

CHAPTER 2

THE INTER-WAR YEARS 1919-39



Edward VIII, George V and George VI

The RAF had been created by Act of Parliament in the midst of the largest and most devastating of all wars known up to that time, in order to get the best possible use from British air power in that war. Inevitably, when peace at last came, there was no shortage of voices to question the continued existence of the independent Air Force. The Royal Navy and the Army, from whose air arms the RAF had come, were most anxious to see

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it demobilized, disbanded and its resources redistributed between them. In addition, frequent financial crises forced the Government to examine most closely whether the country's defence budget could afford the costs of a third Service. The general public, war-weary and disillusioned with most things military, remained mostly indifferent and apathetic until the late 1930s.

The fight for survival as an independent air arm was a real one and was waged largely in government committee rooms, in Parliament and in the press. Fortunately for the future of British air power and the RAF, the time brought forth the man - or more precisely, 2 men: Winston Churchill, as Minister for War and Air, and Trenchard, as Chief of the Air Staff.

CHURCHILL'S CONTRIBUTION

After the General Election of December 1918, Lloyd George had appointed Churchill as Minister for War, adding to everyone's astonishment: "take the air with you ... as I am not going to keep it as a separate department ...". Churchill was more air-minded than most of his political colleagues; he had learnt to fly at Eastchurch, the Royal Navy flying school, when he was First Lord of the Admiralty.



Churchill in Short's Biplane, Eastchurch November 1913

He had, of course, championed the cause of naval aviation and had been enthusiastic about the early attempts at strategic bombing. From the start he made it quite clear that

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the future independence of the Air Ministry and the Air Force would not be prejudiced by one man being responsible for both War and Air. Soon after taking office, he brought Trenchard back as Chief of the Air Staff. Churchill and Trenchard worked together to lay the foundations for the peacetime organization and role of the RAF. While Churchill did not remain long in office (he moved to the Colonial Office early in 1921) Trenchard was to continue as Chief of the Air Staff until December 1929. However, it was those years in which they coincided and worked together that were so important to the development of the RAF.

The first preoccupations, however, were with apparently mundane matters - ranks, uniforms and an ensign. Old Army and Royal Navy ranks and uniforms were retained after 1 April 1918 and into 1919, but clearly something permanent was needed for the peacetime force instead of these ad hoc arrangements. Whilst the basic squadron organisation inherited from the RFC was kept, the re-naming of ranks caused some discussion. The ranks of Wing Commander and Flight Lieutenant used in the RNAS were retained but others were more problematical. After various plunges into classical mythology, the present, and now familiar, ranks and titles were adopted, but not before the King had suggested that the title 'Marshal of the Air' could be misleading and that 'Marshal of the RAF' would be more appropriate. The choice of the uniform was not so easy since a combination of khaki and navy blue, which may have been desirable, looked absurd. The first RAF uniform fared no better. It was described by Marshal of the RAF Sir John Slessor as 'a nasty pale blue with a lot of gold over it, which brought irresistibly to mind a vision of the gentlemen who stands outside the cinema'. Fortunately, the later RAF blue uniform was not long in being accepted.



RAF Ensign

Arguments abounded over the design for an RAF ensign. In a moment of exasperation, Trenchard went to the King and pointed out that the red, white and blue roundel had been the emblem of the First World War fliers and that he could think of no better design than that emblem against a sky-blue background. The King agreed, there was no further argument, the Royal Assent was given and the RAF had its own ensign.

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THE TRENCHARD MEMORANDUM

Early in December 1919, Air Marshal Trenchard as CAS gave his Air Minister, Churchill, a plan for the permanent organization of the RAF. Dated 11 December 1919 and officially titled 'Permanent Organization of the RAF - Note by the Secretary of State for Air on a Scheme Outlined by the Chief of Staff', it has usually been known as the Trenchard Memorandum. Drawn up by Trenchard's staff but embodying his ideas, it was the blueprint for an independent peacetime air force, one of the most constructive and far-sighted of all plans for air power.

Trenchard described the existing force as comparable to the prophet Jonah's gourd: "the necessities of war created it in a night, but the economics of peace have to a large extent caused it to wither in a day, and we are now faced with the necessity of replacing it with a plant of deeper root ...". Throughout, there was this emphasis on establishing roots for the new Service, whether it be in the intangibles like creating an Air Force spirit, or in bricks and mortar like permanent training bases. He considered it essential to concentrate resources on the training of officers and men, to lay the foundations for a highly-trained and efficient force which would be capable, when need arose, of expansion without drastic alteration. The foundation of an air force should be flying and engineering, he said. Service squadrons were to be reduced to the minimum considered essential for garrisons overseas, for home defence and for cooperation with the Army and Navy - a very thin spread indeed over what appeared large commitments. He went on to detail the need to eliminate one cause of flying accidents by ensuring that the training of mechanics was the most rigorous that could be devised, to re-emphasize the need for the continual development of aeronautics-navigation, meteorology and wireless communication in particular - and included a crucial statement of principle about the RAF officer: 'It is not sufficient to make the Air Force officer a chauffeur and nothing more'.

Fundamental to Trenchard's overall plan was: 'The principle to be kept in mind in forming the framework of the Air Service is that in future the main portion of it will consist of an Independent Force It may be that the Independent Air Force will grow larger and larger, and become more and more the predominating factor in all types of warfare'.

Thus the continued independence of the RAF was, like its formation, closely allied with the concept of the strategic air offensive as expressed by the Smuts Reports.

CRANWELL, HALTON AND THE RAF STAFF COLLEGE



Trenchard inspects Cranwell cadets

The small, but highly-trained, Air Force was to be brought into being by the establishment of an Air Force Cadet College at Cranwell for regular officer training, a school for flying training and the Air Force Staff College at Andover, Wiltshire. A scheme was introduced for short-service commissions, these would be the basis of the trained reserve. At the same time a technical apprenticeship training scheme started at Alfred Rothschild's estate at Halton in Buckinghamshire to provide the basis for the technically efficient RAF.

