CHAPTER 1

# THE EARLY YEARS OF MILITARY FLIGHT

On 29 November 1917 an Act of Parliament establishing an Air Force and an Air Council received the Royal Assent. The Royal Air Force came into existence on 1 April 1918.

Only 9 years before, on 16 October 1908, an American named Samuel Franklin Cody made the first officially recognized aeroplane flight in Britain - a distance of 1,390 feet in a bamboo and canvas biplane known as British Army Aeroplane No1.

Cody's Biplane

In a matter of just over 9 years, from that very first flight to the establishment of a third independent military service in Britain, aviation had become firmly established in the fabric of our society. Those years are a fascinating web of great achievements and some failures, of men of vision and many more of courage, of rapid technological advance, and

of continual political manoeuvrings in deciding how British air power was to be organized. Dominating the last 4 years of that period were the demands of the First World War. Without that forcing ground for experiment and practice in the new technology of aviation, the aeroplane could easily have remained just a piece of machinery and no more - certainly not a military weapon that caused changes in the art and science of war.

## EARLY AVIATION

### BALLOONS

Military flying was pioneered by the French with their invention of the balloon. The balloon was used for observation early in the French Revolutionary War, but even the military genius of Napoleon did not see much use for it. Not until 1878 was the first Army Balloon School established at Woolwich, and 4 years later there followed a factory and training school at Chatham as a unit of the Royal Engineers; this was named the 'Balloon Factory'. The Balloon Factory was soon moved to Farnborough, Hampshire, and thus, in the infancy of British aviation, an association began that, through time and various name changes, linked the name Farnborough with leadership in the field of aviation research and development. Kite balloons with tail fins to give stability in wind were developed and it was this type of balloon that saw service in both World Wars

Kite Balloon

The military potential of the powered, navigable airship was also slow in being recognized - again, particularly in Britain. The first British Army airship was not completed until 1907. The Nulli Secundus flew from Farnborough to London on 5 October 1907, but it came back to Farnborough by road - deflated. More airships and balloons were built at Farnborough but their importance was gradually overshadowed by the new type of flying machine, the aeroplane.

## HEAVIER-THAN-AIR FLIGHT

The potential of the Wright brothers' historic achievement at Kitty Hawk, North Carolina, in 1903 was recognised by the staff of the Balloon Factory, even before the US military authorities took note. Requests were made for the Wrights to continue their experiments in England but the Treasury refused to finance the project. However, at that time Samuel Cody was in England selling horses to the cavalry and experimenting with kites for Army use. Working from the Balloon Factory, this uneducated Texan showman, finally succeeded albeit largely by trial and error, in making that first aeroplane flight in Britain. While aeroplane flight may have been started, its progress was very much a haphazard development, lagging far behind what was going on in both France and Germany. The War Office remained unconvinced of any future military use, the Treasury considered the meager sums requested by the Balloon Factory to be excessive; and British pioneers could only stand by and envy the considerable sums of money going into the giant airship development programme of Count Ferdinand von Zeppelin in Germany. So it was left to enthusiastic individuals to push forward on their own at this early stage. Men like Sopwith, Roe and Handley Page, whose aircraft were later to form the backbone of British military flying, received no encouragement. The very first officers to fly learnt to do so at their own expense and in their own time - presumably as an alternative to riding and hunting which were still considered the proper pastimes of any Army officer. A young engineer named Geoffrey de Havilland was taken on to the staff at the Balloon Factory. Since an experimental establishment had no authority to design aircraft, de Havilland had to 'refurbish' the existing types that came in for repair. The tractor biplane 'BE1' had to be designated as such, 'Blériot Experimental', since it was a reconstructed Blériot, but looked nothing at all like the original.


Blériot Experimental 1, known as the BE1

**THE AIR BATTALION**

The War Office changed its official thinking in 1911 by deciding that the old Balloon Section would be expanded into an Air Battalion. With an HQ at Farnborough, with No 1 (Airship) Company also at Farnborough and with No 2 (Aeroplane) Company at Larkhill on Salisbury Plain, Britain now had its first military unit equipped with heavier-than-air craft.


Latest Army Biplane at Larkhill 1913

Qualifications for pilots in the new unit were the possession of an Aviator's Certificate (but now the War Office agreed to repay the £75 it cost to be trained), demonstrate good map-reading and sketching skills, being a good sailor and having an aptitude for mechanics.


Sgt Ridd 1st NCO RFC Pilot in a Farman at Larkhill

While appearing somewhat quaint, these qualifications were all practical at a time when the only role seen for aircraft was reconnaissance and when aircraft stability was poor and engine failure frequent. Meanwhile the tide of German militarism was becoming more and more obvious. The naval armaments race was the most obvious to worry British politicians and alarm the general public, but Germany was continuing to develop an impressive airship force. In taking stock of its air forces, the British government found that they could hardly be called airworthy, let alone capable of matching those of Germany. The Air Battalion had very few serviceable aircraft for training and, by the end of 1911, it was thought that there were only 11 flying men in the Army and only 8 in the Navy.

**THE ROYAL FLYING CORPS 1912**

In some anxiety, the Prime Minister, Herbert Asquith, asked the Committee of Imperial Defence to examine the entire question of naval and military aviation and to suggest how Britain could have an efficient air force. When the government realised in 1912 that a large organised Corps was required to develop the use of aviation, it was a sub-committee of the Committee of Imperial Defence, led by General David Henderson, that developed the master-

plan for the Royal Flying Corps which came into being on the 13 March 1912.

Henderson was originally a Sandhurst trained infantry officer in the Argyll and Sutherland Highlanders. In his career he had survived a brush with death in the form of an accidentally discharged bullet during the Zulu war, and had held a number of low-level positions as a staff officer. The situation changed for Henderson after 1911 when, at the age of 49, he enrolled in a flying course with the Bristol Flying School at Brooklands. Under his command and over the next 6 years, Henderson developed some of the central roles that would be carried on by the RAF; aerial reconnaissance, fighter interception and tactical support. Lord Trenchard, when later described as the 'Father of the RAF', would always state that this was not the case; in his opinion, the true Father of the RAF was Lieutenant General Sir David Henderson.

3 Squadron RFC airmen on Leyland transport 1913

1st Air Review, by General Smith-Dorrien at Perham Down May 1913

The RFC included a military Wing, a Naval Wing, a Central Flying School, a Reserve and the Royal Aircraft Factory at Farnborough (the old Balloon Factory) to provide aircraft for both Wings. The report by Henderson's Committee emphasized that the primary role of all aircraft was reconnaissance and so the new RFC became closely identified with land operations and, to a lesser extent, naval operations in a support role. Possibilities for the wider use of air power, either in air defence against the airship or in retaliatory raids against an aggressor, were not considered.

