Harrap & Company, Ltd., 1942), p. 222.

1917, found as many as 300,000 people sleeping in the tubes even when there were no alarms. At Woolwich arsenal, following the raids in late 1917, output of .303 cartridges dropped to nineteen per cent of normal.[25] The overall effect on British munitions production was placed as high as a one-sixth reduction.[26] Equally important, aircraft which were needed in France were retained at home to counter the attacks. On some occasions, squadrons were even ordered to return from France for home defense.[27]

Sir George Cave, the Home Secretary, probably best described the value of the raids when he said on June 14, 1917, that ". . . it would be worth the enemy's while to have these raids every day. . . . If you give warning to all munition factories, you put a stop to the manufacture of munitions." And this, he said, "will have its effect on the fighting forces and the lives of our soldiers."[28]

The pressure on the Government was becoming intense even before the daylight raid of July 7, 1917. On June 17,

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25. Robertson, II, 16. See also Cuneo, p. 361, and Cyril Falls, The First World War (London: Longmans Green and Co., Ltd., 1960), pp. 347-48.

26. Brigadier General Percy R. C. Groves, Behind the Smoke Screen (London: Faber and Faber, Ltd., 1934), pp. 117-18.

27. Robertson, II, 16.

28. Cited in The Aeroplane, January 2, 1918, p. 21.

a mass meeting was held at the London Opera House under the sponsorship of The Daily Express. The Lord Mayor acted as the chairman, and two members of Parliament who had consistently attacked the Government's air policies, Noel Pemberton-Billing and Basil Peto, were among the speakers. The Aeroplane noted that "the meeting unanimously and emphatically demanded a policy of reprisals against Germany."[29] On July 9, a secret session of the House of Commons was held to discuss the air raids, and on July 13, all the London M. P.s went as a deputation to Lloyd George to demand that something be done to protect the city.[30]

The two favorite themes of the public protests were demands for huge air fleets to protect the home island and equally vociferous demands for fleets of British bombers to attack Germany. With the Royal Flying Corps's major forces committed to the trench-bound battle in France, and with the continued inadequate exploitation of the air weapon by the Admiralty, to follow both these courses was obviously impossible. To follow either of them adequately appeared to be very nearly impossible.

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29. Ibid.
30. Ibid., January 9, 1918, p. 143.

Many Englishmen believed a single air service was an essential first step to find a way out of the dilemma. Those who had long fought for such a goal suddenly found their cause gaining many new advocates.

CHAPTER IV

ONE ELEMENT--ONE SERVICE

The Royal Flying Corps was created in 1912 as a separate and unified force. However, by 1914, the intransigence of the Admiralty split the new force in two, and Britain entered the war with a weak and ill-equipped service. Now, after three years of bloody, land-locked warfare, thoughtful men were demanding that the nation's air weapon again be welded into one.

Lord Haldane's sub-committee of the Committee of Imperial Defence recommended in 1911 that, "The British Aeronautical Service should be regarded as one, and should be designated 'The Flying Corps'."[1] This recommendation, approved by the Asquith Cabinet, was the basis of the Royal Warrant which created the Royal Flying Corps. The R. F. C. was, according to the Committee of Imperial Defence, to include a Military Wing, a Naval Wing, a Central Flying

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1. Walter Raleigh and H. A. Jones, War in the Air (6 vols. and appendices; Oxford: The Clarendon Press, 1922-1937), I, 206.

School, a Reserve, and the Royal Aircraft Factory. While the young airmen accepted and hailed this decision as the beginning of a new service, the older military leaders, notably those at the Admiralty, were determined that it should not be.[2]

The main difficulty for the airmen lay in the basic organization of the R. F. C. The original Joint Air Committee was formed to coordinate the air policies of the Admiralty and the War Department. But it had no decision-making authority and had ceased to function long before the war. Under these conditions, it was not difficult for the Admiralty to turn the Naval Wing into the Royal Naval Air Service and make it independent of the rest of the Royal Flying Corps.

Despite the Admiralty's coup, the question of an independent air service was constantly debated from 1911 until the Royal Air Force was finally formed in 1918. Major

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2. F. M. Sykes, the first Commander of the Military Wing, writing of the earliest days of the R. F. C. in 1912, says: "I was convinced that the correct policy . . . was to regard the Air Service as a separate arm, distinct from the other two services, and that it would become of equal status with them. This idea was violently opposed by senior naval and military officers." Frederick Sykes, From Many Angles (London: George G. Harrap & Co., Ltd., 1942), p. 98.

Frederick Sykes, first Commander of the Military Wing of the R. F. C., was questioned on the subject when he presented a paper on military aviation to the Aeronautical Society on February 4, 1914. A member of the House of Commons asked Sykes if the flying corps was to remain part of the Army and Navy or to become a separate service. Neither Sykes nor General David Henderson, who was also present, provided an answer for the M. P., but the question indicated the level of continuing interest in the problem.[3]

More serious agitation for a single air service began in 1915, when the crushing advent in France of the Fokker era and the Zeppelin raids on London combined to shatter public confidence in the Government's air policies. As the casualty lists from France grew longer, the nation's leaders sought reasons for the apparent inferiority of the R. F. C. They found them in the inherent weaknesses in the administration of the air services and in the constant competition for material and manpower between the Admiralty and the War Office.[4]

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3. The Aeroplane, February 12, 1914, p. 164.
4. John R. Cuneo, The Air Weapons, 1914-16, Vol. II of Winged Mars (Harrisburg: Military Service Publishing Co., 1947), p. 285.

On July 20, 1915, William Joynson-Hicks, the same member of Commons who had questioned Sykes in February, 1914, rose in the House to suggest the appointment of "some man of imagination and power" to advise the Government on creating an efficient air service.[5] He was followed in the debate by other members who urged a "separate department for aeroplanes and particularly a Ministry of Aeroplanes."[6]

The Globe newspaper began an editorial campaign urging a separate service. Charles Palmer, the editor, wrote on October 13, 1915:

> We kept our land inviolate so long as the sea was the method of approach to our shores. The menace now is from the air. It is a menace that grows more actual every day. . . . Those who know and understand the danger will be supported in the demand for a Royal Air Service as a separate fighting force, with all that makes such a force complete and efficient. . . . If the Government will not move . . . the nation must make them move.[7]

The Times joined in to note editorially that "the presence of a squadron of enemy aircraft over English soil emphasizes the advent of a new element in warfare. . . .

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5. Great Britain, 5 Parliamentary Debates (Commons), LXXIII (1915), 1357.

6. Ibid., 1377.

7. Cited in Murray F. Sueter, Airmen or Noahs: Fair Play for Our Airmen (London: Sir Isaac Pitman & Sons, Ltd., 1928), p. 225.

The mastery of the air may at no distant time be not less vital . . . than the mastery of the sea."[8]

In the House of Lords, the fight was led by Lord Montagu who, late in the fall of 1915 during a debate on the air service, coined the phrase, "one element, one service." This slogan became a rallying cry for the supporters of a single air service in the press and in Parliament.[9] Lord Montagu told a meeting on May 10, 1916, that the time had arrived when the air service should act independently. He urged combining the Royal Naval Air Service and the Royal Flying Corps into one fighting force called the "Imperial Air Service."[10] The Times forecast editorially that "a rearrangement of the Air Service on a considerable scale is in prospect. . . . Neither House is satisfied with the Air record of the Government."[11] Lord Montagu, returning to the attack on May 23, launched a lengthy debate in the House of Lords when he urged the members to declare:

> That this House considers that the development of aviation for purposes of war can no longer be efficiently carried on under the present system of the divided control and responsibility of two separate Departments;

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8. The Times (London), February 3, 1916, p. 9.
9. Sueter, p. 228.
10. The Times (London), May 10, 1916, p. 5.
11. Ibid., May 13, 1916, p. 7.

> and that the time has now arrived when the supply of men and materials should be concentrated under single control.[12]

The most flamboyant and colorful politician leading the fight for revision of the Government's air policies was Noel Pemberton-Billing. He was one of the earliest British air pioneers. In 1911, he organized the Supermarine Aviation Works, and when the war began, he was commissioned in the Royal Naval Air Service. He organized and planned the air raid by R. N. A. S. forces on the Zeppelin plant at Friedrichshafen November 21, 1914. This raid, brilliantly conceived and executed, gave Pemberton-Billing a considerable reputation as an air authority. However, he rapidly became disillusioned with the manner in which the air weapon was being used. He resigned from the R. N. A. S. in January, 1916, and, returning home, was elected to Parliament in March, 1916.[13]

No sooner had Pemberton-Billing assumed his seat in the House of Commons than he launched a virulent attack on the R. F. C. He charged that the air leaders were guilty of criminal negligence and that the aircraft procured by the

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12. Great Britain, 5 Parliamentary Debates (Lords), XXII (1916), 101.

13. Cuneo, pp. 443-44n.

R. F. C. were "Fokker fodder". He said that "quite a number of our gallant officers in the Royal Flying Corps have been rather murdered than killed".[14] His attack caused a considerable stir and forced the Government to promise an independent investigation into the administration and command of the Royal Flying Corps. The result was the Bailhache inquiry.

The Bailhache Committee began taking testimony in May.[15] By August 3, the Committee issued an interim report vindicating the leaders of the Royal Flying Corps and the Royal Aircraft Factory, and even expressing admiration for the effort made under the stress of war.[16] The final report, issued in December, recommended the creation of an Air Board to supervise the design and construction of aircraft for both services.[17]

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14. Great Britain, 5 Parliamentary Debates (Commons), LXXXI (1916), 246.

15. Andrew Boyle, Trenchard (London: Collins, 1962), p. 175. According to Boyle, Trenchard's biographer, Trenchard was greatly concerned about the effects of the Bailhache hearings on the morale of his pilots and blamed Henderson for urging the Government to conduct them.