The Government had purchased the Halton estate (previously commandeered during the First World War) on Trenchard's recommendation when Rothschild died in 1918. There were already ample and well-equipped technical shops in existence and it was near to London, a point in its favour since the Chief of the Air Staff believed that the boy trainees should be near enough for friends and parents to visit. On the other hand, Trenchard felt that officer cadets would be better off in the flat countryside of Lincolnshire than anywhere near London. He was subsequently to say that since they were so cut off, the officer cadets would have less cause to envy their contemporaries at Sandhurst and Dartmouth and develop any kind of inferiority complex. Cranwell, however, was crucial to Trenchard's vision of the RAF as a third, independent Service. 'The RAF depends on you far more than on me', he said in one of his earliest addresses to Cranwell cadets. The direct link of advancement in the Service between Halton and Cranwell was established right from the beginning.

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Trenchard at a Halton Apprentice Prizegiving, August 1950

The wisdom of that scheme was amply demonstrated by the hundreds of Halton ‘brats’ who were commissioned, some of whom rose to air rank, including the man who exemplified the Trenchard ideal of technical skill and opportunity - Air Commodore Sir Frank Whittle, the jet engine pioneer.

Trenchard’s final comment on the plan was simple and to the point:

“I have laid the foundations for a castle; if nobody builds anything bigger than a cottage on them, it will at least be a very good cottage”.

TO BE OR NOT TO BE

Although the Government accepted the Trenchard Scheme, in no way could the continued existence of the RAF as an independent Service be considered as resolved. The story of the RAF in the 20 years from 1919 to the beginning of the Second World War in 1939 has as its basic theme the fight for survival against the Government’s economy cuts and the desires of the other 2 Services to see their air arms returned to them. This conflict reached a climax in 1923, but although at that time the RAF won, the Navy did eventually succeed in re-establishing its own air arm - the Fleet Air Arm - in 1937. The other main concerns of the period, which should not be divorced from the

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central one, were the RAF's role in the British Empire, where it demonstrated that it was capable of controlling large areas of territory from the air; the pushing forward of the frontiers of aviation knowledge by pioneering new routes and flights establishing new records; and the development of training and growth in size in the 1930s to meet a new threat from Hitler's Germany

THE NEED FOR THE RAF – A CHEAP OPTION

The normal process of rapid demobilization of the armed forces after a major war, together with the severe economic and financial problems of paying for that war and the adjustment to a peacetime economy, made the new RAF very vulnerable as a target for a Government wishing to cut drastically its defence expenditure. It was easy to question the need for an independent third Service. On grounds of cost, could the country's defence budget afford such a luxury, allegedly at the expense of the 2 older Services? On the grounds of performance, what practical role could an air force, established during a war, play in peace? Both the Army and the Navy wanted to have their own services back under their own control. They argued forcefully, in both government and public circles, that money could be saved that way. In fact, whenever the financial strings were being pulled tight around defence matters, the Army and Navy became most fervent in their claims; economy rather than military potential was their main argument for much of this period.

Trenchard stated the alternatives clearly; the air could be used simply as a means of conveyance ... to carry out reconnaissance for the Navy and Army ... or there could be an air service which will encourage and develop the air spirit ... to make it a force that will profoundly alter the strategy of the future Trenchard really stood out for all or nothing, with his eyes on maintaining the independence of the RAF and its potential for the future, if it was firmly based.

The immediate run down of the RAF was rapid. By March 1920 only 3,280 officers and 25,000 other ranks remained. The Women's RAF, which too had been created on 1 April 1918, had been completely disbanded. (The RAF Nursing Service, founded in June 1918, did, however, survive the run down. It was established as a permanent branch of the RAF in January 1921 and became the Princess Mary's RAF Nursing Service in June 1923). More than 23,000 officers, 21,000 cadets (potential pilots) and 227,000 other ranks had been demobilized. Vast quantities of surplus equipment, aerodromes and landing grounds had been returned to their original owners or sold off at rock-bottom prices. That such a small force should survive seemed highly unlikely in the face of the opposition to its independence and the very real need for a reduction in government expenditure. That the RAF did survive was very much the work of Trenchard, who not only provided the organizational structure for survival, but also achieved success in the in-fighting and wrangling that went on through a whole series of Government investigations into the future of the RAF.

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RFC



WRAF 1919

1921-23

The most desperate years of the struggle to maintain independence were 1921-23. In this period there was no shortage of acrimony and bitterness amongst the 3 Service Chiefs as they presented their own views of the proper way for an air service to be organized. But, as one Government Committee after another investigated air matters, and, as the RAF was subjected to financial scrutiny by the most famous (or infamous) of committees - the

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Geddes Committee which brought forth the axe on so much public spending - it became clear that the RAF's case was sound and the Government accepted that it should remain an independent service. Of great importance in this fight was the establishment of a peacetime role for the RAF. At a conference at Cairo in 1921, and following the successful policing operation in British Somaliland (see below), the RAF was given the task of peacekeeping in Iraq and Transjordan; subsequent operations proved that air control of large areas of colonial territory could be provided more effectively and at less cost than by land forces alone.

Additionally, the Government itself became alarmed at French intentions in Europe and the possibility of air attack from France. They decided therefore, that British air power must include a Home Defence Air Force of sufficient strength adequately to protect us against air attack by the strongest air force within striking distance of this country. So said the Prime Minister Stanley Baldwin, in June 1923, when France was clearly the strongest neighbour; he affirmed it in 1934 when Germany was overtaking France as the strongest power in Europe. Thus, by 1923, with a role in home defence now clearly defined and a role in the policing of the Middle East working in practice, the RAF's independence was reasonably assured. The scheme to bring the RAF up to the strength needed for home air defence required 52 squadrons - a trebling of the size of the RAF within 5 years. Although that number of squadrons was never to be achieved in practice before the Second World War, it meant that independence was beyond challenge.

Trenchard and his staff were not so alarmed as the Government by the size of the French air threat. The projected size of the Home Defence Air Force, however, did give the opportunity to develop ideas on the effective use of air power for the future. Trenchard's interpretation was that the 52 squadrons were not meant for air defence alone and that the bomber squadrons for a strategic air offensive were a necessary, and important, part of this force.



99 Squadron Avro Aldershot

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Accordingly, the division made was 17 short-range fighter squadrons for air defence alone and 35 bomber squadrons. The Air Staff's policy of the offensive use of air power began to put into practice the ideas contained in Trenchard's White Paper that the Independent Force (the strategic bombing force) would become larger and larger. The bombers were, in a sense, as much defensive as the fighters. The deterrent philosophy of defence by retaliatory bombing, or the threat of it, was able to dominate thinking because defence by fighters alone was a technical impossibility until the mid-1930s. Fundamental to air power doctrine in both Britain and the USA was the concept of the aeroplane as the offensive weapon par excellence, superior to the tank or the battleship - a weapon that could be used independently of any land or sea battle to give a decisive result. Thus the bomber embodied both the offensive nature of air power and the need for the independence of air power.

