



# AIR POWER REVIEW

VOLUME 21 NUMBER 1

SPRING 2018

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### FIGHTING IN THE AIR

The late Marshal of the Royal Air Force Sir William Sholto Douglas

### EXPERIENCES WITH A DAY BOMBING SQUADRON IN THE INDEPENDENT FORCE IN 1918

The late Air Commodore John Charles Quinnell

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### THE PROPHET'S INTERPRETER: SIR SAMUEL HOARE, HUGH TRENCHARD AND THEIR CAMPAIGN FOR INFLUENCE

Wing Commander Sophy Gardner (Retired)

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### LEARNING TOGETHER, WINNING TOGETHER: AIR GROUND COOPERATION IN THE WESTERN DESERT

Colonel Dr Robert Ehlers USAF (Retired)

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Squadron Leader Phil Clare

Sergeant David Bett

Mr Mark Russell

Flight Lieutenant Lilie Weaver

Group Captain John Alexander

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A PEER REVIEW JOURNAL BY THE  
RAF CENTRE FOR AIR POWER STUDIES



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# ROYAL AIR FORCE AIR POWER REVIEW

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Contributions from both Service and civilian authors are sought provided the submission is original and unpublished. Any topic will be considered by the *Air Power Review* Editorial Board provided that it contributes to existing knowledge and understanding of air power. Articles should comply fully with the style guide published at the RAF Centre for Air Power Studies website, [www.airpowerstudies.co.uk](http://www.airpowerstudies.co.uk); essentially they should be between 5,000 and 10,000 words in length, list bibliographical references as end-notes, and state a word count. Shorter articles and those which offer more of a personal opinion will also be considered for inclusion as a 'viewpoint'. A payment of £230 will be made for each full article published, or £100 for a published viewpoint and £50 for a book review. Additional constraints apply for payments to Service personnel for which details are available from the editor.

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# CONGRATULATORY MESSAGE FROM HIS MAJESTY KING GEORGE V ON THE RAF'S FORMATION - 1 APRIL 1918



BUCKINGHAM PALACE

LORD ROTHERMERE. AIR MINISTRY. STRAND.

Today the Royal Air Force, of which you are Minister in Charge, comes into existence as a third arm of the Defences of the Empire. As General-in-Chief I congratulate you on its birth, and I trust that it may enjoy a vigorous and successful life.

I am confident that the union of the Royal Naval Air Service and the Royal Flying Corps will preserve and foster that esprit de corps which these two separate forces have created by their splendid deeds.

GEORGE R.I.

1st. April 1918.

# CONGRATULATORY MESSAGE FROM HER MAJESTY QUEEN ELIZABETH II ON THE RAF'S CENTENARY - 1 APRIL 2018



BUCKINGHAM PALACE

On this, the centenary of its formation, I send my heartfelt congratulations to the Royal Air Force at home and overseas, and to all of its families and loved ones.

The anniversary of the world's first independent Air Force is of great significance, and it is fitting to pay tribute to the tenacity, skill and sacrifice of the men and women who have served within its ranks over the last century, and who have defended our freedom so gallantly.

Through its enduring focus on professionalism, excellence and innovation, the Royal Air Force stands as a shining example of inspiration around the World today and for the next generations.

May the glory and honour that all ranks have bestowed on the Royal Air Force light its pathway to the future, guarding our skies and reaching for the stars.

Per Ardua ad Astra.

ELIZABETH R.

# INTRODUCTION BY THE CHIEF OF THE AIR STAFF

AIR CHIEF MARSHAL SIR STEPHEN HILLIER

**A**s we celebrate the Royal Air Force's Centenary, we must constantly keep in mind the lessons that have helped forge our past operational successes and which have paved the way to delivering our exceptional air power capabilities today. The three Centenary special editions of *Air Power Review* take stock of our experiences from the First World War through to today and, in the third edition, offer some thought-provoking visions of air and space power as we project into the future.

The lessons from the past century have much to teach us, but they are worthless if forgotten, and potentially dangerous if misapplied.

*Air Power Review* acts as a guard against such pitfalls: now in its 20th year of publication, it has consistently provided an excellent means to analyse past campaigns, contemporary challenges and emerging opportunities, with the ultimate goal of enhancing future operational success. It has provided a safe environment for serving men and women of all ranks to apply their minds to the conceptual development of the Royal Air Force, as well as providing a peer-reviewed forum for established academics from around the World to advance air and space power thinking more generally. *Air Power Review* will continue to be an important resource for air power professionals and strategists throughout the Royal Air Force's second century. In her Centenary message to the Royal Air Force, Her Majesty the Queen remarked on the Royal Air Force's 'enduring focus on professionalism, excellence and innovation', attributes that find perfect intellectual expression between the covers of *Air Power Review*.



# FOREWORD

BY GROUP CAPTAIN JAMES BELDON,  
DIRECTOR OF DEFENCE STUDIES

I am delighted that the very first Director of Defence Studies, Air Vice-Marshal Tony Mason, opens this volume with his reflections on the history of *Air Power Review* and his sentiments on the importance of the academic study of air power. This first volume of three RAF Centenary special editions of *Air Power Review* goes on to cover the period from the birth of the Royal Air Force in 1918 to the end of the Second World War. The development air power thinking in the early twentieth century and events leading to the formation of the RAF were recounted in detail using many primary sources in the 95th Anniversary special edition of *Air Power Review* (Spring 2013). This edition follows in kind by starting with essays written by two students, both DFC recipients, at the RAF Staff College during the period 1923-1925. Squadron Leader (later Marshal of the Royal Air Force) William Sholto Douglas and Squadron Leader (later Air Commodore) John Charles Quinnell reflect on their combat experiences during the latter stages of the First World War in 'Fighting in the Air' and 'Day Bombing' respectively. The insight into tactical developments and the risks and associated courage make for fascinating reading, but their lessons – perhaps especially as they relate to leadership and training – strike as clear a chord to the modern airman's ear as they did to our forebears a century ago.

At the time that Douglas' and Quinnell's essays were written, the future of the world's first independent air force was far from assured, a theme explored in the first retrospective article in this edition, authored by Wing Commander Sophy Gardner (RAF Retired). Her essay analyses the outstanding partnership of Marshal of the Royal Air Force Sir Hugh Trenchard (as Chief of the Air Staff) and Sir Samuel Hoare (as Secretary of State) and their success in firmly consolidating the RAF's position as a permanent third service. Gardner argues that, unlike its more established sister Services, the RAF was free from the burden of history, which enabled Trenchard and Hoare to develop a strategy that leveraged air power's technological modernity and apparent efficiency to best political effect. As Gardner identifies, Trenchard and Hoare were also savvy in keeping key influencers on side too, and drew on aspects of tradition cloned from their sister Services to win the support of the public, high society and the royal family.

While the numerous rounds of inter-Service battles were being fought in Whitehall in the 1920s, across the Empire the RAF's demonstrable utility in ensuring stability and reducing the costs of imperial policing was vital to its survival. The prime example, oft cited by Trenchard, was the RAF expedition in British Somaliland in 1919-1920 to conduct one of the Service's first counter-insurgency operations. In his article on this campaign, Brigadier Andrew Roe argues that air power alone cannot be credited with

achieving victory, but was arguably the most critical element of the forces deployed and the campaign demonstrated some enduring strengths of air power, examples of which Trenchard was quick to exploit within Whitehall.

Elsewhere within the Empire, the RAF's Special Service Officers were delivering disproportionate influence – often entirely single-handedly and remote from military support. The role of these special forces airmen in conducting unconventional and high-risk operations to protect and stabilise the frontiers of the Empire is explored by Lieutenant Colonel Dr Richard Newton (USAF Retired). And, in this edition's final paper on 'air control', Wing Commander Andrew Walters (RAF Retired) analyses inter-war operations on the North-West Frontier of India. He argues that ineffective command and control arrangements, including the subordination of air assets in India to an Army C-in-C, meant that the Air Ministry was unable to leverage influence and air power's potential was never fully realised in that theatre.

The journal's focus then returns to the UK and the inter-war debate on the necessary resourcing for the air defence of Great Britain. Dr David Jordan's essay highlights that careful planning and intellectual investment by the RAF ensured that the scarce funding available was applied to the best possible effect by ensuring that a foundation air defence capability, skills and infrastructure existed and could be rapidly expanded when the threat developed rapidly in the mid-1930s. This foundation enabled victory in the Battle of Britain in 1940, which is recounted in depth in the 75th Anniversary Battle of Britain special edition of *Air Power Review* (Summer 2015).

In the first of our articles on the Second World War, the Head of the Air Historical Branch, Mr Seb Cox, tackles the much-debated subject of Bomber Command's role in the Combined Bombing Offensive, analysing the considerations behind the decision making and providing the reader with an appreciation of the achievements of Bomber Command in contributing towards the Allies' eventual victory. Arguably the least well represented Command in the RAF's historiography, Coastal Command receives the attention it deserves in the next article by Dr John Buckley. He argues that despite the Air Staff's view in the 1930s that maintaining maritime air power was an unnecessary financial burden, Coastal Command overcame its initial limitations in equipment, operating procedures and funding to play a vital role in preserving the UK's sea lines of communication, and with them the country's ability to prosecute the war. The final article, by Lieutenant Colonel Robert Ehlers (USAF Retired), explores the employment of air-land integration in North Africa and examines how the RAF and the Army adapted their doctrine to overcome German tactical superiority and achieve victory.

Finally, I commend to you the five books reviewed in this special edition. Their broad range of topics include: control of the air during the First World War; British and Commonwealth operations in Burma; an alternative view of the development of

jet engines; an analysis of the role played by R V Jones in scientific and technical intelligence developments during the Second World War; and a revisionist account of Allied victory which argues that the Second World War was ‘a contest of air and sea supremacy’.

# AIR POWER REVIEW'S PLACE IN RAF HISTORY

BY AIR VICE-MARSHAL TONY MASON (RETIRED)

**Biography:** Air Vice-Marshal Tony Mason was the RAF's first Director of Defence Studies from 1977 to 1980. A prolific writer and commentator on RAF and air power matters, following retirement from the RAF he was the Director of the Centre for Studies in Security and Diplomacy at the University of Birmingham, which made him an honorary professor in 1996.

In his address to the first RAF Staff College course at Andover in 1922, Sir Hugh Trenchard directed: *"Remember that the one great thing to which you should at all times apply your thoughts and brains is expansion of the power of materiel and personnel without increasing either. That way lies economy."* In 1945 US General Hap Arnold emphasised the need for an air force *"to keep its doctrines ahead of its equipment and its vision far into the future"*. Those exhortations are now manifested in the RAF's emphasis on the "conceptual component" of air power.

In 1977, the RAF held its first ever Air Power Conference. The speakers, led by CAS, included senior RAF and other officers from friendly air forces, a senior civil servant and the two UK academics whose interests were the Armed Forces of the Soviet Union and Defence Economics. The Conference proceedings were published, but without any bibliography, because none existed.

Later in 1977, the University of Cambridge agreed to allow some RAF Staff College graduates to attend its post-graduate MPhil course in Defence Studies without a first degree. In 1979 the University was the first academic establishment in the world to establish a lectureship in Air Power Studies. In April 1980, an Air Power Supplement was issued with the Flight Safety monthly journal *Air Clues*. It contained just four articles from serving RAF officers, on Low-Level Air Defence, Warsaw Pact AWACS Deployment, Air Weapon Training, and Lessons from the Yom Kippur War of 1973 and Vietnam.

In 2018, the legacy of successive Directors of Defence Studies is impressively demonstrated in this Centenary series of the *Air Power Review*. It marks the culmination of forty years of influential publishing, stimulating, encouraging, facilitating and organising the study and promulgation of all aspects of air power, within and beyond the boundaries of the Service. Contributors include serving and retired officers, servicemen and women on university Fellowships, academics specialising in air power studies and authoritative writers from the Air Historical Branch. All available, and studied, internationally in print and online.

Today, CAS' annual Air Power Conference sets the international benchmark. A massive bibliography of air power now exists. It is constantly expanded by contributions from students benefiting from the ever-increasing academic air power specialists located at several British Universities, led but by no means dominated by, Birmingham, London, Exeter and Cambridge. The steady flow of new students assures the future health of the discipline. The fusion of operator and academic, fostered by shared conference platforms, joint seminars, academic presence at Colleges and networks of personal relationships, induce mutual respect and understanding. The product, epitomised by the *Air Power Review*, is a school of British air power original thought with international presence.

Lord Trenchard and Hap Arnold would have approved.

# FIGHTING IN THE AIR

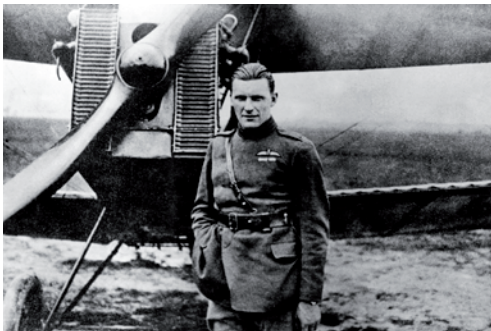
(Personal Recollections 3rd course document and essay No II)

By Squadron Leader (later Marshal of the Royal Air Force)  
William S Douglas

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Marshal of the Royal Air Force Sholto Douglas, 1st Baron Douglas of Kirtleside, GCB MC DFC served as a pilot (flying the BE2c, Strutter, and SE5a), flight commander and squadron commander during the First World War. He became Assistant Chief of the Air Staff in 1938 and Deputy Chief of the Air Staff in 1940. During the Second World War he famously clashed with other RAF commanders over the strategy for the Battle of Britain, replacing Dowding as AOC-in-C Fighter Command in November 1940. Later in the War he would command both Middle East Command and Coastal Command. He was promoted to Marshal of the Royal Air Force in 1946, when he became the 2nd Commander of the British Zone of Occupation in Germany. He retired in 1947, becoming a Labour party peer in 1948.

This paper was first published in 1925 as part of a compilation of essays based on lectures given by officers attending the third course at the RAF Staff College, 1924-25 and is reproduced here in its original form.



2nd Lieutenant Sholto Douglas MC beside his SE5a aircraft during World War I.

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## II.

## A LECTURE

ON

**FIGHTING IN THE AIR***by*

Squadron Leader W. S. DOUGLAS, M.C., D.F.C.

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**Introductory.**

Fighting in the air is a pretty wide subject on which to talk. A good deal of the ground however has already been covered in various conferences. We have discussed the merits of the single-seater fighter as opposed to the two-seater; air fighting in a fleet action; and the requirements of a fighting aeroplane—all somewhat controversial aspects of air fighting. What I want to do now is to try and cover fresh ground of a less controversial nature, and to put before you some aspects of air fighting which have not so far been discussed.

We have considered air fighting during this course from a somewhat impersonal point of view. In our exercises, for instance, we have, of necessity, had to assume that such and such a combination of circumstances will produce certain results. In real life of course this is not so. You cannot always assume that, if you send out two fighting squadrons, they will necessarily defeat one of the enemy's, or *vice versâ*. You have got to take into account the personal factor. I want therefore to try and show you why one pilot is a better air fighter than another, and why one squadron is capable of defeating twice its own number.

Besides this question of the personal factor, I want to put forward some ideas on the subject of the tactics of air fighting. Actually the personal factor enters so much into tactics that it is difficult to separate the two. The tactics of a pilot depend to an extraordinary extent on his personality; the tactics of a squadron depend largely on the personality of the squadron-commander or of his flight commanders. This is not a thing to be deplored; we want all sorts of air fighters. It would be a great mistake to make air tactics stereotyped, to force them into a mould. Diversity of tactics is one method, and a very good one, of attaining surprise in the air.

### Fighting between individual Machines.

The earliest form of air fighting was between individual machines. Of tactics there were practically none. If you saw an enemy machine, you flew towards it, and shot at it with whatever weapon you happened to be carrying—rifle, revolver, carbine, and, of course, as time went on, with a machine gun. Fire tactics were only evolved gradually, as knowledge increased with experience, and as the fighting aeroplane came into being.

I don't want to bother you with a lot of diagrams; but I just want you to have a look at this one, which to my mind at once simplifies the whole question of fire tactics :—

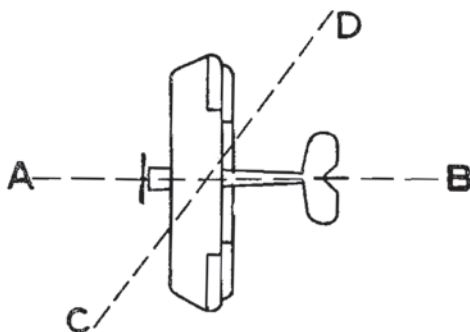


FIG. 1.

Now it is easier to hit a target with a gun firing along the line A-B, either forwards or backwards, than it is to hit a target with a gun firing along the line C-D. The reason of course is that you do not have to take into account the speed of your own machine or the direction in which it is moving with reference to the target.

**The tactics of Attack.**—Now it is obvious, referring to our diagram, that an S.S. fighter can only fire along the line A-B forwards, while a two-seater can fire along this line both forwards and backwards. But it must be remembered that, in the case of the two-seater, the rear gun is mainly a defensive weapon; it is the front gun which is the weapon of attack. I have heard this disputed; and I admit that in exceptional circumstances (*e.g.*, when a pilot's front guns have jambed) it may be possible by clever manœuvring to use the rear gun as an offensive weapon. But nine cases out of ten, it is the front gun which is the easiest and most effective weapon of attack. In fact, to my mind, the two-seater fighter should be fought in the same way as the single seater when attacking; the gunner behind is purely for defence.

In the present state of aerial development therefore, by far the most effective method of attack—and it is only by attack that we can hope to attain air superiority and keep it—

is to fly towards the enemy, and to shoot at him with a gun firing forwards along the line of flight. The object therefore of all fighting tactics is normally to bring the enemy under fire from the pilot's front gun, because it is the easiest shot that can be afforded you. Very often of course you are unable to attain that object; but it is the object at which you are constantly aiming.

Now if your target was a stationary one that couldn't shoot back at you, the problem of attack would be a simple one. You would merely fly straight at it, shooting as hard as you could. But the target is not only moving in three dimensions at a great speed, but can also shoot back at you. You have, therefore, two objects: first, to attack the enemy in such a way that he presents a reasonably easy target, and, secondly, to attack him if possible from a direction in which he cannot shoot back at you. Now obviously the easiest target is one whose line of flight is identical with your own; *i.e.*, when you are flying straight towards the enemy, or directly behind him. So:—

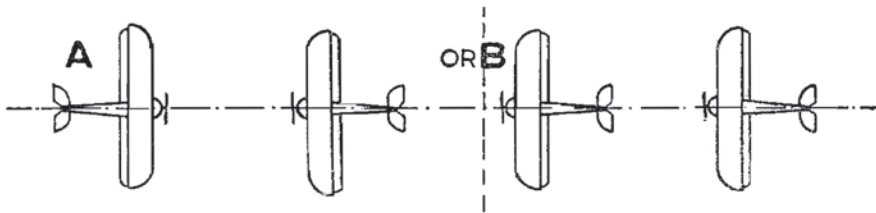


FIG. 2.

But if you are flying straight towards him and he straight towards you, he can shoot back at you just as easily as you can shoot at him. Moreover his speed of approach is very great; you are therefore only within range of him for a brief space of time. Consequently you will normally try to attack him from directly behind. If the enemy is a single-seater, he cannot shoot back at you. If on the other hand he is a two-seater he can shoot back at you. In attacking an enemy two-seater therefore you can do one of two things:—(a) you can either trust to your superior powers of shooting, and on the moral effect of your swift approach, and possibly to surprise, if you have been able to effect it, and dive straight on to the tail of your two-seater enemy; or (b) you can try to put the empennage of his machine between you and the gunner, so that he cannot see your machine, while you can see and shoot at his; *i.e.*, you can dive to a point slightly below the enemy machine, and some 300–400 yards behind, and then “zoom” up under his tail with all the added velocity that you have gained in your dive. There you have quite shortly the ideal at which you normally aim

when you yourself alone are attacking a single enemy machine—you try to “get on his tail,” as it is called; because by doing so you not only have the easiest possible shot at him, but, if you take ordinary precautions, he cannot shoot back at you.

**The tactics of Defence.**—Now, if the enemy is a novice or stupid, you should be able to shoot him down without difficulty. You have him at a disadvantage. But naturally the enemy, if he is any good, is not going to sit there tamely while you shoot him down. He is going to try to do something. What will he do? Well, let us now reverse the situation. Let us imagine that you yourself are attacked in the manner that I have tried to describe. What would you do yourself?

You would have two objects in life at that moment:—First, to get out of the enemy’s line of fire as quickly as possible. Second, to try to turn the tables on your attacker, so that you yourself became the attacker and he the attacked. Now you have a large choice of manœuvres open to you; and while I can tell you some of the things that it would be foolish to do, I wouldn’t like to dogmatise on what you ought to do. Every pilot has his own theories to suit his own temperament. However, I will try to give some idea of what would be a suitable course of action.

First and foremost you must try to maintain your height, and if possible gain some height on your opponent. For height in aerial fighting means the initiative—the power of attack. It would be foolish therefore for you to try to escape by diving. Not only would you be losing height, but it would be the simplest thing in the world for your opponent to dive directly behind you, and to continue to shoot at you from an ideal position. This is fairly obvious, and yet the first impulse of nine new and inexperienced pilots out of ten is to dive for safety. It is fatal.

It would be almost as fatal for you to try to escape by spinning. A spinning machine is easy enough to follow and is not a difficult target to hit if you aim at the axis of the spin. As soon as you stop spinning, the enemy is there, ready to “get on your tail” again. Besides, you are losing height fast all the time that you are spinning, and are not giving yourself a ghost of a chance of turning the tables on the enemy, and of yourself becoming the attacker.

Therefore, don’t try to spin or dive away.

Now for some of the things that you might do.

(1) You might try to loop over the enemy machine. Obviously, if you can make a nice tight loop, and the enemy goes straight on, you will be on the enemy’s tail. I have once or twice seen this manœuvre done with good effect; but not often. For it has certain very definite drawbacks. First,

if you are fighting at a height, as you probably are, it is very hard to loop without losing height. As I have already said, this is just the contingency you wish to avoid, if possible; you want to gain height, not to lose it. Secondly, once you have started your loop you have got to go on with it. If, when you are half way over, you see the other fellow turn and make off, you can't all in a moment go off after him yourself. You have either got to finish out your loop, which will take several valuable seconds; or else you have to roll yourself right way up off the top of the loop—a difficult manoeuvre if you are at all high. Anyway, whichever you do, you are giving your opponent a valuable two or three seconds, in which he can do what he likes; for during a good proportion of the loop you are, practically speaking, out of control; and you never want to be out of control during a fight, if you can possibly help it. On the whole therefore a loop is not a good piece of tactics under such circumstances.

(2) You can suddenly decrease your forward momentum, so that the enemy, who, you will remember, is directly behind you, being taken unawares, will overshoot you. You can check your forward momentum either by doing a roll, or by a sudden stall. Apart, however, from the danger of collision, this manoeuvre is open to the objection that it gains you no height. A roll, however, is better than a stall, since you are less liable to lose height; moreover, in the case of a stall you are very much out of control for several seconds—a contingency to be avoided, as I have already pointed out.

(3) Personally I have always found the simplest and most effective way, not only of taking yourself out of the enemy's line of fire, but of putting yourself into a good position for attacking, is to do an ordinary steep climbing turn. By doing this, you compel the enemy to turn also; as soon as he starts to turn his sights are deflected from you. As you can see, it is impossible for two machines that are following each other round in a circle to keep the sights of their front guns, which are fixed, on each other. By climbing on the turn, you gain that all-important factor—height; and with the help of this height that you have gained, you can often by a quick "Immelman" turn get yourself on the enemy's tail.

Such then, very sketchily outlined, I am afraid, are the close or minor tactics of two single aeroplanes in an aerial combat. There are of course infinite variation of the main principle that I have attempted to outline. But you will find that the basic idea underlying all these variations is that of getting an easy shot with the front gun at the enemy machine in such a way that the enemy is unable to shoot back at you.

**The Tactical Manœuvres preliminary to a Fight.**—I have very briefly outlined the normal tactics of two single pilots

after they have come to grips. There is no question that this is tactics. Now I want to talk about the phase of an aerial combat that immediately precedes the actual combat. You may critically ask why I am dealing with what goes before a fight after I have dealt with the tactics of the fight itself. The reason is that the manœuvres preliminary to a fight are largely dependent on the actual tactics that you intend to employ during the fight. Preliminary manœuvres in fact are meaningless, until you are quite clear on the ultimate object at which you are aiming. I have first therefore tried to explain what that ultimate object normally is, *i.e.*, to get the easiest and safest possible shot at the enemy aeroplane with your front gun. Now I want to talk about the manœuvres by which that object is obtained.

Now here you are—you are flying along, and in the distance you see an enemy aeroplane. You want to shoot it down. How are you going to set about it?

Well, the first thing that you have to consider is the question of height. You can only attack him if he is on the same level as you, or if he is below you. If he is above you, you must get height. Otherwise the initiative rests with the enemy; he can either attack you, or fly off home. We will assume then that you have climbed up so that you are above him. Now you have the initiative. What are you going to do? Now here we come to the question of the personal factor. What you will do will depend to a large extent on your personality. First class fighting pilots fall very roughly into two classes. The dividing line is very vague. But at one end of the scale there is the dashing class of fighting pilot; by that I mean the type of pilot who relies chiefly on dash, energy, élan, to bring him success. The second class of fighting pilots is the cautious, cunning type. I would take Ball and Guynemer as typical of the first class, McCudden, and perhaps Fonck, as typical of the second.

Now your dashing pilot, your Ball, on sighting an enemy machine in the distance wouldn't worry much about the direction of the sun, or any possible cover afforded by clouds. If he could do so easily and quickly, he would perhaps try to obtain surprise by these means. But normally he would go straight as a die for the enemy aeroplane—or aeroplanes for that matter. Ball himself quite often dashed into the middle of, say, half a dozen German aeroplanes; threw them into confusion; in the confusion shot down one or two of the enemy; and, before they had had time to recover their presence of mind, was away and half way home again. He was the personification of the offensive spirit. You see what I mean—this type of pilot relies on his superior dash and energy. He doesn't manœuvre much at all. And there is

a good deal to be said for this method of attack. It would be alarming, to say the least of it, if every enemy machine you met came "bald-headed" at you, and seemed to be trying to ram you. The moral effect of such a procedure would be immense. And if every one was an Albert Ball, it would undoubtedly be the correct policy. Unfortunately every one isn't. The average pilot, if he made a practice of dashing on sight into the middle of every enemy formation that he came across, wouldn't live very long.

For the average pilot is first, not a good enough shot to get his man quickly—in a flash—with one burst of fire; and, secondly, the average pilot doesn't think quickly enough to be able to rely on forestalling every countermove on the part of the enemy. In short, to be a successful fighting pilot of the dashing variety you must be an exceptionally fine shot and an uncannily quick thinker.