16. The report was called a white wash. See C. G. Grey, A History of the Air Ministry (London: George Allen and Unwin, 1940), pp. 54-60.

17. Raleigh and Jones, I, 162.

Appointment of the Bailhache Committee did not stem the criticism. Lord Montagu, in an article published after the appointment of the Bailhache group, but before the issuance of the interim report in August, wrote:

> The criticisms of the flying services . . . which began in 1914 and were at their height in the spring of this year [1916] have . . . on the whole produced good results. But . . . questions of greater importance have been left out of sight. The main question is whether our present programme of military aviation is adequate. . . . Till recently the programme was distinctly inadequate. We have not enough airplanes at the front today to do the work.[18]

In addition to launching the Bailhache inquiry, the Government responded to the increasing criticism by appointing a new Joint War Air Committee with Lord Derby as president. This group was charged with coordinating the problems of supply and design of aircraft for both the R. F. C. and the R. N. A. S., but it had no executive authority. Like the defunct Joint Air Committee, the new body could only make recommendations to the Admiralty and the War Office. After only eight meetings, both Derby and Lord Montagu, the two independent members who did not belong to either of the contending agencies, resigned. It was apparent that voluntary agreements could not be reached.[19] The first wartime

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18. Lord Montagu of Beaulieu, "Aviation Present and Future," Edinburgh Review, CCXXIV, No. 457 (July, 1916), 142.

19. Maurice Hankey, The Supreme Command 1914-1918 (2 vols.; London: George Allen and Unwin, Ltd., 1961), II, 549.

attempt at joint air coordination had come forth stillborn, strangled by inter-departmental wrangling over parochial views.

To fill this void, Lord Curzon, a Cabinet member, and Maurice Hankey, the Secretary of the War Committee, drew up a plan for an Air Board to be headed by a Cabinet Minister and with greater authority than the Joint War Air Committee. The president was authorized to refer disputes between the Admiralty and the War Office to the War Committee for decision. The Board was given the broadest possible charter to discuss all policy matters related to the air war and particularly to matters of combined operations of the Naval and Military services. It was also to make recommendations on air equipment for both services and to coordinate the free and complete interchange of research and inventions. Curzon was chosen as the Board's president.[20] In revealing the plan for the Air Board, both Curzon and Bonar Law indicated it was the first step toward an Air Ministry.[21]

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20. Ibid. Trenchard, when he heard of the plan for the Air Board, thought its powers pretentious and its authority vague. He wrote to Henderson that "I suppose that mountain of conceit G. N. C. /Curzon/ will be put in as head of it." Cited in Boyle, p. 176.

21. Hankey, II, 549. See also Great Britain, 5 Parliamentary Debates (Commons), LXXXII (1916), 1599-1618.

The new Board, spurred on by Curzon, was extremely active and held several meetings each week. However, this new drive soon foundered on the same shoal which had sunk its two predecessors--Admiralty opposition. After some twenty-five meetings, Curzon wrote the report to the War Committee in which he attacked Balfour's obstructionist attitude.[22] The report resulted in a lengthy exchange of sharp and bitter memoranda between the two men. The War Committee was in the midst of this battle and was considering a scheme to expand the powers of the Air Board when the Asquith Government fell.[23]

One of the first decisions of Lloyd George's new War Cabinet in December, 1917, was to clarify and broaden the powers of the Air Board. Curzon, appointed to the War Cabinet, was succeeded at the Air Board by Lord Cowdray, a newspaper publisher. The Board became a Ministry and the president a Minister of the Government.[24] A month and a half later, on February 2, 1917, the War Cabinet further streamlined the process of aircraft procurement. The Air Board was made responsible for experimental work, approval of

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22. See above, Chapter II.
23. Hankey, II, 550-51.
24. "Fifty Years of Military Aviation, 1912-1962," a Chronology published by the Air Ministry (London: 1962), p. 5.

aircraft design, and for the number of each model to be ordered, and the appropriate allocation between the R. F. C. and the R. N. A. S. At the same time, the Ministry of Munitions was given full responsibility for production, inspection, and delivery of aircraft. After years of confusion and conflict, the first positive action had been taken to solve the problems of aircraft supply.[25]

However, by July, continuing Parliamentary and press attacks on the Government's air policies touched a sensitive nerve within the Lloyd George Cabinet. As protests over the daylight bombing raids on London approached a crescendo, the War Cabinet responded on July 11 by naming a special committee to consider both the problem of air defense and the broader and more significant problem of air organization in general. The select committee was to be headed by the Prime Minister himself, so important was the problem. To

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25. C. G. Grey, the vitriolic editor of The Aeroplane challenges the otherwise generally undisputed fact of increased production under the joint direction of the second Air Board and the Ministry of Munitions. He says that in the Air Board's offices at the Hotel Cecil each bedroom was occupied by a bureaucrat concerned only with getting his own requisitions filled. The result, claims Grey, was utter confusion. So great did the confusion become that the Hotel Cecil came to be called Bolo House after a German spy, Bolo Pasha, "because everybody there was either actively interfering with the progress of the War, or was doing nothing to help its progress." Grey, p. 65.

serve with him, and to actually conduct the investigation, Lloyd George selected the South African leader, Lieutenant General Jan Christian Smuts. Smuts was told to examine all aspects of the use of the air weapon.[26] It was a fateful charge. From his investigation, eventually, came the Royal Air Force.

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26. David Lloyd George, War Memoirs of David Lloyd George (6 vols.; Boston: Little Brown and Company, 1933-37), IV, 118.

CHAPTER V

SMUTS: RIGHT MAN, RIGHT TIME

Jan Christian Smuts held a unique position in the British Government. He fought the English in the Boer War, but in 1916 defended the British Empire, directing the campaign against Lettow-Vorbeck's forces in German East Africa. In 1917, as the South African Minister of Defense, he came to London to attend a meeting of the Imperial War Cabinet.

Lloyd George immediately recognized Smuts's outstanding abilities and prevailed upon him to remain in London as a member of the War Cabinet.[1] Smuts's decision not to seek election to Parliament to "legalize" his appointment kept him free from the entanglements of internal British politics.[2]

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1. Lloyd George says that this "called forth some indignant protests from members of my ministry, who were horrified at the unprecedented step I was taking." See David Lloyd George, War Memoirs of David Lloyd George (6 vols.; Boston: Little, Brown and Co., 1933-37), IV, 93.

2. William Keith Hancock, Smuts: The Sanguine Years, 1870-1919 (Cambridge: University Press, 1962), p. 436.

When pressure for an investigation of the Government's air policies reached a peak in July, 1917, Lloyd George sought a man with a "fresh and able mind, free from departmental prejudices" for the task.[3] His seeking eye fell on Smuts. Free from parochial views and untainted by political controversies, Smuts brought to the task a reputation for honesty and integrity and a strong desire to see the war won as quickly as possible.

Smuts well knew the political controversy which had grown up over the air services during the war and at first was reluctant to head the investigation. It was only when the Prime Minister agreed to assume the political responsibility by calling himself the chairman of the committee that Smuts agreed to undertake the task.[4]

The War Cabinet directed Smuts to consult with "representatives of the Admiralty, the General Staff and Field-Marshal Commanding-in-Chief Home Forces," and with "such other experts as /he/ may desire." Two problems were to be examined: "(1) The defence arrangements for Home Defence

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3. Lloyd George, IV, 118.

4. Walter Raleigh and H. A. Jones, War in the Air (6 vols. and appendices; Oxford: Clarendon Press, 1922-37), VI, 11.

against air raids," and "(2) The air organization generally and the direction of aerial operations."[5]

Smuts, with characteristic drive, began immediate hearings. By July 19, he reported to the War Cabinet that the German air raids had succeeded because England's air defense was poorly organized. London, his report said, was the nerve center of the Empire and might find itself within six months on the front line of battle. To counter the German air threat, drastic measures were required. These included the assignment of all responsibility for air defense to a single commander, the reorganization of anti-aircraft weapons into concentric circles around London, and the development of new air tactics, including fighters operating in formation.[6] The War Cabinet quickly put these recommendations into effect.

The second task, the overall examination of air policy, was a much larger problem. Smuts, after consulting

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5. Ibid., Appendices, 8.

6. Raleigh and Jones, V, 41-44. By August 5, the London Air Defence Area had been created under the command of Major General E. B. Ashmore, and three new R. F. C. squadrons equipped with Camels and Pups had been formed specifically to operate against the Gothas in the daylight raids. See "Fifty Years of Military Aviation, 1912-1962," a Chronology published by the Air Ministry (London: 1962), p. 5.

Lloyd George, decided three questions must be answered by the investigation. These were:

> 1. Shall there be instituted a real Air Ministry responsible for all air organization and operations?
>
> 2. Shall there be constituted a unified Air Service embracing both the present Royal Naval Air Service and Royal Flying Corps?
>
> 3. If so, how shall the relations of the new Air Service to the Navy and Army be determined so that the functions at present discharged for them by the R. N. A. S. and R. F. C. respectively shall continue to be efficiently performed by the new Air Service?[7]

The hearings which Smuts held revealed the depth and intensity of the dispute over national air policy. The views expressed in secret session covered a wide range. Some witnesses thought the controversy was unrelated to the successful completion of a bitter, land-locked war which was draining the resources of the combatant nations. Others saw a single air service as the only solution to the stalemate of the trenches. Among the latter, Smuts found many who wanted to plan for a single air service, but feared reorganizing during the war would be an impossible task. Others favored expansion of the powers of the Air Board, even to the point of forming a third air service under Air Board

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7. Lloyd George, IV, 120.

control. A few favored the ultimate step of unification of the Royal Naval Air Service and the Royal Flying Corps into one separate force, the equal of the Army and the Navy.