LOSS OF THE FLEET AIR ARM

The Royal Navy fought long and bitterly for the return of its air service to the Fleet. One of Trenchard's most powerful opponents was Admiral of the Fleet Earl Beatty, the First Sea Lord. Beatty, the youngest British admiral since Nelson, a popular personality with a powerful mind and great strength of character, had given Trenchard a year's grace to get the new Service under way, but he intensified his opposition to an independent RAF from 1921.



210 Squadron Cuckoo torpedo drop

His argument was simple; since the Admiralty were responsible for the fighting efficiency of the Fleet, they could not carry out this responsibility so long as they could not control the service, whose role was now an integral part of Fleet operations and naval

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action (the air), and therefore the air arm of the Fleet must be manned, trained and controlled by the Navy. The argument, although powerfully put by Beatty and his successors, did not convince the Government. But that did not deter the Navy who continued to argue in favour of their own air arm at every opportunity - usually when defence economies were about to descend - and, in 1937, their persistence was rewarded when control of the Fleet Air Arm was transferred to the Admiralty. By that time, the transfer could not affect the independence of the RAF. However, in 1923 the transfer could well have been fatal since squadrons designated for army co-operation would surely have followed suit and been returned to the Army. It would have been difficult to justify retaining the rump of the RAF that would have been left as an independent Air Force. However, the separation of the RAF and Fleet Air Arm in 1937 removed one of the principle causes of friction and, although differences still surfaced on occasion, laid the foundation for the mutually successful partnership between the Royal Navy and RAF Coastal Command.

The preoccupation with this struggle over the control of the Fleet Air Arm had important consequences. A leading naval historian summed it up as: "... whereas the disputes and disagreements of the early 1920s over naval aviation had the result of projecting the thinking of many American naval men into the future, the British Admiralty's thinking was directed more to the causes of the Royal Navy's lack of success at Jutland than to the question whether such lessons had any validity for the future. Moreover ... the Admiralty's efforts were chiefly deployed on the fight to recover control of the Naval Air Service rather than on studying the strategic and tactical uses to which the new arm should be put". That may be a harsh verdict, but both the American and Japanese Navies realized sooner than the British that the large battleship was no longer the heart of the fleet and that the aircraft-carrier was now the main striking force.



Early aircraft carrier

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SURVIVAL

The creation of the peacetime RAF and its successful struggle for survival was dominated by the presence of Trenchard. As Chief of the Air Staff (1919-29) it was his leadership and patience over the years that ensured success in the political battles with the 2 older Services and with Government committee after committee. The contrast with the fate of the American crusader for air power, Billy Mitchell, is worth remembering. Mitchell had commanded the American Air Service in France in 1918, had met and been impressed by Trenchard, and then returned to America to preach the doctrine of independence of air power in the 1920s. He demonstrated that battleships could be sunk by air attack, but he failed to win his case in Congressional committees through his brash manner and complete distrust for all things not of the air. He was subsequently court-martialled and disgraced, setting back the cause of an independent air force in America for a good many years. Trenchard, on the other hand, was a crusader with his feet firmly on the ground. He gave the RAF its peacetime organization, and championed the effectiveness of the RAF in its peacekeeping role in the Middle East, while at the same time keeping alive the doctrine of the independent use of air power as a strategic weapon, although there was neither the equipment nor the opportunity to put it to the test. Thus, quite rightly, Trenchard became known as the Father of the RAF.

Two individuals who experienced the times from widely differing perspectives sum up Trenchard's contribution. From his view as a squadron CO and Air Staff Officer, Arthur Harris (later to become the AOC-in-C of Bomber Command in the Second World War) could say: "For nearly 20 years I watched the Army and the Navy ... engineer one deliberate attempt after another to destroy the RAF ... time after time Trenchard, and Trenchard alone saved us."



T E Lawrence – Lawrence of Arabia

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Aircraftman Shaw (Colonel T E Lawrence – Lawrence of Arabia) wrote, describing life in the ranks, in *The Mint*: “The word Trenchard spells out confidence in the RAF. We think of him as immense not by what he says ... and not by what he writes ... but just by what he is. He knows”.

MODEST EXPANSION 1925-26

In 1925-26 the RAF enjoyed a period of modest expansion. Twenty-five of the 52 squadrons had been formed and the short-service commission scheme proved its effectiveness in manning those squadrons and establishing a trained reserve. The RAF, unlike the Army and the Navy, became predominantly a short-service force both for officers and airmen. In 1925 the first 4 of the Auxiliary Air Force squadrons were formed thus bringing into being Trenchard’s idea of an RAF reserve similar to the Territorial Army, and the first of the University Air

Squadrons (UASs) were formed at Cambridge; London and Oxford UASs followed soon afterwards.

Speaking at Cambridge in 1925, Trenchard put clearly the object behind encouraging undergraduates to take up flying: “It will be a great means of enabling the spirit of aviation to spread It will give the brains of the country a chance of being used for aeronautical purposes which will be an important factor in home defence”. He was right. The value of the auxiliary squadrons and pilots trained under the UAS scheme was conclusively demonstrated when the test came for air defence in 1940.



Oxford UAS at Summer Camp

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A new unified command - Air Defence of Great Britain (ADGB) - embraced this build-up to a full strength RAF with Sir John Salmond (later to succeed Trenchard as CAS) as AOC-in-C. But the improved international political scene after 1926, a government policy still based on the Ten Year Rule (ie that Britain would not be involved in a major war for 10 years) first stated in 1919 and not abandoned until 1932, plus the inevitable demands for cuts in defence spending, led the Government to slow down the expansion scheme; the completion of the 52 squadrons was now delayed until 1935-36. The slow down was to be continued as government policy into the early 1930s until the failure of the Geneva Disarmament Conference and the obvious build-up of German military strength by Hitler led to a new policy of re-armament and build-up in RAF strength from the mid-1930s.