Now we will turn to the other extreme—the cautious and cunning—the McCudden. What will he do on sighting the enemy? Well, there's not much dash about him, at any rate just at first. He will take a look round, and see exactly what he is taking on. If the odds are too much against him, he will go off and look for less difficult game. If on the other hand he considers that he has a good chance of shooting the enemy down without too much risk to himself, he will proceed to stalk him. He will probably climb high up above his adversary, and, still keeping as far from him as possible, will work round so as to put himself between the sun and the enemy; or he will look for a friendly cloud from which to pounce; or he will try and attack from an unexpected direction—*e.g.*, from the direction in which the enemy expects only friends to come. When our cautious pilot has got into a favourable position, from which he can take the enemy at a disadvantage, then, and not till then, will he attack. Normally, of course, he will try to attack from the blind side. If it is a single-seater that he is attacking, he will adopt the "dive and zoom" method, *i.e.*, he will dive down on the enemy at a terrific speed; open fire; keep on firing to close quarters; and then "zoom" hard. If the first attack is unsuccessful, he will dive and "zoom" again—*ad infinitum*. If on the other hand he is attacking a two-seater machine, he will dive to a point just below the enemy machine that he is attacking and then "zoom" up under the enemy's tail. All the time he will be watching for the approach of other enemy aeroplanes. If he sees that he is going to be attacked by greatly superior numbers before he has shot down his opponent, he will very likely sheer off and try to climb up above the enemy reinforcements, thus putting himself in a favourable position for attacking them—in preference to

continuing his first attack at the risk of being overwhelmed by superior numbers.

Your cautious type of fighting pilot possesses infinite patience. McCudden would spend hour after hour sitting high up over the lines watching for his opportunity. Perhaps he would return without having had a fight at all. You would ask him if he had seen any enemy machines. Oh, yes, he had seen plenty of enemy machines, but none that he could attack without exposing himself to what he considered to be disproportionate risks. He would wait and wait patiently until he saw his chance of taking the enemy at a disadvantage. Then and not till then would he attack. It may be objected that is an unenterprising policy, lacking in the proper offensive spirit. But if every pilot in France had, like McCudden, succeeded in shooting down some 60 odd German machines—well, the German Air Force would have ceased to exist !

Here again the average pilot has not the patience, the self-control, or the skill to take every advantage of every existing factor that conduces to surprise, to follow this policy of caution to its logical conclusion. As with the dashing method of air fighting, so with the cautious—it is only the exceptional man that can thoroughly exploit the method to the fullest advantage. The average pilot will come somewhere between these extremes. He will cut his coat according to his cloth. He will know his own limitations. He will have to weigh up the particular circumstances, and will then decide whether he can afford to be dashing, or whether the circumstances impose caution. As a general rule, the new and inexperienced pilot must be cautious, while the old hand, with plenty of experience behind him, can afford to take risks, because, if he gets himself into a fix, he knows the best means of extricating himself; which is just what the novice does not know.

I have taken Ball and McCudden as two typical instances of the individualist in air fighting. But I think that the day of the individualist is on the wane. In future wars the sky will be so thick with large formations that the “lone-hand” man will always be in grave danger of being overwhelmed by superior numbers. A Ball can fight six enemy machines; but even he could not hope to take on sixty with much hope of success. While, therefore, any fighting pilot may find himself by circumstances of war isolated from a friendly formation, and compelled to fight on his own and unsupported, the type of pilot who used to make a practice of fighting alone and unsupported will normally stand but a poor chance of success—except, perhaps, in night fighting. In the next big war your Ball or your McCudden will probably be best employed as a night-fighting pilot.

Even during the last year of the late war, the individualist among fighting pilots tended to disappear. In 1918 the two most successful fighting pilots were Mannoek and Beauchamp-Proctor. They were both exponents of the more recent form of air fighting—*i.e.*, fighting by formations, rather than as individuals. While both of them were undoubtedly brilliant as individuals, they achieved their success rather as leaders of large fighting formations. The fighting squadron as a whole was the weapon which they used—they themselves were, as it were, the head of the spear.

### FIGHTING IN FORMATION.

Before dealing with the tactics of a formation of fighting machines, it is first necessary to consider (1) the size of the fighting formation, and (2) the disposition of the machines in the formation.

**Size.**—It is obvious that you can easily make your formation so large as to be unwieldy and unmanœuvrable. Assume, for instance, that you took the squadron of 18 machines as your fighting unit, and made it fly in one large mass, arranged something like this :—

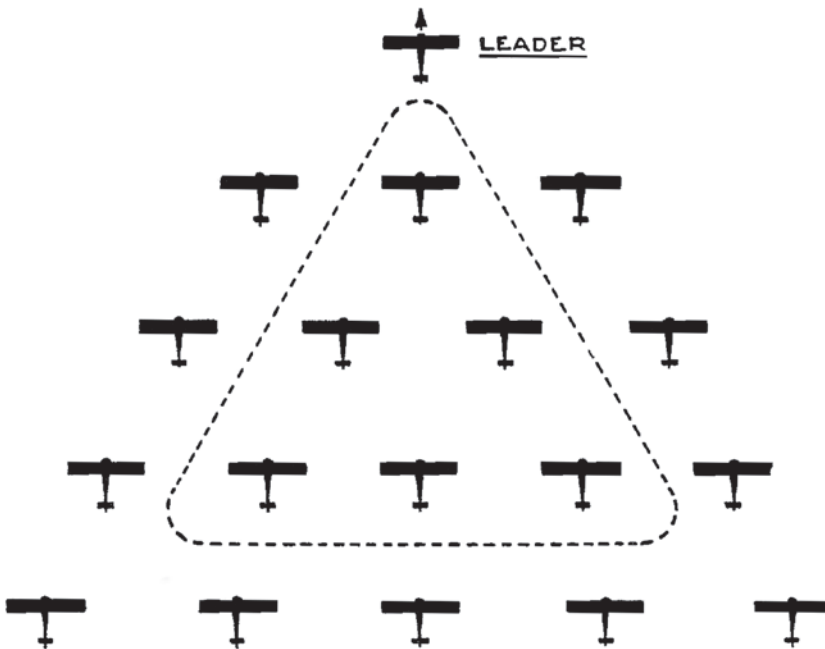


FIG. 3.

The machines enclosed in the triangle would be a useless encumbrance either in attack or defence. They couldn't fire either forwards or backwards for fear of hitting one of their own friends. And then think what a business it would be to do even an ordinary right-angled turn in formation! Not to speak of the dangers of collision! No—you must make your formation small enough to manœuvre easily. I should say that a formation of nine machines is the absolute maximum which can be handled as one fighting unit. You would arrange it something like this :—

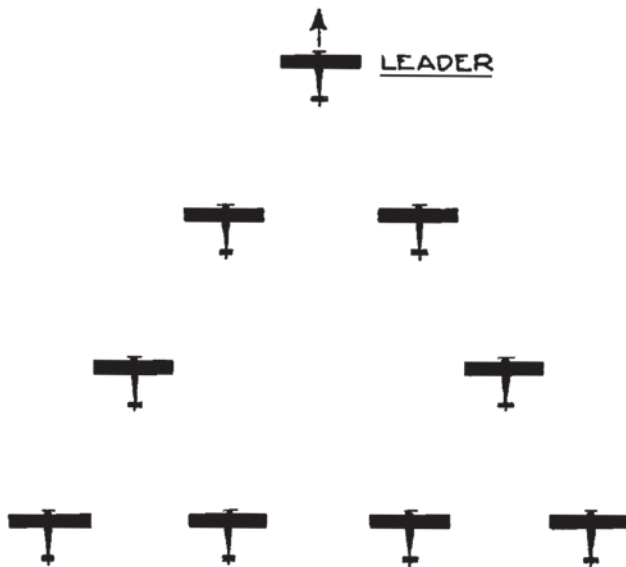


FIG. 4.

But even this formation is, I think, too large for a fighting formation. It might be all right for a bombing formation, where defence is the primary motive. But for attack you must be able to manœuvre easily and quickly. In fact, now that the day of the individualist is passing, it is far more important that your formation should be highly manœuvrable than your individual fighting machine.

On the other hand, if you make your fighting unit very small, *e.g.*, three aeroplanes, while it is highly manœuvrable, it is not strong enough for self-protection; it is always liable to be overwhelmed by superior numbers before it can be reinforced.

For attack, then, the most suitable fighting unit is one of five or six aeroplanes, *i.e.*, a flight.

**Shape.**—Your formation of five or six would be arranged *en echelon* in a wedge-shaped formation. So :—

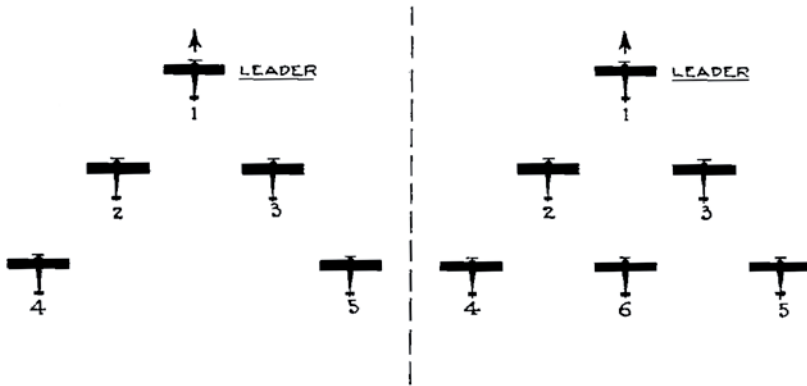


FIG. 5.

The reason the wedge is the most suitable shape for a formation of aeroplanes is, of course, so that the fire of one machine is not masked by another; also you must have your leader in front so that everyone can see him, and—which is almost as important—so that he can see everyone.

For single-seaters a formation of five is preferable, rather than one of six. The reason is that number six in the preceding diagram is more or less useless, if he is a single-seater. He can of course only fire forwards at any time, and in this case he can't even do this, because if he did so, he would probably shoot down his own leader.

On the other hand, with a formation of two-seaters, the objections to No. 6 do not apply with nearly the same force. There is, in fact, a *raison d'être* for his being there. For although he cannot fire forwards for fear of hitting his leader, he *can* fire backwards, and so help to protect the formation from attack from the rear.

Whether you made your formation of two-seaters five machines or six might depend on such a factor as the performance of your aeroplanes. If your aeroplanes were of such surpassing performance that you could reasonably expect to be doing all the attacking and never be yourself attacked, then No. 6 would be rather a "dead-head." If on the other hand your machines were inferior in performance to the enemy's, so that you were liable to be the attacked rather than the attacker, then No. 6 would be a very useful asset.

What we arrive at then is that the flight is the most suitable fighting unit; that for single-seaters five aeroplanes is the most useful and economical formation; while for two-seaters either five or six aeroplanes may be used according to circumstances.

There is just one thing more about the flight formation—it is echeloned in height as well as in depth, *i.e.*, No. 2 and 3 are some 10 feet above the leader (No. 1); and Nos. 4 and 5 are some 10 feet above Nos. 2 and 3. The reason of course is that it is easier to keep station if you are slightly above the man in front of you. If the leader suddenly opens his throttle, perhaps in pursuit of something, and forges ahead, the pilots behind him can quickly catch up by opening their throttles and putting their noses down slightly. It is, as I suppose you all know, the most important thing in formation flying to keep closed right up, especially for single-seaters, who have no rear defence. Once the formation spreads out, and the rear men begin to lag, the latter are always liable to be attacked and shot down before the men in front can get back to help them. A good S.S.-fighter flight in France in 1918 could fly the whole of a two hours' patrol, and perhaps have several fights, and never be more than a couple of machines' lengths from one another the whole time.

### **The Tactics of a Flight Formation.**

If you remember, just now I compared the leader of the flight to the point of the spear. I want to enlarge on that a bit. What we found to be the greatest danger and the chief source of casualties in aerial fighting, was, as you might expect, for the formation to be split up. As long as it hung together, and fought as one man, casualties were few, and successes many. But once the formation broke up, single pilots would be set upon by half a dozen enemy fighters, and downed by superior numbers. This is fairly obvious—we all tumbled to it quite early on. But what was not quite so obvious was the fact that it was not, as you might have expected, when the formation was attacked that it became split up, but when it was itself the attacker. We found that when attacked, pilots seem to hang together naturally for safety—I suppose a psychologist would say that it was the primitive instinct of the herd in operation. But when a flight attacked—that was the time when formations were apt to disintegrate. Every pilot worth his salt was keen to shoot down his “Hun” so, having marked down his own particular victim, he would proceed to chase him round the sky, regardless of the rest of the formation. Within the space of a few seconds, the formation as such would cease to exist, and would become merely a number of individuals madly careering about the sky.

Sometimes it worked out all right. The Flight Commander would succeed after a few minutes in rallying his flight, and would carry on with the patrol. But on a distressingly large number of occasions, especially in 1918, when the sky grew pretty thick with fighting patrols, the flight would be caught

napping, when the pilots were so isolated, and shot down in detail. So much so that we sought round for a solution of our troubles. After much debate, and not without opposition from the individualists of the squadron, we finally made a strict order that no pilot was on any account to leave the formation, even to take an apparently easy opportunity of shooting down an enemy aeroplane. The initiative in any attack lay wholly with the flight leader; if he dived to the attack, the whole flight dived with him; what is more, when he "zoomed" away after the attack, even if he failed to shoot down the enemy attacked, the whole flight "zoomed" away with him, still keeping formation. Pilots were not allowed to stay behind, and carry on with the attack. The results were unexpectedly gratifying, and the casualty rate dropped considerably, without any diminution in the number of enemy machines shot down.

There was one consequence of this order that we did not foresee at first, but which soon became apparent; *i.e.* that it was the flight commander who four times out of five shot down the enemy aeroplane. If there was more than one enemy aeroplane, then the rest of the flight certainly got a chance. But rarely such a good one as the leader. Still, being the most experienced pilot, he was the most capable of getting his man with certainty and expedition. Besides, with his flight behind him to act as a buffer against any attack from behind, he could afford to concentrate all his attention on the destruction of the enemy aeroplane; there was no need for him to be peering over his shoulder all the time, anxious lest he himself be attacked. His aiming and shooting were therefore all the more careful and deliberate.

It may be objected that this method is more designed to avoid casualties than to achieve results. But, as I said before, we found that we shot down just as many enemy aeroplanes, using this method, with very much fewer casualties. After all the best squadron is not necessarily the squadron that suffers the heaviest casualties; the latter may be the bravest squadron, but it is not usually the most efficient.

There are people who incline to the theory that the goal of all fighting tactics is the *melée*, the "dog-fight." In my experience, although one often became involved in a *melée*, in which one almost inevitably lost formation, such a situation was one to be avoided whenever possible. Fighting, as we usually were, in the region of the enemy aerodromes, casualties nearly always followed loss of formation; nor was there any compensation in that a correspondingly large number of enemy aeroplanes were shot down; in fact the reverse was usually the case. The enemy on the other hand, being in the vicinity of its own aerodromes, did not suffer to nearly the same

extent, if his formation was broken up. His stragglers always had a refuge handy, if hard-pressed. It was therefore rather like playing into the enemy's hands to court a "dog-fight." Still, sometimes it is necessary to do so. It is therefore of supreme importance to train your pilots to rendezvous quickly on a signal from the leader.

### **The Fighting Squadron in Formation.**

Of course we found after a time that the flight formation was too small for the work. There was a natural tendency for each side, both ourselves and the Germans, to try to outnumber each other at the decisive point. They would send out a formation of, say, nine machines to defeat our flight formation of five or six machines. We would reply with one of, say, twelve machines, so as to outnumber them. Hence they grew up the practice of sending out a whole squadron in formation to fight as one unit, and later on two or more squadrons, working in close co-operation.

Now as I have already pointed out, it is impossible for a fighting squadron to work altogether in one big mass. It is too unwieldy. Therefore in a squadron formation the flight is still the fighting unit, only we have three fighting units, *i.e.* three flights, working together in close co-operation.

The normal system of co-operation was something as follows:—The leader of the whole formation is the leader of the lowest flight—call it A flight. About 500 feet above A flight and about half a mile away, behind and to a flank, is the second flight—call it B flight. The duty of B flight is to follow closely, and conform to the movements of A flight. It does not attack on its own initiative—the initiative lies absolutely in the hands of the leader of the squadron, *i.e.*, the leader of A flight. This somewhat rigid formalism was found to be necessary owing to the tendency of the following flights to be drawn away into subsidiary combats, leaving the squadron patrol leader entirely unsupported, perhaps just at a time when he required support very urgently; just as, you will remember, it was found necessary to make a strict order that no one was to leave the flight formation, because of the tendency of individual pilots to go off in pursuit of the enemy that they had marked down as their own victim, regardless of the rest of the formation.

When the leader of A flight attacks, B flight does one or two things; it either reinforces A flight, if the enemy is sufficiently numerous to make this worth while; or else it flies directly over the top of A flight, and affords protection to A flight against enemy aeroplanes attacking from above.

A and B flights, which, you will observe, remain fairly close together, form the striking force; the third flight, C flight, is the covering force. It flies as high as possible, and some two or three miles behind and to the flank of A flight. The leader follows A flight at a distance, and has orders never to come to the assistance of A or B flights except in great emergency. The mere fact that C flight is circling high up over the combat is usually sufficient to prevent any but the strongest of enemy formations from attacking the two lower flights, until they have dealt with the top flight or covering force. Meanwhile the two lower flights have been carrying out their attack, which they should have completed before the enemy have climbed up and dealt with the top flight.

I have drawn out a diagram in order to make the disposition of the three flights clear :—

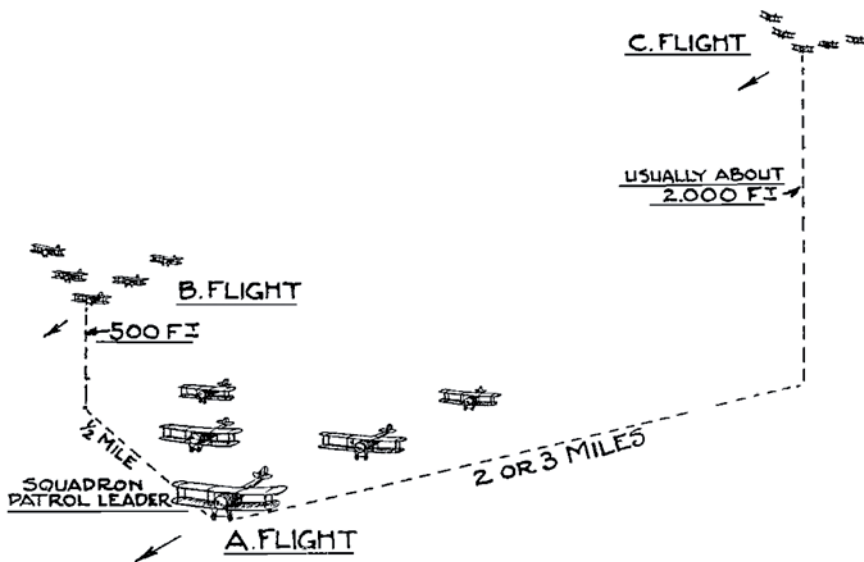


FIG. 6.

It is on the leader of the lowest flight upon most of the responsibility devolves; and it is he moreover who will have the best opportunity of shooting down enemy aeroplanes.

### Large Formations.

The principles outlined above work equally well in the case of large formations of two or more squadrons; only in this case A, B, and C flights are complete squadrons instead of flights. The flight however still remains the tactical fighting

unit; the squadron does not fly in one large mass, but in a compact formation of three flights. So :—

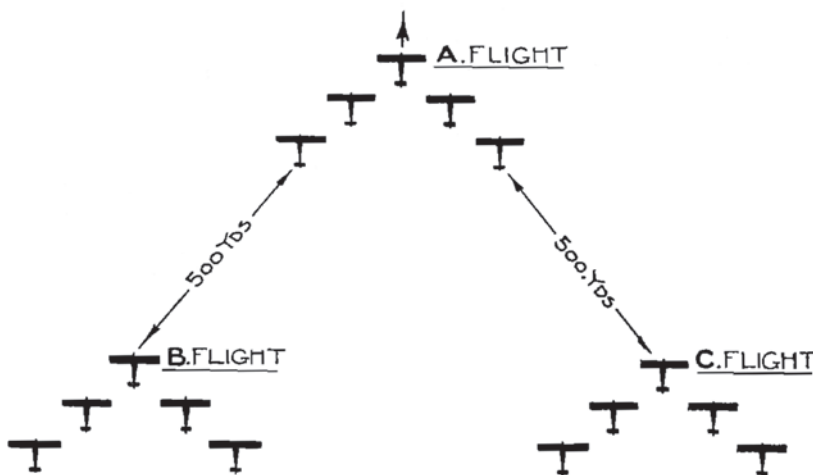


FIG. 7.

The top squadron or covering force can with advantage be two-seater fighters; in this way the rear of the whole formation is adequately protected.

Later on I shall have something further to say about the problem of the very big formation, whether it is of advantage or not, and what is the alternative.

### Leadership.

This brings me to the question of leadership—an all important factor in modern air fighting. I have already pointed out the responsibility that rests on the shoulders of the leader of a big fighting formation. On him really depends the success of a fighting patrol; he may very easily bring it to disaster. A bad leader will lead his formation into trouble; will fall readily into traps set for him by a cunning enemy. He will allow his formation to be attacked under conditions disadvantageous to himself. His attacks will fail, perhaps because he himself fails to obtain surprise, perhaps because he fails to get his man when he dives to the attack—a heinous offence. The moral effect of a bad leader is very great. Whereas pilots will follow a good leader with the utmost confidence, because they know that he knows exactly what he wants to do, and how he is going to do it.

I don't think that I can do better than to take Beauchamp-Proctor as my example of the good patrol leader. There may have been better leaders; but as he was in my squadron for

over a year, I know more about his methods than those of other successful fighting-patrol leaders. The fact that he shot down 54 enemy machines in just over six months at any rate goes to show that his methods are worthy of study.

The first thing that you noticed about him was his extraordinary long eyesight. He could see and recognise an enemy aeroplane at a greater distance than anyone I have ever known. This is an important quality in a leader. For it is obviously of great advantage if you can see the enemy before he can see you. It means that you can make your dispositions for the attack before he knows that you are there at all.

Then, when he had seen the enemy, Proctor took the greatest pains in order to effect surprise, or if that was impossible to take the enemy at a disadvantage. I have known him spend an hour and a half out of a two hours' patrol stalking a formation of enemy aeroplanes. He would perhaps show himself rather obviously for five minutes or so, and then pretend to go off home. When he was out of sight of the enemy, he would perhaps fly south for a bit, and cross the lines some 20 miles further south. He would then fly out east into German territory, make a wide circuit, and come at the enemy from the direction of their own aerodromes, pretending to be a friendly formation. He always made full use of any cover afforded by clouds or the sun.

When he did attack, he rarely failed to get his man—he was a dead shot.

Finally I never once knew him to be surprised. The boot was always on the other leg. In consequence other pilots had absolute confidence in him. Very often one didn't know from Adam what he was about. His manœuvres seemed to be absolutely pointless. But everyone was quite convinced that he at any rate knew precisely what he was about. And sure enough after an hour or so of what was apparently pointless wandering about the sky, one would find oneself diving after him straight on to the tail of some unsuspecting enemy formation. Mannock was, I believe, just such another.

In future wars, it will be of the utmost importance to see that the right men are chosen to lead fighting formations.

### **The System of Offensive Patrols.**

An offensive patrol is, as its name implies, a patrol of fighting machines whose object in life is to be offensive—*i.e.*, to seek out and destroy the enemy. The purpose of offensive patrols is twofold—(1) to interfere as much as possible with the work of enemy aircraft, and (2) to afford protection to other types of friendly aircraft. But the protection so afforded is normally indirect; *i.e.*, the fighting patrol must not, except in very exceptional circumstances, be

ordered to keep in sight and closely guard certain of our aeroplanes, or to escort a formation of bombers. Such a policy merely ties the hands of the fighting patrol and in the long run is bound to have an adverse effect, not only on the number of enemy aeroplanes shot down, but on the morale of our fighting squadrons. For it leaves the initiative entirely in the hands of the enemy, who can attack or not as and when he thinks fit.

You must in fact go rather to the other extreme, and give your fighting patrols plenty of latitude. You shouldn't even tie them down to a definite patrol line; you have practically got to entrust them with a roving commission to seek out and attack the enemy, wherever he may be. You must leave a good deal to the patrol leader; you must judge him and his squadron, not by the regularity with which he patrols a certain line, but by results—by the number of enemy aeroplanes that he shoots down.

You should therefore, in my opinion, merely give your offensive patrol a certain area to patrol, and leave the rest to the patrol leader. There might even be occasions when your O.P. was justified in leaving its allotted area, *e.g.*, if it saw a friendly formation in another adjoining area being worsted in a fight with a superior number of enemy aircraft. Usually, however, the patrol leader will remain in the allotted area. But you must make that area big enough for him to manoeuvre in. I should say that it must be at the very least 20 miles by 20 and can easily be more. It's a bad mistake to tie down your fighting patrol too rigidly.

An offensive patrol should of course always try to be where enemy aircraft are. But if it cannot find any enemy aircraft the best place for it is over the enemy's aerodromes. It can often watch enemy machines take off and attack them as they climb up. The enemy aerodrome is after all the focal point par excellence for enemy aircraft. The same, I should say, would apply in the case of a fleet action to the enemy's aircraft carriers.

If, in land warfare, you have sufficient aeroplanes it is often advisable to have a second line of patrols between the enemy aerodrome and the place where the majority of your army co-operation machines are working, so that enemy aircraft which have slipped through the outer network of patrols will probably be caught by the inner. This is what is meant by an outer O.P., and an inner or close O.P.

Your outer O.P. will normally fly very high, so as to have the height of as many enemy aeroplanes as possible, and consequently the initiative in attacking them. Your inner O.P. on the other hand will normally fly a good deal lower so as to catch the enemy aeroplanes that come sneaking in under

the high-flying outer patrol to attack the low-flying army co-operation aeroplanes. I should imagine this system could also be applied to a fleet action. You could have a high-flying outer patrol out over the enemy carriers, and an inner patrol at a somewhat lower altitude halfway between the enemy carriers and your own fleet.

The only thing that you must look out for in having these two patrol lines is that you do not by dividing your forces weaken your patrols overmuch. One strong patrol is better than two weak ones. But if you have enough aeroplanes to do it, the double cordon of O.P's. seems to work very well. After all, the outer patrol, if hard pressed, can always fall back on the inner—something like the army system of outposts.

In actual practice we sometimes found that a very large, strong patrol defeated its own object. You would send out two or three squadrons flying in one large formation. Every enemy fighter in the sky promptly retired eastwards, and went on retiring *ad infinitum*. Then, when you turned round to come home, the enemy would turn round too, and hang about at the back of your now retreating formation, taking long-range pot-shots at the rear aeroplanes, and picking off stragglers or unfortunates with "dud" engines, who fell behind. We therefore tried another system. We sent out two or three squadrons to fly to a point well behind the German lines—usually the largest of the local enemy aerodromes—by widely different routes. They would rendezvous over this German aerodrome at a specified time, and then make a big drive back towards our lines, catching in a sort of net numbers of odd German aeroplanes and small enemy formations.

There is also the theory that it is better to concentrate the majority of your fighting squadron on a big offensive patrol for a few hours during the day, than to keep up in continuous system of moderately strong patrols. It is obvious that you cannot keep up very strong patrols, in open warfare over the battle, or in static warfare over the trench line, all the day. It may therefore be better to make one of these big sweeps, such as I have described, with two, three or more squadrons, say, twice a day at irregular intervals, and that for the rest of the day you should remain on the defensive with a few weak fighting patrols doing a sort of police work round the Corps machines. It is taking a big risk, of course,—I don't think the idea was very popular with the Corps squadrons; they didn't like being left practically unprotected for a good part of the day. But there is a good deal to be said for the idea; it at any rate seems to fulfil one of the principles of war, that of concentration of force. Probably circumstances of war would decide which was the best policy; it would obviously

depend to a certain extent on what was happening on the ground.

### **Orders for Offensive Patrols.**

If therefore you have one day to sit down and write out orders for offensive patrols, I think I should go about it something like this :—

(1) First, of course, consider carefully the number of fighting squadrons at your disposal.

(2) Then decide whether the situation demands that you should be reasonably strong all day, or whether you should concentrate your strength of fighting squadrons over the battle only during certain hours of the day.