Smuts initially leaned toward the view that complete reorganization of the British air service should be delayed until after the war.[8] Two important documents changed this opinion. The first of these was a memorandum from Lord Cowdray, dated July 28, 1917. In it Cowdray, the President of the Air Board, set out his ideas on air organization. He proposed that the present Air Board be given a "war staff of recognized experts." This staff, Cowdray said, should plan for the single service which would be formed when the war was finished. However, "it appears to me beyond question," he wrote, "that during the war the administration of the Naval and Military Air Services as they at present exist . . . should not be changed."[9] More important, however, was Cowdray's discussion of what he called the "Surplus Aircraft Fleet." Early in the summer of 1917, following reorganization of the first Air Board, Cowdray and Sir William Weir, in charge of aircraft procurement for the Ministry of

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8. Hancock, p. 441.
9. Raleigh and Jones, VI, 8-9.

Munitions, had forecast a big increase in production of aircraft. This increase, they claimed, would create a surplus beyond the needs of the Army and the Navy. Cowdray now proposed to Smuts that this surplus be used to form a bombing force controlled by the war staff of the Air Board. "It should," he said, "be possible for the Surplus Aircraft Fleet to be placed directly under the Air Board without any serious dislocation of existing arrangements."[10] Smuts quickly detected the flaw in Cowdray's somewhat contradictory plan. Under it, there would be added to the War Office and Admiralty air policies, Air Board air policies. This would be no solution but an added complication.

The second important document submitted to Smuts was the memorandum by Lieutenant General David Henderson, dated

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10. Ibid., VI, 9. The figures on the Surplus Aircraft Fleet were a projection by Cowdray and by Sir William Weir, Controller of Aeronautical Supplies in the Ministry of Munitions. Lloyd George indicates in his memoirs that he accepted the figures and believed that "we should soon possess an air fleet much in excess of the necessary demands of the Army and Navy." See Lloyd George, IV, 117. C. G. Grey, writing in The Aeroplane on January 9, 1918, says that the efforts of Cowdray and Weir to increase aircraft production got the "R. F. C. in the field . . . thoroughly well equipped" by the end of 1917. Boyle maintains that Smuts was misled by the personnel in the Supplies and Contracts Branch of the Air Board and that if he had not believed that the Surplus Aircraft Fleet would eventually be produced, he would never have signed the Smuts Report. See Boyle, pp. 233, 243. The projected figures, had they been met, would

July 19, 1917. After surveying the entire air problem, Henderson criticized the way in which authority for air planning was divided among the various branches of the Government. He cited a recently approved increase in the size of the R. F. C. as an example. For this War Cabinet-approved action to actually come about, he said, the Air Board and the Ministry of Munitions would have to supply the machines, the Army Council the personnel, and the Department of Fortifications and Works the additional air fields. Should any of these agencies fail, the increase in strength would not be achieved, and this failure would be for reasons well outside the authority of the Air Board.[11]

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have provided for an Air Force of 200 Service Squadrons. They were not met primarily because of disastrous failures in engine production. In January, 1918, there were 400 new S. E. 5 airplanes in storage because no engines were available for them. See Raleigh and Jones, VI, all of Chapter II. Despite this, in discussing the Surplus Aircraft Fleet figures and particularly in weighing Smuts's belief in them, it is necessary to evaluate the actual war-end position of the Royal Air Force. In November, 1918, the R. A. F. had over 22,000 airplanes, and the nation's aircraft industry was producing about 110 airplanes each day--almost twice the entire force Henderson had been able to muster to cross the channel in 1915. See J. M. Spaight, Air Power and War Rights (3d ed. rev.; London: Longmans, Green and Co., 1947), p. 5. See also "Fifty Years of Military Aviation, 1912-1962," p. 8.

11. Lieutenant General Sir David Henderson, "Memorandum on the Organization of the Air Services," cited in Raleigh and Jones, Appendices, 1-8.

The only method of overcoming the "present illogical situation of divided responsibility in aeronautics," said Henderson, was the formation of a "complete department and a complete united service dealing with all operations in the air, and with all the accessory services which that expression implies." A temporary loss of efficiency would occur, but if the Government believed the war would last until June, 1918, the change should be made, Henderson concluded.[12]

Smuts had seen for himself the effect of the German air raids on the morale of the people of London. During the course of the hearings, he slowly came to the conclusion that the new fighter squadrons and the anti-aircraft artillery were not a sufficient defense for the city. An offensive air weapon was essential to carry the war to the heart of Germany. "We can only defend this island effectively against air attacks by offensive measures, by attacking the enemy in his air bases on the Continent and in that way destroying his power of attacking us across the Channel," he believed.[13]

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12. Ibid.
13. J. C. Smuts, Jan Christian Smuts: a Biography (New York: Morrow, 1952), p. 193. See also Hancock, p. 441.

Smuts was reinforced in the conclusion that was growing in his mind by letters such as the one he received from Lord Milner during the hearings. Milner, a member of the War Cabinet, wrote:

> Say what you like, the soldiers and sailors at the War Office and Admiralty do not yet grasp the fact that there is a new kind of warfare before us and that, besides the help they have to give the army and navy, the airmen will have to fight battles of their own.[14]

On August 17, 1917, barely six weeks after hearings had begun, the document known as the Smuts Report was issued.[15] In the 6,000-word report, Smuts called for the establishment of a separate air service with status equal to that of the older services and with an independent ministry in control. The report criticized the way in which the existing Air Board was constituted, saying it was not really effective because it functioned merely as a conference. Its main function was to fulfill the requirements of war policy established by the Army and the Navy. Subordination of the air service could no longer be justified, the report said, because air power could be used as an

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14. Smuts, p. 192.

15. Formally, the "Second Report of the Prime Minister's Committee on Air Organization and Home Defence Against Air Raids, dated 17th August 1917." The complete report is sometimes difficult to locate. Because of this, the entire document, as it appears in Raleigh and Jones, Appendices, 8-14, is included as Appendix I.

independent means of carrying on a war. In fact, said Smuts, the day was approaching when air operations, capable of destroying enemy industry and population on a vast scale, might well be the principle operations of war. When this happened, the older forms of military and naval operations would become "secondary and subordinate."[16]

With the "Surplus Aircraft Fleet" in mind, Smuts pointed out that while aircraft production throughout the war had been insufficient for the needs of the Army and Navy, that day appeared to be passing. Now, he wrote,

> the program of aircraft production which the War Cabinet has sanctioned for the following twelve months is far in excess of Navy and Army requirements. Next spring and summer the position will be that the Army and Navy will have all the Air Service required . . . and over and above that there will be a great surplus available. . . . Who is to look after and direct the activities of this available surplus? Neither the Army nor the Navy is specially competent to do so; and for that reason the creation of an Air Staff for planning and directing independent air operations will soon be pressing.[17]

Looking to the future employment of this new air arm, he said, "It requires some imagination to realize that next summer, while our Western Front may still be moving forward

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16. Raleigh and Jones, Appendices, 10.
17. Ibid.

at a snail's pace in Belgium and France, the air battle-front will be far behind on the Rhine."[18]

The new force should be created, Smuts continued, by combining the existing air services. If the Army and Navy should maintain their own special air services in addition to the force under the Air Ministry, it would "make the confusion hopeless and render the solution of the air problem impossible."[19] Smuts concluded by recommending that no publicity be given the proposed change in order to deny intelligence of its nature to the enemy.[20]

The report was sweeping and inclusive, and its recommendations were revolutionary. It met with divided opinion from both political and military leaders. The War Cabinet considered the report on August 24 and give it tentative approval. A new body, known as the Air Organization Committee, was appointed. This Committee, under Smuts's direction, was told to investigate the details of amalgamating the existing air services and to draft the necessary legislation.[21]

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18. Ibid., p. 11.
19. Ibid., p. 12.
20. Ibid., p. 14.
21. Raleigh and Jones, VI, 13.

Appointment of the Air Organization Committee did not mean that the War Cabinet fully supported Smuts's recommendations. The Admiralty, represented by the newly-appointed First Sea Lord, Sir Eric Geddes, was dogmatically opposed to any interference with the Royal Naval Air Service. Geddes suggested that the new Air Ministry assume control of the Royal Flying Corps and leave the Royal Naval Air Service alone.[22] Balfour, serving as Secretary of State for Foreign Affairs, but true to his colors as a former First Sea Lord, supported Geddes. Derby, the Secretary of State for War, shifted back and forth from support to opposition. Bonar Law avoided the controversy, while Milner and Cowdray both feared the dislocation to the war effort which would occur if a separate force was formed. Only Curzon and Churchill, the latter back in the Government as the Minister of Munitions, fully supported Smuts's proposals.[23]

The military leaders were also divided. The Naval airmen, anxious to be free of the restrictive atmosphere of the Admiralty, supported the plan.[24] The leaders of the

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22. Lloyd George, IV, 122-23.
23. Andrew Boyle, Trenchard (London: Collins, 1962), pp. 230-31.
24. The Aeroplane, January 9, 1918, p. 172e.

R. F. C., with the notable exception of Henderson, were almost all opposed to the single service.[25]

Trenchard, commanding the R. F. C. in France, had suffered for two years from chronic shortages of aircraft. He attacked the idea of the "Surplus Aircraft Fleet" and blames Henderson for letting Smuts believe such an increase in production was possible. "I thought," he wrote later, "that if anything were done . . . to weaken the Western Front, the war would be lost, and there would be no air service, united or divided."[26] Haig, commanding the Expeditionary Force in France, told the Cabinet that "after more than three years of war, our armies are still very far short of their requirements, and my experience of repeated failure to fulfill promises . . . makes me somewhat skeptical as to the large surplus of machines on which the committee counts."[27]

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25. Ibid. See also Boyle, pp. 231-32.

26. Trenchard later admitted that "Henderson had twice the insight and understanding that I had. He was prepared to run risks rather than lose a chance which he saw might never come again. . . . It is doubtful whether the R. A. F. or Britain realises its debt to him, which is at least as great as its debt to Smuts." See Boyle, pp. 232-33.