Oxford UAS Tutor

POLICING THE EMPIRE

In explaining the Trenchard Memorandum to Parliament in December 1919, Winston Churchill said: “The first duty of the RAF is to garrison the British Empire”. During the 1920s the RAF turned these sentiments into reality by developing an operational theory and practice which became known as “Air Control”. This was not merely a tactical doctrine for the use of air power to control large areas of underdeveloped territory, but in addition a method of providing military policing of such areas at an acceptable financial price for a cost conscious Government.

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SOMALILAND

The first campaign to explore the possibility of exploiting air power's reach and power in this manner took place in British Somaliland in the Horn of Africa. A Muslim cleric Mohammed bin Abdullah, colloquially, if inaccurately known as "The Mad Mullah", had proved a thorn in the flesh of the colonial administration for many years and had frustrated repeated attempts to bring law and order to the area. In 1920 his activities had reached such a pitch that the Colonial Office again wished to take military action against him and his large band of armed followers. The British Army estimated that this would require a full scale expeditionary force involving 2 or 3 divisions of troops and attendant bag and baggage at a cost of several million pounds. Trenchard, however, offered to do the job using one squadron of de Havilland DH9s, in collaboration with the local gendarmerie regiment, the Somaliland Camel Corps and a battalion of the King's African Rifles. His offer was accepted and the Squadron of 12 aircraft, to be known as "Z Force" was shipped to the area.

In a matter of weeks, operating in conjunction with the Camel Corps, Z Force successfully bombed and harried the Mullah's forces, driving them from their traditional stone forts. The entire campaign cost in the region of £100,000, and it was said afterwards to be the "cheapest war in history". The political effects for the RAF were out of all proportion to the local impact in Somaliland. The RAF had demonstrated its ability to undertake effective police actions in cooperation with small numbers of ground troops at a relatively small financial cost.



DH9 Air Ambulance with Z Force British Somaliland 1919

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IRAQ

Although Air Control had its origins in Z Force's operations in Somaliland it came of age in Iraq, and was to start an association with that country which has continued on and off right up to the present day. With the successful example of Somaliland still fresh in the mind Churchill, by now the Colonial Secretary, was encouraged to adopt a similar approach to the much larger and more politically charged situation in Iraq. Here, continuing unrest amongst the population, particularly the Kurds in the north, combined with the hostile attitude of the former colonial power, Turkey, produced dangerous instability, which persists in the region to this day. Churchill called a conference in Cairo in March 1921 which was attended by Trenchard and various Middle East experts and, as a result, the responsibility for both internal and external security was passed to the RAF. The only ground forces which were to remain in Iraq under the new scheme were one brigade of British and Indian troops and 4 companies of RAF manned armoured cars.



RAF armoured cars v Sheikh Mahmud in Iraq

It is to the latter that the RAF Regiment traces its origins. In addition, the RAF deployed a force of 8 squadrons of de Havilland DH9s, Bristol Fighters and Vickers Vernon transport aircraft to Iraq.

The area was placed under the command of Air Vice Marshal Sir John Salmond. His Army predecessor had commanded a force of 33 battalions of infantry and 6 regiments of cavalry, and thus the Treasury, if not the War Office, was delighted by the change.

Salmond faced his first crisis when Kurdish tribesmen under the leadership of Sheikh Mahmud, and covertly encouraged by the Turks, staged a revolt in the northern province in September 1922. Salmond immediately organised the world's first air evacuation, and

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18 aircraft lifted out all the threatened British forces and civilians, as well as friendly local leaders and one dog! Using Vickers Vernon transports and DH9s in an operation lasting about 5 hours some 70 people were lifted from Sulamaniya to Kirkuk.

The following year relations with Turkey over the status and control of the region around Mosul deteriorated. Sheikh Mahmud was still actively agitating against British control and he was now supported by the Turks including some regular troops. Learning that the Turks were evacuating civilians from villages on the Turkish side of the border with Iraq, Salmond decided he could delay no longer and, faced with superior force, he had to seize the advantage. Acting on his own initiative, and ignoring the vacillations of politicians in London he despatched nearly all his scanty ground forces to Mosul. In the event the first moves came from Sheikh Mahmud, not the Turks. Mahmud's irregular forces moved against the tiny garrison at Kirkuk and threatened to overwhelm it. Salmond immediately mounted another airlift, but this time in the reverse direction, and the Vernons carried some 480 troops to the town in the first military troop lift in history.



55 Squadron DH9A near Mosul 1922

The Vernons of 45 Squadron were under the command of Squadron Leader Arthur Harris, later to achieve fame as AOC-in-C of Bomber Command in the Second World War. (His 2 flight commanders, Robert Saundby and Ralph Cochrane, would also rise to senior posts in Bomber Command, the former as Deputy C-in-C and the latter as AOC 5 Group). Mahmud's men had expected that the British would be unable to reinforce the garrison because heavy rains had made the roads from the south impassable.

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45 Squadron Vernon

The sudden appearance of several hundred troops proved so disconcerting that Mahmud's forces melted into the mountains. He was to remain a constant irritant to the British for many years (so much so that he was known as RAF Director of Operational Training), but the Turkish bluff had been called by Salmond's rapid and decisive action. The Turkish columns withdrew from the border region after some skirmishing and attacks by aircraft of 6 Squadron against a cavalry incursion. Without Turkish backing Mahmud was a manageable threat. Salmond's calculated risk in despatching nearly all his forces to Mosul had ensured that the region was pacified and the Turkish threat nullified. The operations in all extended over 5 months and were very cost effective. Salmond was promoted Air Marshal, and Trenchard stressed the value of Salmond's operations to the RAF's continuing struggle for independence when he wrote to him: "I cannot emphasise too much the value your successful command in Iraq has been to us".

AIR CONTROL

The operations in Somaliland and Iraq laid the foundations of Air Control as a method of policing isolated and inhospitable areas. In areas such as the Middle East and the North West Frontier of India it was to prove an effective means of projecting military power.

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Bristol Fighter over Khyber, December 1925

In these areas rebellion against authority and raiding one's neighbours were part of the way of life. The essence of air control in such situations was twofold: speed and power. Large ground forces deployed in the traditional punitive columns were both costly and often ineffective because they could not deploy rapidly enough thus usually arriving too late to prevent all pillaging. The columns themselves provided an irresistible challenge, almost a traditional sport, for warrior races such as the Pathans on the North West Frontier who had long fought the British forces in India. Aircraft, on the other, whilst not invulnerable to ground fire, provided a much more difficult target, and one with less sporting connotations. They could also apply sufficient power quickly enough to make the prospect of unrest unattractive to the tribesman.