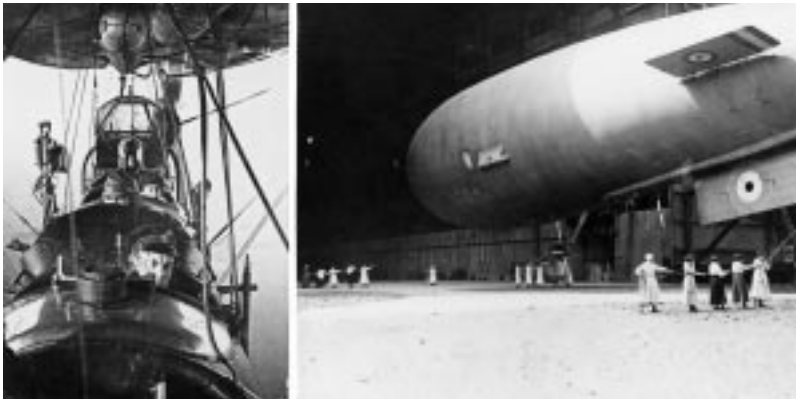
The choice of Upavon on Salisbury Plain for the Central Flying School (CFS) met with almost unanimous disapproval. The staff complained that, because the airfield was on a slight plateau with buildings at a lower level, they were always walking uphill. The *Aeroplane* magazine wondered why the school should be 'located on the top of a mountain where it is open to every wind that blows', an important issue considering the fragility of the machines that were then in use. The planned aircraft establishment was 25, but on opening day only 7 had arrived. However, the establishment did include a sergeant and an orderly of the Royal Army Medical Corps, one of whom was always on duty when flying was in progress. This was a most realistic touch given the location of the school, the dubious airworthiness of the machines and the demands on the skill of the pilots. From such humble origins CFS began its long career dedicated to excellence in airmanship.

## AVIATION IN THE ROYAL NAVY

In July 1908 Capt Bacon, Director of Naval Ordnance, asked the First Sea Lord (Admiral "Jackie" Fisher) for permission to build a rigid airship. This was agreed and in May 1911 Naval Airship No 1, popularly known as "The Mayfly" and built by Vickers, emerged from her shed for the first time. Unfortunately, she was not a success. She was wrecked whilst being brought out of the hangar in September 1911 and the Admiralty abandoned further experimental work with airships. However, Naval interest in the air continued. At the same time as The Mayfly was being developed, the Navy began training officers as pilots at the Royal Aero Club ground at Eastchurch, Isle of Sheppey, using 2 borrowed aeroplanes. The trainee pilots were also given a technical training course at Short Brothers' Works at Eastchurch. In December 1911 the first naval flying school opened at Eastchurch, the Admiralty having purchased the 2 borrowed aeroplanes and 10 acres of land adjoining the Royal Aero Club ground.

The same year also saw the emergence of the first Royal Navy seaplane which, piloted by Cdr Swann, flew on 18 November 1911. It was the first seaplane to be fitted with 2 floats and the first to fly in Britain. The Navy was gravely concerned with the threat from submarines and the use of the seaplane was focused on anti-submarine warfare. This soon resulted in the identification of the need for air-to-surface communications and, by 1914, 16 seaplanes had been fitted with transmitters and 5 coastal air stations had transmitters and receivers.

However, the rapid development of airships on the Continent, especially in Germany, prompted the Admiralty to refocus on the importance of airships. As a result, the naval airship section which had been disbanded was resurrected and 2 rigid and 6 non-rigid airships were planned. On 1 January 1914 the Navy assumed control of all airship development.



Royal Navy crew in Navy C Series Airship basket, (left)
WRAF(WRNAS) Howden Airship Station 1918 (right)

## THE RFC MILITARY AND NAVAL WINGS 1912-1914

First World War postcard - embroidered RFC wings

On 13 May 1912 the Royal Flying Corps, consisting of separate Naval & Military Wings, was formed. While it was intended that both Wings of the RFC should work in close co-operation, in practice the 2 Wings drifted further and further apart in the period just before the First World War as the differences between them became more and more marked. The Military Wing concentrated on building a reconnaissance force to work closely with the Army and on convincing the Army staff that the aeroplane could get accurate and quick information to the land commander - not an easy task when the cavalry still dominated the War Office. The value of aerial reconnaissance was confirmed in the Army manoeuvres of 1912 and the art of concealment from aerial observation became part of standard Army training from that moment, albeit in a rather primitive fashion at first. It was said that in 1913 an instruction to the infantry went something like: "If you cannot find a hedge, hide yourself under your blanket and make a noise like a mushroom".

B Flight 13 Squadron RFC 1913

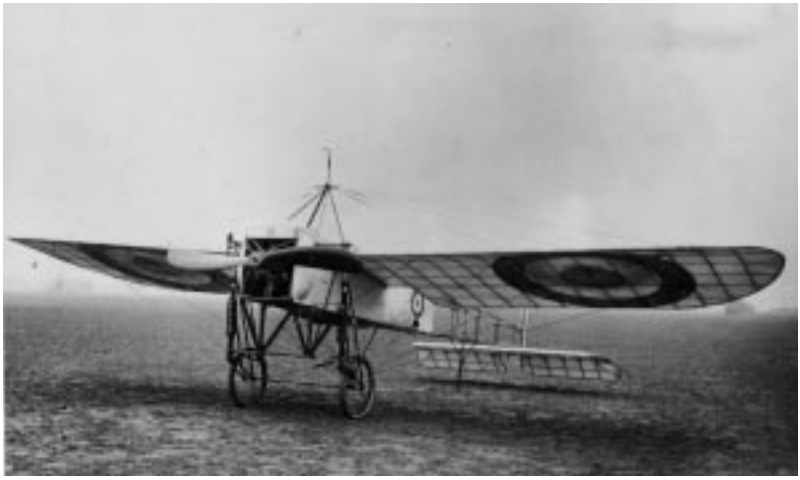
The Naval Wing, on the other hand, with the encouragement of Winston Churchill, the First Lord of the Admiralty, began thinking in terms of the offensive use of military aircraft as long-range bombers, especially against the Zeppelin bases, since the Navy's own dockyards and arsenals at Chatham and Portsmouth appeared to be open invitations to Zeppelin raids should war break out with Germany. The Naval Wing also preferred to train its pilots at its own flying school at Eastchurch and not at CFS, and to obtain its aircraft from private companies, such as Shorts and Sopwith.

It is not surprising then, that the inevitable result was an even greater widening of the differences between the 2 Wings culminating in the Naval Wing becoming known as the Royal Naval Air Service (RNAS) in July 1914. While this may have been inevitable, it was particularly unfortunate that it happened as the war clouds gathered over Europe. All indications continued to be clear - a war could not be far away and flying in some form or other would have a part to play in that war, although nobody could forecast exactly what it would be. Germany continued to build an impressive airship force. Fear of attack by airship was brought sharply into public focus when in late 1912, after an unidentified airship had been located off the Kent coast, the Admiralty stated categorically that the airship was not one of ours. Further mysterious and unidentified lights appeared off the coast in the next year as well, causing further alarm. There was considerable public debate, especially in 1913, when it became known that Germany was spending over 7 times more than Britain on her air forces. Not for the last time was the Minister responsible asked to say what sort of force could the country hope to have for so little expenditure.

Shorts Seaplane

With little funds and seemingly only lukewarm support, it is surprising that the RFC Wings made any advances at all. That they did testifies to the determination and skill of the individuals involved. By practical experiment, and some good luck, advances were made in navigation, armaments (such as fitting machine-guns into aircraft, even though the official role was unarmed reconnaissance), bombing using the first very primitive bomb sights (pioneered by the Naval Wing), and night flying. The limitations of the aircraft made night flying a particularly hazardous undertaking. However, once petrol flares were used to light the airfield when there was no moon, night flying became possible and a Lieutenant Carmichael asked his mechanic to make a night flying control modification - a switched light to illuminate the compass and tachometer.

However, for all the possibilities and in spite of the efforts of enthusiastic individuals, British air power was still a fragile instrument. There was very little equipment and trained aircrew with which to go to war. At the outbreak of the First World War, in August 1914, the Military Wing of the RFC went to France to support the British Expeditionary Force with just 63 aeroplanes, 105 officers and 95 motor transport vehicles. The RNAS remained in Britain to defend vulnerable areas against attack by hostile aircraft.