27. Raleigh and Jones, VI, 15. See also The Private Papers of Douglas Haig, 1914-19, ed. Robert Blake (London: Eyre & Spottiswood, 1952), p. 252.

Despite the controversy, the Air Organization Committee continued planning the amalgamation of the two existing air services. David Henderson, appointed by Smuts, was the moving spirit behind the body. A number of subcommittees under his guidance sought solutions to the myriad problems of merging the two forces.[28]

The controversy caused the War Cabinet to withhold final approval of Smuts's recommendations throughout the month of September despite new raids by the Gotha bombers. No public announcement had been made of the Smuts proposals and, as a result, criticism of the Government air policies continued to increase. When the War Cabinet met on October 8, Smuts urged Lloyd George to make a public statement on the new air proposals. The Prime Minister, always sensitive to controversy, declined, saying that the time might not be right for the formation of a separate air service.[29]

With the issue at an impasse, new and important pressure was applied to the War Cabinet. On October 10,

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28. Raleigh and Jones, VI, 13. The other members were Cowdray, Major J. L. Baird, M. P., Commodore G. M. Paine, and Lord Hugh Cecil. Major C. L. Storr and Sir Paul Harvey were joint secretaries.

29. Ibid., VI, 18.

Cowdray told Admiral Mark Kerr in strictest confidence that the formation of the separate air service was in doubt. Kerr, a member of the Air Board, was a specialist in German war production. Recent studies had convinced him that Germany was giving the highest priority to production of aircraft and submarines, with the ultimate goal of bombing and starving England into submission. Kerr immediately wrote a memorandum to Cowdray for circulation to the War Cabinet. In it, he marshaled evidence to show that Germany was concentrating on production of submarines and large bombing aircraft. He wrote:

> It is a race between them and us; every day lost is a vital danger. If the Germans get at us first, with several hundred machines every night, each one carrying several tons of explosives, Woolwich, Chatham, and all the factories in the London district will be laid flat, part of London wiped out, and workshops in the southeast of England will be destroyed, and consequently our offensive on land, sea and air will come to an end.[30]

To halt this, Kerr said, the British must begin at once to build a force to attack German production centers and air fields. This would require "the building of 2,000 big bombing machines as a minimum, the training of pilots, preparation of aerodromes, the building of sheds, manufacture

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30. Mark Kerr, Land Sea and Air (London: Longmans, Green and Co., Ltd., 1927), pp. 289-91.

of bombs, collection of transport."[31] Only a separate Air Ministry could carry out this ambitious program, Kerr concluded.

Kerr's memorandum apparently had a decisive effect on the members of the War Cabinet.[32] When they met again on October 15, they agreed to make a cautious announcement in Parliament that a bill would be introduced providing "for the eventual setting up of an Air Ministry."[33] At the same time an Air Policy Committee was formed with Smuts as chairman to advise the Cabinet on air matters, pending the establishment of an Air Ministry.

When Parliament convened on October 16, following the summer recess, the members demanded immediate action on the air problem.[34] As a result, when Bonar Law rose to make the announcement agreed on by the War Cabinet, he irrevocably committed the Government. "A bill to constitute an Air Ministry has been prepared and will shortly be introduced," he told the members.[35] After that, there was no turning back.

When the bill was introduced on November 9, it went to a Parliament far more receptive than the Prime Minister had

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31. Ibid. 32. Boyle, pp. 238-39.
33. Raleigh and Jones, VI, 19.
34. Ibid.
35. Great Britain, 5 Parliamentary Debates (Commons), XCVIII (1917), 27-28.

believed possible.[36] The Times noted that "the House warmly approved /the/ argument that it was necessary to create an authority whose exclusive duty should be to study and deal with the general problems of war in the air."[37]

Twenty days later, following a quick and smooth passage, the Air Force Bill received the royal assent.[38] Orders in Council were issued on December 21, 1917, and on January 2, 1918, defining the composition and duties of the members of the Air Council. The second of these orders specified that the Air Council should come into being on January 3, 1918, and designated Lord Rothermere, a newspaper publisher, the first Secretary of State for Air.[39] Members of the Council included Henderson, as Vice-President; Trenchard, as Chief of the Air Staff; Kerr, as Deputy Chief of the Air Staff; Godfrey Paine, as Master-General of Personnel; Sefton Brancker, as Controller General of Equipment;

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36. Lloyd George, IV, 122-23. See also Boyle, pp. 238-39; and Great Britain, 5 Parliamentary Debates (Commons), XCIX (1917), 126-183.

37. The Times (London), November 13, 1917, p. 7.

38. Great Britain, 5 Parliamentary Debates (Commons), XCIX (1917), 2277.

39. Rothermere had succeeded Cowdray as President of the Air Board on November 17 following one of those curious political anomalies of the Lloyd George administration. On November 16, a letter appeared in The Times over the signature of Lord Northcliffe addressed to the Prime Minister, declining appointment to the new post of Secretary of State

Weir, as Director-General of Aircraft Production in the Ministry of Munitions; Sir John Hunter, as Administrator of Works and Buildings; and Major J. L. Baird, as Parliamentary Under-Secretary of State.[40]

Passage of the Air Force Bill and establishment of the Air Council was a tribute to the genius of Smuts and to the doggedness and perseverance of David Henderson. The decision of 1914 which had permitted the fledgling Royal Flying Corps to be split asunder was reversed. The world's first unified military air service, the Royal Air Force,[40] began its journey through new and uncharted skies.

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for Air. Cowdray, who had assumed that he would succeed to that post as the incumbent Air Board president, resigned and was replaced by Rothermere, Northcliffe's brother, and a press lord in his own right.

40. Raleigh and Jones, VI, 22.

41. The initials R. A. F. had long stood for the Royal Aircraft Factory. C. G. Grey greeted the selection of the new name for the combined air service as follows: "At any rate now we know the worst. The glory of the names of the Royal Naval Air Service and the Royal Flying Corps, with their traditions of gallantry, chivalry, and self-sacrifice, are to be merged into initials which stand for everything that has been bad in military Aeronautics." The Aeroplane, March 20, 1918, p. 1052.

CHAPTER VI

BEGINNING AND APPRAISAL

The Times greeted the birth of the Royal Air Force on April 1, 1918, with an editorial hailing the opportunity for "practiced flying men to use their expert knowledge."[1] Before the month was out, the leadership of the new service was split by internal dissension, and many of those "practiced flying men" had departed the Air Ministry.

The problems arose partly from the circumstances of the R. A. F.'s birth. The new service was the product of public pressure, ever increasingly applied to the national political leadership. Demands for a solution to the German air raid problem forced the politicians to act. Now, what they had created, they meant to control. At that point the political leadership--as represented by Lord Rothermere, the Secretary of State for Air--ran head on into the iron-minded expression of the military will in the person of General Trenchard.

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1. The Times (London), April 1, 1918, p. 2.

The first ominous rumblings of the problems to come were heard when Cowdray resigned as President of the Air Board and was replaced by Rothermere. Faced with the task of carrying out the amalgamation of the Royal Flying Corps and the Royal Naval Air Service, Rothermere asked that Trenchard be recalled from France to serve as the first Chief of Air Staff. Trenchard resisted for a time, but finally became convinced that he was the only senior air officer who could solve the organizational problems. On January 18, 1918, he surrendered command of the R. F. C. in France to Major General J. M. Salmond and returned home to the Air Council.[2] It was a fateful decision. Almost from the first, there was conflict between the taciturn, incommunicative air leader and the garrulous press lord and politician. Trenchard was dogmatic and precise. He was imbued with the military traditions of the Army and demanded adherence to traditional procedures and strict compliance with the chain of command in dealing with subordinates. Rothermere, on the other hand, felt free to indulge his own ideas in the

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2. Boyle maintains that Trenchard's acceptance was due to his desire to protect Haig. Rothermere and Northcliffe threatened to launch a press attack against Haig if Trenchard did not accept the Air Council post. Andrew Boyle, Trenchard (London: Collins, 1962), pp. 250-52.

organization of the new service. When the Secretary insisted on consulting subordinate members of the Air Staff without bringing Trenchard into the discussions, the conflict boiled over. On March 19, 1918, following an exchange of acrimonious correspondence between the two men, Trenchard resigned. The mighty German offensive launched against Haig's forces on March 21 delayed the inevitable for a few weeks, but on April 13 the resignation was accepted, and Major General F. H. Sykes was appointed to replace Trenchard as Chief of the Air Staff.[3]

Sykes was the first commander of the Military Wing of the R. F. C. in 1912. When the war began, he went to France as Henderson's Chief of Staff. However, after a dispute with Henderson, he was dismissed from that position. When Sykes's

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3. Ibid., pp. 265-76. Lord Beaverbrook, a confidant of many of the leading political figures at the time, claims the dispute with Rothermere and Trenchard's eventual resignation were a part of the larger civil-military conflict which involved Robertson, Haig, Jellicoe, and the Prime Minister. Beaverbrook claims that Lloyd George believed the military leaders were conspiring with Asquith to replace him, and that he accepted Trenchard's resignation to strengthen his own hand. Lord Beaverbrook, Men and Power 1917-1918 (New York: Duell, Sloan and Pearce, 1956), p. 222. Maurice Hankey, the Secretary of the War Cabinet, disputes this. "I was practically living with Lloyd George at this time. . . . The Prime Minister was too engrossed in the life and death problems of the moment to give much thought to the tiresome Trenchard business, which is mentioned only three times in my diary." Cited in Boyle, pp. 275-76. Certainly

appointment was announced, Henderson resigned as Vice-President of the Air Council. He wrote to Bonar Law that his previous difficulty with Sykes was no secret, and he feared that he might become the focus point of discontent within the Air Ministry. "I am ready to admit that I earnestly desired to escape from the atmosphere of intrigue and falsehood which has enveloped the Air Ministry for the last few months," he concluded.[4]

The resignations led to a spirited attack in the press which centered on Lord Rothermere.[5] Mounting criticism in Parliament seemed certain to lead to an inquiry, and in the face of this Rothermere sent his resignation to the Prime Minister and retired to his country home. When the resignation was announced on April 25, passersby were

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Trenchard's well-known political naiveté makes it unlikely that he would have taken part in any military junta seeking to overthrow the Prime Minister. For more on the civil-military dispute, a fascinating topic in itself, see Robert Blake, Unrepentant Tory (New York: St. Martin's Press Inc., 1956), p. 368, and The Private Papers of Douglas Haig, 1914-19 (London: Eyre & Spottiswood, 1952), p. 51, edited by the same author.