The system which eventually evolved for applying air control involved issuing warnings, either verbally via political officers, or through leaflet drops, or both. The warning usually stipulated that if certain conditions had not been met by a clear deadline villages would be bombed at a designated time. Villagers were warned to evacuate the village and not to return until law and order had been restored. The bombing was not designed to cause casualties, but rather to separate tribesmen from food and shelter and cause maximum discomfort and inconvenience.

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60 Squadron Wapiti drops bombs in North West Frontier

It was seldom the intention to destroy a village, merely to knock down some houses, preferably those of known troublemakers. Airlifts of troops to trouble spots was also a common response, and cooperation with ground forces, whether British, Indian or local levies, became a hallmark of successful air control operations. Air control was criticised on the grounds that it punished and even killed women and children, although that was never the intention. These criticisms ignored the fact that punitive ground forces often wreaked greater havoc and destruction and invariably killed more people on both sides.



Bombing of Chabaish Village, Iraq December 1923

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KABUL 1928-29

A large scale rebellion in 1928-29 succeeded in cutting off Kabul, the capital of Afghanistan, from the outside. A similar situation had occurred in late 1841 when the British Army of the Indus had been besieged in Kabul. In December 1841 they were allowed to leave and a column of 4,500 troops accompanied by 12,000 non-combatants set out for Jalalabad. Six days later a lone survivor reached the city. All the others had been massacred on the march. This time the British Envoy in Kabul was able to ask that women and children should be evacuated by air. In 2 months of winter, the RAF flew 28,160 miles and evacuated 586 people of various nationalities from Kabul. Only one aircraft was lost, a Victoria transport, but there were no casualties from the forced landing. This first major civilian airlift in history demonstrated the mobility of air power, and that air power could be used in a peaceful role for the benefit of humanity.

Operationally, the RAF may not have been at war but it was certainly in action. The practice of air control brought a measure of stability to large parts of the Middle East in particular at a fraction of the costs in men and equipment of the traditional methods of occupation on the ground. The role allotted to the RAF by Churchill to garrison the Empire could be said to have been successfully carried out and to have helped establish the RAF as an essential part of the Armed Services.

AIRCRAFT FOR THE EMPIRE

During the 1920s, 2 aircraft were to become synonymous with the air control role - the Airco DH9A (the 'Ninak') and the Bristol Fighter (the 'Biff' or 'Brisfit'). Both machines had been designed during the First World War, and had carved out excellent combat records over the Western Front. Although their limited range, limited payloads and liquid-cooled engines made them less than ideal for colonial policing, the availability and adaptability of these invaluable workhorses led to their widespread use throughout Britain's colonies and mandates.



8 Squadron DH9A formation, Bristol Fighter collects a message in India

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However, by the mid-1920s it had become apparent that replacements for the DH9A and Bristol Fighter were urgently required. In their stead, the Air Ministry sought 'General Purpose' machines that would be both inexpensive to procure and could survive the rigours of geography and weather that characterised many of the most troubled parts of the Empire. Although hard-won experience dictated that any future air control aircraft should have a range of at least 500 miles and a ceiling of not less than 17,000 feet, ruggedness was emphasised in preference to high performance. Following trials of 9 designs conducted between March and May 1927, 2 aircraft were selected for service - the Westland Wapiti and the Fairey III F.



Wapiti bombed - up for a raid on
Mahsud July 1930



47 Squadron Fairey III F
over Khartoum

The Wapiti proved to be a worthy successor to the DH9A and the Bristol Fighter. Although the aircraft's maximum speed was a stately 132 mph at 6,500 feet, it was nevertheless ideal for the air control role, combining a practical and reliable airframe (which included a number of DH9A components) with a good engine.



47 Squadron Fairey Floatplane on the Euphrates near Baghdad

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30 Squadron Hardy guarded by a Levy of the 8th Kurdish Co Mosul

PIONEERING IN AIR POWER

LONGER, HIGHER, FASTER

A major consideration for the RAF was that of establishing an international reputation for long-distance, high-altitude and high-speed flying so that it could develop and show its operational and technical prowess. Throughout the 1920s and into the 1930s the work of the RAF was very much tied up with the development of British civil aviation: the directorate of civil aviation was, in these early days, a part of the Air Ministry. Samuel Hoare, the Air Minister, said in 1929 that he was at the Air Ministry for 2 purposes: first, to preach Trenchard's principles of air power, and, secondly, to establish civil air transport as a dependable means of quick communication in the Commonwealth and Empire. Thus, if American aviation pioneers had a huge continent to map from the air to develop their civil aviation industry, the arteries of the British Empire gave the RAF the opportunity to pioneer new air routes - to Egypt initially, and then on to India, Singapore and Australia as well as southwards to the tip of Africa. Frequently, of course, such flying was done as part of the normal operational routine by individual Squadrons. From such unsung work, however, British civil aviation established itself throughout the Empire as Imperial Airways, formed in 1924 as the chosen instrument of the Government to develop British commercial air transport on an economic basis.

The RAF had cut its teeth for this work by operating the air mail and passenger service from London to Paris for government officials attending the Peace Conference in

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Paris in 1919, as well as an air mail service to the British troops of the Army of Occupation in Germany, which did much to restore the morale of men who appeared to have been forgotten so quickly after the war had ended.

EMPIRE AIR ROUTES



B Flight 70 Squadron HP 0/400 Heliopolis 1920

The first major route, Cairo-Baghdad, officially began in 1921. It was pioneered by a convoy of cars from Amman accompanied by 47 Squadron DH9a's and Handley Page 0/400s of 70 Squadron meeting another convoy which had set out at the same time from Baghdad escorted by DH9a's from 30 Squadron as to act as guides.



DH9A from 14 Squadron on Cairo - Baghdad mail route

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The 2 convoys met roughly halfway across the desert; the tracks provided visible navigational aids until a more permanent track was ploughed and a route had been established. Later, landing grounds were marked along the route, underground fuel tanks were installed and mail reached the British troops in Iraq only 5 days after posting in London. This Cairo-Baghdad route became so important that it was the first overseas sector and basis for the routes of Imperial Airways in 1927.