Bleriot XI Monoplane

# THE FIRST WORLD WAR (1914-1918)

## THE ROYAL FLYING CORPS
## 1914-1915

In July 1914, General Haig is said to have told his officers, "I hope none of you gentlemen is so foolish as to think that aeroplanes will be usefully employed for reconnaissance purposes in war. There is only one way for commanders to get information by reconnaissance, and that is by the cavalry". However, the first commander of the British Expeditionary Force (BEF), Sir John French, acknowledged very early in the War the value of the reconnaissance work of the aeroplane. In his first war despatch, dated 7 September 1914, he said: "I wish particularly to bring to your Lordships' notice the admirable work done by the Royal Flying Corps. They have furnished me with the most complete and accurate information, which has been of incalculable value in the conduct of operations. Fired at constantly by both friend and foe, and not hesitating to fly in every kind of weather, they have remained undaunted throughout".

The Army commanders had precious little opportunity to use the cavalry once the Western Front in the First World War became bogged down in trench warfare, and so they were compelled to turn increasingly to the RFC. Eventually, Haig himself became firmly convinced of the value of the RFC to his land operations. Air photography and air-to-ground wireless telegraphy were developed by the RFC so that the Army commanders could have fast and accurate information upon which to plan their campaigns. While aerial reconnaissance remained the major role, trench warfare required an extension of air operations to include artillery spotting. Artillery is only as good as its observed fire and the aeroplane offered a much wider field of observation than before. In such static warfare, troops, ammunition, equipment and food were found very close to the front line and only a few miles from RFC bases. The requirement to conceal the respective enemy's disposition to the other side resulted in aerial fighting once it was realized that denial of reconnaissance was just as important as obtaining it.

Two women of the RFC

Consequently, the main task of the fighters became to destroy reconnaissance aircraft and not other fighters. In fact, the role of the reconnaissance pilots and observers has been largely forgotten against the glamour and heroics of the fighter squadrons and the aces such as McCudden, Mannock, Ball, von Richthofen (immortalised as the Red Baron) and Rickenbacker (the first American ace), all enshrined in fact and popular image.

McCudden in his SE5 Ball Mannock

After the first year of the war, it was the fighter that dominated air operations over the Western Front. The real fighter aircraft was born when the Dutchman, Anthony Fokker, developed the synchronization gear that enabled bullets from a machine-gun to be fired through rotating propeller blades.

Von Althus and Fokker Monoplane

The German Fokker Eindekkers (monoplanes), fitted with the synchronization gear, took a heavy toll of the slow, almost defenceless BE2s flying reconnaissance missions for the British Army in the winter of 1915-16. The German success was described dramatically in Parliament as “the Fokker scourge”.

13 Squadron BE2C’s at Gosport waiting to go to France 12 October 1915


DH2

The initiative swung back to the RFC when a new breed of British fighters became available; firstly, the DH2 with a forward-firing Lewis gun (No 24 Squadron commanded by Major Hawker - awarded the first VC for air fighting in July 1915 - became the first unit to be solely equipped with the DH 2s for air fighting in January 1916), and then later the Sopwith Camel, which alone destroyed 1294 enemy aircraft in combat in 1917-1918, and the SE5 fighters (Major McCudden and Captain Ball, both VCs, flew the SE5 with No 56 Squadron).

But control of the air over the Western Front was often delicately balanced as it alternated between the opposing air forces. The German Albatross and Halberstadt single-seaters took a heavy toll of the RFC in late 1916 - early 1917 before the Camels and SE5s came into action.

Albatross

Halberstadt (left) forced down by OC 35 Squadron and Sopwith Camel (right) with bombs 16 December 1917

**AUGUST 1915- 1ST APRIL 1918**

The goal of winning air superiority over the Western Front was given impetus when Major General Hugh Trenchard took over command of the RFC in France in August 1915 from Sir David Henderson. Henderson returned to London to become Director General of Military Aeronautics, leaving Trenchard in France as the overall commander of the Royal Flying Corps.

Trenchard had been a relatively undistinguished regimental officer of the Royal Scots Fusiliers with service in South Africa and Nigeria until 1912. Then he had a letter from a friend who was full of enthusiasm for flying. Come and see men crawling like ants, Trenchard was urged. This phrase, rather than any visionary view of airpower, pointed Trenchard towards the RFC and at the age of 39 he learnt to fly. As Deputy Commandant of CFS he was left behind to organize the recruitment and training of pilots and ground tradesmen when the RFC went to France in 1914.


General David Henderson, Major General Hugh Trenchard

Trenchard surprised the War Office by buying up the old Brooklands Flying School and offering rates of pay to aircraft mechanics as high as any Army tradesman. His first major test came when he took command of the RFC facing the Fokker scourge. Trenchard combined a passion for detail with an uncompromising determination to attract the best possible men and machines for the newly formed RFC.


CFS Staff January 1913 (Trenchard front row third from right)

Above all, he had a single-minded devotion to the offensive use of the aeroplane, to establishing air superiority over the front line and to taking the war in the air to the enemy. The cost of maintaining offensive air operations was, however, very high in both men and machines; the demands for more crews and better machines for the RFC were incessant and always urgent, none more so than in late 1916 when Trenchard was complaining to the War Office that if the RFC had to fight next year's battles with last year's machines it would be hopelessly outclassed. But the devotion to the offensive use of the aeroplane and the new types of aircraft that eventually became available formed the basis of the RFC's success. If the principles of air power were learnt the hard way they were not lost on the Army commanders who abandoned their pre-war hostility to the aeroplane rather quickly once battle commenced.

By late 1916, Haig was urgently requesting 20 more squadrons for the Western Front. But that request could not be met without borrowing from the RNAS and it became clear that there was something wrong with both the organization and the supply of equipment and trained personnel for the 2 air services.

World War One - early RFC pilots

The need to supply large numbers of pilots and observers for the front line squadrons outstripped the capacity of the training organization in Britain. An attempt to set up a training base in Canada in 1915 failed but eventually, in March 1917, the first RFC training squadron was formed on a new airfield near Toronto. By the end of the year the Canadian training brigade consisted of a total of 16 squadrons together with associated gunnery and ground training schools at 7 airfields around the shores of Lake Ontario.

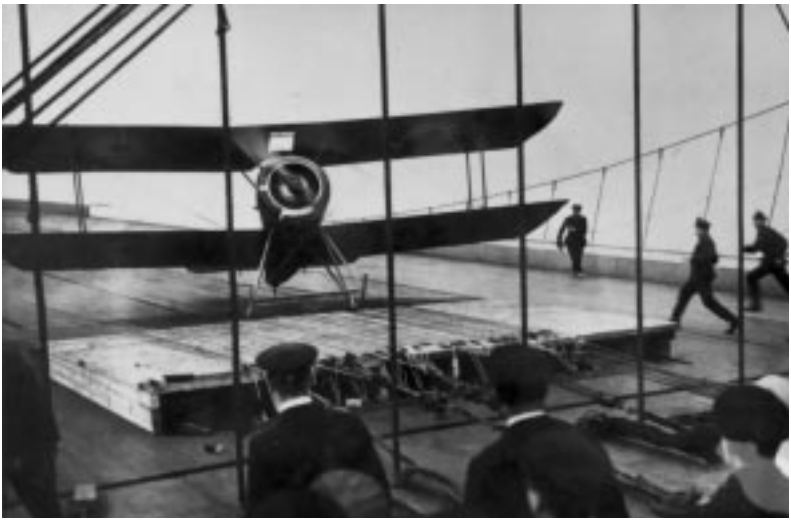
In September 1917 one of the Canadian training wings was despatched to Texas where 3 airfields had been built in the Fort Worth area. This move was the result of a deal with the American government to obtain training facilities in the milder climate of Texas in return for which the RFC would train 10 squadrons of the US Air Service. Thus the RAF's relations with the USAF can be dated back to the very earliest days of American involvement in the First World War. A Training Brigade of around 20 training squadrons and schools was also established in Egypt and thousands of British and Australian soldiers were trained there as pilots or observers.