(3) Then decide whether you can afford to have a double cordon of patrols, both outer and inner, or whether your fighting squadrons are too few to do this without making your patrols dangerously weak.

(4) Then decide what areas you want patrolled. The areas for your outer patrol will normally include the enemy aerodromes. Don't divide up the map into a lot of small squares like a chessboard, and put one squadron in each small square. Make the patrol areas plenty big enough for your fighting squadrons to manœuvre in, and allot two or three squadrons to each area.

(5) Finally, see that squadrons working in the same area work in co-operation, and not as separate units. They need not necessarily fly in one big formation—in fact I am inclined to think that it is better that they should not do so. But they should have some common plan; if possible they should keep in sight of one another and should always be on the lookout to render assistance to one another when required. Interchange of operation orders between two higher formations is often necessary in order to effect the necessary co-operation between squadrons working in adjacent patrol areas. During the late war the Germans had a “travelling circus” of fighting machines; we had a Headquarters Brigade which contained some fighting squadrons. While there are undoubtedly advantages in this arrangement, it does not always make for that co-operation which, as I have said, is so important between fighting squadrons. I think that it is of supreme importance that a fighting squadron before setting out on patrol, should know exactly what other friendly squadrons it is likely to encounter; and if two or more fighting squadrons are patrolling an area they should at least definitely realise that they are meant to work together in co-operation.

### Training.

The last point that I would like to touch upon is the importance of training to the fighting pilot. I feel that it would be impossible to round off any lecture on fighting in the air without passing a reference to the necessity not only of a thorough preliminary training to the fighting pilot, but also of constant practice in his trade. It is extraordinary how quickly one's hand and eye become sluggish from disuse; and not only one's hand and eye, but also one's brain. No one can become a successful fighting pilot who cannot shoot straight and think quickly. These qualities are the outcome, not, as some would have us believe, of some divine dispensation, but of a sound training and constant practice.

# EXPERIENCES WITH A DAY BOMBING SQUADRON IN THE INDEPENDENT FORCE IN 1918

(Personal Recollections 2nd course document and essay No VII)

By Squadron Leader (later Air Commodore) John C Quinnell

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Air Commodore John Charles Quinnell DFC transferred to the Royal Flying Corps from the Royal Artillery in 1914. Over the next 30 years he flew the RE8, DH9, Bristol F2B, DH10 and Vimy, and served in Iraq, Germany and India. He commanded numerous Squadrons and, later, Groups including No 1 Air Defence Group, No 31 (Balloon Barrage) Group, and No 28 (Training) Group. He retired from the RAF in 1945.

This paper was first published in 1924 as part of a compilation of essays based on lectures given by officers attending the third course at the RAF Staff College, 1923-24 and is reproduced here in its original form.



An unidentified DH9 two-seat day bomber as used by 99 Squadron during 1918 while flying as part of the Independent Force in France.

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## PAPER VII.

**EXPERIENCES WITH A DAY BOMBING SQUADRON  
IN THE INDEPENDENT FORCE IN 1918.**

## LECTURE

*by*Squadron Leader J. C. QUINNELL, D.F.C.

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**1. Introduction.**—The experiences, with which this lecture deals, are those obtained in a D.H. 9 Squadron in the Independent Force.

**2. Unsuitability of Aircraft.**—Before proceeding further, a point I would like to emphasise here, and one which seems to be entirely forgotten when the work of the Independent Force is considered, is that the D.H. 9's were unsuitable for long distance bomb raids. The performance of these aeroplanes did not come up to expectations:—

(a) They were slow.

(b) They had only a limited ceiling of 14,000 feet with bombs.

(c) They only carried enough petrol to reach the nearest German towns.

It was realised before the Independent Force was supplied with these aeroplanes that they were unsuitable, but it was considered that 15 or so squadrons equipped with them would form a substantial bombing force, until a better aeroplane was forthcoming, and in the meantime they would enable pilots to gain actual experience of long distance bombing.

**3. A. D.H. 9 Squadron in the Independent Force.**—No. 104 Squadron was one of the squadrons equipped with 200 H.P. B.H.P. D.H. 9's, that worked in the Independent Force. It is just a matter of interest that this squadron was formed here at Andover. It left Andover on the 19th May, 1918, and flew to Nancy, *via* St. Omer and Paris, a distance of 387 miles, with the loss of only one aeroplane "en route." The function of this squadron was day bombing.

**4. Conditions under which Bombing Squadrons Operated.**—The conditions under which the bombing squadrons of the Independent Force operated will be appreciated when it is stated that they had to go long distances over the lines without any assistance from fighting squadrons or escort.

They had to rely solely on the efficacy of their machine-gunfire for protection against the enemy scouts.

**5. Organisation for Bomb Raids.**—(a) *Detailing Raids.*—It was laid down by H.Q. Independent Force that each Squadron raid should be carried out by 12 aeroplanes, consequently each Squadron detailed two flights of six aeroplanes for every raid. However, owing to engine failures, not more than 10 aeroplanes and often less crossed the lines. Engine failures with the B.H.P. engine were numerous. There was constant trouble with broken valve springs. On one occasion, out of 12 aeroplanes, nine returned with engine trouble. As a result of this experience the procedure for detailing aeroplanes for raids had to be altered. The procedure was as follows :—

(i) “A” and “B” Flights were detailed for the raid.

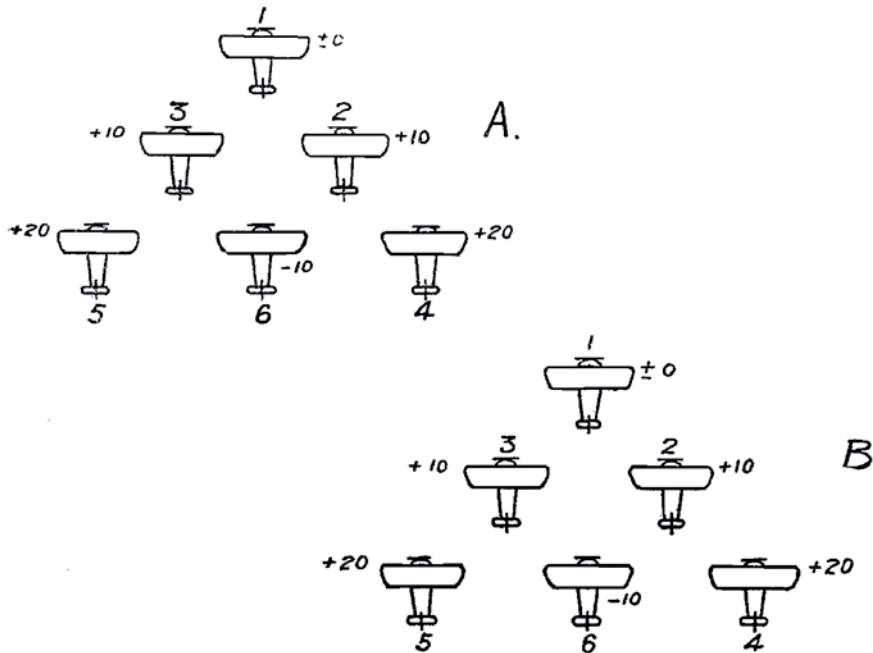
(ii) “C” Flight sent up two aeroplanes, one with each flight formation. These supernumerary aeroplanes of “C” Flight were to take the place of any aeroplane that fell out with engine trouble, in either of the other two flights. They did not return until the pilots saw that the formations were complete and across the line. To the everlasting credit of the pilots, it must be stated that not a single instance occurred where the supernumerary aeroplane returned when it should have made good a deficiency. On the contrary, there were frequent instances of where these aeroplanes went over with the formation when there was no need for them to do so. Having regard to the casualties suffered by the squadron this was remarkable.

(b) *Targets.*—The objective was sent to the squadron by H.Q. Independent Force through Brigade and Wing. An alternative objective in a different town was usually given. This was necessary in case the weather conditions prevented the raid reaching the town in which the first objective was situated. For instance, the raid might be on a munition factory at Mannheim and on approaching Mannheim it could be seen that the area was covered with fog or low cloud while the Karlsruhe area was perfectly clear. It was therefore necessary to know what should be attacked at Karlsruhe; whether it was to be the Railway Station, a Munition Factory, or a Manufactory.

(c) *Information concerning the objective.*—Each squadron had a special “Intelligence Office.” An observer of the squadron was in charge of it. In this office were photographs, maps, plans and descriptions of all the objectives in the area. As soon as the objective was detailed, all pilots and observers went to this “Intelligence Office” and looked up all details concerning it. For instance, all the vulnerable

points of munition factories, blast furnaces, &c., were described. From studying these plans and photographs, and reading the details, there was no difficulty in locating the objective when the town in which it was situated was reached and aiming at its most vulnerable point.

(d) *Formations*.—(i) The formation adopted was as follows :—



(ii) No. 1 was leader of the "A" Flight, and in the case illustrated, the leader of the raid.

(iii) No. 6 was deputy leader in each flight and his aeroplane carried the camera. This machine flew the lowest in the formation.

(iv) If the leader of the raid fell out, the deputy in his flight directed the raid.

(v) "B" Flight flew about 100 feet above "A" Flight.

(e) *Replacement of Casualties*.—(i) Fourteen aeroplanes had to be serviceable for each raid in order to get 12 of them over the lines. It was, therefore, necessary that casualties should be replaced as quickly as possible. After each raid a wire was sent to the wing, giving details of the raid and casualties. The wing acted on the wire and a new aeroplane arrived that afternoon.

(ii) Casualties to flying personnel were usually made good in a similar manner.

**6. Description of Raids.**—(a) *The Start.*—(i) The squadron took off the ground in the formation as described in para. 5 (d), both flights taking off almost simultaneously.

(ii) The flights met over the rendezvous, which was agreed to between the flight commanders, at a pre-arranged height, usually 12,000 to 14,000 feet.

(iii) The lines were crossed generally within one hour of the formation leaving the ground and at the height at which the flights met over the rendezvous.

(b) *Opposition.*—As soon as the formation crossed the lines, it was attacked by enemy scouts. These scouts kept attacking until a new lot of enemy scouts were encountered and then they returned to their aerodrome to refuel and be ready to attack the formation on its return journey. Often, however, both lots of scouts combined on an attack on the bombers. The bombing formation was, as it were, handed on from one lot of enemy scouts to another, the whole time it was over the lines. In addition, a strong force of enemy scouts, 15 to 20, were invariably waiting over the objective to attack the bombers as they dropped their bombs.

Early in June, 1918, the opposition against the bombers by enemy scouts was nothing like what it was a month later. In June, there was often an interval when the bombers were not attacked as they passed from one scout barrage area into another. In July, there was no respite for the bombers. They were attacked continuously while over the lines.

(c) *Attacking the objective.*—When near the objective, "B" Flight got immediately behind "A" Flight. Each flight bombed independently. The leaders took aim and released their bombs. Immediately the pilots of the respective flights saw the bombs of the leaders leave the bomb racks, they released theirs. Bombs dropped in flight formation struck the ground simultaneously. The thing that impressed me most was the way the pilots concentrated on dropping their bombs, notwithstanding the fact that they were being heavily attacked. They ignored the presence of the enemy scouts, and left their observers to deal with them. When the objective had been attacked, "A" Flight took a slightly wider turn than "B" Flight so as to allow the latter to get into position again.

When bombing was first started, a Véry's light was fired by the leaders of each flight as a warning to pilots to "stand by" to drop their bombs. This practice was discontinued after a while, because the firing of the Véry's lights disclosed to the enemy the fact that bombs were about to be dropped, and it was usually a signal for them to attack. Instead, the leaders moved their aeroplanes from side to side. There was never any difficulty with this. Each pilot knew and could see when the bombs had to be dropped.

(d) *Photography*.—(i) When bombs were dropped, photographs were taken. These usually showed the bursts, and from them the damage caused by the raid could be estimated.

(ii) The position of No. 6 aeroplane, which carried the camera, in the formation was bad and it was hardly fair to expect the observer to get down in the fuselage and take photographs when he should have been fighting against the heavy opposition encountered over the target. This aeroplane was usually lost.

## **7. Particulars of Raids carried out by No. 104 Squadron.—**

(a) On 25th June, out of 12 aeroplanes that left to bomb the Munition factory at Karlsruhe, seven reached the objective. The other five returned with engine trouble.

(i) The squadron lost one aeroplane and two pilots and one observer were wounded.

(ii) Two enemy aeroplanes were driven down “out of control.”

(b) On 26th June, out of 12 aeroplanes that left to bomb the same objective, only three aeroplanes, led by Captain Home-Hay, reached the objective, nine returned with engine trouble.

(i) The Squadron had no losses.

(c) On 30th June the squadron attacked Landau. They had to fight their way out and back with bunches of about 20 enemy scouts.

(i) The squadron lost one aeroplane and a pilot and observer wounded.

(ii) Five enemy were destroyed.

(d) On 24th August the squadron attacked Mannheim with 12 aeroplanes.

(i) The squadron lost seven aeroplanes and one observer wounded. Total: 15 casualties for the day. Both Flight Commanders were lost through the underslung radiators of the D.H. 9 being hit.

(ii) Three enemy aeroplanes were destroyed.

(e) On 29th September, while carrying out a bombing attack in connection with the American advance on the Meuse the squadron had a big fight. The formation consisted of 13 aeroplanes, and as the bombs were being dropped they were attacked simultaneously by 20 enemy aeroplanes, which came up in two formations. While these were attacking they were reinforced by two more formations of 20 enemy aeroplanes. The result of the fight was:

(i) The Squadron lost one aeroplane and three officers wounded.

(ii) Three enemy aeroplanes went down in flames, five out of control, and two forced landed.

**8. Co-operation.**—(a) On two occasions were the two D.H. 9 squadrons sent out on a combined bomb raid. On neither occasion was the co-operation really successful, and as a result there was feeling between the squadrons.

(b) One of the principal causes for the lack of proper co-operation between the squadrons was the fact that the two flight formations adopted by the squadrons did not permit a homogeneous combined formation. The result was that the rear squadron acted as a screen for the directing squadron and had to take the brunt of the attacks unsupported.

(c) The squadrons never trained together, and as a consequence did not understand each other or have any standard method of signals, &c. On one of the occasions in question the rear squadron had aeroplanes with engine trouble on the way home and as a consequence had to slow up. The directing squadron left them isolated.

(d) There is no doubt that squadrons will not co-operate successfully until they receive training in doing so.

**9. Fighting.**—(a) *Defensive.*—In the ordinary sense of the word there was no fighting in a bombing formation. There was no question of taking offensive action against the enemy. The bombing formation, in order to reach the objective, had, notwithstanding the vigorous attacks against it, to keep steadily on and defend itself with gun fire.

(b) *Enemy Tactics.*—The tactics adopted by the enemy were as follows :

(i) The enemy scouts would fly some distance behind the formation and “Brown” it. They got a bomber now and again.

(ii) Two enemy formations would combine against the bombers, one attacking it from above and the other from below. The scouts diving on the bombing formation seldom came really close in. Those attacking from below were the real danger, as occasionally one got right into the formation unobserved. When the opportunity occurred the enemy scouts attacked the leader of the formation.

(c) *Effect of Losses.*—(i) *On the enemy.*—It made all the difference in the world, if, while the enemy formations were making their combined attack, the bombers got “first blood” and shot an enemy scout down in flames. If they did, the attack was not pressed home and the enemy withdrew, flying behind the formation and “Browning” it until he regained courage to attack again.

(ii) *On the Bombers.*—No matter how great the loss sustained by the bombers, a formation was never broken up, and there was never any sign of panic amongst the pilots. As losses occurred, the formation closed up automatically, each pilot maintaining his station as steadily as ever. If one of the bombers went down under control it was followed down by two or three enemy scouts and the fight was continued to the ground.

(iii) I am certain many more of the enemy aircraft would have been destroyed, and, as a result, many a bomber would have been saved, if observers had had proper training in aerial gunnery and in the question of the conservation of their ammunition. It was absurd the way hostile aircraft that came into the formation were missed and the range at which fire was opened on others.

**10. Casualties.**—(a) For the period 8th June to 11th November 1918, the casualties suffered by No. 104 Squadron were :—

(i) Killed or died of wounds	-	8*
(ii) Missing	- - -	66
(iii) Wounded	- - -	41†
Total		115

As far as I can remember, there was never a raid in which there was not a casualty of some kind.

(b) *Causes.*—(i) A large number of casualties were caused by the underslung radiator of the D.H. 9 being hit by the enemy who “Browned” the formation from a distance. It seems a remarkable fact that this underslung radiator should be hit so frequently, but nevertheless, it was a fact. Pilots, who were taken prisoners, and who discussed the matter after the war, all told the same story—hit in the radiator—engine seized up—fought all the way down—a prisoner. On one raid the squadron lost two of the best bombing Flight Commanders I have ever known—Captain J. P. Home-Hay, M.C., D.F.C., and Captain E. A. McKay, M.C., D.F.C., through the radiators of their aeroplanes being hit.

(ii) After a long raid nearly all the casualties in bombing formations occurred on the homeward journey, within 25 or 30 miles of the lines, and in my opinion there were due to the shortage of ammunition. It must be remembered that the bombers had to defend themselves for two and sometimes three hours against vastly superior hostile formations,

\* 2 killed in enemy bomb attack on our aerodrome.

† 3 wounded                    „                    „                    „                    „

and although each aeroplane carried about 1,600 rounds, it was exhausted before the lines were reached on the return journey. For this reason, and also because it was less cumbersome to use, many observers preferred using the single to the double Lewis gun.

**11. Leadership.**—(a) The question of leadership was of the utmost importance. On the personality and judgment of the leaders, that is, the Flight Commanders, depended the success of the squadron. It was essential that pilots should have confidence in their Flight Commanders and that they should feel that when on a raid they would not be left behind to the mercy of the enemy. Any aeroplane that lagged behind or left the formation over the lines, to return, was invariably destroyed. Enemy Scouts were always ready to swoop down and take as their prey anything the Gods gave them in the way of a detached or lagging bomber. Even with engine trouble a pilot would try to hang on to the formation, for enemy scouts hovering round gave him warning of the fate that awaited him if he left it.

(b) The leader had ever to be on the watch for aeroplanes lagging behind, and he was usually assisted in this respect by his observer. The speed of a bombing formation was nothing more or less than a cruising speed. Now, if the leader saw one of his bombers lagging behind he had to slow up still more if he wished to save it.

Slowing up involved three considerations :—

- (i) If the rate was continued at the reduced speed the objective could not be reached.
- (ii) If speed was increased the aeroplane with engine trouble would be lost.
- (iii) Reduced speed could be maintained, and a near objective bombed.

The course adopted depended on circumstance, and it was here that the question of leadership came. On the homeward journey every effort was made to save aeroplanes with engine trouble.

**12. Bomb Dropping.**—(a) The pilot aimed and dropped the bombs.

(b) The D.H.9's were fitted with the Lens bomb sight fitted in the floor of the fuselage. The disadvantages of this sight were as follows :—

- (i) The sight had to be set before the aeroplanes left the ground. The speed and direction of the wind were known at the aerodrome before the raid left, but it was impossible to say what they would be three hours

later and at a place over 100 miles distant. In addition, it might be arranged to bomb from a certain height, but circumstances, such as clouds or an aeroplane with a failing engine, might make it necessary to bomb from a lower altitude.

(ii) It could be used for bombing up or down wind, but the course to be adopted had also to be decided before the raid left the ground.

(iii) It got covered with oil from the engine, and was useless.

(c) The C.F.S. bomb sight was also tried. This sight had to be used by the observer, who did the sighting and then tapped the leader on the shoulder as a signal to release the bombs. This method was unsatisfactory for the following reasons :—

(i) It was difficult for the observer to convey to the leader the change of course to get the aeroplane accurately sighted on the objective.

(ii) The observer did not know enough about air pilotage to be able to get the speed and direction of the wind while flying to the objective, but had to set the sight arbitrarily from the information received in the weather report. That information, as has been pointed out, was out of date.

(iii) By the time the observer had sighted and tapped the leader on the shoulder and the bombs had been released, the target had been overshot.

(d) As there was no efficient bomb sight, the rough and ready method of taking aim by using the leading edge of the lower plane as a sight was often adopted.

## CONCLUSIONS.

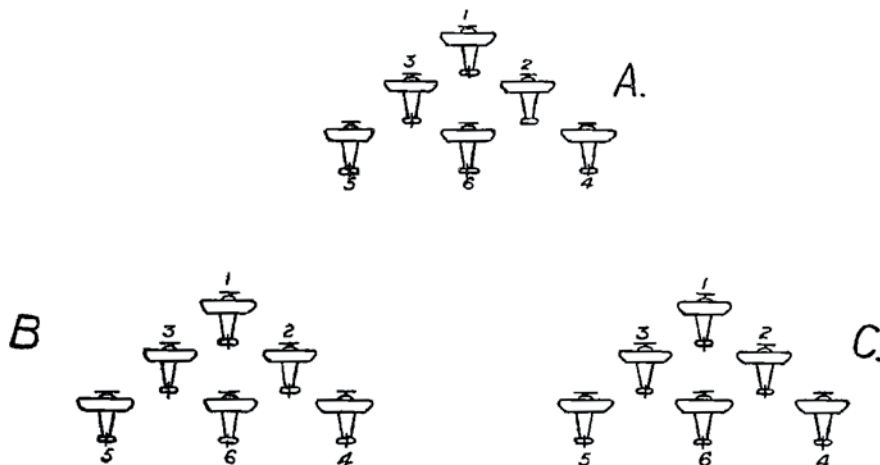
**13. Science of Bombing.**—(a) It is important that the science of bombing, which is very important now in view of the Home Defence Scheme, falls under three categories :—

- (i) Getting the aeroplanes safely to the objective.
- (ii) Placing the bombs accurately on the objective.
- (iii) Design and armament of aeroplanes.

All three are inter-dependent.

**14. Getting the Aeroplanes to the Objective.**—(a) With regard to getting the aeroplanes safely to the objective :

It has been established that a good defensive formation must be symmetrical, *i.e.*, form 3 units.



(i) Now a good defensive formation is bad for bomb dropping, and *vice versa*. If the bombs are dropped in squadron formation on the signal of the leader of the formation, then those of the rear flights will miss the objective.

(ii) If the units form line ahead, which is the best formation for bombing, they are vulnerable to attack.

(b) In order to get the best results a compromise has to be effected and the best compromise is

(i) To have a good defensive formation to the objective.

(ii) When over the objective units to form line ahead for bomb dropping.

(c) Experience has proved—

(i) Formations are essential and that bombs dropped in formation give the best result.

(ii) A flight of six aeroplanes can hold its own against heavy opposition, but a smaller flight cannot do so.

(iii) Out of a squadron of 18 aeroplanes only 12 can consistently be expected to cross the lines.

(d) From the experience the following facts are established :—

(i) A bombing unit must be a flight of six aeroplanes in order that the flight may be able to defend itself during the period it is dropping bombs.

(ii) A bombing formation must consist of three flights of six aeroplanes each.

(iii) As a result of (d) (i) and (ii) a bombing squadron must consist of four flights each of six aeroplanes.

It may be all right in the case of twin-engined aeroplanes having a good arc of fire in all directions and a good supply of ammunition to have squadrons of 12 aeroplanes each and a bombing formation of nine aeroplanes, but in the case of single-engined machines, I feel certain the squadrons must consist of 24 machines so as to permit a formation of three flights of six aeroplanes each over the lines.

**15. Bomb Dropping.**—With regard to placing the bombs accurately on the objective :—

(a) Experience with the independent force shows that unless there is a good bomb sight, the target will not be conscientiously aimed at if it is situated in a town, and consequently the object of the raid is rendered useless.

(b) The problem of whether the pilot or the observer is to do the sighting and bomb-dropping is one of the utmost importance and can only be solved as the result of constant experiments. My own idea is that :—

(i) In the case of two-seater aeroplanes there should be officers qualified in air pilotage to fly in the leader's aeroplane of each flight to do the sighting and bomb dropping. An alternative sight easily set in the air should be available so that the pilot could use it in case the observer was killed or wounded. This sight is also necessary to enable the pilot to bring the aeroplane over the objective so that at the last moment only a slight alteration of the course will have to be made at the instance of the observer before the aeroplane is accurately sighted and the bombs are dropped. Duplicate bomb releasing gear should also be fitted.

(ii) Alternatively, bombing machines should be capable of carrying three passengers or the equivalent weight of the third passenger in bombs. The leader of each sub-formation to carry, in addition to an aerial gunner, a navigator to do the sighting and the releasing of the bombs. All the other aeroplanes to carry the equivalent weight of the navigator in bombs. As in (b) (i) above, duplicate sights and bomb release gear should be fitted.

**16. Design and Armament.**—With regard to design and armament of bombing aeroplanes :—

(a) It is clear that both these matters are of the utmost importance if good results are to be obtained and casualties avoided.

(i) There is a tendency to-day to leave the exhaust on the engine open. It was found in the D.H.9's in the Independent Force that the gases from these open exhausts seriously affected the observers and in the end long exhaust pipes had to be fitted. In view of this experience the question of fitting suitable exhaust pipes to all long-distance bombing aeroplanes should be considered.

**17. Air Pilotage.**—Air Pilotage plays one of the most important parts in the success of a bombing squadron, not only in the actual dropping of the bombs, but in getting the formation to the objective. The radius of action of aeroplanes is increasing as time goes on, and unless the question of supplying officers trained in air pilotage to bombing squadrons is taken in hand, bombing will not achieve the results that it should.

**18. Deductions.**—*The Independent Force.*—The result achieved by the Independent Force, having regard to the unsuitability of the aeroplanes with which it was equipped, was wonderful; but in considering the effect of bombing I think these results should be regarded as the minimum that could be obtained by a similar force equipped with modern aeroplanes, properly fitted with armament and bomb sights, and supplied with the necessary officers trained in air pilotage.



# THE PROPHET'S INTERPRETER: SIR SAMUEL HOARE, HUGH TRENCHARD AND THEIR CAMPAIGN FOR INFLUENCE

By Wing Commander Sophy Gardner (Retired)

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**Biography:** Sophy Gardner is a collaborative doctoral research student with the University of Exeter and the RAF Museum. A former RAF Wing Commander, she is researching the political fight for the RAF from its conception in 1917 to the end of the 1920s. She holds an MPhil and an MA from the University of Cambridge.

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**Abstract:** Following the Conservatives' return to power in late 1924, Hugh Trenchard served as Chief of the Air Staff and Samuel Hoare as Secretary of State for Air until 1929. This article assesses their relationship at the Air Ministry. Hoare has been viewed largely through the historical prism of his later ministerial career, yet his role as Trenchard's 'interpreter' has received less attention. The pair would embrace political lobbying, cultural influence, and public relations to win support for the RAF. It is argued that Trenchard and Hoare pursued shared goals of embedding the fledgling air force within traditional concepts of establishment and society, while simultaneously drawing on the modernity and nascent future potential that air power embodied, to entrench the RAF's position as a permanent third service.