In Africa, pioneering flights were made through the Sudan, Kenya and on to the Cape by DH9As, Vernons and Vimys. Formation flights by Fairey IIIDs from Cairo to the Cape followed early in 1926 – 8,000 miles of desert and jungle were crossed without serious problems. After that, such flights became regular training exercises, again pioneering the routes for the civil airlines to follow.

The routes to the Far East were the province of the flying boats. One of the most outstanding of all pioneering flights was that made by 4 Southampton flying boats in 1927-28. They left Plymouth to become the nucleus of No 205 Squadron at the new RAF base in Singapore. They flew in formation to Singapore, on to Australia and Hong Kong and then back to Singapore on time.



Supermarine Southampton



3 Southamptons Seletar, February 1928

LONG-DISTANCE FLIGHTS

The first major prize in long-distance aviation was the non-stop crossing of the Atlantic for which the Daily Mail had offered a sum of £10,000. On 15-16 June 1919, Captain John Alcock and Lieutenant Arthur Whitten Brown successfully made the first non-stop crossing in a converted Vickers Vimy bomber; their flight from Newfoundland to the west of Ireland took 16 hours 12 minutes. It was a great success for British aviation - a British pilot and navigator in a British machine powered by British engines.

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Allcock and Brown taking off in their Vickers Vimy bomber at the start of the first direct Atlantic crossing, Newfoundland to Ireland 4th June 1919



Captain Allcock & Lieutenant Whitten Brown at breakfast and their plane after crash landing in an Irish bog

Attempts were made, beginning in the late 1920s, to explore long-range, non-stop flying with Fairey monoplanes. In 1929 a non-stop flight was made from Cranwell to Karachi and in 1933 Squadron Leader Gayford and Flight Lieutenant Nicholetts flew from Cranwell to South West Africa - a distance of 5,430 miles in 57 hours, 25 minutes, a new world record.

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Fairey Long Range Monoplane 1929

Although there was a Long-Range Development Flight established at Upper Heyford, the recurring financial problems of the country allowed little to be done towards establishing fast, long-range reconnaissance as a specialized force. In 1938, however, the new single-engined monoplane bomber, the Vickers Wellesley, flew non-stop from Upper Heyford to Darwin, Australia, a distance of 7,162 miles thus setting another international record.



Nicholetts, Londonderry, Gayford and AVM Salmond 2 May 1933

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World distance record Wellesley 1938

ALTITUDE

Mention must also be made of the work in high-altitude flying that clearly would have strategic implications. The Bristol monoplane - enclosed cockpit, fixed undercarriage, and a specially designed engine to give maximum performance in the rarer air - and the first pressurized clothing - made research and testing possible.



Bristol 138 high altitude monoplane

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In 1936 Squadron Leader Swain reached a height of 49,944 feet, easily beating the existing record and, in the next year, after modification and improvement to both aircraft and pressurization suit, Flight Lieutenant Adam took the Bristol 138 monoplane to a new record of 53,937 feet. Unfortunately, this research was pushed no further.



Squadron Leader Swain and Flight Lieutenant Adam with pilot wearing an early altitude pressure suit



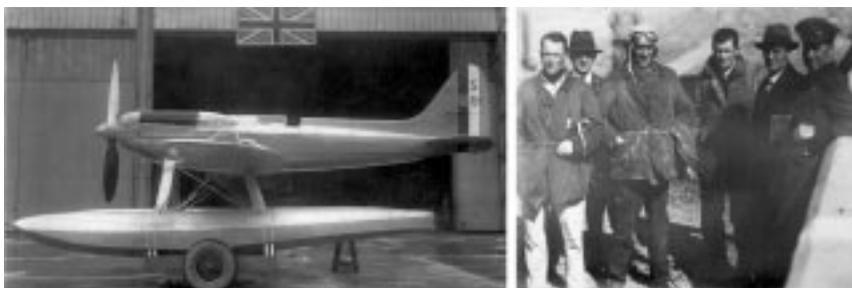
Squadron Leader Swain and Flight Lieutenant Adam

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IN THE PUBLIC EYE

While so much of the pioneering of the air routes was unspectacular and rarely captured the public's attention, the Schneider trophy and the RAF Displays at Hendon were quite the opposite. It was these 2 events that brought together the courage and daring of the pilots to thrill the public and the skill and research of the aircraft designers, a combination which was to prove vital when put to the test in the Second World War. The immediate effect, however, was to keep the public well aware of what the RAF could do.

THE SCHNEIDER TROPHY



Supermarine S.6B, Schneider Trophy Team 1931

The Schneider Trophy was intended to encourage design and development of seaplanes and flying boats. British civilian pilots won the trophy in 1914 and 1922, but soon the prestige to be gained by success in the race meant that government-sponsored, specially designed seaplanes had eliminated private entries. Realizing that the Schneider Trophy offered a vehicle for research into speed and performance, the Air Ministry formed the High Speed Flight in 1927. The aim was research and a team of RAF pilots was formed to fly a specially built seaplane in the 1927 race in Venice. The Supermarine S.5 monoplane with a Napier engine won at a speed of 281.65 mph.

The 1929 race was a direct confrontation between the RAF and the Italian Air Force (the only other major independent air force in the world) flying Macchi seaplanes and under direct orders from Mussolini to provide a victory for his regime. The new Supermarine, the S.6A, now had the Rolls-Royce R engine developing 1900 hp. The race was won by Flying Officer Waghorn at a speed of 328.63 mph. On 12 September 1929, Squadron Leader Orlebar, the team leader, raised the world absolute speed record to 357.7 mph.

In the midst of yet another financial crises in 1931, Britain would not have been able to compete, had not Lady Houston, an eccentric but charitable lady, given £100,000 to

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finance the entry. At Lee-on-Solent, in a Supermarine S.6B, Flight Lieutenant Boothman won at a speed of 340.6 mph. Later in September Flight Lieutenant Stainforth took the S.6B and its Rolls-Royce engine, now boosted to 2600 hp, to a new speed record of 407.4 mph - an incredible improvement on the speed with which Boothman had brought the Schneider Trophy to Britain for good. Based on the performances of the Supermarine seaplanes, R J Mitchell, Supermarine's chief designer, felt sure he could produce a fighter aircraft of great speed and manoeuvrability: Rolls-Royce had proved their ability to build an engine to match based upon the R engine. The evolution of the Spitfire and its Rolls-Royce Merlin engine can be traced directly to the Supermarine monoplanes that won the Schneider Trophy.