**THE ROYAL NAVAL AIR SERVICE**

While the RFC was fully occupied with the war in France, the RNAS became particularly concerned about the defence of its dockyards and arsenals against air attack, when home air defence remained in theory the concern of the RFC. Such a situation did not please Winston Churchill who decided in September 1914 that the RNAS would take over responsibility for home defence. Offensive action was promptly taken against the most obvious threat, the Zeppelins. The airship sheds at Cologne and Dusseldorf were both bombed and the raid on the latter so impressed the Director of the Air Department at the Admiralty, Captain Murray Sueter, that he asked Frederick Handley Page to produce for the RNAS a 'bloody paralyser of an aeroplane'. This vague specification led to the Handley Page 0/100, the first British strategic bomber.

SE5 with Handley Page 0/100 on the right

While efforts were made to improve navigation and bombing accuracy, the RNAS itself was divided between those who wished to continue with the long-range bombing ideas, and those who saw cooperation with the fleet as the correct role for naval flying. Cooperation with the fleet by ship-launched, and ship-recovered, aircraft proved a most difficult problem, however, for it was not until August 1917 that the first successful deck landing was made.



Sopwith Pup deck landing

**AIR DEFENCE**

While the pressure was clearly on towards a unified air service, German daylight bombing raids on London in the summer of 1917 provided the catalyst for action. Zeppelins had bombed London in 1915 and 1916, dropping a total of 162 tons of bombs, killing 500 people and forcing the Government to allocate 17,000 officers and men to home air defence.

Zeppelin by shed (note the people standing under the aft section)

The Zeppelins appeared as an invincible armada but they were initially countered successfully by a combination of aircraft, anti-aircraft guns, accidents and luck so that the weaknesses in the British air defence organization were not exposed at the time.

Zeppelin in the sea

On the night of 2/3 September 1916, Lieutenant Leefe Robinson was the first airman to destroy a Zeppelin over England and he was awarded the first home-based VC.

Lieutenant Leefe Robinson VC

However, the weaknesses in the British air defence were soon exposed by the daylight raids of the German Gothas, and later Giants, in 1917. In the first daylight raid on 13 June 1917, 162 people were killed and 432 injured - in one fell swoop the complacency of government and public alike was shattered. Seventy-two tons of bombs fell within a one-mile radius of Liverpool Street Station, others at Fenchurch Street and in the east end of London. The aircraft of both the RFC and the RNAS that took off to defend London were barely able to get within striking distance of the bombers which could either outfly or outclimb them. When the Gothas returned on 7 July, the defenders made better contact, but only one Gotha was destroyed while the civilian casualty list was 57 killed and 193 injured.

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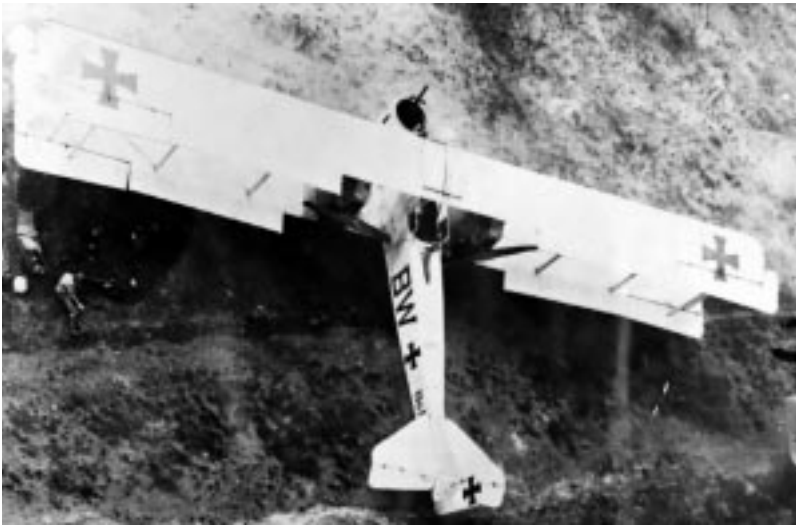


Gotha - Recce Picture

Numerically, the civilian casualties were nothing compared with what was happening, or was still to happen, in the slaughter on the Western Front. But those killed in London were civilians, and the public indignation at such an attack was as vocal as it was predictable. The Times reported that the raid had produced much anger in the public mind, while the Daily Mail, seeking a sensational headline, reported that Britain had not been 'so humiliated since the Dutch Fleet sailed up the Thames in 1667', and called for the resignation of those responsible for such a disgrace. The clamour for reprisals against German cities was as loud in Parliament as it was at Speakers' Corner. "Every time the Germans raid London, British airmen must blot out a German town", Prime Minister Lloyd George was told in the Commons. But the British air services, as the Prime Minister and others knew, were incapable of either effectively stopping the raids, or taking the war to the German homeland.

## BIRTH OF THE ROYAL AIR FORCE

### TOWARDS UNIFICATION

The obvious overlapping of the functions of the 2 air services (RFC and RNAS), the competition between them for engines and aircraft, but especially the critical problem of the failure of the supply organizations to meet their needs, led to a drastic rethinking of the way in which military aviation should be organized. Ideas of unification began to be put about in 1916. Within the Government's bureaucracy for running the war, attempts were made to coordinate all military flying activities beginning with Lord Derby's Joint War Air Committee (February 1916), an Air Board under Lord Curzon (May 1916), and another Air Board under Lord Cowdray (January 1917). All were very much concerned with the supply problems, but it became increasingly clear that some form of unity was needed if the supply problem was to be overcome. They all pointed out the wastefulness of the competition for aircraft and engines between the War Office and the Admiralty, but, with no executive power, there was little they could do. Lord Derby felt that any unification of the RFC and the RNAS would be practically impossible in wartime. Lord Curzon suggested that his Air Board should advise the Government on the creation of a larger body to deal with all air matters and on the formation of a separate air service. Lord Cowdray's Air Board eventually solved the supply problems by placing the responsibility for aircraft supply in the Ministry of Munitions instead of the separate Service ministries. Cowdray, himself, was highly regarded by both air services for his understanding of technical matters and his Board had greater executive power than its predecessors. It was Lord Cowdray who gave £35,000 to form a club in London, which is now the RAF Club.

### THE SMUTS REPORTS

In response to the outcry, Lloyd George turned to General Jan Christian Smuts. Smuts was asked to solve the air defence problems of Britain - quickly. He headed a

government committee (whose only other member was the Prime Minister) to examine both air defence arrangements and air organization. He was fortunate to have as his closest adviser Sir David Henderson, the first commander of the RFC in France and since 1915 the Director-General of Military Aeronautics. It was these 2 men who directly shaped the course of aviation history. In 2 reports, issued on 19 July and 17 August 1917, Smuts recommended an Air Ministry and Air Staff to amalgamate the RFC and the RNAS into a new Air Service that was independent of the Army and the Navy. But in reviewing the future of air power in general, he expounded a doctrine of the independent use of air power when he said:

Smuts

> *"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 industries and populous centres on a vast scale may become one of the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate".*

The recommendations were accepted by the Government (but not immediately made public for fear of enemy counteraction) and the process began of amalgamating the 2 air services into one. Serious doubts existed as to the wisdom of such action. In France, Haig, still wanting more squadrons to support his land operations, said that there could

be grave danger in a new Air Ministry assuming control with a belief in theories not in accordance with practical experience. Trenchard, the RFC field commander, thought unification could not be accomplished in the middle of a war. He was concerned that Smuts had been misled by over-optimistic statements about the supply of aircraft, a fear justified by shortages in France.