4. Cited in Beaverbrook, p. 378.

5. "The list is steadily growing," wrote the Daily News "of acknowledged masters of their craft for whose services in the crisis of our fate the government has no serious use. It is the story in every element. Thus: The Sea, Lord Jellicoe. The Land, Sir W. Robertson. The Air, Sir Hugh Trenchard." Cited in Beaverbrook, pp. 225-26.

startled to see R. A. F. officers leaning from the windows of the Hotel Cecil, waving newspapers and cheering. "What is it, a victory in France?" someone shouted. "No, a victory at home," a reveller at a window answered. "Lord Rothermere has gone."[6]

A few days later Sir Henry Norman, an additional member of the Air Council appointed by Rothermere, also resigned. There the disintegration stopped.

As the war continued through the summer of 1918, Trenchard returned to command the Independent Air Force, the organization formed specifically to carry the war to the industrial heartland of Germany through the air. Under the plan for the Independent Air Force, all heavy bombers in France were withdrawn from the Squadrons of the R. A. F. operating with the Army, and were formed into new units and located at Ochey. The new organization was under the direct control of the Air Ministry in London. The Commander was to carry out bombing attacks against German cities without reference to the land war or to General Salmond, the R. A. F. commander in France whose activities were still linked directly to the fortunes of the Army and the ground war.[7]

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6. Boyle, p. 281. 7. Ibid., pp. 288-96.

The Independent Air Force was, then, in theory, the long-sought vehicle to move the war out of the trenches and into Germany. It was the agency which would employ the Surplus Aircraft Fleet which Cowdray and Weir had forecast, and which had influenced Smuts so greatly. It was the force which Mark Kerr had called for in his historic memorandum to the War Cabinet. This organization, ideally, was the culmination of the protracted debate over air power which had continued throughout the war.

The official historian pinpointed the ultimate goal of the Independent Air Force and summarized the aspirations of those who fought for speedier development of the independent air weapon when he said that "no people on earth . . . can maintain the efficiency of its war activities under the regular intensive bombing of its centres of population."[8]

In five months of operation before the end of the war, the Independent Air Force dropped 550 tons of bombs behind enemy lines.[9] At the Armistice, it had nine squadrons operating against German industrial centers and air

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8. Walter Raleigh and H. A. Jones, War in the Air (6 vols. and appendices; Oxford: Clarendon Press, 1928-37) I, 489.

9. "Fifty Years of Military Aviation, 1912-1962," a Chronology published by the Air Ministry (London: 1962), p. 7.

fields. But it had barely begun the operation for which it was conceived.[10] Lloyd George noted that "had the war persisted a few months longer, we should have hurled ruin from the air on to the chief cities of Central Europe."[11]

And what of Smuts's role in all this? Was his the correct solution to the air policy controversy? Formation of the Royal Air Force resulted from a political, not a military, decision. The decision was made by the Government in power in response to intensive public pressure. The pressure was the result of constant attacks on the Government's air policies and the German air raids which had shaken the civilian population. But Smuts's decision was not merely a political expedient. It seems certain that this man with the keen, perceptive mind became fully convinced that to carry the war through the air to the German heartland was the one way to break the deadlock of the trenches.[12] His acceptance of the Surplus Aircraft Fleet figures produced by Cowdray and Weir has been criticized,[13] but there is no cer-

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10. J. A. Chamier, The Birth of the Royal Air Force (London: Sir Isaac Pitman & Sons, Ltd., 1943), p. 172.

11. David Lloyd George, War Memoirs of David Lloyd George (6 vols.; Boston: Little, Brown and Co., 1933-37), IV, 103.

12. Above, p. 70.

13. Above, p. 75.

tain evidence that he would not have made the same decision even had these figures not been available. Although the ambitious production estimates were not met immediately, by the end of the war the Royal Air Force was the strongest military air service in the world. It owned over 22,000 aircraft and maintained 133 squadrons and 15 flights overseas and 55 squadrons at home. Nearly 300,000 men and women were entitled to wear the new blue uniform.[14]

But Smuts was not alone in his vision. From early 1915 the need to carry the war to the enemy, to use the air as a strategic medium to break away from the stagnated battles of the trenches, had been recognized. Smuts has been called the Father of the Royal Air Force[15] and eulogized as the founder of the basic concepts of air strategy above the Italian, Guilio Douhet; the American, Billy Mitchell, and Trenchard.[16] Certainly his contribution was major. But the honor--particularly that of Father of the Royal Air Force--must be shared with many others. There were the early advocates, Lord Beaulieu, the erratic Pemberton-Billing, and

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14. "Fifty Years of Military Aviation, 1912-1962," p. 8.

15. Lloyd George, IV, 124.

16. E. J. Kingston-McGloughry, Global Strategy (New York: Frederick A. Praeger, 1957), p. 216.

even the cantankerous C. G. Grey, whose constant attacks forced the Government to recognize the crippling competition for material and the uncoordinated production effort which hampered the development of the air weapon. There was Murray Sueter, whose war-long goal was to be free of the restrictions placed on the air arm by the Admiralty; and Mark Kerr, another Naval airman whose important memorandum at the critical moment had such great influence on the War Cabinet's decision to seek an Air Ministry. There were the young commanders and pilots of the R. F. C. and R. N. A. S. who, in four years of war, progressed from complete ignorance of air warfare to a shrewd understanding of the principles of the air battle.[17] And there was, finally, General David Henderson, without whose guidance and counsel Smuts might never have reached his decision.

Henderson's role was that of the military expert furnishing his own unique knowledge to the political leaders. As a military officer, subordinate to civil authority, he could not go further in urging an independent air arm than his important memorandum to Smuts. In this, he

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17. Sholto Douglas, Years of Combat (London: Collins, 1963), p. 13.

followed the traditional role of the military professional in a democratic society. Had he done otherwise, Henderson might well rank with Smuts as the Father of the Royal Air Force. Even Trenchard, who during the war criticized much that Henderson did in England, acknowledged the debt which the R. A. F. and the British people owe to this man.[18]

That the decision made by Smuts and endorsed by the Government was the correct one cannot now be doubted. The military service which grew out of the political decision continued its part in carrying the long war to eventual victory. It survived post-war attacks by economy-minded men with no foresight and little hindsight. Twenty-two years later it stood as the only bulwark between the island nation and a rejuvenated enemy bent once again on destroying England from the air. And finally, the Royal Air Force stood alone, victorious in the Battle of Britain, and a proud monument to those men who fought for its birth in another time and in another war.

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18. Above, p. 75, n. 26.

APPENDIX I

THE SMUTS REPORT[1]

(Second Report of the Prime Minister's Committee on Air Organization and Home Defence Against Air Raids dated 17th August 1917)

1. The War Cabinet at their 181st Meeting, held on 11th July 1917, decided--

'That the Prime Minister and General Smuts, in 'consultation with representatives of the Admiralty, General 'Staff and Field-Marshal Commanding-in-Chief, Home Forces, 'with such other experts as they may desire, should examine--

'(1) The defence arrangements for Home Defence against air raids.

'(2) The air organization generally and the direc- 'tion of aerial operations.'

2. Our first report dealt with the defences of the London area against air raids. The recommendations in that report were approved by the War Cabinet and are now in process of being carried out. The Army Council have placed at Lord French's disposal the services of General Ashmore to work out schemes of air defence for this area. We proceed to deal in this report with the Second Term of Reference: the air organization generally and the direction of aerial operations. For the considerations which will appear in the course of this report we consider the early settlement of this matter of vital importance to the successful prosecution of the war. The three most important questions, which press for an early answer, are:

(1) Shall there be instituted a real Air Ministry responsible for all air organization and operations?

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1. Cited in Walter Raleigh and H. A. Jones, War in the Air (6 vols. and appendices; Oxford: Clarendon Press, 1922-37), Appendices, 8-14.

(2) Shall there be constituted a unified Air Service embracing both the present Royal Naval Air Service and Royal Flying Corps? And if this second question is answered in the affirmative, the third question arises--

(3) How shall the relations of the new Air Service to the Navy and the Army be determined so that the functions at present discharged for them by the Royal Naval Air Service and Royal Flying Corps, respectively, shall continue to be efficiently performed by the new Air Service?

3. The subject of general air organization has in the past formed the subject of acute controversies which are now, in consequence of the march of events, largely obsolete, and to which a brief reference is here made only in so far as they bear on some of the difficulties which we have to consider in this report. During the initial stages of air development, and while the role to be performed by an Air Service appeared likely to be merely ancillary to naval and military operations, claims were put forward and pressed with no small warmth, for separate Air Services in connexion with the two old-established War Services. These claims eventuated in the establishment of the Royal Naval Aircraft Service and Royal Flying Corps, organized and operating on separate lines in connexion with and under the aegis of the Navy and Army respectively, and provision for their necessary supplies and requirements was made separately by the Admiralty and War Office and to provide a safeguard against the competition, friction, and waste which were liable to arise, an Air Committee was instituted to preserve the peace and secure co-operation if possible. When war broke out this body ceased to exist, owing to the fact that its Chairman and members nearly all went to the front, but after a time it was replaced by the Joint War Air Committee. The career of this body was, however, cut short by an absence of all real power and authority and by political controversies which arose in consequence. It was followed by the present Air Board, which has a fairly well-defined status and has done admirable work, especially in settling type and patterns of engines and machines and in coordinating and controlling supplies to both the Royal Naval Air Service and Royal Flying Corps.