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## INTRODUCTION

On 9 February 1921, Hugh Trenchard chose to circumvent his Secretary of State for War and Air, Winston Churchill, and wrote directly to the Leader of the Conservative Party and the Leader of the House of Commons, Andrew Bonar Law, setting out his argument that the Air Ministry should have a Secretary of State devoted to the Air Ministry alone. The Chief of the Air Staff (CAS) artfully included reference to the fact that he had 'spoken to Sir Frederick Sykes, and he, though perhaps not agreeing with the whole of the paper, is thoroughly in agreement with the necessity of having a separate Secretaryship of State for Air, which he regards as very necessary indeed'.<sup>1</sup> Given Trenchard's fractious relationship with Sykes, and Sykes' position both as Controller of Civil Aviation within the Air Ministry and son-in-law of Bonar Law, the reference to Sykes seemed designed to reassure Bonar Law that Trenchard meant no mischief with regard to his adversary. Bonar Law replied to Trenchard on 17 February, referring to Churchill's move to become Secretary of State for the Colonies and Air made on 14 February, writing, 'You will have seen, and I hope approve, of the temporary arrangement which we have made but we have come to no decision as to the future.'<sup>2</sup>

Trenchard was not to know that Bonar Law was going to step away from politics due to ill health within six weeks and Frederick Guest would soon after be appointed as Secretary of State for Air alone. Eighteen months later, Bonar Law returned to the heart of parliamentary and party politics, with the Carlton Club meeting of 19 October 1922 and Lloyd George's resignation leading to his appointment as both Prime Minister and (again) Leader of the Conservative Party. It was Bonar Law's choice to replace Guest with Sir Samuel Hoare that was arguably one of the most important ministerial appointments in the RAF's history. Hoare, later Lord Templewood, was to form a formidable pairing with Trenchard at the Air Ministry, one which would embrace political lobbying, cultural influence in society, and public relations, in some ways far advanced from the practices of the Admiralty and the War Office, to entrench the RAF's position as a permanent third service.

As Prime Minister, it seems that Bonar Law did not agree with Trenchard's points made in his 1921 letter that, 'The Air Force, now that its foundations are laid, must be allowed reasonable freedom to develop its own functions in accordance with its power and possibilities.'<sup>3</sup> Hoare recounted in his own memoir *Empire of the Air* that Bonar Law's view, given when Hoare was offered the appointment on 1 November 1922, was that the RAF would not maintain its independence for long, and that the Secretaryship might be abolished within weeks. From Hoare's account, it was Bonar Law's son-in-law Sykes who had persuaded him that an independent air force and the Air Ministry cost too much.<sup>4</sup> But Bonar Law stood down as Prime Minister in May 1923 with terminal cancer, while Hoare and Trenchard were fighting another review as the Salisbury Committee and its Balfour sub-committee were drawing their ultimately favourable conclusions about the independence of the RAF. It was Stanley Baldwin, Bonar Law's

successor, who gave Hoare a seat in Cabinet, a first for a separate Secretary of State for Air, fully meeting Trenchard's recommendation contained in his 1921 letter.

This article will assess the relationship between the two characters at the heart of this fight, Hugh Trenchard and Samuel Hoare. It will outline their individual and collective journeys as 'Whitehall Warriors' of the period. Once the major political battles of the early 1920s and the hiatus of a Labour government in 1924 had passed, Trenchard served as CAS and Hoare as Secretary of State until 1929 and this paper focuses on this five-year period. Hoare recalled their agreement that they needed to establish that the RAF 'was a normal and essential institution in the life of the country' through 'our carefully planned advance', and the latter sections will expand on these plans and their execution.<sup>5</sup>

The first of these will look in detail at Hoare and Trenchard's 'strategic plan for influence', which they properly advanced from 1924 onwards. The Army and the Royal Navy had greater and entrenched political power, and a far larger pool of advocates, than their junior rival. Familiar through experience with the most influential Whitehall networks in politics, Hoare and Trenchard pooled their collective skills and contacts to pursue a strategic plan starting with the royal family, and including promoting the perceived position of RAF officers within society and the cultivation of leading university authorities. Their thinking was the result of their experience of the RAF's vulnerability in the early 1920s and their understanding of the need to reach out to different segments of society. They were the inner core of this plan and the networks needed to achieve it. This section will explain the networks and methods used to entrench the RAF as an 'institution', accepted as part of the fabric of the establishment, and as a formidable self-advocacy group.

As well as formal and informal networks, the RAF and Trenchard in particular used public relations, in a form recognisable today, to project messages to the public and key commentators. An assessment of their methods, such as the use of annual flying exhibitions at Hendon, will demonstrate how the RAF promoted itself beyond Whitehall and will form the final section of this article. The backdrop to this period was one of imperial overstretch, domestic economic constraints, and, specifically, pressure on the defence estimates. The methods Hoare and Trenchard employed to gain influence required networks and creativity, not huge budget allocations, and additionally built on the reputation for 'efficiency' that the RAF championed in replacing costly ground forces with a tauter and cheaper imperial air control solution in Iraq and other colonies. Individually, these 'influence' projects were sometimes experimental and variably successful, but together they had a synergistic effect worthy of exploration.

## **HUGH TRENCHARD**

The controversy over Trenchard's short tenure as CAS, who was replaced by Sykes, and the outrage around Trenchard's departure which led to his return to the Air Ministry,

have been characterised by their personalities, their longer-standing feuds, and also by the actors around them.

Lloyd George's handling of the appointment of the first Air Minister who was to preside over the formation of the RAF, which was to receive Royal Assent on 29 November 1917, was publicly denounced then and deserves little rehabilitation with the passage of time. Lord Cowdray was expecting the position as the then President of the Air Board, but learnt that Lloyd George had other plans from an open letter in *The Times* in which Lord Northcliffe, its proprietor, turned down the Prime Minister's 'repeated invitations' to take the position. Lloyd George then offered the position to Northcliffe's brother, Lord Rothermere, who accepted. Trenchard was summoned to meet with Rothermere, who was joined by Northcliffe and Major John Baird, and they immediately came to verbal blows over the Harmsworth brothers' campaign against Trenchard's commander and close associate, Field Marshal Sir Douglas Haig. Nevertheless, Trenchard accepted the role, but the friction between him and Rothermere was to continue.

The Air Ministry, based at the Hotel Cecil in London, was partly staffed by the personal selections of Rothermere, against Trenchard's wishes. Their styles of leadership and management were extremely incompatible and, by 19 March 1918, Trenchard had submitted his resignation, although he stayed on until 13 April seeing in the birth of the RAF on 1 April.<sup>6</sup> The circumstances of the delay in his resignation are disputed, but certainly served to damage his already jaundiced view of 'political desperadoes'.<sup>7</sup> Having spent only four of his previous twenty-four years of service in Britain, Trenchard was enduring an initiation into the power and networks of Whitehall, and he learned to use them in getting himself reinstated, first into command of the independent strategic bombing force on the continent, and then back as CAS within a year. Rothermere resigned in the wake of the controversy over Trenchard's departure, which had led to a lengthy debate in Parliament, and William Weir became the new Secretary of State for Air. Weir may not have wholly approved of Trenchard's behaviour at the time of his resignation, but clearly wanted to keep him within the RAF fold.<sup>8</sup> The debate in the House of Commons revealed the way that Trenchard would use his extensive contacts for support: two of his spirited supporters in the debate were former junior officers who had served under his command.<sup>9</sup>

Once back in command of the RAF, Trenchard set about writing and implementing his detailed proposal for the full establishment of the Service, the outline of which he had agreed with Churchill prior to his reappointment.<sup>10</sup> Sykes had previously written his own plan which, though criticised for its extravagance (well over 100 squadrons costing an estimated £21 million a year), has also won plaudits for its foresight even though it has been thoroughly eclipsed by Trenchard's plan in the majority of historical accounts.<sup>11</sup> Trenchard's Memorandum, entitled *An Outline of the Scheme for the Permanent Organization of the Royal Air Force*, concentrated on laying the foundations of the RAF,

on training, on creating and fostering an Air Force spirit, and on research. This was a vision for a stable and durable RAF, centred on training and the development of officers and other ranks, with a much smaller footprint of flying squadrons than Sykes' more elaborate proposal had envisaged. On this basis, Trenchard ensured 'the new plant has a fruitful soil from which to spring'.<sup>12</sup>

The structure of the RAF, with its small elite body of officer pilots, supported by technically minded and qualified other ranks, was ideally suited to strong and forceful command along ideological lines. Trenchard visited and lectured his officers throughout his time as CAS, instilling directly in them his vision for the service. Though the debates continue about his doctrinal views regarding bombing, both as a strategic war winner and its utilisation in the more limited air control environment, those who criticise his vision (and inarticulacy) acknowledge Trenchard's 'unrivalled authority' and firm grip on the direction of travel of the RAF.<sup>13</sup> As Trenchard consolidated his position within the service, he also established himself within the important networks in Whitehall, where knowledge of air power was relatively limited and confined to some key organisations and people.<sup>14</sup>

Trenchard's concentration on building the foundations of the RAF in the early 1920s ('Twice he built an Air Force out of nothing – once in 1914, when all the available aeroplanes of the RFC went to France, and again after the demobilization in 1920') prepared the way for the incoming Secretary of State for Air to apply his own skills and abilities to the next phase in the RAF's establishment.<sup>15</sup>

## **SAMUEL HOARE**

First appointed Secretary of State for Air on 1 November 1922, Hoare arrived at the Air Ministry having had a conventional journey into Conservative politics, as the son of the first Baronet Sir Samuel Hoare who was the Conservative and Unionist MP for Norwich, and with considerable experience of the machinations of party and parliamentary politics.<sup>16</sup> Educated at Harrow and Oxford, he had first been elected as an MP to the constituency of Chelsea in 1910.<sup>17</sup> During the First World War, he served in the Army, specialising in intelligence, having leant on his parliamentary colleague Major John Baird for introductions. He was posted to Russia and then Italy, and reached the rank of Lieutenant Colonel. In his own memoirs and papers, he made limited reference to this period, lending support to the view that the more 'political' nature of his military experience did not put him at a 'psychological disadvantage' in his dealings with significantly more senior officers.<sup>18</sup> He returned to politics having gained extensive experience of diplomacy, intelligence, foreign affairs and defence, all of which were to stand him in good stead at the Air Ministry.

As a politician, Hoare's reputation as a backroom political operator came to the fore in the lead-up to the 1922 Carlton Club Committee meeting, organising a key meeting of MPs on the eve of the decisive gathering which helped persuade Bonar Law to lead,

ultimately successfully, the revolt against Lloyd George's coalition.<sup>19</sup> Hoare himself recounted that he had come to know Bonar Law as much on the tennis court as in parliament, playing at least weekly with his close friend Beaverbrook at the latter's court in Fulham.<sup>20</sup> When Bonar Law became Prime Minister, he offered Hoare the Secretaryship of Air with the advice, as already mentioned, that the post might be abolished. Bonar Law, Hoare recalled, had been taking the counsel of his son-in-law (and Trenchard adversary) Sykes and said:

Sykes tells me that the Independent Air Force and the Air Ministry cost much too much, and that there is everything to be said in peace time for going back to the old plan of Navy and Army control. I agree with him. I shall therefore expect you, if you take the post, to remember that it may very soon cease to exist.<sup>21</sup>

Hoare arrived at the doors of the Air Ministry with very little experience or knowledge of the still vulnerable third service. He wrote to his mother: 'I am going down to make my bow at the [Air Ministry] office tomorrow morning at 11. The whole thing is so new to me that I do not know in the least where I am.'<sup>22</sup> Awaiting his arrival on 2 November 1922 was Trenchard; the men had never before met.<sup>23</sup> Churchill wrote to Hoare on 9 December 1922 of Trenchard: 'I am sure you will very much enjoy being head of this brilliant little service and will do all you can for it. Trenchard was the rock on whom I always relied. He never failed.'<sup>24</sup> If Hoare's own account of their meeting and his early impressions of Trenchard are not too rose-tinted by the passage of time (and their strong relationship continued well beyond their respective tenures in the Air Ministry), then Churchill's letter arrived too late to be necessary.

Trenchard and Hoare's subsequent partnership, combining Hoare's political skills and understanding of Whitehall with Trenchard's vision for the RAF, already set out in his Memorandum, and his loyal following within the service, was to prove a key element to their successes in the inter-service battles of the 1920s. Hoare was in his first ministerial post and would have been keen to make his mark, and was fortunate to have inherited a CAS whose unparalleled understanding of his service was matched by his passion for its survival (notwithstanding any reservations he had had at the time of its inception).<sup>25</sup> When Bonar Law resigned due to ill health, his successor, Baldwin, retained Hoare as Secretary of State for Air, but crucially with a seat in the cabinet. Having fought and won these early battles, Hoare was soon temporarily out of the Ministry, and government, with Ramsay MacDonald appointing Lord Thomson of Cardington as his Labour government Secretary of State for Air in January 1924. Thomson was, for his brief tenure during 1924, to allow the Ministry to carry on in the direction of travel set by Hoare and Trenchard. He saw air issues as above party politics, and sought and received the informal support of Hoare during his time at the Air Ministry in 1924.<sup>26</sup> Thomson remained a supporter of aviation and continued to correspond with Hoare, eventually returning to the Air Ministry in June 1929 until his death the following year in the R101 accident.<sup>27</sup>

Hoare was appointed for the third time as Secretary of State for Air on the defeat of the Labour Government on 7 November 1924, just two years after his first arrival at the 'Aadal House' Air Ministry. Hoare and Trenchard faced nearly five years' more of partnership in the Air Ministry, a record length of time for a joint Secretary of State-CAS partnership not just for the inter-war years but to date, although they were not to know that. Writing for a review of Templewood's *Empire of the Air* in 1956, Lord Brabazon (a former Parliamentary Private Secretary to Hoare and long-time friend of Trenchard) drafted the following words sent to the editor of the *Spectator*:

Trenchard is the hero of the book but until his life is written this is the finest tribute ever paid to him and the most complete story of his achievements.

What I hope however historians will point out with force and clarity is the fact that great Commander as was Lord Trenchard, his subsequent career in forming the Air Force with all the wise and far reaching subsequent planning, could never have been brought into effect, had it not been for Sam Hoare.

It was a national blessing that these two men, so entirely different from every point of view, got on so well together. Neither one nor the other alone could have done anything. Together they were irresistible.<sup>28</sup>

Hoare described Trenchard as a prophet and himself as the 'prophet's interpreter' which were grandiose descriptions. However to effectively market the RAF, Hoare's application of Trenchard's intent was an important element of their relationship: 'In nine cases out of ten he would start some new idea, and I would interpret it in words that the politicians and the public could understand.'<sup>29</sup> They approached their joint task by drawing up a quite extraordinarily detailed, imaginative, and political plan for influence that was to have a profound positive effect on the security of the RAF as an independent service.

## **THE STRATEGIC PLAN FOR INFLUENCE**

While Trenchard and Hoare were developing their strategic plan to take the RAF beyond its battles for survival in the early 1920s, to convince the country of its place as a 'normal and essential institution' and consolidate its position as an established third military service in Britain, the Royal Navy and organisations supporting the Navy were also contending with its role in the modern world.<sup>30</sup> The ambiguous outcome of the Battle of Jutland and the challenge to the Navy's status by the introduction of air power and, crucially, the air force's separation into a single service, confronted the Navy with a new reality, yet their identity was rooted in an earlier era of British maritime supremacy. The project to restore *HMS Victory* took place in the decade following the First World War. Supported by the Navy, the symbolism of this campaign evoked images of Britain and of the Royal Navy's centrality to British imperial greatness and, argues Don Leggett,

became 'a resource for narrating the Navy's place in post-war Britain'.<sup>31</sup> The Navy's historic role in the acquisition of Empire stood in awkward juxtaposition with more contentious contemporary discussions about its role in the age of air power, which made memorialisation of the triumphs of *HMS Victory* all the more appealing. Trenchard and Hoare, reunited in the Air Ministry late in 1924, also understood the importance of the RAF's place in Britain, but without a significant history beyond the narrative of successive rounds of inter-service battles (and successful outcomes) they had to think much more imaginatively. Forced to face their future, rather than memorialise a past as the Navy were wont to do, they constructed a strategic plan 'to win the Air Force a strong position in the National life'.<sup>32</sup> Hoare describes the elements of this plan in *Empire of the Air*, and his memoir's account is supported by both primary sources and other relatively contemporaneous accounts.<sup>33</sup>

This plan for influence was about entrenching the junior service within the establishment and creating a sense of the 'air' amongst the British people. This was not primarily about doctrine or arguments about the utility of air power, but about status and influence. The RAF had come into being in the year of mass enfranchisement, with suffrage for all men over twenty-one and for women with specific property rights over thirty, and during an era of substantial growth for mass circulation newspapers. Richard Overly argues that the history of Britain as a genuine parliamentary democracy covers the same historical period as that of the RAF and because the RAF was formed due to pressures to improve (and became most strongly linked with) home defence of the civilian population, the more direct relationship between the RAF and the public gave it 'a distinct democratic function'.<sup>34</sup> That said, outside of the role of home defence, it is not clear that a direct relationship existed, but the modernity and novelty of aviation provided a route to the public's imagination. Trenchard and Hoare's joint strategic plan for influence was both of and ahead of its time, in direct contrast with projects like the restoration of *HMS Victory* which demonstrated the Navy had at least one eye (no Nelsonian pun intended), nostalgically on the past.

Hoare described the first strategic objective as Buckingham Palace and King George V: 'we had to soften the King's very natural prejudices against a new service that questioned many of the beliefs of the older services, and that in particular threatened the established doctrine of naval supremacy in the system of British defence'.<sup>35</sup> Hoare's written guide to royal relations, titled 'Relations with the King and Court' gives further insight into his concerted campaign to keep alongside the royal family for the benefit of the RAF:

Students of Queen Victoria's diaries will realise how close and constant are the contacts between the principal Ministers and the Sovereign. If the King now takes a less direct part in the field of administration, he nonetheless sees more of his Ministers in private audiences and upon social occasions than did Queen Victoria.

[...] When I went to the Air Ministry he [King George V] was strongly prejudiced against flying, the Air Ministry and the Air Force. It was with great difficulty that with Wigram's help I was able to somewhat wear down this prejudice.<sup>36</sup>

His papers demonstrate that he was in frequent contact with the Palace, and a summer guest at Balmoral. Hoare understood that the royal relationship required attention and stamina, which he applied with enthusiasm to deliver influence for the RAF. Trenchard was already an Aide-de-Camp to the King (he was appointed Principal Air Aide-de-Camp to the King on 22 February 1921; the King had refused to appoint Sykes in 1918) and Hoare campaigned to have him promoted to a rank corresponding to the Admiral of the Fleet or Field Marshal of the Army, that of Marshal of the Royal Air Force.<sup>37</sup> This he achieved by the end of 1926, 'but not without a tirade against the title of Marshal of any kind in the Air Force' from the King.<sup>38</sup>

The air pageants at Hendon will be discussed in more detail later, however Hoare's efforts to secure the attendance of the royal family are further testament to his dedication to this first strategic objective, in support of broader public relations. The first Hendon display, in July 1920, was attended by Prince Henry, Duke of Gloucester, and in 1923 King George V attended for the first time at Hoare's and Trenchard's requests.<sup>39</sup> Hoare recounted that 'year after year either he or I would go to the Palace in the early summer to persuade the King to give his *cachet* to the proceedings by himself being present', with other members of the royal family also attending, alongside royalty from abroad (the Queen Mother attended even though she refused to look up because she disliked aeroplanes).<sup>40</sup> Records show how these efforts with the royal family paid off, as correspondence between Trenchard and the royal household became significantly warmer during the late 1920s.<sup>41</sup>

More broadly, Hoare also recognised the lack of *cachet* that RAF officers had in society relative to their peers in the other services. 'High Society', and being seen to be part of it, was still an important element of the class system. Many Army and Navy officers regarded the Air Force as socially inferior, an attitude neatly exemplified by an artillery lieutenant who wrote in June 1922:

Nobody appreciates the [hoi polloi] more than I do; I love them when they are in the right place, but I can't say I love them when they are planted down alongside me on the same footing [...] Dad, where on earth do the RAF get their officers from?<sup>42</sup>

The Army and the Navy had had centuries to establish firm links with the ruling classes who dominated political and social life. Here, as he did with other projects, Hoare exploited the contacts and social advantages of those politicians that he ensured were appointed to the Ministry. For his drive to raise RAF officers' profiles and standing,

he turned to his Under-Secretary of State, Philip Sassoon, who like Hoare's Under-Secretary of State in the early 1920s (the Duke of Sutherland), had wealth and grand property which was put to use to introduce RAF officers to the upper class way of life. Sassoon owned Trent Park, in London, which had its own golf course, and Port Lympne in Kent (which acquired a bachelors' wing for young pilots), as well as an art collection, light aeroplane and Rolls-Royce car, and worked 'unpaid out of interest and pleasure'.<sup>43</sup> An old Etonian, former Private Secretary to Lloyd George, and reputedly the wealthiest bachelor in England, he invested his efforts (with Hoare's encouragement) into the developing officer class of the RAF.<sup>44</sup>

The wives of Trenchard and Hoare also played their part in introducing officers to a more 'pedigreed' social life, and Lady Hoare hosted dinner and garden parties for the King, the Prince of Wales, and the Duke and Duchess of York, at their home in London where more RAF officers were introduced to the royals.<sup>45</sup> Andrew Boyle quotes Trenchard saying to his wife when invitations to three separate and simultaneous functions were delivered by post: 'It's a good sign. They're beginning to chase us socially now.'<sup>46</sup> Lady Maud Hoare was the daughter of the sixth Earl Beauchamp, highly motivated in support of her husband's career, and her social connections and networks surpassed even her husband's.<sup>47</sup>

The aspiration for RAF officers was for them to assimilate into these circles and this raises the question, echoing Samuel P. Huntington's work on how militaries reflect their broader societies (as opposed to 'high society'), whether there was any consideration of the need to mirror society and present the RAF as accessible in this way. As Stephen Rosen has argued, Huntington's work, well-supported by others, has demonstrated: 'that societies are uncomfortable with military organizations whose structures do not reflect the dominant characteristics of their societies'.<sup>48</sup> He also argues that technical services like the RAF, and those which are isolated from society by deployment, for example as the RAF was with imperial operations, are likely to be more distinct from society as a whole. Yet the RAF, with its unique military narrative of the pilot as leader, adventurer, and member of an elite corpus, and its embrace of modernity, had the scope to be both distinct from, yet simultaneously attractive to, society. Martin Francis describes this useful ambivalence:

The flyer could be imagined as a classless meritocrat, a tribune of the people's war, or he could be envisaged as an anti-democratic superman, rendered omnipotent by his ability to literally ascend above the rest of humanity. He could be an emblem of scientific modernity or a reincarnation of the chivalric heroes of a medieval past.<sup>49</sup>

Hoare turned his attention next to universities, once more using political appointments to the Ministry to obtain maximum influence, appointing Sir Geoffrey Butler as his Parliamentary Private Secretary in 1924. Butler was one of two MPs for Cambridge University, an intellectual with an extensive academic network and a flair for private influence.<sup>50</sup> Hoare, with Butler, laid the groundwork for the establishment of a University

Air Squadron (UAS) in a visit to Cambridge, meeting with the Vice-Chancellor, Professor Seward, and President of the Board of Military Studies, Professor Inglis. The first two objectives of the formation of a UAS at Cambridge had been laid out as: '(a) To stimulate interest in the air (b) To promote the flow of candidates for the RAF, the AF Reserve and the AAF [Auxiliary Air Force].'<sup>51</sup> Trenchard subsequently dined at Cambridge before addressing the Cambridge Union Society on 'The Air Defences of Great Britain' and finished his speech outlining the scheme for a UAS at Cambridge:

The Air Force squadron which, during term time, must be mainly kept alive by means of courses of instruction in engines, rigging, wireless, etc., and by lectures, with possible flying as observers at Duxford or some other Air Force station during the term, if the university authorities will allow this, and with further flying during the long vacation, will, I trust, be the means of stimulating interest in the air as a whole at the university, and that the interest will be continued after members have gone down from the university and gradually throughout the country.<sup>52</sup>

Professor Inglis, proposing a vote of thanks to Trenchard, is reported as inferring that CAS saw Cambridge as a national incubator for hatching out new and progressive ideas.<sup>53</sup> Hoare recalled that Butler was also focusing on the 'new and progressive', suggesting that the RAF avoid replicating the Army's Officer Training Corps (OTC) model: 'Keep entirely clear of the OTC methods. They are out of date and not suitable for a new chapter in a plan for the new world.'<sup>54</sup> Pertinently, one of the attendees at the dinner was the Officer Commanding the OTC and President of the Board of Military Studies, Brigadier General Edmund Costello VC, who had previously been Chief Staff Officer to the Air Officer Commanding in Palestine. He was reportedly supportive of an arrangement which would relieve him of direct responsibility for an air unit through the establishment of an independent UAS.<sup>55</sup> Progress was rapid with Cambridge and the RAF's first UAS was formed on 1 October 1925. In order to reduce concerns about an overtly military unit, which was seen to be less palatable both to parents worried about aircraft accidents in the RAF and to the university authorities, the Cambridge unit, like those at Oxford and London, which would follow, was essentially civilian in appearance. There was no RAF uniform, no use of RAF rank, and the Officer Commanding was titled instead the Chief Instructor: 'In fact the whole scheme was an excellent example of our English way of persuading our consciences that things are not as they are.'<sup>56</sup>

Hoare had followed his visit to Cambridge with one to his alma mater, Oxford, but found the reception there somewhat cooler. He rightly judged that once Cambridge embraced the concept, Oxford would review its position, and Oxford UAS formed soon after Cambridge UAS. Not only were the squadrons successful in their reach into the future leaders of next generations and in creating air awareness at these important centres of learning and research, but the Cambridge, Oxford and London (created in 1935) UASs were to provide a significant number of officers to the war effort from 1939 onwards:

for example, ninety-seven were to fight in the Battle of Britain, with twenty-three losing their lives.<sup>57</sup> Less tangible, but also highly important from an influence perspective, Hoare and Trenchard had expanded their networks into the major universities of the country, and into the world of university science and academia. Hoare visited the new UAS at Cambridge within months of its establishment and by July 1926 he had been made an honorary fellow of Butler's own college, Corpus Christi.

At the Cambridge Union Society dinner in April 1925, Trenchard had also described in some detail the next element in the Hoare-Trenchard plan for influence: the Auxiliary Air Force (AAF). This was to enable the RAF to gain footholds in locations across the country embedded within civilian lives. He described the concept in his speech:

We feel very much indeed the importance of trying to get the nation intimately connected with the air service for Home defence, and we feel that all good men of the different types – the pilot, the engineer, the dashing motor driver, the literary man and the scientific man – which so largely predominate in the English public, all could be of use in the defence of this country. [...] Remember that if we get the best and, in the future, if it is looked upon as much of an honour to belong to one of these auxiliary Air Force squadrons as it is to belong to a good club or a good university, so will it be a great means of enabling the spirit of aviation to be spread throughout the country for civil purposes and for service purposes.<sup>58</sup>

Sykes had been against 'part-time' flying and Hoare blamed him for the stalling of the Bill on the AAF, drawn up during Hoare's first term and brought onto the statute books during Thomson's short spell as Minister. Hoare recalled that the Bill 'remained in the pigeon-holes of the Air Ministry', and believed that Sykes had used his influence to bear on his father-in-law, Bonar Law, then Prime Minister.<sup>59</sup> Unencumbered by Sykes and Bonar Law in 1924, Hoare and Trenchard were free to proceed and, within eleven days of Hoare's return, produced a paper outlining the future for the AAF. The document noted that: 'Each AAF Squadron will provide a means whereby the surrounding neighbourhood can be brought into closer touch with aviation and members of the civil community can take a very real part in the Air Defence of the country.'<sup>60</sup> Trenchard's 1925 speech shows a developed plan with the locations of the first six squadrons outlined and by 1929 six squadrons were already operating and three more were about to form. Like the UASs, the auxiliary concept served the dual purpose of influence in public and civilian life, and a later vital source of manpower for the Second World War.

However, all of these projects already outlined were relatively limited in their geographic and class span. They reached a relatively small audience which was just the tip of a much larger iceberg: the general public's increasing interest in air displays and air activity, demonstrated not only by the popularity of displays but by the increased coverage of air activity related to the RAF, in the popular press and other publications.