## THE RAF IS BORN

In spite of these doubts and reservations, the plans for unification went ahead. Details of pay and discipline were worked out; the words 'Royal Air Force' were heard for the first time; and various legislative procedures brought about an Air Council and an Air Ministry.

WRAF Standing Orders 1918

The unification appeared to be progressing smoothly but there was utter turmoil in the new Air Ministry. Lord Cowdray had expected to be appointed Air Minister by Lloyd George since the Air Board had now been taken over. But instead the Prime Minister asked Lord Northcliffe, owner of the Daily Mail and The Times, only to have his offer publicly refused in a letter to The Times. This was the first indication that Cowdray had of who was to be the Air Minister. Unsurprisingly, Cowdray resigned from the Air Board the same day.

The post was then offered to Northcliffe's brother, Lord Rothermere, also a newspaper owner, and he became the first Secretary of State for the Royal Air Force and President of the Air Council. The squabbles, however, were not exclusively with the politicians. Trenchard had been recalled from France to become the first Chief of the Air Staff, but soon realized that he and Rothermere were fundamentally opposed on future air policy and so he submitted his resignation just 2 weeks before the RAF came into being on 1 April 1918. However, the public announcement was not made until the

middle of April 1918 and Trenchard's resignation took effect on 13 April 1918. Justice was therefore served and Trenchard was the RAF's first CAS. Henderson also resigned from the fledgling Air Council; he had a difference of opinion (shared by Trenchard) with Lord Rothermere, whose views on aviation policy were diametrically opposed to his own. After his resignation, Henderson's morale was low and the death of his son, Ian, in a flying accident in June of the same year, had a severe and detrimental effect on his well-being. Henderson died in August 1921 and became a footnote in the history of the RAF. However, his contribution is much greater than the written histories suggest and he should be recognised, as he was by Trenchard himself, as one of the founding fathers of the Royal Air force.

Lord Rothermere - First Secretary of State for the RAF and President of the Air Council

Major General Sir Fredrick Sykes

Major-General Sir Frederick Sykes, who had been Chief Staff Officer of the RFC when it went to France in 1914, became the next CAS. Finally, before April was through, Rothermere himself resigned and was replaced by the Scottish industrialist, Sir William Weir.

Lord Weir Secretary of State for Air, April 1918-January 1919

The story of musical chairs at the Air Ministry was bad enough in itself, but it coincided with the great German offensive in the spring of 1918. The Royal Air Force could not have been born under more inauspicious circumstances. Freed from fighting on the Eastern Front following the Russian exit from the war after the Bolshevik Revolution of 1917, Germany concentrated all her forces on the Western Front in one last, great offensive. This was a gamble aimed at defeating the British and French armies before the fresh but untried troops of the United States could turn the tide. The initial success of the German offensive brought Britain nearer to defeat than at any other time in the war and the internal disputes within the Air Ministry seemed to justify fully those who claimed that a radical change in British air organization in the middle of the war was a critical error.

## THE RAF IN THE FIRST WORLD WAR

### THE WESTERN FRONT

In spite of all the political problems, the newly independent RAF fought effectively from 1 April 1918 over the Western Front in direct support of the ground forces. It also took the war to Germany and exploited the offensive potential of air power as Smuts had

forecast. The RAF's performance over the Western Front was crucial, both in the part it played in blunting the German offensive and in the final counter-attacks of the Allied Armies which led to the surrender of the German forces in November 1918. The bitterness and scale of air fighting remained undiminished from April until November. For example, RAF Communiqué No 1 records that 57 enemy aircraft were brought down, 37 were driven out of control, 7 lost to anti-aircraft fire while RAF losses were 43; and 85 tons of bombs were dropped, 380,173 rounds fired at ground targets and 3302 photographs were taken.

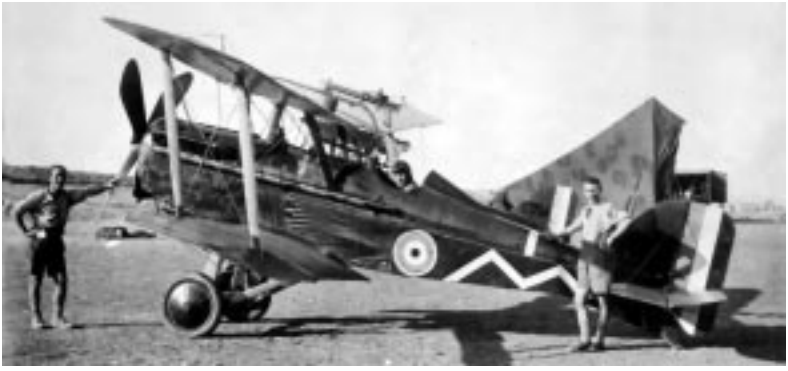

207 Squadron at Ligescourt. Picture shows the largest and smallest bombs in use at that time. August 1918

That Communiqué illustrated most clearly the extent of the tactical role of the RAF in support of the land forces and is a vivid reminder that the value of reconnaissance had not diminished. Indeed, in November 1918, the RAF devoted three-quarters of its aircraft to aerial fighting and reconnaissance. As late as 30 October, the intensity of operations was such that 67 enemy aircraft were destroyed, 41 RAF aircraft were lost and 29 aircrew were killed or missing.

**OTHER THEATRES OF AIR OPERATIONS 1914 - 1918**

Although the concentration of forces and effort was, quite naturally, on the Western Front, the RAF and its predecessors also supported campaigns in other theatres of war. After France and Flanders, the Middle East was the most important theatre for the British Army. The first RFC detachment arrived in Egypt in November 1914 and a string of airfields was constructed along the Suez Canal and in the Nile Delta. From this reasonably secure base, air support was provided to land campaigns in the Sinai,

Palestine, Transjordan and Syria and the RAF was instrumental in the rout of Turkish forces in the latter stages of the war. In Mesopotamia (modern day Iraq) the RFC provided reconnaissance to the Indian Army Expeditionary Force and even attempted, unsuccessfully, to re-supply by air the besieged garrison at Kut-Al-Amara. Three RAF squadrons later played a significant role in the offensive to push the Turkish Army out of Mesopotamia. The RAF was to return to this area several times during the Service's subsequent history.



111 Squadron SE5A in the desert

Air operations in the Mediterranean region were largely the preserve of the RNAS in the early years of the war. At Galliopoli in 1915 seaplanes of the RNAS, operating initially from primitive aircraft carriers, were in action right from the start of the Dardanelles campaign. The air power assets assigned to the Dardanelles were meagre and its efforts were particularly appreciated during the evacuation of the Commonwealth forces in December 1915 and January 1916. After the withdrawal from Gallipoli, the RNAS maintained 2 Wings in the Aegean to guard the Dardanelles Straits for the duration of the war.