4. The utility of the Air Board is, however, severely limited by its constitution and powers. It is not really a Board, but merely a Conference. Its membership consists

almost entirely of representatives of the War Office, Admiralty, and Ministry of Munitions, who consult with each other in respect of the claims of the Royal Naval Air Service and Royal Flying Corps for their supplies. It has no technical personnel of its own to advise it, and it is dependent on the officers which the departments just mentioned place at its disposal for the performance of its duties. These officers, especially the Director-General of Military Aeronautics, are also responsible for the training of the personnel of the Royal Flying Corps Service. Its scope is still further limited in that it has nothing to do either with the training of the personnel of the Royal Naval Air Service or with the supply of lighter-than-air craft, both of which the Admiralty has jealously retained as its special perquisites. Although it has a nominal authority to discuss questions of policy, it has no real power to do so, because it has not the independent technical personnel to advise it in that respect, and any discussion of policy would simply ventilate the views of its military and naval members. Under the present constitution and powers of the Air Board, the real directors of war policy are the Army and Navy, and to the Air Board is really allotted the minor role of fulfilling their requirements according to their ideas of war policy. Essentially the Air Service is as subordinated to military and naval direction and conceptions of policy as the artillery is, and, as long as that state of affairs lasts, it is useless for the Air Board to embark on a policy of its own, which it could neither originate nor execute under present conditions.

5. The time is, however, rapidly approaching when that subordination of the Air Board and the Air Service could no longer be justified. Essentially the position of an Air service is quite different from that of the artillery arm, to pursue our comparison; artillery could never be used in war except as a weapon in military or naval or air operations. It is a weapon, an instrument ancillary to a service, but could not be an independent service itself. Air service on the contrary can be used as an independent means of war operations. Nobody that witnessed the attack on London on 11th July could have any doubt on that point. Unlike artillery an air fleet can conduct extensive operations far from, and independently of, both Army and Navy. As far as can at present be foreseen there is absolutely no limit to the scale of its future independent war use. And the day may not be far off when aerial operations with their

devastation of enemy lands and destruction of industrial and populous centres on a vast scale may become the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate. The subjection of the Air Board and service could only be justified on the score of their infancy. But that is a disability which time can remove, and in this respect the march of events has been very rapid during the war. In our opinion there is no reason why the Air Board should any longer continue in its present form as practically no more than a conference room between the older services, and there is every reason why it should be raised to the status of an independent Ministry in control of its own war service.

6. The urgency for the change will appear from the following facts. Hitherto aircraft production has been insufficient to supply the demands of both Army and Navy, and the chief concern of the Air Board has been to satisfy the necessary requirements of those services. But that phase is rapidly passing. The programme of aircraft production which the War Cabinet has sanctioned for the following twelve months is far in excess of Navy and Army requirements. Next spring and summer the position will be that the Army and Navy will have all the Air Service required in connexion with their operations; and over and above that there will be a great surplus available for independent operations. Who is to look after and direct the activities of this available surplus? Neither the Army nor the Navy is specially competent to do so; and for that reason the creation of an Air Staff for planning and directing independent air operations will soon be pressing. More than that: the surplus of engines and machines now being built should have regard to the strategical purpose to which they are going to be put. And in settling in advance the types to be built the operations for which they are intended apart from naval or military use should be clearly kept in view. This means that the Air Board has already reached the stage where the settlement of future war policy in the air war has become necessary. Otherwise engines and machines useless for independent strategical operations may be built. The necessity for an Air Ministry and Air Staff has therefore become urgent.

7. The magnitude and significance of the transformation now in progress are not easily realized. It requires some imagination to realize that next summer, while our Western Front may still be moving forward at a snail's pace in Belgium and France, the air battle-front will be far

behind on the Rhine, and that its continuous and intense pressure against the chief industrial centres of the enemy as well as on his lines of communication may form an important factor in bringing about peace. The enemy is no doubt making vast plans to deal with us in London if we do not succeed in beating him in the air and carrying the war into the heart of his country. The questions of machines, aerodromes, routes, and distances, as well as nature and scope of operations require careful thinking out in advance, and in proportion to our foresight and preparations will our success be in these new and far-reaching developments. Or take again the case of a subsidiary theatre; there is no reason why we may not gain such an over-powering air superiority in Palestine as to cut the enemy's precarious and limited railways communications, prevent the massing of superior numbers against our advance, and finally to wrest victory and peace from him. But careful staff work in advance is here in this terra incognita of the air even more essential than in ordinary military and naval operations which follow a routine consecrated by the experience of centuries of warfare on the old lines.

The progressive exhaustion of the man-power of the combatant nations will more and more determine the character of this war as one of arms and machinery rather than of men. And the side that commands industrial superiority and exploits its advantages in that regard to the utmost ought in the long run to win. Man-power in its war use will more and more tend to become subsidiary and auxiliary to the full development and use of mechanical power. The submarine has already shown what startling developments are possible in naval warfare. Aircraft is destined to work an even more far-reaching change in land warfare. But to secure the advantages of this new factor for our side we must not only make unlimited use of the mechanical genius and productive capacity of ourselves and our American allies, we must create the new directing organization, the new Ministry and Air Staff which could properly handle this new instrument of offence, and equip it with the best brains at our disposal for the purpose. The task of planning the new Air Service organization and thinking out and preparing for schemes of aerial operations next summer must tax our air experts to the utmost and no time should be lost in setting the new Ministry and Staff going. Unless this is done we shall not only lose the great advantages which the new form of warfare promises but we shall end in chaos and confusion,

as neither the Army or Navy nor the Air Board in its present form could possibly cope with the vast developments involved in our new aircraft programme. Hitherto the creation of an Air Ministry and Air Service has been looked upon as an idea to be kept in view but not to be realized during this war. Events have, however, moved so rapidly, our prospective aircraft production will soon be so great, and the possibilities of aerial warfare have grown so far beyond all previous expectations, that the change will brook no further delay, and will have to be carried through as soon as all the necessary arrangements for the purpose can be made.

8. There remains the question of the new Air Service and the absorption of the Royal Naval Air Service and Royal Flying Corps into it. Should the Navy and the Army retain their own special Air Services in addition to the air forces which will be controlled by the Air Ministry? This will make the confusion hopeless and render the solution of the air problem impossible. The maintenance of three Air Services is out of the question, nor indeed does the War Office make any claims to a separate Air Service of its own. But, as regards air work, the Navy is exactly in the same position as the Army; the intimacy between aerial scouting or observation and naval operations is not greater than that between long-range artillery work on land and aerial observation or spotting. If a separate Air Service is not necessary in the one case, neither is it necessary in the other. And the proper and, indeed, only possible arrangement is to establish one unified Air Service, which will absorb both the existing services under arrangements which will fully safeguard the efficiency and secure the closest intimacy between the Army and the Navy and the portions of the Air Service allotted or seconded to them.

9. To secure efficiency and smooth working of the Air Service in connexion with naval and military operations, it is not only necessary that in the construction of aircraft and the training of the Air personnel the closest attention shall be given to the special requirement of the Navy and the Army. It is necessary also that all Air units detailed for naval or military work should be temporarily seconded to those services, and come directly under the orders of the naval or army commanders of the forces with which they are associated. The effect of that will be that in actual working practically no change will be made in the air work as it is conducted to-day, and no friction could

arise between the Navy or Army commands and the Air Service allotted to them.

It is recognized, however, that for some years to come the Air Service will, for its efficiency, be largely dependent on the officers of the Navy and Army who are already employed in this work, or who may in the future elect to join it permanently or temporarily. The influence of the Regular officers of both services on the spirit, conduct, and discipline of the present air forces has been most valuable, and it is desirable that the Air Board should still be able to draw on the older services for the assistance of trained leaders and administrators. Further, it is equally necessary that a considerable number of officers of both Navy and Army should be attached for a part of their service to the Air Service in order that naval and military commanders and Staff Officers may be trained in the new arm and able to utilize to advantage the contingents of the air forces which will be put at their disposal. The organization of the air force therefore should be such as to allow of the seconding of officers of the Navy and Army for definite periods--not less than four or five years--to the Air Service. Such officers would naturally after their first training be chiefly employed with the naval and military contingents in order to secure close co-operation in air work with their own services. In similar fashion it would be desirable to arrange for the transfer of expert warrant and petty or non-commissioned officers from the Navy and Army to the new Service.

10. To summarize the above discussion we would make the following <u>recommendations</u>:

(1) That an Air Ministry be instituted as soon as possible, consisting of a Minister with a consultative Board on the lines of the Army Council or Admiralty Board, on which the several departmental activities of the Ministry will be represented. This Ministry to control and administer all matters in connexion with aerial warfare of all kinds whatsoever, including lighter-than-air as well as heavier-than-air craft.

(2) That under the Air Ministry an Air Staff be instituted on the lines of the Imperial General Staff responsible for the working out of war plans, the direction of operations, the collection of intelligence, and the training of the air personnel; that this Staff be equipped with the

best brains and practical experience available in our present Air Services, and that by periodical appointment to the Staff of officers with great practical experience from the front, due provision be made for the development of the Staff in response to the rapid advance of this new service.

(3) That the Air Ministry and Staff proceed to work out the arrangements necessary for the amalgamation of the Royal Naval Air Service and Royal Flying Corps and the legal constitution and discipline of the new Air Service, and to prepare the necessary draft legislation and regulations, which could be passed and brought into operation next autumn and winter.

(4) That the arrangements referred to shall make provision for the automatic passing of the Royal Naval Air Service and the Royal Flying Corps personnel to the new Air Service, by consent, with the option to those officers and other ranks who are merely seconded or lent, of reverting to their former positions.