THE RAF DISPLAYS

The First RAF Tournament at Hendon, North London in 1920 was designed as a flying display to attract public attention and provide the financial base for the launching of what became the RAF Benevolent Fund. So successful was this first one that - later renamed Displays - they continued to be held annually until 1937. The Royal International Air Tattoo (RIAT) held annually today is their successor. While continuing the initial aim of providing funds for the Benevolent Fund, it was quickly realized that such displays could become a focal point of public awareness of the capabilities of the new RAF as well as provide an excellent capstone of annual training for all concerned. With the help of meticulous organization, widespread media coverage, and Royal patronage which turned the events into part of the London season, the Hendon Air Displays were a major triumph. They were a financial success and brought tremendous benefits in terms of publicity and training.



Aeros with smoke

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3 Squadron Bulldog Hendon 1929



Service Type Park 1932

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Bombing Set Piece 1928



Aircraft Park 1932

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The display set pieces gave both bombers and fighters the chance to show their capabilities; and above all, the crowds were thrilled by individual and formation aerobatics performed by a whole succession of fighter and trainer aircraft - Snipes, Bulldogs, Gamecocks and Moths. In 1921 the RAF Record said: "Five CFS Snipes did the most wonderful formation flying that ever happened. They looped, they rolled, they dived, all in wonderful formation; not content with that, they did much upside-down flying, in line and in V-formation". That year the weather was atrocious; The Aeroplane's comment was: "Only a force, part of whose daily work is to keep accurate formation, to find their target with bomb and machine-gun, to snatch a message from a string, to loop and roll and dive with beautiful precision, and to pursue and fight the enemy in the air, could have done these things under the deplorable conditions of this year's display". The last RAF Display was the Coronation Display for King George VI when Whitleys, Wellesleys and Gladiators were seen and when the set piece may have appeared a little too realistic as the approach of war was visible on the horizon. After 1937, the Air Staff decided that preparations for war had to take precedence over flying displays and so the RAF Hendon Displays came to an end.

The RAF had pioneered and exploited range, speed, altitude and captured the public's attention for aviation. Within the severest constraints posed by recurring financial difficulties, a most valuable contribution had been made. Yet too little accrued to either civil aviation or the RAF as a result of the efforts. Lack of money and a general air of apathy meant that, even in the late 1930s, there were still too many aircraft in service with both the commercial airlines and the RAF that looked backwards in time for their design and performance.

THE END OF THE AIRSHIP

While the aeroplane was under constant development for both civil and military aviation as we have seen, the airship disappeared fairly rapidly from the skies. The more publicized German Zeppelins were not the only ones of importance in the First World War. British airships flew something like two million miles on routine, but unspectacular, operations mainly against submarines.

At the end of the war, however, there were only 5 rigid airships in service. Like the aeroplane, airships had to justify their existence. Soon after Alcock and Brown's flight, the R34 airship, with a crew of 31 and one stowaway, made a two-way crossing of the Atlantic between 2 and 13 July 1919. But this success led no further. In 1921 the Airship Service of the RAF was disbanded, a result of the combination of lack of finances and the apparent proven superiority of the aeroplane. Yet airship enthusiasts succeeded in keeping some research going and even persuaded the Government that there could be some commercial value in rigid airship flights. So, in 1930, the R100 and R101, the

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largest airships ever built in Britain, took to the skies. The R101, on its maiden flight to India, crashed in France with the loss of most of those on board. Among those killed were: Lord Thomson, the Secretary of State for Air; Air Vice-Marshal Sir Sefton Brancker, the Director of Civil Aviation; and Major Scott, who had piloted the R34 across the Atlantic. Such a disaster meant the effective end of the airship. The R100 was broken up and all further work abandoned. With that decision, British military aviation became exclusively an aeroplane force, with the single exception of the unmanned barrage balloons which became part of the air defence system.



R101 moored at Cardington



Wreckage of R101

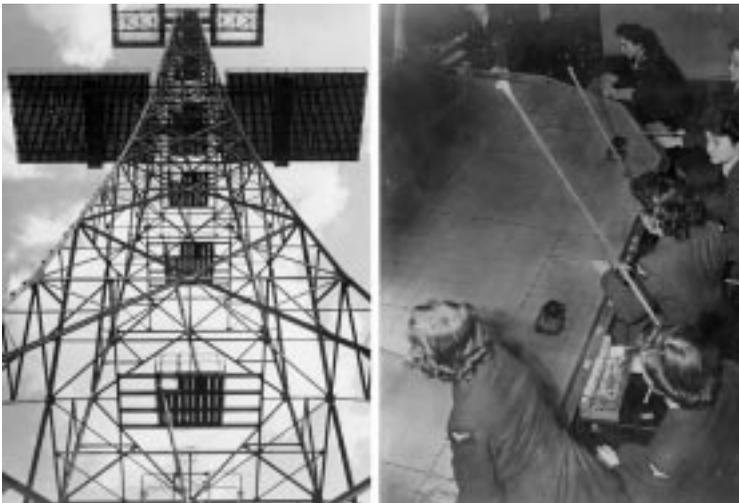
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PREPARATIONS FOR WAR

AIR DEFENCE

Fortunately, in the mid-1930s, 2 developments were in progress that would make air defence at least a practical operation. Firstly, scientific research by individuals such as A P Rowe, A V Hill, P M S Blackett and Robert Watson-Watt came together in the committee under Henry Tizard that was eventually to transform Britain's air defences in a very short time by the technique of RDF (radio direction finding).

Watson-Watt discovered a technique to pick up an approaching aircraft at a distance of 75 miles from the coast. However, the existence of RDF was not publicly acknowledged until 1941. Radar, an American term, (Radio Direction and Ranging), was adopted by the RAF in September 1943. In December 1935 the first 5 radar warning stations were given the go-ahead; they were to cover the approaches to London and the Thames Estuary.



Chain Home Radar mast, Uxbridge plotters October 1942

At the same time, the new metal monoplane fighters, the Hurricane and the Spitfire designed by Sydney Camm and Reginald Mitchell respectively, each equipped with 8 machine guns and capable of speeds in excess of 300 mph, had begun the process of translation from drawing board to operational squadron.