In Macedonia, British forces joined the Greek and French troops in the fight against Germany's ally, Bulgaria, on the Salonika front. RNAS, RFC and RAF squadrons supported the British Army along its 90-mile front from Monastir via Lake Doiran and the River Struma to the Aegean Sea. A small scale but fiercely fought air war mounted from inadequate aerodromes over inhospitable terrain eventually assisted in the defeat of Bulgarian forces in September 1918. British air services were involved in 2 distinct campaigns. In the south, the RNAS assisted the Italians in controlling the Adriatic Sea and to attack targets on the coasts of Austria, Italy, Montenegro and Albania. The scale of operations here was never great, the

force peaking at an equivalent of 6 squadrons by the end of the war. The other campaign took place in northern Italy in support of British and Italian armies. Following the Italian defeat at Caporetto in October 1917, Britain dispatched 2 divisions from France to reinforce the Italians on the Piave front. Attached to this force were 5 RFC squadrons, later increased to 6. The air campaign here was largely fought against the Austro-Hungarian air service and was very similar in many respects to the air war over the Western Front although on a very much smaller scale.

On an even smaller scale, British air power was present in other campaigns and fronts including: East Africa, where action against the German cruiser Konigsberg in Rufiji Delta was followed by a frustrating two-year campaign against General Von Lettow-Vorbeck's German and native forces; Russia; North-West Frontier of India; Aden and the Red Sea; and finally in Gibraltar and Malta, where patrols were mounted against enemy shipping at sea.

## THE INDEPENDENT FORCE

It was in the offensive use of air power that the most significant advances were made by the RAF in the First World War. The idea of long-range strategic bombing, ie the direct attack against the enemy's war-making capacity - the industries, communications and morale of the civilian population - with the object of seriously weakening his capacity to wage war, was not new. The Zeppelins and Gothas had to some extent done this and shown that civilians could be in the firing line just as easily as the infantry soldier; the RNAS had raided the airship sheds at Dusseldorf. The insatiable needs of the Western Front had frustrated any build-up of an RNAS force for long-range bombing, with Haig and Trenchard both insisting that only when air superiority had been firmly established over the Western Front should other uses of air power be considered. Long-range bombing raids were made, however, against Germany in response to the demands for retaliation after the Gotha raids on England. The Handley Page 0/100s (the Bloody Paralysers) were now available and, from bases in France, they and DH4s and DH9s made raids on Germany in the winter of 1917-18 (weather permitting) and through to June 1918.

DH4 (above) and DH9 (below)

A decision was made to expand this bomber force into an 'Independent Force' tasked with conducting a strategic bombing campaign against Germany. The Independent Force, which was established on 13 May 1918, was a truly strategic bombing force. It operated without concern for the land battle and was initially independent of the Allied Supreme Commander; it was commanded by Trenchard. The last 5 months of the war for the Independent Force confirmed Trenchard's view of the importance of the offensive in the employment of air power and indicated the vast problems facing a strategic offensive in terms of numbers of aircraft, accuracy of navigation, target planning and the overall effectiveness weighed against the cost - all to be heard again in the Second World War when a vastly greater strategic bombing offensive was mounted against Germany.

The choice of Trenchard to command the Independent Force was both logical and ironical: logical in that only he had the sufficient stature and reputation for such a command, ironical in that he had not been an enthusiastic supporter of either the creation

of the unified air service or the Independent Force. In 1918 he had been the obvious choice as the first Chief of the Air Staff but that was a brief and unhappy time for him. Fortunately, he was brought back from the shadows. His appointment to command the Independent Force was to have far-reaching consequences for the future of British air power and the RAF.

The Independent Force took the war to German cities like Frankfurt, Cologne and Mannheim for the last 5 months of the war. The main targets were the chemical factories (producing poison gas), aeroplane factories, blast furnaces (easy to find) and railways. Operations were carried out both by day and by night against more and more effective air defence forces. Had the war not ended when it did, plans were already made for the big Handley Page V/1500 4-engined bomber, capable of carrying thirty 250 lb bombs, to go into action against Berlin from bases in England.

1650 lb bomb 1918

While the tonnage of bombs dropped appears relatively small - 550 tons in 239 raids between 6 June and 10 November 1918 - the evidence collected after the war suggests that the extent of the disruption of the German war effort was out of all proportion to either the size of the bomber force or the material damage it caused. The air offensive had a considerable effect, particularly on the morale of the German people that was deeply shaken.

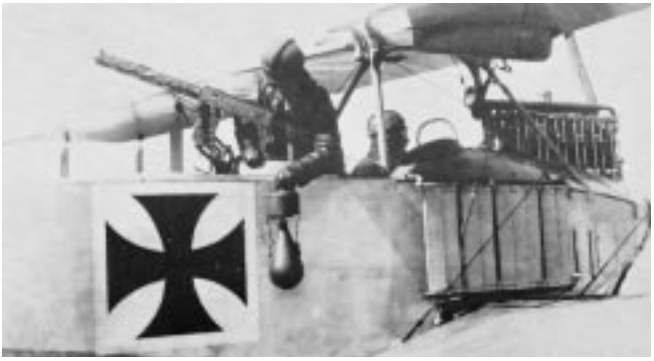
274 Squadron HP V/1500 1918 with folded wings

By 1918, Germany was a war-weary nation that was dispirited by huge losses on the battlefields and was near to starvation from the Allied naval blockade. Consequently, there was some loss of production of war materials from the factories of Germany. But the most significant effect of the raids was that large numbers of German forces were diverted into air defence units to counter the bombers at the time when the German war effort was under its severest strain both at home and on the battlefield.

## THE AEROPLANES' FIRST WAR:

### IN RETROSPECT

The so-called 'War-to-End-All-Wars' came to an end on 11 November 1918. The RAF was less than 8 months old, but had become the most powerful air force in the world. Its strength was 188 combat squadrons and 15 flights with a total of 22,647 aircraft and 291,170 officers and men - a far cry from that ill-equipped and inexperienced force that went to France only 4 years earlier in August 1914.



German observer dropping bomb, WWI

The amalgamation of the 2 air services had worked well. Furthermore, the production and supply of aircraft had eventually become so successful that the RAF had enough surplus aircraft to supply American squadrons (in the First World War, the American Air Service never flew an American aeroplane in combat). Complete air superiority had been won over the Western Front and the first strategic bombing force had been seen in action.

Netheravon Camp June 1914

Furthermore, several other doctrinal air power roles had been established during this bitter conflict including Counter Air (both defensive and offensive), Close Air Support, Air Interdiction, Tactical Reconnaissance, Photographic Reconnaissance, Maritime Patrol and Air Supply. Supporting roles had also been developed that included Air Command and Control, Intelligence, Tactical Communications, Engineering Support and Logistics.

The RAF could justifiably be proud of its achievements and its contribution to victory. However, despite its achievements, the use of air power had introduced the RAF to a new set of specific problems. Aircraft procurement, aircraft weapons, aircrew training and aircraft-to-aircrew ratios were all new issues to be addressed as, indeed, they have continued to be to this day.

The First World War was over and air power had played its part but the aeroplanes' contribution should not be over-emphasised. The soldier in his trench decided the outcome of the First World War on the land battlefields; the aeroplane remained ancillary to both land and sea power. The aeroplane had not been in any way a decisive weapon in this, its first war.

## CENTRAL FLYING SCHOOL

First CFS Course 17 August-19 December 1912

The Central Flying School, or CFS, was formed in May 1912 at Upavon in Wiltshire, and is the oldest flying training school in the World. It was given the task of training the UK's first military pilots and its first Commandant was Captain Godfrey Paine. Initial equipment was brought over from Farnborough in the form of a selection of Avros, Farmans, BE2s and Short biplanes, the first flying course beginning in August 1912. Many of the pilots attending the school in its early days went on to become legendary and influential figures in the Service, including Marshal of the Royal Air Force, Lord Trenchard, and in early 1940 Amy Johnson who was one of the first female pilots trained at CFS.