There are legal questions involved in this transfer, and the rights of officers and men must be protected, but no dislocation need be anticipated.

(5) That the Air Service remain in intimate touch with the Army and Navy by the closest liaison, or by direct representation of both on the Air Staff, and that, if necessary, the arrangements for close co-operation between the three Services be revised from time to time.

(6) That the Air Staff shall, from time to time, attach to the Army and the Navy the air units necessary for naval or military operations, and such units shall, during the period of such attachment, be subject, for the purpose of operations, to the control of the respective naval and military commands. Air Units not so attached to the Army and Navy shall operate under the immediate direction of the Air Staff.

The air units attached to the Navy and Army shall be provided with the types of machines which these services respectively desire.

(7) That provision be made for the seconding or loan of Regular officers of the Navy and Army to the Air Service for definite periods, such officers to be employed, as far as possible, with the naval and military contingents.

(8) That provision be made for the permanent transfer by desire, of officers and other ranks from the Navy and Army to the Air Services.

11. In conclusion, we would point out how undesirable it would be to give too much publicity to the magnitude of our air construction programme and the real significance of the changes in organization now proposed. It is important for the winning of the war that we should not only secure air predominance, but secure it on a very large scale; and having secured it in this war we should make every effort and sacrifice to maintain it for the future. Air supremacy may in the long run become as important a factor in the defence of the Empire as sea supremacy. From both these points of view it is necessary that not too much publicity be given to our plans and intentions which will only have the effect of spurring our opponents to corresponding efforts. The necessary measures should be defended on the grounds of their inherent and obvious reasonableness and utility, and the desirability of preventing conflict and securing harmony between naval and military requirements.

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The inside story of the political crises within the British government during the first part of the war. Beaverbrook provides good insight into the maneuvering of the political personalities involved, but he must be read with a full understanding of his own part in the acts he recites.

_____. Men and Power, 1917-1918. New York: Duell, Sloan and Pearce, 1956.

The equally valuable companion piece to the work cited above. Contains excellent bibliography plus valuable letters in the appendix.

Bingham, Hiram. An Explorer in the Air Service. New Haven: Yale University Press, 1920.

Air problems of the first war from an American point of view. Bingham is highly critical of the Army's administration of the air service during the war, but then, surprisingly, concludes that there is no need for a separate air arm.

Blake, Robert (ed.). The Private Papers of Douglas Haig, 1914-19. London: Eyre and Spottiswood, 1952.

These papers represent about one-fifth of Haig's voluminous day-by-day account of the war. Carefully chosen to provide Haig's comments on the significant events of the period, they are especially valuable for his side of the controversy with Lloyd George.

Boyle, Andrew. Trenchard. London: Collins, 1962.

The definitive biography of the first Chief of Staff of the Royal Air Force. Boyle has drawn on private manuscript collections and personal interviews to create a work which probably will not be equalled.

Brabazon of Tara, Lord. The Brabazon Story. London: William Heinemann, Ltd., 1956.

The highly personal narrative of an active and interesting life, part of which was spent as an officer in the Royal Flying Corps and later in the R. A. F. Brabazon was active in the early development of aerial photography and served as a political appointee in the Air Ministry.

Callwell, C. E. Field-Marshal Sir Henry Wilson. 2 vols. London: Cassell and Company, Ltd., 1927.

Based on Wilson's diaries, this is the definitive work on the man who served as liaison officer to the French and as Chief of the Imperial General Staff. The author uses lengthy quotes from diaries to support his conclusions. Especially interesting for Wilson's comments on his contemporaries, Lloyd George, Robertson and Haig.

Chambers, Frank P. The War Behind the War, 1914-1918. New York: Harcourt, Brace and Co., 1939.

A broad and not particularly significant review of the political history of the war period.

Churchill, Winston S. The World Crisis, 1914-1918. 4 vols. 2d ed. revised. London: Odhams Press, Ltd., 1938.
Churchill's epic recitation of the war from his very active point of view inside the government. Invaluable to the student of the period.

Corbett, Julian S. and Henry Newbolt. Naval Operations. 5 vols. London: Longmans, Green and Co., 1920-1928.
An official history of the Royal Navy in the first war, based on Admiralty sources.

Douglas, Sholto. Years of Combat. London: Collins, 1963.
This is the first of a planned two-volume autobiography. Douglas covers his career as a young pilot in the first war and makes some shrewd observations on the airmen and politicians of that day. He later became a Marshal of the R. A. F. and commanded the fighter forces during the Battle of Britain.

Douhet, Guilio. The Command of the Air. 2d ed. Translated by Dino Ferrari. New York: Coward McCann, Inc., 1942.
The testament of air power's first prophet, an Italian army officer writing just after the war.

French, Field-Marshal, Viscount of Ypres. 1914. Boston: Houghton Mifflin Co., 1919.
French commanded the expeditionary force at the first of the war. This book is largely a defensive explanation of his part and has many distortions which are now well recognized.

Graves, Robert. Goodbye to All That. revised ed. Middlesex: Penguin Books, 1965.
First published in 1929, this is the intensely personal recollection of the war and its immediate aftermath by an officer who fought in the trenches. It is most notable for the grisly description of life in the trenches and the effect this had on the generation which lived through it.

Grey, C. G. A History of the Air Ministry. London: George Allen and Unwin, 1940.
The organization of the Air Ministry described by the long-time editor of The Aeroplane magazine. Grey witnessed the things about which he writes, but mostly

from the outside. Unfortunately, in the intervening twenty-five years he failed to update his scholarship from the readily available sources. The result is a generally vague and often misleading account.

Groves, Percy R. C. Behind the Smoke Screen. London: Faber and Faber, Ltd., 1934.

A lengthy plea for reversal of post-war British arms economy coupled with an especially biting indictment of the "military minds" who conducted the war. Groves, a former Director of Flying Operations in the Air Ministry, attacks Haig, Trenchard, and the wartime subjugation of air power.

Hankey, Maurice. The Supreme Command, 1914-1918. 2 vols. London: George Allen and Unwin, Ltd., 1961.

An extremely valuable account of the day-to-day workings of the war-time government by the man who was Secretary of the Committee of Imperial Defence. Based on and filled with quotes from diaries kept during the war.

Kerr, Mark. Land, Sea and Air. London: Longmans, Green and Co., Ltd., 1927.

The adventure-filled autobiography of one of the few senior Naval officers who was an air power advocate. Kerr is extremely critical of the parochial views which dominated the Admiralty.

Lehmann, Captain Ernst A. and Howard Mingos. The Zeppelins. New York: J. H. Sears and Co., Inc., 1927.

Story of the early air ships and the first raids from the air by a German officer who commanded one of the ships. Lehmann, a naval engineer, was responsible for many of the inventions used on the Zeppelin fleet. He died in the crash of the Hindenburg in 1937.

Lloyd George, David. War Memoirs of David Lloyd George. 6 vols. Boston: Little, Brown and Co., 1933-37.

The war-time recollections of Britain's Prime Minister. Invaluable for an understanding of the political history of the war. Occasional omissions of important incidents provide insight into the author's character.

MacMillan, Norman. Tales of Two Air Wars. London: G. Bell and Sons, Ltd., 1963.

Adventurous stories of war in the air, many based on the experiences of the author, an early R. A. F. pilot.

_____. Sir Sefton Brancker. London: William Heinemann, Ltd., 1935.

MacMillan tells the story of the man who was largely responsible for supplying the infant Royal Flying Corps throughout the war. Based largely on Brancker's papers and diary and told mostly in Brancker's words. Invaluable for an understanding of the early days of the R. F. C.

Maurice, Maj. Gen. Sir Frederick. British Strategy. London: Constable and Co., Ltd., 1929.

A criticism of wartime and post-war strategy by the man who was Director of Military Operations at the War Office.

_____. Lessons of Allied Cooperation: Naval, Military and Air. London: Constable and Co., Ltd., 1929.

A discussion of the various levels of machinery established to coordinate the war effort. Maurice, oddly, ignores his own part in stirring up a major controversy of the war by attacking Lloyd George in a letter to the newspapers. This incident was a part of the larger civil-military controversy and makes the book as important for what it does not say as for what it does.

McCudden, James T. Five Years in the Royal Flying Corps. London: The "Aeroplane" and General Publishing Co., Ltd., 1918.

Recollections of adventurous war years in the R. F. C. by a pilot who lived through it to fame and glory.

Mitchell, Brig. Gen. William. Memoirs of World War I. New York: Random House, 1960.

America's martyred air prophet recalls his first contact with war in the air. Valuable for recollections of the early period on the western front and for impressions of Trenchard and other early air leaders.

Morris, Captain Joseph. The German Air Raids on Great Britain 1914-1918. London: Sampson Law, Marston and Co., Ltd., n.d.

The definitive work on all the air attacks on Britain during the war. Well written and exhaustively researched, the book includes charts of the progress of each raid across England. Based on official records of the Air Ministry, the Air Raid reports, and the official German history.

Neumann, Maj. Georg Paul (comp.). The German Air Force in the Great War. London: Hodder and Stoughton, Ltd., n.d.

Neumann brings together the experiences of twenty-nine former German air officers to describe the birth, growth and development of the German air service in the war. Contains occasional factual errors and many prejudices, but a valuable and interesting work.

Raleigh, Walter and H. A. Jones. War in the Air. 6 vols. and Appendices. Oxford: The Clarendon Press, 1922-37.

The official history. The first volume was completed by Raleigh and, following his death, the balance of the work was completed by Jones. Based on the official War Department and Air Ministry documents, the work is precise, objective and exhaustive. The essential source for any student of the air war.

Robertson, Field Marshal Sir William. Soldiers and Statesmen, 1914-1918. 2 vols. New York: Charles Scribner's Sons, 1926.

Chief of the Imperial General Staff in 1916-17, Robertson was a confirmed "westerner" and an important figure in the civil-military controversy. This autobiography gives his side of the continuing debate.