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The Royal Observer Corps



HQ Fighter Command underground Ops Room (left),
Unprotected Sector G Ops Room, RAF Duxford (right)

The Hurricane and Spitfire prototypes were ordered for the RAF on 14 November 1934 and 1 December 1934 respectively. The prototype Hurricane first flew in November 1935 and the prototype Spitfire in March 1936.

The key to the future success in the air defence of Britain was to rest on the development and combination of RDF and the new fighter aircraft in what was to become the world's first Integrated Air Defence System (IADS).

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Hurricane prototype

A decision by a little known lawyer who had been appointed the Minister for Coordination of Defence, Sir Thomas Inskip, was also to be vital. The traditional Air Staff Doctrine, as has been pointed out, was that the best means of defence was attack, hence the strategic bombing offensive. In December 1937 Inskip challenged that thinking by cutting short the race for numerical parity with the Luftwaffe and shifting the emphasis from the offensive use of air power to the defensive; in other words, fighters, which were both cheaper and quicker to produce, were to have priority over bombers. However, to achieve this change in emphasis, Inskip did not increase the number of fighters on order, but instead decreased the number of bombers on order. Thus he engineered a modification in air policy which was to be of great significance when war came, and especially in the Battle of Britain. Inskip's decision, Smuts' Report of 1917 and Trenchard's Memorandum Paper can be said to be the 3 most significant events in the development of British air power up to the Second World War.



Spitfire prototype

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REORGANIZATION AND EXPANSION

In the 1920s and early 1930s, the RAF had 3 major concerns: the fight for survival, the concept and practice of air control, and pioneering aviation. In the mid-1930s a much greater concern took centre stage, - the need to expand the RAF and prepare it to fight another major war in the light of the threat from Germany and Italy in Europe, and Japan in the Far East. The shadows of war began to gather when the Geneva Disarmament Conference (1932-34) failed and when it became less than a well-kept secret that Germany was beginning to re-arm. In fact, Hitler could boast as early as March 1935 that the Luftwaffe had reached equality in numbers with the RAF (the claim may have been a little exaggerated; what was of grave consequence was that the Luftwaffe was expanding faster than the RAF). The Government's reaction was a series of expansion schemes between 1934-39 designed to ensure that the RAF was able to protect the nation against air attack by the strongest air force within striking distance, which now meant the Luftwaffe. The projected expansion in equipment and men was a late attempt by the Government to achieve national security after the international efforts had failed. The race to achieve parity preoccupied the political leaders who were alarmed at the strength of the German Air Force, but both within the Air Ministry and the Government a sense of urgency was lacking in the years 1934-37.

Trenchard's original concept of a small, highly efficient force capable of expansion when necessary was fully appreciated as the RAF girded itself for war. As the storm clouds of war gathered the RAF began to prepare. Firstly the old Air Defence of Great Britain was replaced in July 1936 by 4 functional commands: Fighter (which included Army Cooperation and the Observer Corps), Bomber, Coastal (which was responsible for all land-based maritime aircraft and flying boat stations), and Training. Secondly, plans were made to re-equip the RAF: in addition to the new fighters already mentioned, the Air Staff issued a specification for a long-range heavy bomber from which eventually came the 4-engined heavies of Bomber Command during the Second World War.



Hurricane production

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Harts of 603 (City of Edinburgh) Squadron

To support the expansion in aircraft production, the shadow factory scheme was inaugurated whereby the leading car-makers set up huge assembly plants for the production of aircraft and aero engines. Thirdly, the training and reserve strength of the RAF multiplied; more Auxiliary Air Force squadrons were formed, the RAF Volunteer Reserve was created to train pilots of NCO rank, the Women's Auxiliary Air Force came into being in June 1939 (but was not legally part of the armed forces until June 1941), new flying training schools were opened and - against considerable opposition - civilian flying training schools were used, and three new commands were added to the RAF - Balloon, Maintenance and Reserve.



Balloon Command, Maintenance Command, Reserve Command

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Finally, to support the expansion schemes, new airfields and buildings, storage and maintenance depots, and training schools were built. By the summer of 1939 the building task alone was more than 3 times the cost of the entire RAF in 1934.

The preparations for the war, which was clearly not far away, were well founded. However, the actual frontline operational strength of the RAF was still very weak compared with the Luftwaffe, which had, moreover, been honing its skills and demonstrating its power in the Spanish Civil War. There is no doubt that the fear of massive civilian casualties was very much in mind at the time of the Munich crisis in September 1938. There were very few Hurricanes and no Spitfires operational at that time; the readiness for war of both Bomber and Fighter Commands was less than 40 per cent; and the equipment was described, with no exaggeration, by Winston Churchill as deplorable. In short, had war come in September 1938 there is little doubt that the RAF would have been much less well placed than it was a year later. Whatever the political and moral issues of Munich the breathing space it gave was crucial to the RAF, for, in that last year of peace, financial limitations were removed, conscription introduced and the facade of first-line strength at the expense of trained reserves finally abandoned.

1919-1939: IN RETROSPECT

At times, British air policy in the period between the 2 World Wars can be said to have lacked direction; many would say it was too often a disgrace for which the political leaders must take the major responsibility. In 1918, Britain had the strongest air force in the world. By the early 1930s, she was only fifth among the leading air powers and the race to rearm showed both uncertainty and little sense of urgency. When war came in September 1939, the front-line strength of the RAF was only about half that of the Luftwaffe.

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SE5A 61 Squadron 1918, DH10 (Amiens) bomber & ground crew,
615 Squadron Hurricanes take off, Loose formation of 9 Squadron Wellingtons
September 1939, Spitfire K9795

What then saved the situation when war came? In the simplest terms, it was the quality of the RAF in both its training and equipment that eventually overcame the numerical superiority of the Luftwaffe. Quality was never willingly sacrificed for quantity even when expansion was uppermost in all minds. If, at the beginning of 1934, the RAF still looked like a First World War force of wooden biplanes, by 1939 it had become largely a force of all-metal monoplanes equipped with automatic pilot, retractable undercarriage, and variable pitch propeller. While the outdated Gladiators and Fury fighters and the Hart and Hind bombers were produced by the early expansion schemes, the later schemes fortunately produced the Hurricane, Spitfire, Blenheim and Wellington to make the RAF a much more modern and better balanced force.