With its reputation for innovation and excellence well established, the expanding CFS moved to Wittering in June 1926. Equipment at that time consisted of 12 Lynx-engine Avro 504s, 4 Bristol fighters and 5 Snipes, with additional aircraft in reserve.

Snipe

A variety of different aircraft were also received for evaluation and to allow instructing staff to gain wider experience. Around 1927 the idea of a formation aerobatic team was born and 5 de Havilland Gypsy Moths began display flying. Displays by CFS instructors in a team of 5 red and white striped Tutors made a great impression in 1933 with its inverted formation flying. Today's RAF display team, the Red Arrows, was formed in 1965 with the Gnat and re-equipped with the Hawk in 1980. From 1937, each new aircraft to enter RAF service was flown by a CFS examiner officer and 'pilot notes' were produced to help squadrons operate their new aircraft to best effect.

In 1942, the work of CFS was largely taken over by a new unit, namely The Empire Central Flying School (ECFS) at Hullavington, the first course having students from Australia, Canada, New Zealand, South Africa and the USA, as well as from Britain. The remaining staff of CFS formed No 7 Flying Instructors' School. The purpose of the new unit was to draw the wide experience of the course members into a common pool for the benefit of all the training schools. The ECFS syllabus assisted greatly in improving and upgrading the flying training programme that was so crucial in supporting the air war.

ECFS was disbanded after the war and CFS was re-established at RAF Little Rissington in May 1946. In 1948, types being flown were the Tiger Moth, Harvard,

Spitfire, Mosquito, Lancaster and Vampire. All-through jet training followed in 1958, using the Jet Provost and Vampire, only to revert to a multi-stream syllabus by 1965. A Helicopter Wing was established at South Cerney in 1954, later moving to Ternhill. In 1959 the helicopters took the public eye when they formed part of the winning RAF team in the London-Paris Air Race, and in 1960 CFS received a further honour when HM Queen Elizabeth The Queen Mother accepted the appointment of Commandant-in-Chief. On the sad occasion of Her Majesty's death in March 2002, the Commandant in post, Group Captain Jon Fynes, was granted the great privilege of acting as a Pallbearer at her funeral. By 1976, Little Rissington had become inadequate for modern jet operations and it was decided to vacate this hill-top aerodrome. CFS HQ, the Examining Wing and the Jet Provosts relocated to Cranwell, the Bulldogs moved to Leeming and the Gnats went to Valley. In 1977, the Cranwell-based elements moved yet again to Leeming, while the helicopters resided at Shawbury. Today, the CFS HQ, Multi Engine (Jetstream) Squadron CFS (Tutor) Squadron and Rearcrew Squadron (Dominie) are established at Cranwell and the other CFS squadrons are based at Linton-on-Ouse (Tucano) and Valley (Hawk). The reputation of CFS as a centre of excellence in the teaching of flying training skills has never been higher, and it attracts students from around the world, in addition to those of all 3 UK Services.

CFS Repair Shop January1913

CFS Engine Shop January 1913

## THE VISCOUNT TRENCHARD

Born in Taunton in 1873, Hugh Trenchard's name was to become synonymous with the Royal Air Force and the offensive strategic use of air power. His early career, however, was hardly meteoric. He joined the Royal Scots Fusiliers aged 20 and served in the Boer War where he was shot through the lung and partly paralysed. Characteristically, he cured his paralysis by taking a convalescent break in Switzerland and winning the Beginners and Freshmens' toboggan race down the Cresta Run. After a brief return to the war, he spent the following 10 years in Nigeria before returning to the UK in 1912, by this time a 39 year old Major lacking a lung and with few obvious prospects.

However, the same spirit that had taken him to success down the Cresta Run now led him to learn to fly and he was granted his pilot's licence with a grand total of just 1 hour and 14 minutes in the air! He was, in fact, no better than an average pilot. Nevertheless, he was a supreme organizer and was quickly appointed Deputy Commandant of CFS. He subsequently took over command of the RFC in Britain when most of the officers, personnel and aircraft decamped to France in August 1914. In November 1914, he was sent to take command of No 1 Wing on the Western Front, and within 9 months was General Officer Commanding the

RFC in France. He was to lead it with a relentless commitment to the offensive for the next 3 years. He did so through good times and bad, including the famous Fokker scourges of 1915, the Battle of the Somme and the 'Bloody April' of 1917, when the life expectancy of a pilot at the front was as little as 3 weeks.

Trenchard initially opposed the creation of a separate RAF, believing it was a distraction during a war. However, he later conceded that General Smuts and General Henderson had been right to press the case and that, had it been delayed until peacetime, an independent Air Force would never have been created. The Air Ministry that would oversee the new Service was set up in December 1917, and General Trenchard was the obvious choice to become its first Chief of the Air Staff. Although he accepted the appointment with considerable reluctance, his apprehensions about working with the new Air Minister, Lord Rothermere, were quickly confirmed. Such were the differences between them that Trenchard felt obliged to tender his resignation in March 1918, the announcement being delayed until after the formation of the RAF on 1 April 1918.

Rothermere himself resigned shortly afterwards, and Sir William Weir, his successor, soon decided to offer Trenchard command of the Independent Force based near Nancy, with a view to expanding it into a joint Anglo-French-American bombing force for use in a strategic air offensive against Germany during 1919. Over the next 6 months, with the Allied Armies at last moving back to the offensive, his bombers attacked a variety of German targets mainly west of the Rhine, their chief purpose being to weaken the German will to resist, and preparations went ahead for raids on more distant targets, including Berlin. The Armistice came before much could be achieved, but Trenchard - originally far from enthusiastic about diverting resources from the Western Front - had had time to show that strategic bombing might one day prove a weapon of incalculable importance.

The end of the war left him without a job, but early in 1919, when Churchill was appointed Secretary of State for War and Air, Weir advised him to bring back Trenchard as his Chief of the Air Staff. In the post-war situation, few resources would be available for the RAF and General Sykes, who had replaced Trenchard the previous April, was not thought the right man in such circumstances. In Weir's view, Trenchard could "make do with little and would not have to be carried". Churchill agreed, and for the next 10 years it was Trenchard who presided over the fortunes of the RAF and imprinted his own personality upon it. In the atmosphere of 1919, when the nation at large wished to put the war behind it and money for defence was scarce, there were many - not least in the Navy and Army - who regarded the infant RAF as an expensive and unnecessary luxury. In order to survive, the new Service would have to acquire its own foundations rather than share those of the older Services. Trenchard set about building those foundations.

The great training institutions of the RAF, notably the Cadet College at Cranwell, the

Apprentice School at Halton and the Staff College at Andover were founded within Trenchard's first years; the Short Service Commission scheme for pilots was introduced in 1919; and in 1925 the first Auxiliary Squadrons and University Air Squadrons were formed. For most of his time as CAS, particularly the early years, Trenchard fought a series of Whitehall battles with the Naval Air Arm of the Royal Navy. The Geddes Economy Review of 1922, which proposed axing large slices of public spending, fortunately supported the RAF and the Government accepted that it should remain an independent Service. Reflecting some 30 years later the incumbent CAS, MRAF Sir William Dickson commented that "but for his [Trenchard's] conviction and strength of character, the Air Force would probably not have survived".