Simon, John. Retrospect. London: Hutchinson and Co., Ltd., 1952.

The chatty autobiography of a man who served as a Cabinet Minister in the Asquith Government, in France with the Royal Flying Corps, and in the Headquarters of the Royal Air Force during the early days of organization. Good observations of the military and civilian leaders of the period.

Slessor, J. C. Air Power and Armies. Oxford: University Press, 1936.

Based on a series of staff college lectures in which Slessor reviewed the lessons of the war. Relies greatly on the official history.

_____. The Central Blue. New York: Frederick A. Praeger, 1957.

The autobiography of the Marshal of the Royal Air Force who fought in both World War I and World War II.

Smuts, J. C. Jan Christian Smuts: A Biography. New York: Morrow, 1952.

The story of Smuts's life by his son. Despite occasional personal bias, the book is still valuable for personal reminiscence and the use it makes of Smuts's papers.

Sueter, Murray F. Airmen or Noahs: Fair Play for Our Airmen. London: Sir Isaac Pitman and Sons, Ltd., 1928.

Sueter, as Director of the Air Department in the Admiralty, fought the early attempts by the Sea Lords to strangle the air arm. Occasional tortuous writing detracts little from the excellent observations on the political battle to form a single air service.

Sykes, F. H. Aviation in Peace and War. London: Edward Arnold and Co., 1922.

A somewhat superficial survey of the evolution of air power by the man who succeeded Trenchard as Chief of the Air Staff. Interesting for Sykes's personal observations on his contemporaries.

_____. From Many Angles. London: George G. Harrap and Co., Ltd., 1942.

Sykes's autobiography. Marred by the author's tendency to gloss over the many controversies in which he was involved with other early air leaders, particularly Trenchard and Henderson. Excellent description of the air effort at Gallipoli.

Wrench, John Evelyn. Struggle, 1914-1920. London: Ivor Nicholson and Watson, 1935.

A general review of the political side of the war. Wrench ignores many of the important controversies over

the formation of the R. A. F. which is unfortunate since he was Lord Rothermere's private secretary.

_____. Alfred Lord Milner, 1854-1925. London: Eyre and Spottiswood, 1958.
Laudatory biography of Lloyd George's Minister of War.

Wright, Peter E. At the Supreme War Council. New York: G. P. Putnam's Sons, 1921.
The author, Assistant Secretary of the Supreme War Council, presents the thesis that the allies almost lost the war until the right vehicle of command--the War Council--was found. Laudatory of Lloyd George and Sir Henry Wilson and highly critical of Asquith, Robertson and Haig.

B. Books--Important Secondary Works

Arnold, Henry H. and Ira C. Eaker. Winged Warfare. New York: Harper and Brothers, 1941.
A statement on air power by two noted American air generals.

Babington-Smith, Constance. Testing Time: The Story of British Test Pilots and Their Aircraft. New York: Harper and Brothers, 1961.
Excellent description of the early development of British aviation and of many of the pioneers, including Roe, DeHavilland, Hawker, and many others.

Blake, Robert. Unrepentant Tory. New York: St. Martin's Press, Inc., 1956.
The life of Bonar Law. Provides excellent description of the tortuous politics of the war period.

Bonham-Carter, Victor. Soldier True. London: Frederick Muller, Ltd., 1963.
A sympathetic account of the life and wartime service of Field Marshal Sir William Robertson. Makes good use of the Robertson papers.

Chamier, J. A. The Birth of the Royal Air Force. London: Sir Isaac Pitman and Sons, Ltd., 1943.

The author relies almost entirely on Raleigh and Jones for his information. Contains excellent series of illustrations of World War I aircraft.

Cuneo, John R. The Air Weapons, 1914-1916. Vol. II of Winged Mars. Harrisburg: Military Service Publishing Company, 1947.

This is the second of a planned three-volume series. The author uses the official histories of the major combatants. Excellent critical comments on the 292 references which he cites.

Dudley, Ernest. Monsters of the Purple Twilight. London: George G. Harrap and Co., Ltd., 1960.

The author makes excellent use of German and British sources on the Zeppelin war. A good history but not as complete as Morris.

Falls, Cyril. The First World War. London: Longmans, Green and Co., Ltd., 1960.

An excellent short survey of the entire war. Relies on Raleigh and Jones for the air war.

Gamble, C. F. Snowden. The Air Weapon. 3 vols. London: Humphrey Milford, 1931.

Exhaustive and detailed study of the growth of British military aeronautics. The first volume covers the period from the earliest efforts in 1783 through World War I.

Hancock, William Keith. Smuts: The Sanguine Years, 1870-1919. Cambridge: University Press, 1962.

The first part of what will probably become the definitive work on Smuts. The author had access to the Smuts papers and has made excellent use of them. Well written and exhaustively researched.

Horne, Alistair. The Price of Glory: Verdun 1916. London: MacMillan, 1962.

The vividly-written step-by-step dissection of the goriest battle of the war. Contains an excellent narrative of the battle and surprising conclusions on its long-range effects on France and Europe.

Kiernan, R. H. The First War in the Air. Manchester: Peter Davies, Ltd., 1934.

A short and somewhat superficial description of the combat engagements of the Royal Flying Corps and the Royal Naval Air Service in World War I. Drawn mainly from the official history.

Kingston-McGloughry, E. J. Global Strategy. New York: Frederick A. Praeger, 1957.

A review of the evolution of air power and its effects on national goals. The author is an R. A. F. Air Vice-Marshal.

Lanchbery, Edward. A. V. Roe. London: The Bodley Head, 1956.

A good portrait of the first man to fly in Britain.

Liddell-Hart, B. H. The Real War, 1914-1918. Boston: Little, Brown and Co., 1930.

An excellent survey of the first war by a noted military writer.

Magnus, Philip. Kitchener: Portrait of an Imperialist. London: Arrow Books, 1961.

A penetrating and interesting biography of the man who was Great Britain's Minister of War during the early days of World War I.

McCormick, Donald. The Mask of Merlin. London: MacDonald, 1963.

A highly critical and biting indictment of Lloyd George and his policies. McCormick paints the Prime Minister as a conniving, opportunistic politician and claims his qualities of statesmanship were greatly overrated. Well researched and very well written.

Mosley, Leonard. Curzon. London: Longmans, Green and Co., Ltd., 1960.

The interestingly-written life story of the president of the first Air Board. Curzon appears as an overly ambitious political opportunist.

Nicholson, Harold. Curzon: The Last Phase, 1919-1925. New York: Houghton Mifflin Co., 1934.

Curzon's post-war years. A sympathetic portrait in which the author sees Curzon from a far different point of view than does Mosley.

Poolman, Kenneth. Zeppelins Against London. New York: John Day Co., 1961.

A generally superficial treatment of the German air ship attacks. Fair journalism, not very good history.

Pound, Reginald and Geoffrey Harmsworth. Northcliffe. London: Cassell and Co., Ltd., 1959.

A lengthy apologia based mainly on the Northcliffe and Harmsworth family papers. The book suffers from too much Harmsworth family influence and the bias is obvious.

Reynolds, Quentin. They Fought for the Sky. New York: Bantam Books, 1958.

A superb true adventure story by a brilliant writer who draws from all the best sources including the official history. Occasional minor factual errors.

Saunders, Hilary St. George. Per Ardua. London: Oxford University Press, 1945.

A description of the rise of British air power from 1911 to 1939. This is a complete and excellent work. The author relies mostly on Raleigh and Jones for the World War I period and uses the official R. A. F. records for the later period. Contains a good short bibliography and an excellent chronology.

Spaight, J. M. Air Power and War Rights. 3d ed. revised. London: Longmans, Green and Co., 1947.

A discussion of the international legal implications of bombing an enemy nation from the air. Good review of the early evolution of air power concepts.

Tuchman, Barbara W. The Guns of August. London: Constable and Co., Ltd., 1962.

Meticulously researched narrative history of the beginning month of the war. Well written and contains excellent maps and an outstanding bibliography.

C. Newspapers and Periodicals

The Aeroplane. 1914-1918.

Macintyre, Donald. "Point of No Return," U. S. Naval Proceedings, XCII, No. 2 (February, 1964), 37-43.

Montagu of Beaulieu, Lord. "Aviation Present and Future," Edinburgh Review, CCXXIV, No. 457 (July, 1916), 137-149.

Prevost-Battersby, H. F. "The New Mechanism of War," Edinburgh Review, CCXXI, No. 452 (April, 1915), 385-403.

Sykes, F. H. "Air Defence," Edinburgh Review, CCXXXVI, No. 482 (October, 1922), 209-227.

The Times (London). 1912-1918.

"Some Reflections on Air Warfare," Edinburgh Review, CCXXXIX, No. 487 (January, 1924), 13-26.

"History of the Air Forces," Flying, XXIX (September, 1941), 40-44.

"The New Battlefield," Fortune, XXIII (March, 1941), 69ff.

D. Government Publications

"Fifty Years of Military Aviation, 1912-1962," a chronology. London: The Air Ministry, 1962.

Frankland, Noble. A Short History of the Royal Air Force. Air Ministry Pamphlet 348. London: The Air Ministry, 1958.

Great Britain. Parliamentary Debates (5th Series). (Commons.) Vols. LXXIII-XCIX (1915-1918).

_____. Parliamentary Debates (5th Series). (Lords.) Vol. XXII (1916).

E. Compilations

The Dictionary of National Biography: The Concise Dictionary. Part II, 1901-1950. Oxford: Oxford University Press, 1961.

Gibbs-Smith, Charles H. The Aeroplane: An Historical Survey of Its Origins and Development. London: Her Majesty's Stationery Office, 1960.

Payne, L. G. S. Air Dates. New York: Frederick A. Praeger, Inc., 1957.

Thetford, O. G. and E. J. Riding (comps.). Aircraft of the 1914-1918 War. Harleyford: Harleyford Publications, 1954.