## **PUBLIC RELATIONS AND THE RAF**

Linking the projects outlined above with a broader appeal to the general public, was the concept of ‘air-mindedness’. Hoare summarised what he had wanted to achieve in making the public ‘air-minded’ in the House of Commons: ‘the aim of making the country generally better instructed upon air questions, making our citizens more capable of forming sound judgments upon air questions, and making people more directly interested in flying’.<sup>61</sup> Though he was talking on that occasion in the context of civil aviation, his words provide a sound general definition. More contemporary definitions include ‘a given nation’s response to the airplane’ and ‘an enthusiasm for aeroplanes, for aviators and for aviation and everything associated with it’.<sup>62</sup> Brett Holman has pinpointed an important aspect of air-mindedness sometimes missing in analysis, and that is the negative connotations of the concept and the specific cultural response of fear of the air and the threats it could bear. In Britain, especially as a result of the attacks on the mainland in 1917 which were the essence of the creation of the RAF, air-mindedness could be negative and positive at the same time: fear of attack from the air and support for the RAF who could (in theory in the 1920s and in practice in the summer of 1940) defend Britain. Hoare’s definition is resolutely neutral and, as will be discussed, the plan to increase awareness of the RAF did not necessarily require public enthusiasm so much as acceptance.

The RAF and the Air Ministry were quick to realise the value of displaying their machines and prowess to the public with an annual air pageant, the first of which took place in July 1920. Originally designed to advertise ‘its successful independent existence to a sceptical or ignorant public’, it was a very effective early public relations exercise by the nascent third service.<sup>63</sup> The pageant featured static and flying displays, including aerobatic and formation manoeuvres. It also served a role, which increased throughout the 1920s, to exhibit the military purpose of the RAF and, as David Omissi argues, to act as a vehicle to propagandise about the RAF’s activities overseas, particularly that of air control around the Empire.<sup>64</sup> In 1921 the draft programme laid out at the Air Ministry included a flying demonstration comparing aircraft which were used at the beginning and end of the ‘Late War’, in order to demonstrate the improvement in speed, climbing, and manoeuvring ability that had been made.<sup>65</sup> So the RAF showcased rapid technological and strategic progress; the spectacle was literally and figuratively about moving forward. In 1925, the pageant was renamed a display ‘to emphasise that the RAF was not putting on a flying circus to entertain the public but was merely demonstrating what it had achieved in the previous year’s training’.<sup>66</sup> Trenchard outlined the grounds for approval of the first pageant as a necessary and important part of the training of the RAF, and the later name change reinforced that message, notwithstanding the many other elements of the displays which reached beyond internal training objectives.

Hendon was an obvious choice of venue, located in North London and easily accessible by motor vehicle and public transport, especially after Colindale underground station

opened in 1925, and preferable to RAF airfields further from the capital.<sup>67</sup> It had been the site of an early pre-war flying school and regular air races which attracted a 'smart, gay crowd' before the RAF's foray into display events.<sup>68</sup> Hoare expressed concerns over the size of the site and the risk of aircraft accidents, but was convinced by Trenchard's firm belief that it would stimulate public interest in the RAF.<sup>69</sup> The first display attracted some 40,000 spectators with numbers rising during the intervening years to 170,000 in 1932 (excluding the several hundred thousand more who would gather to watch from outside the enclosures).<sup>70</sup> No doubt the presence of the royal family, and King George V specifically from 1923 onwards, as earlier referenced, contributed to the popularity of the event with the general public. Combined with the accompanying BBC radio and press reporting, and the advertising that surrounded the event, it reached millions.<sup>71</sup>

The use of the event to showcase RAF operations overseas was a key aspect of the displays and one that encompassed not just public relations but propaganda. In Hoare's view, 'Iraq provided the finest training ground for airmen in the world' and the air displays offered the RAF the opportunity to inform the public of its contribution to Empire, while curating the content to present a sanitised version of actual operations.<sup>72</sup> Martin Thomas argued that the RAF's independence 'rested in a large part on its capacity to prove itself as an economical means to uphold colonial control in the Arab world'.<sup>73</sup> With the Hendon displays the RAF promoted a particular narrative about 'native' characteristics and their susceptibility to the power of the aeroplane, to complement their economic arguments in Whitehall. Omissi interpreted the displays as having a clear propaganda purpose and discussed in some detail the 1922 *Attack on a Desert Stronghold* display which involved the re-creation, at Hendon, of a tribal desert fort where a Bristol Fighter had been forced to land: 'The stranded machine was at once heavily attacked by the locals – British airmen disguised as gaily coloured 'Wottnotts'. [...] British bombers then attacked the fort – an impressive structure with minarets and loopholed towers 100ft high – and sent it up in flames.'<sup>74</sup>

These artificial representations demonstrated the RAF's attempt, in a controlled but public environment, to reconcile what Satia has described as 'ethical scruples' with 'actual violence', by depicting the efficacy of colonial air power and reinforcing the image of Arabia as 'the land of the RAF'.<sup>75</sup> Dramatically illustrated posters used to advertise the event, and programme descriptions served to glorify the role that the RAF was playing in the Middle East and beyond, although there were some changes over time as the public became more attuned to discussions about disarmament, and to expose the public to one of the RAF's main justifications (i.e. air control) for its continued existence. The timing of the establishment of the air displays is particularly interesting in relation to the debate over whether Britain was an imperial *society* rather than just an imperial *nation*, notably between John M. MacKenzie and Bernard Porter. Porter's arguments about the isolation of Empire from British culture are applied to the nineteenth century and he posits that it was the challenge to Empire in the early twentieth century that made the domestic argument



Royal Air Force Aerial Pageant 1922 programme front cover, *Attack on a Desert Stronghold*, image courtesy of the RAF Museum.

for Empire so important at that time. At Hendon, the RAF was providing a 'crowd-friendly' demonstration – of colonial rule at a knock-down price in blood, manpower, and treasure, while reinforcing an imperialist narrative of Britain's superiority over its colonial subjects.<sup>76</sup>

Omissi also described the machinations behind a decision to withdraw a 'set piece' showing air force bombers sinking a battleship, stating the option 'was ruled out for fear of offending the Admiralty and thereby deepening the political problems of the Air Ministry'.<sup>77</sup> This tactful decision in 1922 did not survive the turbulence with the Navy over the next couple of years, as J. C. C. Davidson's papers, from his time as Parliamentary and Financial Secretary to the Admiralty, demonstrate. They include a series of correspondence from 1926 between Commander Bellairs MP and Hoare, centred on Bellairs' accusation that the Air Ministry had been engaged in propaganda against the Admiralty and the Navy, where Bellairs writes:

If the Air Ministry is now really desirous of stopping propaganda against the Navy, I can supply a test.

It is the habit of the Air Ministry to arrange at exhibitions and at Hendon, a display in which a warship model is blown up from the shore while an air plane comes over.

The propaganda motion is to send every spectator home with the idea that a battleship, costing millions, is at the mercy of a single bomber costing £20,000. Nothing could be more remote from the truth. The effect is to undermine public confidence in the Navy, and not even the Bolsheviks could render the country a worse disservice.<sup>78</sup>

It was at this time that the Navy was struggling with an aversion to overt public relations at a time when the RAF was proving extremely adept at the art, which Christopher Bell argued had at its root in the Navy's distaste for self-promotion and its attachment to the ideal of a 'Silent Service' (although this phrase is more usually specifically attributed to the Royal Navy's Submarine Service). He quotes Lord Burnham (proprietor of the *Daily Telegraph*) in 1926 writing that the Navy's 'policy of silence has been carried too far. [...] It is obvious that if you shut down the discussion of naval problems and the recital of naval achievements you must damp down the ardour and appreciation of the nation'.<sup>79</sup> By the autumn of 1926, a committee had been established to hold a naval pageant in Portsmouth, ostensibly as a fundraising activity, and from 1927 until 1938 'Navy Weeks' became a popular public feature in the annual calendar. Given the accusations from Bellairs of propaganda, Bell's footnote on the participation of aircraft in Navy displays is telling:

Notably, it was only after the Navy regained control of the FAA [Fleet Air Arm] that aircraft began to play a prominent part in Navy Week displays. These usually took

the form of mock air attacks on British ships, and always ended with the ships still afloat and several of the attacking aircraft ‘destroyed.’<sup>80</sup>

The Navy came late to the party in terms of public relations, although Bell argues that the Royal Navy would not have extracted significantly more money from the government with a more extensive propaganda effort.<sup>81</sup> However, he does not consider the counter-argument that the RAF’s assiduous courting of public attention aided the RAF’s cause by parading and celebrating modernity in combination with the reassuringly traditional elements of Empire and of the royal family.

While Trenchard had seen the potential of air displays in winning public hearts and minds, Hoare was convinced that by his own example (and that of his wife) he could demonstrate the capabilities of the aeroplane, and he endeavored to achieve this with a number of high profile, and ambitious, overseas trips including to India and Iraq. From his first spell in office, he resolved to:

‘Fly yourself, and whenever possible with your wife, and show that you can keep to a definite time-table in carrying out a flying programme’ – that was the marching, or rather flying order that I gave myself. No minister in any part of the world had ever used an aeroplane for official tours.<sup>82</sup>

He was committed to the promotion of civil aviation and civil air routes, not least to demonstrate the peaceful benefits to trade and relations that aviation could deliver away from the horrors of war.<sup>83</sup> While it is understandable that Hoare’s colonial travels have been interpreted from the perspective of using air to extend imperial relationships, and that he ‘set about this task with gusto’, another reading of his evident enthusiasm is that he was crusading for the cause for aviation more generally, i.e. using the Empire to extend air-mindedness was his primary motivation.<sup>84</sup>

Hoare’s India trip, accompanied by Lady Hoare and Air Vice-Marshal Sir Geoffrey Salmond, who was to command the RAF in India, departed from London in December 1926, arriving in Delhi on 8 January 1927. This was the farthest a Secretary of State had ever journeyed by air and ‘a pungent statement of power and prestige, as the Hoares’ reception in New Delhi confirmed’.<sup>85</sup> This followed flights to Iraq by Hoare in 1925 and by the Labour Secretary of State, strongly encouraged by Hoare (who had hoped to carry out the first Iraq trip before losing office, in 1924). On their return from India after 12,000 miles of air travel, Sir Samuel and Lady Maud received ‘something like a hero’s welcome’ and both were recognised in the 1927 birthday honours list.<sup>86</sup> They were also invited to lunch with the King at Buckingham Palace after their flight: ‘The practice is that only outgoing or incoming Governors and their wives lunch at the Palace. It was therefore a very special invitation that was offered to us.’<sup>87</sup>

A final element to the Air Ministry's public relations campaign was its support (specifically Hoare's) for Great Britain's (i.e. the RAF's) competing for the Schneider Trophy in the late 1920s. Hoare argued in *Empire of the Air* that the contest had become too expensive and complicated for purely private ventures, and that: 'A victory meant greater prestige for British industry, and even if we did not win, the making of machines and engines was certain to add considerably to our knowledge about speed and its effect on men and materials.'<sup>88</sup> The RAF won the Trophy in 1927 and again in 1929, and public interest in the event developed from passive interest in the first to active participation in the second. The 1927 event took place in Venice, but the 1929 event was held on the south coast of England and may have amassed the largest crowds at any sporting event in the inter-war years. Reports vary between an optimistic estimate of a million spectators, and the half-a-million estimated to be on Southsea beach alone; there were many more members of the public at the other viewing locations of Gosport and Ryde.<sup>89</sup> Although later the Labour government of 1931 rolled back on its commitment to fund RAF participation, which was saved by a £100,000 contribution from Lady Houston (the widow of a Conservative MP), under Hoare's direction the RAF had once more placed itself firmly in the public eye, alerting ever greater numbers of people to its being at the vanguard of modernity and technological progress during the second half of the 1920s.

Of course, it has been argued that similarly impressive numbers attended the Empire Exhibitions of the 1920s and that 'one can be impressed without being educated'.<sup>90</sup> That said, the air environment was new to such crowds, and the aim of the strategic plan of Hoare and Trenchard was to embed the RAF as an institution of the establishment. Arguably, the aim of public awareness was to overcome the perception of the RAF as an outsider, rather than to educate or 'convert'. Porter categorised different ways in which (imperial) propaganda aroused public opinion including enthusiasm, hostility, indifference, and pride. However, his fifth category was 'passive acceptance of it [Empire], as a "fact of life"; a sixth was acceptance of it as a kind of *imagined* identity, or myth'.<sup>91</sup> The architects of the strategic plan for RAF influence would have settled for – in fact were partly aiming for – the fifth, since that passive acceptance would also confer permanence in the public consciousness, while the sixth would perhaps encapsulate the attempt (not least with the re-creations of colonial air policing at Hendon) to create an imaginative resonance around the alternative military environment of the 'air'.

## CONCLUSION

The partnership between Trenchard and Hoare, which began with the latter's appointment as Secretary of State for Air in 1922, had by the late 1920s developed into a multi-layered relationship with the pair pursuing their shared goal of embedding the fledgling Royal Air Force, while embracing the modernity it embodied and its nascent future potential, within traditional concepts of establishment and society. Once Hoare returned to the Air Ministry in late 1924, the RAF was starting to draw clear of the worst

of the inter-service battles that dominated the first half of the decade, and the already established and highly effective Hoare-Trenchard partnership was ready to address more ambitious themes and objectives. Their strategic plan for influence combined reaching into establishment stalwarts such as the royal family, Oxbridge and high society, with a broader appeal to the public, and the inculcation of air-mindedness and awareness of the RAF by placing the RAF 'brand' amongst communities with the AAF and the Hendon air displays. This was a project of great ambition, yet it was largely achieved during Hoare and Trenchard's time at the Air Ministry.

The scheme was never formalised and took shape primarily because Hoare returned to the Air Ministry in 1924, was afforded five years' working alongside Trenchard, and had the ambition, contacts, background and political capital to see through the plan to its conclusion. Hoare has been viewed through the historical prism of his later ministerial career, not least his time as Foreign Secretary, culminating in his resignation over the Abyssinian crisis, and even attempts to reappraise him have concentrated on the 1930s rather than earlier.<sup>92</sup> Historians' references to him from his period as Air Minister are limited and sometimes present him during the 1920s only in order to provide stark relief to the more controversial ministerial career that followed.<sup>93</sup> Yet he embraced his first ministry with energy and enthusiasm and when he was promoting civil aviation and broader arguments about Empire, rather than the military arm of the Air Ministry, his efforts were complementary and mindful of his CAS, the men under command, and the new military arm they fought to establish. In terms of the strategic plan for influence, Hoare prioritised the areas where he had unique influence, starting with the royal family and elite circles. Trenchard had a more populist eye, and was not in any case well-connected via birth in the way that Hoare was, and he excelled with his vision for the RAF's place in the country, his close supervision of the Hendon air display planning, and through his proactive command and shaping of his service.

The Hendon air displays demonstrate, perhaps best, the melding of these different strands: harnessing the media and mass public interest, while courting the royals and society through their entreaties and provision of 'enclosures' and 'boxes' leading to favourable comparisons with Ascot.<sup>94</sup> They also showed the use of various influence and public relations strands to promote, and indeed illustrate, the RAF's current and future roles. Omissi's view that 'The Hendon display was propaganda, in that its object was to persuade rather than inform, but successful propaganda feeds off the preoccupations, anxieties and prejudices of its audience', encapsulates the way in which promotion of 'air-mindedness' contained subtexts about the utility of air power, in defending the home population and projecting power through air control, and of placing the RAF firmly at the heart of the notion of country and Empire post-World War One.<sup>95</sup> Although the enormous interest in the displays does not prove a seismic shift in public mindset, in the case of the promotion of the RAF, 'passive acceptance' rather than conversion to active advocacy was sufficient reward.

In contrast, the Royal Navy, burdened with history, was predisposed to revert after the First World War to its traditional outlook and retrospective place in notions of Empire, including in its support of the *Restoring Victory* campaign. The RAF, in contrast, could only look forward and deal with the present and the future. In the subtler arts of influence and public relations, where some messages and aims were overt and articulated, whereas others hid in plain sight, the Air Ministry used every tool at its disposal. This began and ended with the knowledge and experience, combined with the networks, of Hoare and Trenchard. In 1922, Hoare, it must be remembered, arrived in his first ministerial post at Adastral House and would have been ambitious to prove his mettle as a minister. Trenchard had weathered the machinations over his first appointment and then resignation as CAS and was ready to embrace a new Secretary of State with an open mind, a political brain, and an extensive network within Whitehall and Westminster. Commentaries on the shifting balance of power between the three services have looked less at cultural configuration and political influence outside of narrow parliamentary politics, and focussed more on economics and classic narratives on inter-service rivalry. This misses the important opportunity which the RAF was grasping in positioning itself as modern, vital and necessary. Even the Royal Navy's successful promotion of *HMS Hood*, which included Empire tours in a maritime ambassadorial role, focussed more on a physical entity, than on the wider image of the Navy and on the role of sea power in the post-World War One era.<sup>96</sup> The challenge of the new technology of air power, and its doctrinal use, has also been the subject of significantly more debate than the challenge of the third service working assiduously and imaginatively on its role within the elite and broader reaches of society. Yet this cultural dimension was precisely what Trenchard and Hoare tackled with their strategic plan.

A review of Hoare's (aptly titled) *Empire of the Air* argued that 'it is easier to secure major reforms if one works with the social grain of the country rather than against it'.<sup>97</sup> While Trenchard's memorandum had laid the foundations on which the RAF's argument for survival had been built, their combined efforts from 1924 utilised Hoare's complementary understanding of the 'social grain' and his access to those relevant networks. The *novel* had to embed itself in the *normal* and, in working with the 'social grain', Trenchard and Hoare found their route, alongside the economic and doctrinal arguments about the utility of air power, into establishing the RAF as an institution which never again faced the serious challenges to its independence that they had experienced in the immediate post-World War One years. In many ways, the RAF benefited from being so modern and novel that it could simultaneously exist above or alongside broader society, without the need to mirror it, but firmly guided by strong leadership and an eye on the importance of tradition in forming a sustainable identity.

Hoare catalogued the days leading up to the resignation of the Baldwin government in 1929 and recalled that the King said to him 'there could now be no question of breaking

up the Air Ministry or the Air Force', thereby meeting Hoare's primary strategic objective. Hoare continues: 'I spent the morning at Gwydyr House [location of Hoare's office in Whitehall], saying goodbye to my many friends at the Air Ministry. When I walked out onto Whitehall I felt that I had lost my principal anchor in life. For more than six years I had concentrated all my efforts upon air questions.'<sup>98</sup> This was the end of the most formidable pairing of Minister and Chief that the RAF and the country have, perhaps, ever seen.

*The author thanks Her Majesty Queen Elizabeth II for gracious permission to use material from the Royal Archives.*

## NOTES

<sup>1</sup> Parliamentary Archives, Personal Papers of Bonar Law, 100/2/12, letter from Trenchard to Bonar Law, 9 February 1921.

<sup>2</sup> Parliamentary Archives, Personal Papers of Bonar Law, 101/5/49, letter from Bonar Law to Trenchard, 17 February 1921.

<sup>3</sup> Parliamentary Archives, Personal Papers of Bonar Law, 100/2/12, letter from Trenchard to Bonar Law, 9 February 1921.

<sup>4</sup> Samuel John Gurney Hoare Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929* (London: Collins, 1957), 36; Sykes presents several versions of his views on an independent air force, and certainly argued for the predominance of the civil over the military arm during his time as Controller-General of Civil Aviation, Frederick Hugh Sykes, *From Many Angles: An Autobiography* (G.G. Harrap & Co.: London, 1942).

<sup>5</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 182.

<sup>6</sup> Gary Sheffield and Peter Gray, *Changing War: The British Army, the Hundred Days Campaign and the Birth of the Royal Air Force, 1918* (London: Bloomsbury Academic, 2013), 160.

<sup>7</sup> Andrew Boyle, *Trenchard: Man of Vision* (Collins, 1962), 247.

<sup>8</sup> William J Reader, *Architect of Air Power: The Life of the First Viscount Weir of Eastwood 1877-1959* (London, 1968), 73.

<sup>9</sup> Sir John Simon and Lord Hugh Cecil.

<sup>10</sup> RAF Museum, Personal Papers of Lord Trenchard, MFC 76/1/164, letters between Churchill and Trenchard, April 1919.

<sup>11</sup> Higham, *Armed Forces in Peacetime Britain, 1918-1940*, a Case Study, 149.

<sup>12</sup> Cmd 467, *An Outline of the Scheme for the Permanent Organization of the Royal Air Force*, 11 December 1919, copy available TNA AIR 1/17/15/1/84.

<sup>13</sup> It has been argued that these concepts of strategic bombing and air control are on a continuum, see discussion in Peter W. Gray, *Air Warfare: History, Theory and Practice* (London: Bloomsbury Academic, 2016), 47; Higham, *Armed Forces in Peacetime Britain, 1918-1940*, a Case Study, 169-70.

<sup>14</sup> See, for example, recollections of Lord Brabazon: 'Year after year I have seen the Air Estimates discussed with no more than a dozen members present in the House of

Commons, and with no interest displayed by the House, by the country or the Press. [...] For all the effect our debates had we might have saved parliamentary time by having a private dinner!', RAF Museum, Personal Papers of Lord Brabazon of Tara, AC 71/3 Box 71, lecture given by Brabazon at Wilbur Wright Memorial Dinner, 28 May 1942.

<sup>15</sup> Grey, *A History of the Air Ministry*, 120.

<sup>16</sup> British Academy and Oxford University Press, *Oxford Dictionary of National Biography*, 2004, <http://www.oxforddnb.com/>.

<sup>17</sup> RAF Museum, Personal Papers of Lord Brabazon of Tara, AC 71/3 Box 19, letter from Brabazon to Hoare, 1 November 1922.

<sup>18</sup> Higham, *Armed Forces in Peacetime Britain, 1918-1940*, a Case Study, 283.

<sup>19</sup> Stuart Ball, *The Conservative Party and British Politics, 1902-1951* (London; New York: Longman, 1995), 15; Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 26-27.

<sup>20</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 17.

<sup>21</sup> *Ibid.*, 36.

<sup>22</sup> Cambridge University Library, Personal Papers of Viscount Templewood, Part V: 1(1), letter from Hoare to his mother, 2 November 1922.

<sup>23</sup> By this time, Sykes had left the Air Ministry; he was subsequently elected as MP for Sheffield Hallam in the November 1922 general election.

<sup>24</sup> Cambridge University Library, Personal Papers of Viscount Templewood, Part V: 1(6), letter from Churchill to Hoare over a month after Trenchard's and Hoare's first meeting, 9 December 1922.

<sup>25</sup> Reader, *Architect of Air Power*, 67.

<sup>26</sup> Cambridge University Library, Personal Papers of Viscount Templewood, Part V: 1(44), letter from Lord Thomson to Hoare, 23 January 1924.

<sup>27</sup> See Cambridge University Library, Personal Papers of Viscount Templewood, Part V: 2(73), letter from Lord Thomson to Hoare, 2 March 1927: 'I do so agree with you about keeping Air Policy out of party politics'; Bodleian Library, Conservative Party Archives, PUB 220/63, Gleamings and Memoranda, on Thomson's support later in the decade for Hoare in the Air Estimates debates.

<sup>28</sup> RAF Museum, Personal Papers of Lord Brabazon of Tara, AC 71/3 Box 16, letter from Brabazon to the editor of *The Spectator*, 7 January 1956.

<sup>29</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 42.

<sup>30</sup> *Ibid.*, 182.

<sup>31</sup> Don Leggett, 'Restoring Victory: Naval Heritage, Identity, and Memory in Interwar Britain', *Twentieth Century British History* 28, No. 1 (28 December 2016): 57.

<sup>32</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 189.

<sup>33</sup> C G Grey, though considered a colourful and somewhat unreliable narrator, reveals pertinent facts about the different elements in Grey, *A History of the Air Ministry*.

<sup>34</sup> Richard Overy, 'Identity, Politics and Technology in the RAF's History', *The RUSI Journal* 153, No. 6 (1 December 2008): 74.

<sup>35</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 182.

<sup>36</sup> Cambridge University Library, Personal Papers of Viscount Templewood, RF.3 (51), paper on 'Relations with King and Court', undated but written after Hoare left office in 1929 and before the King's death in 1936. Wigram was Clive Wigram, Assistant Private Secretary, later Private Secretary, to the King.

<sup>37</sup> Wigram wrote in September 1918: 'His Majesty feels that it would be a mistake, to start off with such an appointment in the Air Force, as these appointments are only held by very Senior Officers as a reward for long and distinguished service. [...] You will see that the present principal Naval Aides-de-Camp and Aides-de-Camp General all have the G.C.B., except Birdwood, and are a good deal older and have more service than Sykes.' Royal Collection, RA/PS/PSO/GV/PS/RAF/23952/11, 16 September 1918.

Recorded in *The Gazette (London Gazette)*, issue 32239, 25 February 1921, <https://www.thegazette.co.uk/London/issue/32239/page/1581> accessed 27 May 2017.

<sup>38</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 183.

<sup>39</sup> King George V recalled this first attendance in his private diary, Royal Collection, RA/GV/PRIV/GVD/1923-1925 (2 volumes), 30 June 1923.

<sup>40</sup> *Ibid.*, 185-6.

<sup>41</sup> For example, letters from Trenchard to Captain Brooke, Comptroller and Equerry to the Duke of York, were addressed formally ('Dear Captain Brooke') in 1926 but more warmly ('My Dear Brooke') by 1928, Royal Collection RA/ADYH/MAIN/19 and RA/ADYH/MAIN 36 dated 1 May 1926 and 5 June 1928.

<sup>42</sup> Quoted by Omissi, 'The Hendon Air Pageant, 1920-37', in John M MacKenzie, ed., *Popular Imperialism and the Military: 1850-1950* (Manchester: Manchester University Press, 1992), 200.

<sup>43</sup> Gordon Pirie, *Air Empire: British Imperial Civil Aviation, 1919-39*, Studies in Imperialism (Manchester: Manchester University Press, 2009), 73.

<sup>44</sup> Jackson describes RAF officers as being 'a little overawed at bumping into' Churchill and the Prince of Wales at Port Lympe, Stanley Jackson, *The Sassoons: Portrait of a Dynasty* (London: Heinemann, 1989), 198.

<sup>45</sup> See, for example, correspondence from Hoare to the Duke of York about a garden party in April 1923, which the Duke and Duchess of York eventually attended on 29 June 1923, Royal Collection, RA/ADYH/MAIN/8, 2 April 1923 and 10 May 1923.

<sup>46</sup> Boyle, *Trenchard*, 517.

<sup>47</sup> John Arthur Cross, *Sir Samuel Hoare: A Political Biography* (London: Cape, 1977), 10.

<sup>48</sup> Stephen Peter Rosen, 'Military Effectiveness: Why Society Matters', *International Security* 19, No. 4 (1995): 17.

<sup>49</sup> Martin Francis, *The Flyer: British Culture and the Royal Air Force, 1939-1945* (Oxford: Oxford University Press, 2011), 13. Of course the RAF was a class-based organisation but Francis captures a more broad-brush impression of the aviator.

<sup>50</sup> Stephen Parkinson, 'Sir Geoffrey Butler and The Tory Tradition', *Conservative History Journal* 2, No. 2 (Autumn 2014): 18-26.

<sup>51</sup> TNA AIR 2/312, 'Flying Training in the Cambridge University Air Squadron', 1 September 1928.

<sup>52</sup> *Flight*, 7 May 1925.

<sup>53</sup> *Flight*, 7 May 1925.

<sup>54</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 196.

<sup>55</sup> Clive Richards, 'The University Air Squadrons Early Years 1920-39', *COMEC Occasional Papers* 7 (2016): 17.