By 1930, when Trenchard handed over the position of CAS to Air Chief Marshal Sir John Salmond, the main battles for the new Service had been won. Trenchard was to become known as "The Father of the Royal Air Force". Trenchard's special quality was that he could take an idea and put that idea into practice, often beyond the expectations of those who served under him. Above all, he gave the RAF pride and status.

Trenchard with 12 Squadron Battle aircrew France April 1940 (left) and Trenchard visiting officers of the RCAF September 1943 (right)

At the age of 57, Trenchard did not retire but was appointed as Commissioner of the Metropolitan Police where, true to his view of the importance of training, he founded the Hendon Police Training College. Viscount Trenchard died in London on 10 February 1956 at the age of 83.

Trenchard with Queen Elizabeth in June 1950 and Trenchard's funeral in 1956

## FIELD MARSHAL JAN CHRISTIAN SMUTS

Jan Christain Smuts was born in 1870 near Riebeeck West in what is now South Africa. He studied law at Christ's College Cambridge but returned to South Africa in 1895 and a few years later was fighting against Britain in the Boer War. During the First World War, Smuts joined on the British side and, rising to the rank of Lieutenant General, commanded the Allied forces in East Africa. In January 1917, he returned to Britain as the South African representative at an Imperial War Conference. It was later that year that Germany's daylight bombing raids of London were incresingly highlighting the woeful inadequacies of Britain's air defences.

In response to the public outcry against the bombing raids, Prime Minister Lloyd George turned to General Smuts. In July 1917, Smuts was asked to turn his mind to the task of quickly solving the air defence problems. He headed a government committee to examine both air defence arrangements and air organization. He was fortunate to have as his closest adviser Sir David Henderson, the first commander of the RFC in France and, since 1915, the Director General of Military Aeronautics. In 2 reports issued in July and August 1917, Smuts recommended an Air Ministry and Air Staff to amalgamate the RFC and the RNAS into a new single Air Service independent of the Army and Navy.

Taken together, the 2 reports represented a milestone in aviation history, not only for the needs of British air power in the First World War, but also for the future of air power development throughout the World. These recommendations were accepted by thegovernment and the process of amalgamating the 2 Services into an independent Air Service began. General Smuts' reports on British future Air Defence and the move towards a unified Air Service were of paramount significance to the creation of the RAF. Smuts reached the rank of Field Marshal before retirement and died, aged 80, in 1950.

## SIR WINSTON CHURCHILL

Born prematurely at Bleinheim Palace, he was the elder son of Lord Randolph Spencer Churchill and his American wife Jennie. Educated at Harrow, he passed into Sandhurst and received a commission in The 4th Queen's Own Hussars in February 1895, at the age of 20. Churchill saw active service when he was attached to the 21st Lancers for the Sudan campaign and he fought at the Battle of Omdurman. He also served with his regiment in India and Britain before resigning his commission in 1899. He failed in his first attempt to enter the House of Commons and set off for South Africa where he served as a war correspondent in the Boer War. He returned home and was elected unionist MP for Oldham in 1900.

By 1910 he was Home Secretary and then in 1911 became First Lord of the Admiralty. Whilst serving at the Admiralty, Churchill characteristically developed a strong interest in the infant science of aviation, and went out of his way to encourage the RNAS. Once the First World War started, Churchill continued to take an interest in naval aviation, and rapidly agreed to take on responsibility for the air defence of Britain. This led him to take an interest in the RNAS's attempts to develop a strategic

bombing capability with which to counter the German Zeppelin airships which threatened the UK home base. Churchill was eventually forced from office over the failure of the Dardanelles expedition. Determined to assist the war effort in some way, he returned to active service and went to the Western Front where he eventually became Commander of the 6th Battalion of the Royal Scots Fusiliers.

Churchill returned to active politics as Minister for Munitions in July 1917. He was thus back in the centre of politics at precisely the time that German air raids on London by formations of bomber aircraft caused a political outcry. This led in turn to the appointment of General Smuts.

After the war, Churchill was offered the post of Secretary of State for War and Air. Churchill's own enthusiasm for air power, and also his decision to replace the then CAS, Major-General Sir Frederick Sykes, with Sir Hugh Trenchard prevented the RAF being re-absorbed by the other Services. At Trenchard's instigation, Churchill proposed to Lloyd George that the RAF should be given much wider responsibilities for imperial policing. This was a policy which the Prime Minister, anxious to reduce military expenditure, seized upon. When Churchill moved to the Colonial Office in 1920, he was ideally placed to further this scheme. Churchill played a major part in ensuring the survival of an independent RAF, both by his selection of Trenchard as the post-war CAS, and by his enthusiasm and practical support for the idea of control of the air.

In the later 1920s, Churchill became Chancellor of the Exchequer and here his influence was less beneficial, as a prime architect of the 'Ten Year Rule' which imposed a moritorium on any research and development for the 10 years after the end of the First World War. Although its influence in damaging the Armed Forces has probably been exaggerated, it certainly did not create an atmosphere conducive to the thoughtful development of the new air weapon. In the 1930s, Churchill found himself out of office and politically isolated, and his increasingly strident warnings about the threat from the Fascist dictatorships and the need for rearmament, particularly in the air, were ignored. It was not, however, until his warnings were proved all too correct and Germany invaded Poland in September 1939 that he was invited back to office, once more as First Lord of the Admiralty. In May 1940, Churchill became Prime Minister.

He was able to bolster civilian morale and bring the country through the dark days of the Battle of Britain and nights of the Blitz. His ability to inspire with timely and appropriate words is exemplified by his speech on the Battle of Britain: "Never in the field of human conflict has so much been owed by so many to so few". He thus immortalised the sacrifice of Fighter Command and ensured that for evermore the pilots of the time would be known as 'The Few'. He also supported the acceleration of fighter production and placed the equally energetic Lord Beaverbrook in charge of aircraft production.

Churchill nevertheless knew that wars were not won by defensive measures, or as he said at the time of Dunkirk, evacuations, however successful. He was therefore an early and ferocious proponent of the bomber offensive against Germany, and an important champion of the C-in-C of Bomber Command, Sir Arthur Harris. The Soviet Union entered the war in 1941 and Stalin, desperate to relieve the intense German pressure right up to the suburbs of Moscow, pressed hard for the next 2 years for an allied invasion of Western Europe. Churchill knew that Bomber Command provided the only credible "Second Front" against Germany.

Even before the American entry into the war at the end of 1941, Churchill had assiduously and successfully cultivated American support. It was Churchill's decision to send a British technical mission to the USA under Sir Henry Tizard which revealed many of the most important scientific breakthroughs to the Americans. Churchill was also a strong supporter of the combined Anglo-American bomber offensive which, it was agreed at the Casablanca Conference, would be used to pave the way for the Allied armies to re-enter Europe.

Churchill played a major role in the high-level political deliberations of the Allied "Big Three" (Britain, the USA and the Soviet Union), meeting on several occasions with Stalin and Roosevelt, later Truman. He was able to ensure that at least the general lines of a complementary grand strategy were followed despite the uncomfortable political alliance between the western democracies and the Soviet dictatorship. In the 1945 General Election, when the war in Europe had ended but before the final defeat of Japan, Churchill was himself defeated and succeeded by Clement Atlee's Labour administration. Although he was to form a government in the 1950s, he was never able to rekindle the fire and imagination that had characterised his wartime leadership. His most notable post-war contribution was perhaps his famous speech at Fulton, Missouri, where he spoke of an "Iron Curtain" descending across Europe.

Churchill lived until the age of 90 and died on 24 January 1965 at his London home. His body lay in state at Westminster Hall, before a funeral service attended by Her Majesty the Queen at St Paul's Cathedral.