<sup>56</sup> Grey, *A History of the Air Ministry*, 197.

<sup>57</sup> Richards, 'The University Air Squadrons Early Years 1920-39', 21.

<sup>58</sup> *Flight*, 7 May 1925.

<sup>59</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 190.

<sup>60</sup> TNA, AIR 8/71, Confidential Air Staff Memorandum No. 30 on the AAF, 17 November 1924.

<sup>61</sup> HC Deb (1928) Fifth Series, Vol. 220, Col. 1914.

<sup>62</sup> Scott Palmer quoted in, and Holman in, Brett Holman, 'Dreaming War', *History Australia* 10, No. 2 (1 January 2013): 180-81.

<sup>63</sup> Omissi, 'The Hendon Air Pageant, 1920-37', 200.

<sup>64</sup> *Ibid.*, 206.

<sup>65</sup> TNA Air 2/4427, Draft Programme of Flying, 1921.

<sup>66</sup> Omissi, 'The Hendon Air Pageant, 1920-37', 201.

<sup>67</sup> Ian Smith Watson, *The Royal Air Force 'at Home': the History of RAF Air Displays from 1920* (Barnsley: Pen & Sword Aviation, 2010), 11.

<sup>68</sup> Harold Balfour Lord of Inchrye, *Wings over Westminster* (London: Hutchinson, 1973), 16.

<sup>69</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929*, 185.

<sup>70</sup> Omissi, *Air Power and Colonial Control*, 171.

<sup>71</sup> The Balance Sheet for the 1921 Royal Air Force Aerial Pageant included spending on poster design, billposting, fly posting, general posters and pamphlets, sandwichmen, press advertising and a press cuttings service, TNA, AIR 2/4427, Balance Sheet, 1921.

<sup>72</sup> Cambridge University Library, Personal Papers of Viscount Templewood, V:8 (21), speech by Hoare, 11 May 1925; Trenchard was closely involved in the detailed content, for example suggesting the inclusion in the 1922 programme of events 'An exhibition of loading men and guns into a machine and unloading them, on similar lines to the experiments carried out in Egypt by Sir Geoffrey Salmond', TNA Air 2/4428, Minute Sheet, 22 July 1921.

<sup>73</sup> Martin Thomas, *Empires of Intelligence: Security Services and Colonial Disorder after 1914* (Berkeley: University of California Press, 2008), 141.

<sup>74</sup> Omissi, 'The Hendon Air Pageant, 1920-37', 203.

<sup>75</sup> Priya Satia, 'The Defense of Inhumanity: Air Control and the British Idea of Arabia', *The American Historical Review* 111, No. 1 (1 February 2006): 18.

<sup>76</sup> See Bernard Porter, *The Absent-Minded Imperialists: Empire, Society, and Culture in Britain* (Oxford: Oxford University Press, 2004); Bernard Porter, 'Further Thoughts on Imperial Absent-Mindedness', *Journal of Imperial & Commonwealth History* 36, No. 1 (March 2008): 101-17; John M. MacKenzie, '"Comfort" and Conviction: A Response to Bernard Porter', *Journal of Imperial & Commonwealth History* 36, No. 4

(December 2008): 659–68; Pirie, *Air Empire*, 240.

<sup>77</sup> Omissi, 'The Hendon Air Pageant, 1920–37', 203.

<sup>78</sup> Parliamentary Archives, Personal Papers of J. C. C. Davidson, DAV/172/U17, letter from Bellairs to Hoare, 18 April 1926.

<sup>79</sup> Christopher M Bell, *The Royal Navy, Seapower and Strategy between the Wars* (Basingstoke: Macmillan in association with King's College, London, 2000), 166.

<sup>80</sup> *Ibid.*, 177.

<sup>81</sup> *Ibid.*, 179.

<sup>82</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922–1929*, 96.

Pathé contains imagery of various trips by Sir Samuel and Lady Maud some entitled 'Our Flying Minister'

[http://www.britishpathe.com/search/query/Hoare/search-field/record\\_keywords](http://www.britishpathe.com/search/query/Hoare/search-field/record_keywords)  
accessed 1 June 2017.

<sup>83</sup> See, for example, speeches by Hoare, Cambridge University Library, Personal Papers of Viscount Templewood, Part V: 5, speeches 1923–1929.

<sup>84</sup> Pirie, *Air Empire*, 106.

<sup>85</sup> *Ibid.*, 105.

<sup>86</sup> Cross, *Sir Samuel Hoare*, 101.

<sup>87</sup> Cambridge University Library, Personal Papers of Viscount Templewood, RF.3 (51), paper on 'Relations with King and Court'.

<sup>88</sup> Templewood, *Empire of the Air: The Advent of the Air Age 1922–1929*, 206.

<sup>89</sup> Williams, 'The Upper Class and Aeroplane Sport between the Wars', 456–57.

<sup>90</sup> Porter, *The Absent-Minded Imperialists*, 265.

<sup>91</sup> *Ibid.*, 261.

<sup>92</sup> Matthew Coutts, 'The Political Career of Sir Samuel Hoare during the National Government 1931–1940' (Ph.D., University of Leicester, 2010).

<sup>93</sup> Pirie, *Air Empire*, 73.

<sup>94</sup> *Flight*, 2 July 1926.

<sup>95</sup> Omissi, 'The Hendon Air Pageant, 1920–37', 216.

<sup>96</sup> Ralph Harrington, '"The Mighty Hood": Navy, Empire, War at Sea and the British National Imagination, 1920–60', *Journal of Contemporary History* 38, No. 2 (2003): 181.

<sup>97</sup> *New Statesman*, 26 January 1957.

<sup>98</sup> Cambridge University Library, Personal Papers of Viscount Templewood, V:4 (51), paper titled 'The Resignation of the Second Baldwin Government', 13 June 1929.



# AIR POWER IN BRITISH SOMALILAND, 1920: THE ARRIVAL OF GORDON'S BIRD-MEN, INDEPENDENT OPERATIONS AND UNEARTHLY RETRIBUTIONS

By Brigadier Andrew Roe

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**Abstract:** Mohammed Abdullah Hassan, who fought a tenacious twenty-year irregular campaign against multiple foreign powers, gained a special place in British military aviation history due to the success of a self-contained RAF expedition employed against him in British Somaliland in the winter of 1919-1920. This was one of the first counterinsurgency operations conducted by the RAF and was proposed by Air Marshal Sir Hugh Trenchard, Chief of the Air Staff, as a cheaper, swifter and lower risk alternative than ground forces. The historical imprint is that the campaign lasted only three weeks and cost less than £100,000. However, this impression, that air power alone was responsible for the success of the campaign, ignores some of the more nuanced contributory factors which will be explored in this paper.

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*The magic of the Mad Mullah, that had for so long held his followers together, was useless against the magic of the bird-men above.*

Henry A. Rayne, *Sun, Sand and Somals*

*It is true, as Mr. Jardine [Secretary to the Administration, Somaliland, 1916-21] points out, that this result [the final overthrow of Dervish resistance] was not due entirely to the Air Force. But it is certain that, but for the hopes we based on the co-operation of the airmen, the campaign would never have been undertaken, and that they contributed greatly to its success.*

Viscount Milner, quoted in *The Mad Mullah of Somaliland*

## INTRODUCTION

On 1 September 2014 Sheikh Ahmed Abdi Godane, a feared but reclusive and bookish jihadist, with a love of verse, was killed by a targeted US airstrike in the Lower Shabelle region of southern Somalia. The US had placed a seven million dollar bounty on his head in 2012. At the time of his demise, Godane, also known as Mukhtar Abu Zubair, was the spiritual *Amir* (leader) and tactical head of the ruthless al-Qaeda-linked al-Shabab group, and one of Africa's most cold-blooded radical leaders. A renowned storyteller and lyricist, he personally oversaw intelligence gathering and controlled most of the group's decision making. He claimed responsibility for the July 2010 bombings in Kampala, Uganda and also purportedly oversaw the September 2013 Westgate Mall, Kenya massacre in which 67 people were killed.<sup>1</sup> Of note, he managed to unite young tribesmen in southern Somalia under the banner of an extreme Islamic ideology – an unadulterated Salafi *jihadi* (holy war) doctrine – despite having no personal tribe, sub-tribe or clan affiliations in the area.<sup>2</sup>

Fluent in Arabic and Somali, Godane was a hypnotic speaker, with a clear comprehension of the past. He understood the reach and power of modern communications, and had a rare ability to focus on common enemies, rather than internal divisions. But, of significance, 'When he spoke, he used poetry. One of his favourite poets was Mohammed Abdullah Hassan, dubbed the 'Mad Mullah' in the West but a big hero for Somalis because he fought against British colonial rule'.<sup>3</sup> Godane considered the Mullah a spiritual idol. Others took inspiration from him too. During the US occupation of Mogadishu in 1993, resistance leaflets issued by anti-American Somali fighters quoted sections from a poem written by the Mullah about Colonel Richard Corefield, a British political officer who was killed by his followers in battle. Although brutal and tyrannical, the Mullah was admired for his stubborn insurrection, courage and expressive eloquence.<sup>4</sup> He provided a focus for rebellion and an asylum for wrongdoers. Prior to the start of his *jihad* against the British in 1899 he wrote: 'Unbelieving men of religion have assaulted our country from their remote homelands. They wish to corrupt our religion ... Our aim is to cleanse the land of the unbelievers.'<sup>5</sup>

The Mullah, a tall, thin, dark-skinned man with a small beard and dark eyes, gained a special place in British military aviation history due to the success of a self-contained Royal Air Force (RAF) expedition employed against him in the winter of 1919-1920. This was one of the first counterinsurgency operations conducted by the RAF. Prior to 1919 the Mullah had fought a tenacious 20-year irregular campaign against multiple foreign powers (British, Italian, French and Abyssinian (Ethiopian)). These actions occurred primarily in Italian and British Somaliland. The latter, a Protectorate ultimately administered by the Colonial Office on the 'Horn of Africa', was an arid, stony plateau of some 68,000 square miles, which occupied the north-eastern corner of the horn. It had an average length of approximately 400 miles and a depth inland varying from 70 miles in the west to 100 miles in the centre. The coastal region is bereft of all vegetation, less a few scattered thorn bushes and ant hills. The heat is merciless and the glare of the sun blinding. Inland, conditions are more favourable. Varying elevations (averaging about 3,000 feet above sea-level) permit grass, box-trees and acacias on the highland slopes.<sup>6</sup> Thorn-scrub and aloes provide cover and camouflage against attack. Richer foliage, which borders many of the *wadis* (ravine or channel that is dry except in the rainy season) offers solid shade and greater concealment.

Ground communications in British Somaliland were confined to camel tracks and ancient desert trails. The water supply is scarce, with wells often 20 to 30 miles apart. The only favourable time for military operations was between November and April, when the north-east monsoon influences temperature and rainfall. In the early 1900s the region was thought to contain approximately 300,000 migrating nomadic herdsmen and their families.<sup>7</sup> These tribesmen were seen as conservative, proud and handsome people.<sup>8</sup> They also possessed great personal courage. This amounted to foolhardiness in the heat of battle, resourcefulness in reconnaissance, abnormal endurance on the march, cheerfulness under adversity and reasonable horsemanship and marksmanship.<sup>9</sup> The martial spirit of the Somali was legendary:

*In 1912 a Somali crawled to Berbera with a bullet wound in his leg and a spear wound right through his body. When the doctor probed the first, the patient gasped, 'Do not worry about that, but please have a look at the spear wound; it hurts me when I laugh'.<sup>10</sup>*

British Somaliland was useful because it supplied the nearby British Indian outpost of Aden with beef and other provisions. Aden was essential for Britain because it was on the 'short route' to India.<sup>11</sup> Steady trade with the coastal tribes was important, but nothing more. Britain's real interest in Somaliland was marginal. No attempts were made to administer the lawless hinterland. *Pax Britannica* was only imposed around the occupied coastline. Rarely did the government reach into the interior. Motivated by a complex mix of factors, the Mullah raided military outposts and Abyssinian tribesmen who crossed into his professed lands. He also looted settlements and caravans, carrying off livestock,

and collected taxes by cruel means. His aim was to expel Christian colonisers from Muslim lands, unify the various tribes into a state and restore to the Somalis a more extreme interpretation of the Muslim faith.<sup>12</sup>

The Mullah's activities kept the region in turmoil. Petty and often futile raiding against tribes friendly to the British was *ubiquitous*. Unsurprisingly, his actions brought him into regular conflict with his fellow countrymen. Most Somalis rejected the Mullah's ideas because of their negative effects on them.<sup>13</sup> However, after repeatedly preaching his message in the high scrubland plateau of the Haud, and through a blend of '... terror, militant Islamism, anti-colonialism, and superstition ...,' the Mullah accumulated a growing following.<sup>14</sup> By 1899 he had established a force of over 5,000 tribesmen, of which about 1,500 were mounted.<sup>15</sup> Most were lightly-armed with spears, swords and rudimentary shields for defence. Only 200 were equipped with a mixture of antiquated and modern single-shot and magazine firearms. The majority of these tribesmen viewed him as the leader of the faithful against the infidel. But some joined his ranks simply to avoid being attacked themselves. I. M. Lewis notes the moment at which trouble began:

*On 1 September, 1899, the British Counsel-General for the coast received a letter from the Sayyid [an Arabic honorific title denoting descendants of the Islamic prophet Muhammad] accusing the British of oppressing Islam and denouncing those who obeyed or co-operated with the Administration as liars and slanderers. The letter also contained the challenge: 'Now choose for yourselves. If you want war, we accept it; but if you want peace, pay the fine.' The Counsel-General replied by proclaiming Sayyid Muhammad [sic] a rebel, and urged his government in London to prepare an expedition ... Thus the opening moves in the long-drawn out conflict were completed ...<sup>16</sup>*

But the timing of Hassan's growing rhetoric was troublesome, with the Boxer Rebellion in China and the Boer War in South Africa being higher priorities for London than the Horn of Africa. With a lack of an immediate reaction from the British, many Somalis concluded that the Mullah was the chosen man and his rebellion worth supporting.

The British, however, could not leave the Mullah to his own devices for too long. Organised expeditions over the years harassed, dispersed and defeated the Mullah's forces, known as 'Dervishes',<sup>17</sup> but he consistently escaped to form the core of another group of raiders.<sup>18</sup> Four classic military campaigns occurred from 1901 to 1905.<sup>19</sup> These accounted for 400 British and over 1,000 colonial troop fatalities, at a cost of just over £3 million in early 1900s' prices.<sup>20</sup> The first operation occurred in May 1901, but only succeeded in temporarily pushing the Mullah out of British territory. There was a second expedition against him in 1902, with a third in 1903, in which the Abyssinian Army cooperated.<sup>21</sup> Neither engagement led to a decisive result. The fourth campaign

followed in 1904. This time, despite defeating his force with 7,000 fighting troops and forcing him to retreat, the Mullah rejected the opportunity of permanent exile, instead becoming a fugitive. Each campaign ended in disappointment. Despite the superior firepower of the British (including the use of the Maxim and Stokes guns), the Mullah consistently evaded capture.<sup>22</sup> Moreover, there was never a tangible objective to attack and the Mullah frequently took refuge outside of British territory.

But repeated military activity did result in a so-called 'peace accord', which remained largely in place until 1908.<sup>23</sup> However, renewed trouble resulted in further low-level military activity, which occurred in 1912, 1913 and 1914. But there were other factors at play during the period. In 1909 the Liberal government in London prohibited a new campaign on the grounds of cost. As a result, weapons were issued to friendly tribesmen to enable them to defend themselves. This was seen as a cheaper alternative to providing physical security. The consequences were disastrous. Andrew Gordon notes: '... the temptation to settle old scores with the windfall weaponry proved irresistible, and mayhem ensued.'<sup>24</sup> Thousands of tribesmen were killed.<sup>25</sup>

Throughout the early 1900s not only did British attempts fail to capture the Mullah, but he achieved a number of notable successes. On 17 April 1903 a force, consisting of forty-eight men, 2nd Sikhs and a company of 2nd Battalion King's African Rifles, under Local Lieutenant Colonel Arthur Plunkett, Manchester Regiment, was routed at Gumburru.<sup>26</sup> The fight lasted two hours. There were no survivors. The Mullah also enjoyed a victory at Dul Madoba, a ridge twenty-five miles south east of Burao, near the centre of the Protectorate, on the 4th of August 1913, killing thirty-six British troops (including the commander, Colonel Richard Corefield) and injuring a further twenty-one in an ambush in deep bush.<sup>27</sup> As a result of this action, the British withdrew their protection of the local tribes to the area around the port of Berbera. Indeed, the Government considered relinquishing responsibility for the Protectorate altogether, but decided otherwise.

During the Great War, with operations put on hold due to other priorities, the Mullah controlled over half of the British colony. The Somaliland Camel Corps was responsible for keeping him in loose check during this period.<sup>28</sup> However, his successful leadership and organisation confounded British attempts to control his activities. He proved repeatedly to be an able administrator, a quick-witted and elusive guerrilla leader, and a persistent thorn in the side of the colonial administration. He evaded capture by hiding in caves, enduring personal hardship and crossing vast swathes of desert with minimal supplies. At various stages, few knew about his exact whereabouts and he avoided watering-holes and other dangerous places. *The Times* noted the Mullah's holistic approach:

*He gave an organised band of followers what they wanted – food, women, and loot; and with that mobile force he could extract a terrible vengeance on tribes that had sided with the English – as many of them preferred to do. He claimed a*

*religious mission that sanctified the life of raiding that was otherwise acceptable to the Somalis as a natural and amusing mode of existence.*<sup>29</sup>

By 1919 the continuing state of lawlessness in the hinterland of the Protectorate posed a constant source of anxiety to British rule in Somaliland. And, more widely, it occurred in a bleak post-war economic climate. An unemployment rate of twenty-three per cent was crippling the British economy and the mantra of the day was economise by any means possible.<sup>30</sup> The cost of sending in another expensive expedition to disperse, capture or kill the Mullah was deeply unpopular. Deploying large-scale expeditions to maintain order was becoming unduly burdensome. Not only was there no guarantee of success, but estimates from the Chief of the Imperial General Staff of the day, Field Marshal Sir Henry Wilson, suggested that a force of at least two divisions, costing several million pounds, would be required. This included the construction of roads, railways and fixed bases to maintain order. Of equal concern, the operation was expected to take months to complete and would occur at significant risk. Tenuous supply lines, little hope of reinforcements, shortages of fresh water and the fear of being caught in dense scrubland, where firepower would count for little, were all very real hazards.<sup>31</sup> It is perhaps unsurprising that supply and transport officers were often seen as the key to success.<sup>32</sup>

Air Marshal Sir Hugh Trenchard, Chief of the Air Staff, who had long visualised imperial policing as an important role for the RAF, offered a cheaper, swifter and safer (lower risk) alternative than ground forces. To deal with the Mullah, he proposed that the RAF should assume responsibility for the entire operation. 'The army, he added, would not be needed; local colonial forces in British Somaliland would be quite sufficient'.<sup>33</sup> This was seen as a direct threat to the British Army, with its centuries of experience and primacy in such activities; resistance was fierce. Aircraft were seen by many as useful, but only as an attachment to ground forces in a subordinate role. Several in the War Office remained ruthlessly opposed to the initiative. Some even went as far as to predict a likely outcome, with soldiers being required to clean-up the mess. Trenchard, with the Air Staff behind him, stood his ground and readied a self-contained air component.

Detailed plans suggested to Winston Churchill,<sup>34</sup> who had a personal interest in using new technology to help with policing the Empire, that the option was viable. With Churchill's support, and the Prime Minister's approval, the RAF was tasked with planning and leading the campaign to eradicate the Mullah once and for all. However, since the end of the Great War, the RAF had suffered a near terminal decline in aircraft and personnel. This was a rare opportunity to help preserve the RAF as an independent service, especially when the Army and Royal Navy favoured carving up the air service. It is little surprise that Andrew Boyle, one of Trenchard's biographers, suggests: '[Somaliland] ... beckoned like a beacon when there was least hope'.<sup>35</sup>

The RAF's future, to a degree, depended on their success against the Mullah. However, the real issue was whether aerial bombing alone would be adequate to enforce area authority and security, or whether bombed locations would still require ground forces to act in concert. Although the finer detail of the air operation is little understood, the outcome of the campaign is well-known. At minimal cost, the RAF bombed the Mullah's Dervishes into submission and collapse between 21 January and 18 February 1920. By so doing, they solved a problem which had tormented the Protectorate for twenty years. Although the Mullah escaped over the border his power base was destroyed.<sup>36</sup> Dervisham, as a cause, was at an end.

The employment of air power in British Somaliland is important for five reasons. First, it was a well-timed demonstration of the growing capability and flexibility of the new air force, created from a consolidation of the Army's Royal Flying Corps and the Royal Navy's Air Service wing. Second, it highlighted a new role for the RAF in 'policing' the Empire.<sup>37</sup> It provided proof, to some, that air power could substitute for ground forces, and could do so at a significantly reduced cost and with very few British casualties. It was, therefore, a significant turning point in the history of Imperial policing, setting the pattern of air policing – and colonial control – for the next twenty years. Third, it helped guarantee, at a time of significant threat, the survival of the RAF as an independent service. Fourth, it served as a useful early model for the kind of military missions that western governments conduct today in what is sometimes called the 'forever war' between Islam and Christianity.<sup>38</sup> There are strong parallels between present-day extremist struggles in the region and the campaign waged by the Mullah. And finally, as air power is often used to strike high-value targets, it highlights that past *jihads* can become inspirations for new leaders, wars and struggles. Every modern Somali knows about the Mullah and he serves as a stimulus to many.

Having set the scene, this article now looks in detail at the employment of air power in British Somaliland in early 1920. It describes the arrival of the RAF, the employment of air power and the immediate lessons learnt from the campaign. But, of note, this was a twenty-year effort that only included air power in the last few months. The Mullah was considerably weakened by 1920 and the local troops placed against him had achieved a notable state of proficiency. It was only his shift from raiding tactics to elaborate fixed stone defences – rendering his force more vulnerable to attack – that gave his pursuers the upper hand. The Mullah now offered immovable locations and tangible military objectives that could be targeted and struck. 'This was partly a prestige thing, but he was worn out and growing old, and his days of agile campaigning were over.'<sup>39</sup> And the British brought a new and previously unseen technology to the battlefield: air power, in the form of a flight of two-seat de Havilland DH9a (DH9a) light bombers. At long last, an operation, on a very modest scale, was deemed appropriate.<sup>40</sup>

## THE ARRIVAL OF GORDON'S BIRD-MEN

The decision to use air power against the Mullah resulted in the formation of an independent, self-contained RAF expedition. This was designated 'Z' Unit for secrecy and its address was simply 'Middle East'. The force, working direct to the Air Ministry, comprised of a flight of flimsy, open cockpit DH9a aircraft fitted with B.H.P./Galloway engines, as well as six spare machines, ten Ford light trucks, two Ford ambulances, six trailers, two motorcycles, two Crosley light trucks, thirty six officers and one hundred thirty eight other ranks.<sup>41</sup> Its role was to attack the Mullah, his followers and his stock, with an aim of dispersing them and destroying his stone forts. In the event that air power proved successful, the rounding-up of the Mullah's followers would be undertaken by the Somaliland Field Force. This consisted of tribal policemen, the Somaliland Camel Corps, the King's African Rifles and the 1st/101st Grenadiers (Indian Army).<sup>42</sup> At this point, independent operations would end and the aircraft of 'Z' Unit would cooperate with the colonial forces of the Protectorate (i.e. a ground operation assisted by the RAF).<sup>43</sup> The advance party, including the unit's commanding officer, Acting Group Captain Robert Gordon CMG DSO, his deputy, the principal medical officer and a number of airfield construction personnel, departed England for Egypt on 25 October 1919, via the commercial shipping routes.<sup>44</sup>

After a short stay in-country, the party departed for Aden. Derek O'Connor recalls part of the journey: 'In Aden they transferred to an Arab dhow that took them, after an uncomfortable crossing, to the port of Berbera in northern Somaliland'.<sup>45</sup> Before landing on 21 November 1919, the airmen changed into civilian clothes, disguising themselves as 'oil experts'. From the outset it was realised that secrecy would be one of the keys to the success of the operation. The plan was to mislead the locals that Gordon and his team were in fact geologists and part of a widely-publicised oil drilling operation. Douglas Jardine, a long serving (1916-21) secretary to the Somaliland administration, who later wrote an authoritative history of the campaign, recalls: 'Prior to his [Gordon's] arrival, the local administration had been at pains to disseminate a report that the long projected oil-boring operations were about to begin. Consequently when the advanced party arrived in *mufti* [civilian attire, or having removed their flying badges] ..., camouflaged as oil magnates, the native mind readily associated their doings with the necessary preliminaries to mining operations'.<sup>46</sup> The plan worked. Nearly a month was spent selecting suitable sites for airstrips without arousing undue suspicion.

Berbera, one of three largest towns on the coast, was quickly confirmed as the main base for operations and a Repair Park. A working party of 300 coolies and 200 native women were engaged in clearing the airstrip (400 yards by 200 yards) of loose stones, sand and bushes. Sand and stones were swept into heaps and transported by camel to the beach. On 24 November Gordon proceeded by steamer to Las Khorai with a view to selecting an advanced airstrip to raid the Mullah's headquarters at Jid Ali and Medishi. But after three days' investigating the local area it was deemed unsuitable.

Strong winds, which blew for six hours practically every day, raising a continuous dirty brown sandstorm some 200 to 300 feet high, and the difficulties of landing stores on the open beach proved to be major factors in his decision.<sup>47</sup> But Gordon's time spent scouting the area was not wasted. He established a suitable natural landing strip, together with a small stock of petrol and oil, which was later used successfully for a forced landing.

With Las Khorai suboptimal, Gordon turned his attention to Eil Dur Elan, 100 miles east-south-east of Berbera, as a possible alternative.<sup>48</sup> He reached the location on 6 December and discovered a suitable site about half a mile from a supply of running water. But other alternatives were required should the Mullah escape south to his mountain fortress at Tale, in the south-eastern corner of the Protectorate, after having been displaced from the north of the country. Gordon identified appropriate sites at Burao and Eil Dab. But these were deemed too far for camel transport to convey the usual 'portable' canvas Royal Engineers hangars for protection against the extreme climatic conditions. Therefore, to help shield aircraft at both locations, wind screens, 50 yards long by 12 feet high, were constructed over the coming weeks. These were capable of protecting 3 machines each. In addition, rush matting was used to protect the fuselage and tail unit from the direct sun.<sup>49</sup> With work progressing at all sites, the main body was called for by telegram.<sup>50</sup> This had departed Victoria Station in the early hours of 13 November, proceeding to Alexandria via Boulogne and Marseilles. Now assembled in Egypt, it left for Berbera on *HMS Ark Royal*, an aircraft-carrying vessel which had been lent by the Admiralty. This contained all the aircraft, vehicles, manpower, replacement parts and 800 tonnes of supplies. The ship departed Alexandria on 21 December and arrived at Berbera nine days later.<sup>51</sup>

Unloading commenced at once. Aircraft construction started on New Year's Day 1920 and eight days' later the first three machines were tested in the air, eight in all being ready by 19 January 1920. All pilots and observers were expected to be present when their 'compasses were swung', with the deviation card being fitted firmly to the dashboard of each aircraft. As the country was not well surveyed, great emphasis was placed on compass courses.<sup>52</sup> It was at roughly this time that Flying Officer T.A. Thornton was attached to the Staff of the Officer Commanding the Somaliland Field Force to act as a liaison officer. His role was to counsel on all matters concerning aircraft, the selection of landing sites and the communication between aircraft and troops.<sup>53</sup> By 17 January the aerodrome at Eil Dur Elan was complete with stores and personnel. On the same day, *HMS Clio*, carrying the Political Officer, Mr H.M. O'Byrne, departed Berbera to inform the local Italian authorities at Alula of the impending operation and to request assistance if the Mullah escaped across the border in that direction.

Eight aircraft departed Berbera for Eil Dur Elan on 19 January. One had no option but to turn back due to engine trouble, eventually arriving the following day. Therefore, by

20 January, everything was ready for the operation and five aircraft conducted a reconnaissance to the north-east to 'learn the country'.<sup>54</sup> The first raid was carried out on the following day (known as 'Zero Day') by six aircraft against the Mullah's hutments and stock in the Medishi area, 12 miles north-west of Jidali. The region was practically un-surveyed and the issue maps were inaccurate and unreliable. Pilots were simply given a large square on the map to indicate the area to bomb. Governor G.F. Archer, Commissioner and Commander-in-Chief, observed their departure:

*I watched the machines turning up at dawn and their departure in close formation at 7 a.m. to deliver the first aerial attack on the haroun [fort] at Medishi. It had been impossible to reconnoitre beyond Eil Dur Elan from the air beforehand owing to the paramount need for security, to ensure the ultimate attack came as a complete surprise.*<sup>55</sup>

However, because of cloud cover and the difficulties of an unmapped country, four of the airplanes failed to reach the location (although all aircraft were seen approaching by the Mullah).<sup>56</sup> Instead, they bombed the stone stronghold of Jid Ali Fort and animal stock in the surrounding country. Single line ahead formation was used over the target. Only one machine reached Medishi successfully, bombing the encampment. Douglas Jardine recalls:

*... when six machines were seen approaching, the Mullah was at a loss to know what they might be. Anxiously, he enquired of his advisers. A few guessed the truth, but hesitated to communicate their guess for fear of the death that was the recognised punishment for the bearer of evil tidings. Some, with the Oriental's native penchant for flattery, suggested that they were the chariots of Allah come to take the Mullah up to heaven. A certain Turk suggested that they were a Turkish invention from Stamboul come to tell the Mullah of the Sultan's victory in the Great War ...Then the first bomb fell.*<sup>57</sup>

The remaining machine was forced to land at the emergency landing strip at Las Khorai due to engine trouble.<sup>58</sup> It was subsequently confirmed that the initial bomb dropped on Medishi killed a prominent *Amir*, Hassan's uncle and chief councillor, ten riflemen and singed Hassan's clothes. The total casualties of the day, from eight 20 lb. copper bombs and two full panniers of Lewis machine-gun fire, amounted to some twenty killed and twenty wounded. The attack had taken the Mullah entirely by surprise. He was unaware of the expedition against him and the existence of British aircraft. Post the attack he took refuge in a cave 15 miles to the north-west. However, the operation was deemed a disappointment; the Mullah was still at large.

The bombing of Medishi, Jid Ali and the surrounding area continued on 22 and 23 January. Aerial attacks occurred twice daily. One report recalls:

*Yesterday 22nd afternoon 2 machines got properly into MEDISHI, 24 bombs and 600 or 700 rds of ammunition from about 800 ft. They were apparently concentrating previous to moving about 2,000 head of camel also were located moving East towards JID ALI about 5 miles East of MEDISHI, these were also shot up. Direct hit also on large fort. Not many Dervishes seen.<sup>59</sup>*

It was assessed that aerial action, including machine-gun fire, caused severe casualties (both Dervishes and stock) and resulted in many fires amongst the bush wood huts. These were scattered around the forts. But the Dervishes remained defiant and persistently returned fire. Aircraft dropped Arabic leaflets over the various settlements, offering pardon to all who surrendered and reminding tribesmen that the 'arm of the government is long'. These had minimal impact. However, by 24 January aerial reconnaissance suggested that Medishi and Jid Ali, as well as the country within a radius of 30 miles, was deserted of any large bodies of Dervishes or stock.<sup>60</sup> Aerial photographs helped confirm that the Mullah's forces were now scattered and in hiding. The cameras used for this task were the L.B. Type Vertical and P. Type Oblique. The latter was seen as the best because it was hand operated, manoeuvrable and an oblique picture of a fort gave a better impression of its 'possibilities of resistance of attack' although the results suffered from the heat and the impure nature of the water supply.<sup>61 62</sup> Gordon recalls: 'From this [information] it was deduced that the Mullah had commenced his 'trek' south. I was of the opinion that the moment had arrived to conclude the semi-independent action on the part of the Air Force and divert activities to close co-operation with the troops of the Somaliland Field Force, who had meanwhile been taking up position to intercept the Mullah in a flight which it was anticipated that he would make when bombed out of his northern strongholds.'<sup>63</sup> Combined operations, therefore, started on the morning of 25 January.<sup>64</sup>

From 25 to 30 January combined operations occurred with two elements of the Somaliland Field Force. First with the Somaliland Camel Corps, with one and a half companies of 1st/101st Grenadiers, who were operating from El Afweina in an easterly direction. Second with the Somaliland Camel Corps, who were advancing in a westerly direction from the neighbourhood of Mussa Aled, some 45 miles to the north-west of Jid Ali. Support included the transfer of patients by air ambulance, locating troops of each force (and communicating their position by dropping messages) and conveying despatches between commanders. Smoke signals and ground signs were used frequently during routine operations. Great care was taken to identify any force static or on the move. In addition, aerial reconnaissance of Medishi and Jid Ali continued, and isolated groupings of Dervishes were attacked by bomb and machine-gun. A preliminary aerial bombardment of Jidali occurred on 27 January, with many defenders hastily evacuating their positions. Moreover, after the capture of Baran by the King's African Rifles, aircraft used the location as a forward landing strip. On 28 January, after only minimal resistance, Jid Ali Fort fell, aerial bombing playing a key role. The following

day Fort Galdaribur was bombed, together with the native huts surrounding it, but few Dervishes were seen.

The tide had turned decisively in favour of the military operation. On 30 January an important Dervish Sheik gave himself up at Jid Ali and, at the same time, reports suggested that the Mullah was heading for his mountain fortress at Tale. It was clear that, once again, he had temporarily evaded the net set to catch him. But all was not lost. Gordon had previously prepared an emergency landing ground and defensive post at El Afweina for just such an eventuality. Aircraft which departed Eil Dur Elan on 31 January on reconnaissance were ordered to land there. Subsequently, ponies belonging to the Mullah's baggage column were located near Daringahuje and attacked from the air, from as low as 100 feet.<sup>65</sup> It later transpired that the column consisted of the Mullah's personal followers, mostly his headmen, wives and sons. The Mullah himself was only three miles away hiding in a *nullah* (a steep narrow valley).<sup>66</sup> By 1 February the Camel Corps arrived at El Afweina and continued the pursuit. The following day, the first aerial reconnaissance of Tale fortress occurred, the Mullah's formidable mountain stronghold, 270 miles south-west of Berbera. This included taking a number of detailed aerial photographs. Up to this point, knowledge of Tale had been gleaned solely from descriptions of the fortress given by deserters. It was now clear that the stronghold was constructed of a stone perimeter (12-14 feet thick at the base and about 6 feet at the top), with an elaborate system of guard-chambers and bastions. Three forts of significant height (50-60 feet) and strength covered the citadel. On the same day a large Dervish convoy, estimated at 1,500 camels, 500 cattle and 500 sheep and goats was attacked with bombs and machine-gun fire, five miles north of Berwaise.

*Touch [contact] was now established by aeroplane with the friendlies under Captain Gibb, who were operating against Tale from the neighbourhood of Gaolo, some fifteen miles to the south-west of Tale. This was a most important task, since the friendlies were quite in the dark as to what was happening in the north: efficient co-operation between detached forces has always been the greatest difficulty which military expeditions in Somaliland have had to contend with in the past owing to the lack of means of communication.*<sup>67</sup>

On 4 February three aircraft departed El Afweina, which was now the advanced operating base, to bomb the fortress at Tale. Three direct hits with 112 lb. high explosive bombs and four direct hits with 20 lb. copper bombs occurred on the fort itself.<sup>68</sup> One direct hit with a 20 lb. bomb damaged the Mullah's private stronghold, situated just outside the perimeter of the large fort. But the material damage done was negligible. In addition, a number of hutments (known as *waabs*) were set on fire with incendiary bombs, fanned by a north-easterly wind, and any inhabitants were effectively engaged with machine-gun fire.<sup>69</sup> Despite the severity of the attack the Dervish garrison bravely returned fire. For the next few days only reconnaissance and

inter-communication work was undertaken in support of the Somaliland Field Force, still in pursuit of the Mullah. It was at this point that Captain Gibb's tribal rifles intercepted the Mullah's convoy and rushed and captured Tale. Simultaneously, the Camel Corps destroyed the Mullah's personal following, which had escaped from the fortress. With this, the campaign ended and on 18 February the aircraft returned from their forward locations back to Berbera. However, 'Z' Unit personnel did not leave British Somaliland until April 1920.<sup>70</sup> Taking a reflective view, Gordon concludes:

*The demoralisation caused by the suddenness of attack from the air was vividly exemplified by the comparison which can be drawn from the taking of Baran Fort by the King's African Rifles, and the precipitate flight of the Dervishes from the fortresses of Medishi and Jid Ali after they had been bombed.*

*In the former case Baran was not subjected to an air attack, and only fell to the King's African Rifles when surrounded and heavily bombarded with Stokes guns, and not until the last defender was killed. Medishi and Jid Ali on the other hand, stronger forts in every way than Baran, were abandoned almost immediately after the air attacks. The utter demoralisation caused is further typified by the fact that quantities of rifles were left behind – an absolutely unheard of occurrence in any former campaign against the Dervishes.<sup>71</sup>*

To acknowledge the level of military activity, the African General Service Medal with clasp 'Somaliland 1920' was awarded to those personnel who served during the campaign in the sphere of operations.<sup>72</sup> But, more importantly for the fledgling service, the experience in Somaliland paved the way for a wider role for the RAF to help garrison the British Empire.

## **CONCLUSION**

This was the second time that air power had been used successfully in Africa within four years, but on this occasion as the main instrument of attack.<sup>73</sup> Operating at extreme length, 'Z' Unit provided a tangible symbol of the might, reach and power of the fledgling service. It was a first-rate example of the potency of aircraft in such circumstances. Moreover, air power provided near real-time intelligence to the Somaliland Field Force. With regular surveillance from the air, colonial forces were able to harass the Mullah beyond the point of survival.<sup>74</sup> However, unexpected aerial attack, deep in the Mullah's heartland, did not create conditions of utter demoralisation that were wished for. Nor did they deliver a knock-out blow. The Dervishes learnt the precaution of travelling at night and lying low during the day. But, in the brief space of twenty-three days of active operations, it helped dislodge the Mullah and his followers from their strongholds and drove them towards waiting ground forces. It could, therefore, be argued that the RAF bombed and machine-gunned the Dervishes into a state of collapse. Deep and persistent attacks played a key role in the campaign's overall

success. The only downside was that the Mullah was not captured or killed. He escaped south, finally settling in Imi, on the upper reaches of the Sabelle River in Abyssinia. Nevertheless, he departed British Somaliland as a refugee, without possessions and power.<sup>75</sup> He died of influenza in December 1920. He was believed to be 56-years-old.

Although credit is primarily given to the RAF, as the main instrument of attack and arguably the decisive factor, this was far from an independent action or a single-service campaign. The lead baton of responsibility passed between the RAF and the multi-ethnic colonial army on 25 January. Although the reconnaissance and bombing missions of the RAF were the main effort, the campaign was a cooperative undertaking between air and ground forces. Andrew Gordon provides a useful précis of the wider joint and multinational activity at play:

*Synchronised land operations reached across hundreds of miles of the protectorate's eastern hinterland, with HM ships providing the wireless hub (until the Army's portable gear failed). Tribal levies occupied strategic wells to block the Mullah's most likely lines of escape: eastwards down the Nogal valley, and southwards into the Ogaden. Bombay Grenadiers secured the site for an advanced airstrip at Eil Dur Elan. KARs [King's African Rifles] pushed southwards from Las Khorai. And 100 sailors from the sloop [gunboats] Clio and Odin assaulted and demolished a fort near the north coast. But the work-horses (or dromedaries) of the campaign were the SCC [Somaliland Camel Corps], whose tasks were to find and 'fix', but not unduly alarm, the enemy for the RAF, and then follow up the bombings with assaults or pursuits as necessary.<sup>76</sup>*

Yet it was often perceived differently and each service saw in Somaliland what it wanted to see.<sup>77</sup> Most believed that the use of air power was the tool that had independently opened the seemingly impenetrable lock in Somaliland. In one short campaign, the monotonous similarity of results over the last two decades had been changed. Importantly, the campaign lasted only three weeks and cost less than £100,000; operations were finally believed to have cost in the region of *circa* £83,000 in early 1900s' prices. The case for air-policing the Empire, backed by a small, mobile ground force, and the necessity for an independent Air Force was demonstrated, although little emphasis was placed on the fact that most sorties were flown in support of ground forces. Underscored by Trenchard at every occasion, this oft-cited assumption was never really challenged.<sup>78</sup> Acting Lieutenant Colonel Ismay notes: '... no-one in Whitehall had the desire or knowledge to question [this supposition].'<sup>79</sup> And, of course, this approach was not a worked-out doctrine yet.

But impressions are remarkably persistent. People embraced the notion that air power alone was responsible for the end of Dervisham and rejected any evidence that contradicted this position. Little consideration was given to Hassan's move to

fixed defences or the reality that Dervish numbers had declined from some 6,000 fighting men in 1913 to less than 1,000 by late 1919. Six years of effort on the part of the administration to build up the power and influence of the tribal leaders was another important factor often overlooked. There were, unsurprisingly, dissenters and a considerable divergence of opinion existed. Sir Henry Rawlinson, commander of all troops in India, highlighted that independent air action had lasted only a few days. Instead, he considered the sustained and determined ground pursuit the most important aspect of the overall campaign. Others suggested that without intelligence supplied by the Army, secured over many months of activity, the RAF would have lacked worthwhile targets. Likewise, Douglas Jardine notes:

*... it is with the very greatest reluctance that I have felt compelled to question the truth of the legend that the twenty-one-year-old Dervish problem in Somaliland was only solved by the use of aircraft ... Such a legend is dangerous in the extreme, leading, as it has done, to a belief in some quarters that the savage peoples of Africa and Asia can be controlled from the air and that the troops and police on whom we have relied in the past should be replaced in whole or in part by aircraft. Such extravagant conclusions are certainly not justified by the air operations in Somaliland, nor, I am told, by our experiences in India and Iraq.<sup>80</sup>*

Over the coming decades, the position softened in some quarters. Air control implied that aircraft were used as the primary arm, but usually supplemented by extensive ground forces, according to particular requirements. James Corum notes that: ‘... RAF accounts of air-control operations written in the 1930s tended to minimise the army part of the operations and magnify the role of air power, so the role of the army in the RAF’s account of air control gradually faded.’<sup>81</sup> Even by 1959, Wing Commander Norman Macmillan posits simplistically and mistakenly in a *Times* article that: ‘In 1919 ‘Ginger’ Bowhill [chief of staff and second-in-command of ‘Z’ Unit<sup>82</sup>] swiftly and economically quelled the Mad Mullah in the first demonstration after the war of air power control.’<sup>83</sup>

However, there were a number of unblemished positives from the campaign. Air power’s inherent flexibility was exploited in Somaliland. Air transport played an important role, enabling the Governor to continue political dialogue during and post hostilities. Air Chief Marshal Sir Glenn Torpy notes:

*... it was noted that the ability of aircraft to take the British Governor to visit all the main tribal chiefs and inform them of the Mullah’s defeat less than 48 hours after it had happened had also been an important factor, so air transport also played an important part as well.<sup>84</sup>*

The Governor travelled to Tale on 15 February to decide a number of questions needing settlement, such as the disposal of a large number of Dervish prisoners who had fallen

into British hands and the temporary occupation of new territory.<sup>85</sup> He also used the opportunity to thank the Camel Corps and others for their excellent work during the operation and to discuss with them matters of administrative and political importance. A report of the time noted: 'This exhibition of the potentialities of aircraft created the most profound impression on all the Akils and tribal leaders assembled there.'<sup>86</sup>

The campaign also witnessed the use of one of the world's first air ambulances. 'Z' Unit deployed with its own medical team, commanded by Wing Commander W Wyrell DSO of the RAF Medical Service. One of the DH9a biplanes was modified as an air ambulance to enable the swift evacuation of the sick or injured.<sup>87</sup> A coffin-like structure was built within the rear fuselage, allowing a stretcher case and attendant to be enclosed during flight. It had its own challenges. The rudder control was slow, the aircraft lost speed quicker than the standard machine on landing and pilots experienced great difficulty in keeping the aircraft straight on manoeuvring the aircraft on the ground.<sup>88</sup> The aircraft was first used on 1 February to convey an officer who was seriously ill from El Afweina to Eil Dur Elan, where he was successfully operated on in an advance hospital of 10 beds. Captain James Godman, Corporal Edward Linnington and Aircraftman Second Class Sleath were all evacuated by air ambulance from Eil Dur Elan to the port city of Berbera, which contained a base hospital of twenty-five beds. Five others were evacuated by air over the period 15 to 24 February, but none were admitted to hospital.<sup>89</sup>



DH9 Air Ambulance.

But there is possibly another message that can be taken away from this campaign. As Damian O'Connor implies in 'The Lion and the Swallow', perhaps implacable enemies have to be hunted until their total disappearance – rather than applying clemency in the hope that they may learn or transform into better ways.<sup>90</sup> Dervisham only collapsed after two decades of attrition against a determined, resilient and implacable foe. By the end of the operation they were reduced to prey and their capacity to resist was negligible. With this consideration and many other lessons in mind, Churchill asked Trenchard to plan a much more ambitious project: the policing of Mesopotamia, modern-day Iraq. This was a challenging task, especially as the situation was extremely unstable. Despite the speed and mobility of aircraft, controlling dispersed tribal and religious groups by air power over a vast desert area was to prove anything but straightforward. However, 'Z' Unit's deployment to Somaliland proved to be such a successful model that it became the standard across the far reaches of the British Empire in the interwar period. Even today, high-tech US drones and aircraft operate over Somalia hunting for *ihadists*. Like the Dervishes before them, al-Shabab continues to pose a major security threat.

## NOTES

<sup>1</sup> <https://issafrica.org/iss-today/what-changes-for-al-shabaab-after-the-death-of-godane>, accessed 20 February 2017.

<sup>2</sup> <http://www.economist.com/news/middle-east-and-africa/21617067-despite-death-its-leader-shabab-dangerous-ever-shabab>, accessed 20 February 2017.

<sup>3</sup> <http://www.bbc.co.uk/news/world-africa-29034409>, accessed 20 February 2017.

<sup>4</sup> Poetry has a long tradition in Somalia and has historically been used to vent hatred against occupiers. It provides a valuable window on motives and ambitions and is a useful rallying cry. The Mullah, like Godane, was a master lyricist and used his skill to great effect. Moving poems, underpinned by inspiring words and haunting descriptions, helped galvanise his followers.

<sup>5</sup> 'Umar Isa 1965', p. 59, quoted in Martin, B. G., *Muslim Brotherhoods in Nineteenth-Century Africa* (Cambridge: Cambridge University Press, 1976), p. 182.

<sup>6</sup> *The Times*, 'Somaliland and the Somali: Difficulties of Development', 13 March 1928.

<sup>7</sup> Jardine, D., *The Mad Mullah of Somaliland* (London: Herbert Jenkins Ltd., 1923), pp. 16-17.

<sup>8</sup> *The Times*, 'The Somaliland Campaign: Italian Operations on African Desert Frontiers', 10 August 1940.

<sup>9</sup> Jardine, *The Mad Mullah of Somaliland*, p. 28.

<sup>10</sup> *The Times*, 'The Mad Mullah: A Twenty Years' Struggle', 8 May 1923.

<sup>11</sup> Lewis, I. M., *A Modern History of Somalia, Nation and State in the Horn of Africa* (London: Longman Group Ltd., 1980), p. 40.

<sup>12</sup> Gordon, A., 'Time after Time in the Horn of Africa', *The Journal of Military History*, Vol. 74, No. 1, January 2010, pp. 109-111.

<sup>13</sup> O'Connor, D., 'The Lion and the Swallow: The Somaliland Field Force 1901-20', *RUSI*

*Journal*, Vol. 151, No. 5, p. 69.

<sup>14</sup> Gordon, 'Time after Time in the Horn of Africa', p. 110.

<sup>15</sup> Lewis, *A Modern History of Somalia*, p. 69.

<sup>16</sup> *Ibid*, p. 70. \* the author cites Jardine, *The Mad Mullah Of Somaliland*, p. 43.

<sup>17</sup> The term described the acceptance of the Salihiya Order.

<sup>18</sup> *The Times*, 'The Mad Mullah: A Twenty Years' Struggle', 8 May 1923.

<sup>19</sup> The Mullah surrendered to the Italian authorities at Illig in 1905, where he was treated with respect. However, his inactivity did not last long.

<sup>20</sup> Longoria, M. A., 'A Historical View of Air Policing Doctrine: Lessons From The British Experience Between The Wars, 1919-1939' (Maxwell Air Force Base, Alabama: School of Advanced Airpower Studies, 1992), p. 20.

<sup>21</sup> *The Times*, 'The 'Mad Mullah' Again: Anglo-Italian Operations', 16 February 1920.

<sup>22</sup> Grey, C. G., *A History of the Air Ministry* (London: Unwin Brothers, 1940), p. 173.

<sup>23</sup> Lewis, *A Modern History of Somalia*, p. 72.

<sup>24</sup> Gordon, 'Time after Time in the Horn of Africa', p. 139.

<sup>25</sup> WO/32/5828, Proposal for the Final Overthrow of the Mullah, General and Political Situation in Somaliland.

<sup>26</sup> *The London Gazette*, 'Narrative of the Action at Gumburu', 7 August 1903, pp. 4975-76.

<sup>27</sup> *The Times*, 'Sir Geoffrey Archer', 04 May 1964.

<sup>28</sup> Formed in March 1914, the Somaliland Camel Corp, a unit of the British Army based in British Somaliland, was designed to maintain order in the Protectorate. It replaced the Somaliland Camel Constabulary.

<sup>29</sup> *The Times*, 'The Mad Mullah', 8 May 1923.

<sup>30</sup> Mackey, R. R., 'Policing the Empire: How the Royal Air Force won its wings in the Middle East', *Military History*, Vol. 24, No. 5, July/August 2007, p. 28.

<sup>31</sup> Water and its absence were the dominating factors, and the small parties of natives could travel farther without water than British columns.

<sup>32</sup> *Supplement to the London Gazette*, No. 32107, 1 November 1920, p. 10597.

<sup>33</sup> Millar, R., *Boom: The Life of Viscount Trenchard, Father of the Royal Air Force* (London: Weidenfeld & Nicolson, 2016), p. 250.

<sup>34</sup> Secretary of State for War and Air, January 1919 to February 1921.

<sup>35</sup> Boyle, A., *Trenchard* (London: Collins, 1962), p. 368.

<sup>36</sup> Torpy, G., 'Counter-Insurgency: Echoes from the Past', *RUSI Journal*, Vol. 152, No. 5, October 2007, p. 19.

<sup>37</sup> Bowyer, C. *History of the RAF* (Greenwich, CT: Bison Books, 1977), p. 51.

<sup>38</sup> i.e. the on-going battle of wills and beliefs between western governments and Islamic extremists.

<sup>39</sup> Gordon, 'Time after Time in the Horn of Africa', p. 140.

<sup>40</sup> Jardine, *The Mad Mullah of Somaliland*, p. 261.

<sup>41</sup> Skoulding, F. A. 'With Z Unit in Somaliland', *The Royal Air Force Quarterly*, July 1930, p. 390.

<sup>42</sup> *Supplement to the London Gazette*, p. 10590.

<sup>43</sup> The Somaliland Camel Corps, 700 rifles; a composite battalion, 6th and 2nd King's African Rifles, 700 rifles; a half battalion, the 1st/101st Grenadiers, Indian Army, 400 rifles; an irregular Somali tribal levy, 1,500 rifles; and 300 illaloes (armed irregular troops).

<sup>44</sup> AIR 5/1310, RAF Operations in Somaliland, p. 5.

<sup>45</sup> O'Connor, D., 'The Hunt for the Mad Mullah', *Aviation History*, July 2012, p. 45.

<sup>46</sup> Jardine, *The Mad Mullah of Somaliland*, p. 263.

<sup>47</sup> Skoulding, 'With Z Unit in Somaliland', p. 391.

<sup>48</sup> *Ibid.*

<sup>49</sup> AIR 20/570, Somaliland Air Operations 1919-20, Report, p. 20.

<sup>50</sup> Wireless communications were finally established between Berbera and Eil Dur Elan on 31 December 1919.

<sup>51</sup> *Supplement to the London Gazette*, p. 10591.

<sup>52</sup> AIR 5/1312, Z Unit Somaliland, Operation and Organisation Orders – Orders for Pilots and Observers.

<sup>53</sup> *Ibid.*, Orders for Flying Officer T.A. Thornton, Berbera, 02 January 1920.

<sup>54</sup> AIR 20/8895, 'Z' Unit Somaliland, No. 8, Military Standing and Operation Orders, Summary of Movement of Aircraft Sent to C.O. S.F.F., El Afweina, dated 18 February 1920.

<sup>55</sup> O'Connor, 'The Hunt for the Mad Mullah', p. 45.

<sup>56</sup> *Supplement to the London Gazette*, p. 10592.

<sup>57</sup> Jardine, *The Mad Mullah of Somaliland*, p. 266.

<sup>58</sup> Skoulding, 'With Z Unit in Somaliland', p. 392.

<sup>59</sup> AIR 20/8895, Z Unit Somaliland No. 8, Military Standing and Operation Orders, Correspondence between C.O.Z. and C.O.S.F.F.

<sup>60</sup> AIR 20/8895, Z Unit Somaliland No. 8, Military Standing and Operation Orders, Summary of Movement of Aircraft sent to Colonel G.H. Summers.

<sup>61</sup> *Supplement to the London Gazette*, p. 10593.

<sup>62</sup> Skoulding, 'With Z Unit in Somaliland', p. 395.

<sup>63</sup> AIR 20/570, Somaliland Air Operations 1919-20, Report, p. 5.

<sup>64</sup> AIR 20/8895, Z Unit Somaliland No. 8, Military Standing and Operation Orders, letter dated 25 January 1920.

<sup>65</sup> AIR 5/13/3, 'Z' Unit, Somaliland, Operation Orders and Reports (Intelligence), 'Following carried out since my cable of 30 January 1920'.

<sup>66</sup> Jardine, *The Mad Mullah of Somaliland*, p. 271.

<sup>67</sup> AIR 20/570, Somaliland Air Operations 1919-20, Report, p. 7.

<sup>68</sup> *Supplement to the London Gazette*, p. 10595.

<sup>69</sup> Skoulding, 'With Z Unit in Somaliland', p. 393.

<sup>70</sup> *Ibid.*, p. 394.

<sup>71</sup> AIR 20/570, Somaliland Air Operations 1919-20, Report, p. 8.

<sup>72</sup> This was declared to be that portion of the Protectorate lying east of a line drawn due south through Ankor on the coast to the southern border of the Protectorate.

<sup>73</sup> Roe, A.M., 'Air Power in Darfur, 1916: The Hunt For Sultan Ali Dinar and The Menace of The Fur Army,' *Air Power Review*, Volume 20 Number 1, Spring 2017.

<sup>74</sup> O'Connor, 'The Lion and the Swallow', p. 70.

<sup>75</sup> *Supplement to the London Gazette*, p. 10597.

<sup>76</sup> Gordon, 'Time after Time in the Horn of Africa', p. 142.

<sup>77</sup> Omissi, D., *Airpower and Colonial Conflict: The Royal Air Force 1919-1939* (Manchester: Manchester University Press, 1990), p. 15.

<sup>78</sup> Michael Longoria notes at the start of Chapter Three: 'Trenchard seized an opportunity and used the Somaliland experience as proof that airpower could substitute for ground power, and could do so at a significantly reduced cost'. Longoria, M. A., 'A Historical View of Air Policing Doctrine: Lessons From The British Experience Between The Wars, 1919-1939' (Maxwell Air Force Base, Alabama: School of Advanced Airpower Studies, 1992), p. 19.

<sup>79</sup> Hastings, L., Ismay: *The Memoirs of General Lord Ismay* (London: Heinemann, 1960), pp. 34-35.

<sup>80</sup> Jardine, *The Mad Mullah of Somaliland* p. 280.

<sup>81</sup> Corum, J., 'The Myth of Air Control: Reassessing the History', *Aerospace Power Journal*, Winter 2000, p. 70.

<sup>82</sup> *The Times*, 'Sir Frederick Bowhill', 14 March 1960.

<sup>83</sup> *The Times*, 'Middle East Air Force: Link in Chain of Allied Defences', 01 September 1959.

<sup>84</sup> Torpy, 'Counter-Insurgency: Echoes from the Past', p. 19.

<sup>85</sup> *Supplement to the London Gazette*, p. 10596.

<sup>86</sup> AIR 20/570, Somaliland Air Operations 1919-20, Report, p. 9.

<sup>87</sup> Of note, the medical team were absolved from all responsibility for sick and injured native personnel.

<sup>88</sup> AIR 5/13/3, 'Z' Unit Somaliland, Report on D.H.9.D. 3117, Ambulance Machine, Flown in British Somaliland.

<sup>89</sup> Scholl, M. D. and C. L. Gesheker, 'The Zed Expedition: the world's first air ambulance?', *Journal of the Royal Society of Medicine*, Volume 82, November 1989, p. 680.

<sup>90</sup> O'Connor, 'The Lion and the Swallow', p. 73.

# THE RAF'S SPECIAL FORCE BEFORE THE SPECIAL DUTIES SQUADRONS

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(Retired)

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**Abstract:** In 1923 – almost two decades before the formation of its Second World War Special Duties (SD) squadrons – the RAF created a 'special force' of airmen who conducted highly unorthodox small-scale operations. Like all Special Forces operations, the tactical-level actions by these airmen generated operational level and strategic effects in uncertain, often hostile, and politically sensitive regions. Between the World Wars, these special airmen, the RAF Special Service Officers, integrated air, civil, and social actions to ensure peace and stability on frontiers of the empire and, in the process, helped to preserve the independence of the Royal Air Force.

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## INTRODUCTION

When the Prime Minister created the Special Operations Executive (SOE) in July 1940, the RAF allocated two Lysanders to form 419 Flight at RAF North Weald to support the insertion, extraction and re-supply of agents in France and the Low Countries. By February 1942, there were two SD squadrons, 138 and 161, based at RAF Tempsford. Additional SD squadrons were created to support the SOE in all operational theatres of the Second World War. The UK's current Special Forces Air Component proudly and rightly maintains the traditions and ethos of those wartime airmen. But there was another, much older RAF 'special force', that few know about today and about whom little was widely known at the time. Between the World Wars, RAF Special Service Officers (SSOs) in the Middle East, Africa and the North-West Frontier of India integrated the effects of air power into environments dominated by civil concerns, guerrilla fighters and political machinations. Theirs is a story almost unknown to modern airmen and Special Forces.

## SPECIAL FORCES AND SPECIAL OPERATIONS

Before looking at who the RAF SSOs were and what they did, it is helpful to understand the modern meaning of Special Forces (SF). In the simplest of terms, SF perform special operations, which, according to Professor Colin Gray, are 'small-scale, clandestine, covert or overt operations of an unorthodox and frequently high-risk nature, undertaken to achieve significant political or military objectives in support of foreign policy'.<sup>1</sup> Official definitions of special operations in the UK, US, and NATO, like Professor Gray's, are agnostic of Service affiliation or physical domain – air, land, or maritime. What is common, though, is the emphasis on small-scale operations in uncertain, hostile, or politically-sensitive environments to create strategic and operational-level effects that are disproportionate to the size of the force employed. What is also consistent among official definitions and explanations is the reliance of SF on mature, uniquely-trained people who see beyond the military objective and are expected to be adaptive, innovative, and self-reliant in the face of complex problems, primarily in the human domain.<sup>2</sup>

The UK's modern SF airmen are considered by their peers as among the best in the world at what they do. They fly their aircraft with highly enviable precision and reliability, and there is a trust that their partners in the SAS and SBS have rightly come to value and count on. But, unlike the SAS and SBS, the SF Air Component is an enabling component: a supporting function to provide air mobility and some ISR for direct action and special reconnaissance missions by the land and maritime Special Forces. However, RAF airmen once played a much more direct role in special operations on behalf of their country. Two decades before the SD squadrons of the Second World War were formed, the RAF created a cadre of specialised airmen who would go to and live in places, often alone, that were too dangerous or too remote for civilian tribal control officers charged with maintaining order in the remote regions of the empire.<sup>3</sup> As we will see, these unique

airmen conducted unorthodox and high-risk operations, in uncertain, hostile, and politically-sensitive regions, in order to achieve Britain's theatre and strategic objectives.

### **AIR CONTROL BETWEEN THE WARS**

As has been well told in the pages of this journal by authors such as Peter Gray, Andrew Roe and David Hall, the story of air control began as the First World War was ending.<sup>4</sup> In August 1919, the British War Cabinet, looking at the long-term financial and human costs that resulted from the War, drafted a memorandum that would later become known as the 'ten-year rule'.<sup>5</sup> The core tenet of the ten-year rule was, '... for framing revised Estimates, that the British Empire will not be engaged in any great war during the next ten years, and that no Expeditionary Force is required for this purpose'.<sup>6</sup> The document, WC 616A, was intended to guide British post-war defence planning. At the strategic level, what Britain needed from the restive tribes and rickety governments in the Middle East during the inter-war period was a level of stability that allowed the creation of safe and reliable air routes to India and the Far East, and major reductions in the cost of imperial policing.<sup>7</sup>

Historians have noted that the ten-year rule forced a tension between the politicians and the Services.<sup>8</sup> Defence spending was slashed by 75% between 1919 and 1921, and remained low for the remainder of the 1920s. The Royal Navy cancelled ship-building contracts and the Army returned to its pre-war size and role as Britain's imperial policing force. Imperialists maintained that the defence of India and the transportation routes via Egypt and the Middle East were the key to continued British wealth, prestige, and status as a great power.<sup>9</sup> But, post-war Britain had little appetite for further military adventures or a large army. Post-war exhaustion, crushing war debt, and economic and social challenges severely influenced government spending. *The Times'* reports on Parliament's deliberations from the early 1920s are replete with members' questions and editorials questioning the imperial burdens upon the taxpayers.<sup>10</sup>

As part of the transition from a wartime footing back to a peacetime environment, the Army and the RAF were closing stations and dispensing of their excess equipment. Henry Probert's biography of Marshal of the Royal Air Force Sir Arthur Harris notes that the primary task for airmen under his command in the months after the Armistice was to receive and burn great numbers of surplus aircraft, some of which were brand new.<sup>11</sup>

With the ten-year rule's severe fiscal guidance and 'widespread public faith that the League of Nations obviated the need for national armies', the Cabinet focused on ways to reduce the cost of policing the empire.<sup>12</sup> Their conclusion was, 'the only method of effecting savings on a considerable scale is in the War Departments'.<sup>13</sup> At the same time, however, the RAF's continued independence as a separate Service was confronted by the Army and Royal Navy, which strived to bring their former air arms back under their own control, and resented the new competition for declining defence expenditures.<sup>14</sup>

To maintain Britain's primacy as a great power, imperialist politicians hoped to harness technology to control restive indigenous populations, while at the same time reducing costs. This aspect was the second point in WC 616A, 'In order to save man-power, the utmost possible use is to be made of mechanical contrivances, which should be regarded as a means of reducing Estimates'.<sup>15</sup> The hope was that aeroplanes and wireless offered an innovative and less costly means of policing the empire. Wing Commander C.H.K. Edmonds captured the attitude of the time in a 1923 lecture to the Royal United Services Institute (RUSI) on why Britain needed to invest in air power when budgets were declining, 'First, we are all of us imperialists, and so we wish to see the empire defended as securely as possible. Second, we are all taxpayers, so we want the defence to be as economical as possible'.<sup>16</sup>

After years of contentious debate, the Cabinet gave the RAF a chance to show if air power could substitute for battalions as a frontier constabulary force. In October 1922, Air Vice-Marshal Sir John Salmond was installed as the General Officer Commanding of British forces in Iraq. The Army immediately reduced the garrison to four battalions (two British and two Indian). The RAF moved eight squadrons of aircraft to Iraq and, recognising that air control was an air-land effort, created armoured car companies to replace the British battalions.<sup>17</sup> Further reductions in the garrison would occur in the ensuing months and years until the British Army was entirely moved out of Iraq and the cost of garrisoning had dropped by almost 75%.

## THE SSOs

From the very beginning of the experiment, the RAF recognised it needed an 'efficient intelligence system... whereby the earliest possible information may be given of any signs of disorder or rebellion, so that the Air [Force] may be able to take militant measures and check it in its incipient stage'.<sup>18</sup> The RAF took a comprehensive approach to setting up its constabulary role in Iraq, noting that '... the *essence of air control* [emphasis added] is an accurate and detailed knowledge of the people, and this necessitates constant intercourse between political and intelligence officers, and the inhabitants'.<sup>19</sup> This is an interesting perspective given that aeroplanes and bombing have received the majority of academic attention, publicity and credit for the achievements of the air control scheme. As we will see, in addition to gathering, analysing, and exploiting the information necessary for effective air operations, SSOs also served in a liaison function, communicating expectations and shaping perceptions among the tribesmen against whom air actions might ultimately be directed.<sup>20</sup>

The concept of RAF SSOs on the ground had not existed prior to the air control scheme.<sup>21</sup> Before 1922, the SSO concept was an Army one, usually officers providing local, internal intelligence and advice to Army commanders and units serving on the frontiers.<sup>22</sup> However, even prior to the air control scheme, some intelligence functions were performed by pilots and observers from the General Duties Branch who were serving

ground tours.<sup>23</sup> Service as an intelligence officer was generally disdained among pilots who had joined the Air Force to fly, and so the RAF intentionally incentivised the airmen it was trying to recruit for intelligence duties as SSOs by adding marks to their Staff College examination, providing an advantage during promotion, consideration for having a second language, offering flying opportunities at nearby air stations, and providing a cash allowance for horse and groom, house-boy, and interpreter.<sup>24</sup> Although the Air Ministry would have preferred having airmen serve as its SSOs, they discovered the pool of candidates from which to draw its air-oriented SSOs was rather shallow. The problem facing the RAF as it developed the air control scheme was that not many airmen were willing or able to be that ‘face’ of British imperial power among the tribes.<sup>25</sup> The thought of a hard, lonely existence on the edges of the empire was not an assignment which many pilots, navigators, and observers found inviting. Still, as John Bagot Glubb, one of the early SSOs, noted during a 1926 lecture, the whole success of the air control scheme depended on individuals who combined thorough knowledge of the tribes and country with a certain amount of experience as an air observer.<sup>26</sup>

Excepting RAF officers who had served in the Army’s colonial regiments and had transferred to the Royal Flying Corps before or during the First World War, few airmen possessed the requisite knowledge of colonial administration and the regions.<sup>27</sup> The Army’s pre-war constabulary function, especially among those officers who had served with Indian Army battalions in the Middle East or in Egypt, meant that most candidates with the inclination to work with and among indigenous peoples, and who had the language, cultural, and administrative skills necessary to work in such environments, were soldiers.<sup>28</sup> So, while aggressively recruiting from within their own ranks, the RAF also sought out qualified Army officers. Because of the years it took to develop the language, cultural, and life skills needed to work successfully with and among indigenous peoples, the RAF found it quicker and easier to teach soldiers how to apply air power as a tribal control measure than it was to develop an intuitive level of culture and language in airmen who had never lived the frontier life.

Major General H.P.W. Hutson, who as a junior officer served as an RAF SSO in Fallujah, Iraq, said he took the job because he was already assigned to Iraq when the First World War ended and the RAF would pay him an additional £20 (about £850 today) per month for learning Arabic—not an impossible task as he was the only Englishman at the time in the city.<sup>29</sup> Glubb, also an army officer was already in Iraq and learning Arabic when the RAF began looking for SSOs, so he, too, accepted a position with the RAF.<sup>30</sup>

## **UNIQUE TRAINING**

When the air control scheme began in 1922, westerners seeking insight into the culture, traditions and motivations of Bedouins had little in the way of credible Arab sources to use as references. Arab sources written in English were sparse, and what documentation that did exist all but ignored the tribes and tribal culture.<sup>31</sup> The School of Oriental Studies,

now the London School of Oriental and African Studies, did not begin its first class until January 1917. This institution, originally created to train colonial administrators, also admitted military and other professionals to its courses.<sup>32</sup> It is interesting to note that by 1925, the RAF was taking advantage of the education available at the School of Oriental Studies and was sending a number of SSOs, some of whom became future senior RAF officers, there to study. Most were then assigned to Iraq for in-country language and intelligence officer training.<sup>33</sup>

Gerald de Gaury, an RAF SSO who went on to become the civilian political agent in Kuwait and eventually the Chargé d'Affaires in Iraq, published 'An Arabian Bibliography' in the *Journal of the Royal Central Asia Society* in 1944. He documented 200 sources of cultural, geographic, anthropological, and biological studies, including handbooks published by the Intelligence Division of the Admiralty, most of which were published before the First World War or during the inter-war period.<sup>34</sup> For those officers so inclined, the Royal Central Asia Society provided a cross-cutting forum of diplomats, explorers, military officers and scholars who sought to preserve Britain's imperial status through lectures, papers, and debate.<sup>35</sup> In addition, the Royal Geographical Society had been sponsoring and publishing the topographical, cultural and biological studies of explorers since the 1830s. This era was also a time of thoughtful and detailed travel writing. Despite the myth that airmen being posted to the Middle East tended to study *Arabian Nights* and novels,<sup>36</sup> the RAF SSOs had access to in-depth, fairly current and voluminous reference materials, albeit rarely from Arab sources, in order to prepare for assignments in the region.<sup>37</sup>

In addition to the professional journals and regional studies, the Admiralty published a collection of intelligence handbooks between 1913 and 1917 based in part on the records of pre-war European explorers and on recent military intelligence.<sup>38</sup> These handbooks offered detailed descriptions of the regions, settlements, routes, and inhabitants. In November 1918, the Admiralty published an updated version of the *Handbook for Mesopotamia*.<sup>39</sup> This four-volume, 550-page, encyclopaedia broke Iraq into sections, including Kurdistan, and provided great detail on such topics as the different tribal systems, religions, descriptions of towns and cities, census data, descriptions of the inhabitants, administrative structures, topography, history and climate. Volume 2, which covered the Shatt el-Arab, Tigris and Euphrates River Valleys and the desert border areas with Kuwait and the (now) Kingdom of Saudi Arabia, even had an assessment of the various types of mules available in the region. Similar handbooks were also produced for Syria (including Palestine) and Arabia in 1920.<sup>40</sup> The Admiralty handbooks were updated in the 1940s, and are still used as references today. Other semi-official references available included Gertrude Bell's *The Arab of Mesopotamia* – a two-volume collection of essays written specifically for new British officers going to Iraq<sup>41</sup> – and *Straight Tips for "Mespot"*, a volume of practical hints that offered the kinds of advice 'your maiden aunt would not be likely to suggest', such as 'the value of gin and whiskey to aid health'.<sup>42</sup>

The better SSOs knew that the best way to collect and understand the population's attitudes and opinions was gained by observing their hosts' social behaviour and participating in the locals' conversations first-hand.<sup>43</sup> Therefore, the most successful SSOs tended towards a combination of self-study and on-the-job training.<sup>44</sup> Once in their assigned regions, the officers would immerse themselves in the regional culture and, in the process, create a personal body of knowledge – their own 'intelligence database' – by learning from the locals with whom they worked and through personal study of the terrain, customs, histories and relationships among families, clans, and tribes.

As with most career paths, the SSOs tended to divide into two general categories. The first were those officers who came to the Middle East to gain experience in the primary mission of the RAF at the time (air control/imperial policing) but then went back to traditional, career-enhancing assignments that led to staff college and subsequent promotions. This group of SSOs included Air Commodore Frank Woolley, who would command No. 222 Group and later be the senior intelligence officer for Mediterranean Allied Air Forces; Air Vice-Marshal Sydney Toomer, who was the Director of Fighter Operations in 1942; Air Vice-Marshal Andrew MacGregor, who was the AOC of No 28 Group in 1945; and Air Chief Marshal Robert 'Pussy' Foster, who served as AOC RAF Malta and AOC Desert Air Force during the Second World War.<sup>45</sup> The thinking was that frontier service for airmen offered such a difficult experience that no matter what challenges an officer might face later in his career, the desert would prepare him for the worst. Therefore, the RAF 'sought to create a regular rotation of officers in order to broaden the base of "professional" desert experience'.<sup>46</sup>

The second group was those airmen who fully embraced the SSO life and stayed in the Middle East for years, foregoing promotions and command. Flight Lieutenant Guy M. Moore was intelligence officer to Group Captain A. E. Borton, Commander RAF Iraq, when the Command was formed in 1921.<sup>47</sup> He remained in Iraq for over six years. Flight Lieutenant Robert Jope-Slade served as an SSO in Iraq from 1924-1935, and then returned in 1938 as the British Forces Iraq intelligence officer until his death in an aircraft accident in May 1941. Flight Lieutenant George Reed served 12 years between 1922-1934. Flying Officer Ernest Howes was an SSO for more than 12 years, finishing as a Flight Lieutenant in Aden at the start of the Second World War.<sup>48</sup> As to be expected, some of these long-term SSOs were perceived to have 'gone native' (in the parlance of the time), thus limiting their promotions and career opportunities. Trenchard voiced his displeasure with such officers, stating he felt it 'utterly wrong that there should be British officers out there ... who are not thoroughly loyal to, and in sympathy with, the opinions of their Head Offices'.<sup>49</sup>

## **SSOs IN PRACTICE**

The British began the air control experiment in Iraq by creating a comprehensive map showing where the 42 major sheikhs and their tribes were generally located. Then, the

Iraqi government summoned all 42 to a conference in Samawah. Only one sheikh appeared. The next day, SSOs supported by RAF armoured car detachments were despatched to forward depots, and three forward operating bases for aircraft were established in areas where the most important tribes were sure to see them. On the following day, air operations against the tribes began.



Flight Lieutenant H Hindle James, SSO Ramadi circa 1925 in consultation with local sheikhs.  
Source: John Barnard from the Private Papers of H H James.

Aircraft first dropped leaflets explaining to the people that the sheikhs had been summoned to consult with the Iraqi government but had failed to appear. The messages described the consequences likely to befall the tribes if the sheikhs continued to resist the government's requests. The messages worked and within a day all 42 sheikhs had surrendered and agreed to meet with Iraqi and British officials.<sup>50</sup> By making the presence of the aeroplanes and armoured cars conspicuous, and the SSO physically reminding the sheikhs during face-to-face meetings of the RAF's ability and willingness to cause damage, and also ensuring the people fully understood that the Iraqi government was willing to apply the full effects of British air power should their sheikhs not comply, Britain achieved its objectives during this initial foray without dropping a bomb or firing a shot.

Glubb tells the story of one of his first experiences as an SSO. He was sent to deliver the message to a group of settlements between Baghdad and Basrah that they were to pay their taxes or else be bombed. The British tribal control officer assigned to administer the area had confined himself to the larger town in the province because he felt it too dangerous to venture out among the locals. Correspondingly, the village sheikhs were afraid to go into town and consult with the tribal control officer for fear of imprisonment. Glubb proceeded into the desert and called upon the paramount sheikh. At that point, Arab hospitality took over.

For two days, he and the sheikhs talked. Glubb learned that the issue was water: because the Iraqi government did not regulate water flow, upstream users had diverted all the water that the downstream tribes needed to irrigate their crops. Without water, the crops died, and without crops they had nothing to sell, and, therefore, no money to pay the taxes. At that point, Glubb says he admitted to his hosts that his real role had been to survey the villages, create a map and develop a target list in order that he might guide air attacks to appropriate homes in the villages. He advised the sheikhs to report to the tribal control officer or be bombed. They refused. The next day Glubb led a flight of aeroplanes to overfly the villages. The people scattered and hid, after which the RAF bombed the sheikhs' houses and scattered the villages' flocks. The sheikhs then came into town where Glubb had arranged for the Iraqi Minister of the Interior to meet with them. Glubb then mediated the meeting and an agreement was reached to regulate the water, which enabled the tribes to pay their taxes.<sup>51</sup>

What Glubb did was not unusual. Most SSOs went beyond simple and occasionally professional recognition of indigenous leadership. Instead they built relationships with local leaders in order to gain insight into the tribes' psychological, cultural, and sociological motivations.<sup>52</sup> H.P.W. Hutson described how he often visited the different tribes and small villages around Fallujah to build and maintain relationships with the sheikhs, gain insight into their situations, and address their concerns where he could. Hutson was successful as an SSO because he 'got friendly with many of the sheikhs and especially the younger chaps'.<sup>53</sup> His conclusion was that informal relationships enabled the formal communication and negotiation required by his duties, which gave successful SSOs the necessary insight and understanding to influence appropriately their assigned populations.

Not all applications of air power were coercive or strike-related. Sometimes aircraft were used for non-destructive operations. Unencumbered by the obstacles of overland travel in very difficult and often dangerous terrain, travel by aeroplanes made it possible for the SSOs to spend time in the more desolate reaches of the empire.<sup>54</sup> Frequent and regular access to isolated tribes allowed the SSOs, unlike earlier earth-bound tribal control officers, to build rapport with tribal leaders, understand the tribes' perspectives on current issues, and develop their own situational awareness.<sup>55</sup> SSO reports contain

details of reconnaissance flights in south-western Iraq, meetings with tribal leaders, remaining for days among the tribes, and where necessary, delivering messages from Iraqi civil authorities, warnings of impending attacks from Akhwan (Saudi) raiders, and negotiating with the sheikhs to comply with the requirements laid out by British and Iraqi authorities.<sup>56</sup> On other occasions, SSOs would fly in to act as mediators between the government and the tribes or between disputing tribes because of the relationships they had cultivated and their empathy with the locals' perspectives. The telegrams and operations summaries found in the archived SSO reports describe numerous SSOs' efforts to intercede on the tribes' behalf.<sup>57</sup>

SSOs would sometimes offer the benefits of modern medicine to those tribes beyond the reach of doctors, or in areas where the difficulty of travel would make an injured person's condition worse.<sup>58</sup> The RAF configured some aeroplanes as air ambulances, a capability that did not yet exist in civil aviation. SSO reports from 1923 offer examples of how these airmen used non-kinetic air power to gain influence. In April, aircraft carried doctors and medical supplies to aid the casualties of a train wreck between Baghdad and Basra. In October, the RAF found and rescued a family whose vehicle had broken down in the desert, 120 miles west of Baghdad. During the cholera epidemic of 1923, live cultures were transported from Egypt to Baghdad by air so that medical authorities could produce vaccines in bulk. The RAF then carried medical officers and vaccine doses to the villages and camps in order to stem the outbreak.<sup>59</sup>

A rather unusual application of air power occurred in April 1928 when an SSO in Transjordan arranged for transport aircraft to deliver airmen armed with flame-throwers to help combat swarms of locusts destroying valuable pasturelands.<sup>60</sup> In the Middle East and North Africa, the RAF searched for locust migration and swarming to help civilian authorities address this perennial and significant threat to the economies of the region.<sup>61</sup>

With RAF aeroplanes flying overhead creating the illusion of a ubiquitous government presence, the SSOs would create and sustain a perception in the locals' minds that every aeroplane overhead was looking at or for them. In Transjordan, flights were intentionally flown over recalcitrant tribes' camps 'to impress them', and to make the point even stronger, night flights were conducted in the same areas because 'aircraft flying at night leave a great impression on the Arab mind.'<sup>62</sup>

In 1925, the RAF SSO in Nasiriyah, Flight Lieutenant Guy M. Moore, was unable to persuade the tribes along the southern border to move away from the areas most likely to be attacked by Saudi raiders. Frustrated by their unwillingness to comply, SSO Moore requested demonstration flights from Air Headquarters and delivered a message to the sheikhs that future flights would be attack sorties. When the tribes finally began to move, SSO Moore remained overhead in the lead aircraft, observing the movement and reminding the tribes of British expectations of compliance.<sup>63</sup>

What the RAF learned about air power and colonial control in Iraq, Aden and Transjordan extended to other frontier regions of the empire and was then put into practice by civilian colonial administrators when local situations were permissive enough for tribal control officers to safely live and work among the indigenous populations. Prior to extending air control operations into Somaliland in 1930, the CAS noted, 'the two most important factors in this connection are reliable SSOs, and intimate knowledge on the part of the air officers concerned of the conditions of the country and of the tribal and sub-tribal villages and grazing areas'.<sup>64</sup>

Once Iraq achieved its independence in 1932, former SSOs moved on to other positions and other locations, passing their experiences and cultural acumen on to others. For example, Gerald de Gaury, the SSO in Iraq in the mid-1920s who served as the Chargé d'Affaires in Iraq, in 1942 raised a force of Druze irregulars in Syria and had Wilfred Thesiger, a former political officer in Sudan, as one of the squadron commanders. <sup>65</sup> Thesiger's boss in Sudan had been Guy Moore, the SSO in Iraq in 1925, who 'taught him to appreciate deserts and to treat the men with whom he lived and travelled as companions instead of servants'.<sup>66</sup>

## CONCLUSION

While aeroplanes admittedly were the most visible part of the air control scheme, most researchers have missed the point made by Sir Ralph Cochrane, the commander of 5 Group, Bomber Command during the Second World War, that the success of air control depended upon the situational awareness, intelligence, and understanding provided by the SSOs. His acknowledgement of the SSOs' pivotal role in the success of the air policing concept was notable by its uniqueness. The RAF SSOs, usually alone in remote, uncertain, and politically-sensitive regions, orchestrated the inter-departmental activities (military, law enforcement, and civil) necessary to maintain the peace in their assigned regions. According to modern definitions, these airmen were Special Forces—uniquely trained, conducting unorthodox missions (especially for airmen), in high-risk areas to achieve theatre or strategic objectives. The SSOs – air-minded 'boots on the ground' – shaped the locals' perceptions, built the intelligence 'picture', and managed the application of air power, providing the critical component of air control that made colonial policing by the RAF 'work'.

## NOTES

<sup>1</sup> Colin S. Gray, 'Handfuls of Heroes on Desperate Ventures: When do Special Operations Succeed?', *Parameters*, (Spring 1999), accessed at <http://ssi.armywarcollege.edu/pubs/parameters/Articles/99spring/gray.htm>, 13 July 2017, fn3.

<sup>2</sup> AJP 3.5(A), *Allied Joint Doctrine for Special Operations*, (Brussels, BEL: NATO Standardisation Agency, Dec 2013), pp. 1-1 – 1-2. Where citations from official sources are preferred, approved NATO doctrine will be used because it is unclassified, open source, agreed to by the UK and the US, and readily available to the public.

<sup>3</sup> TNA AIR 75/27, Air Staff Memorandum, *What Air Control Means in War and Peace and What it has Achieved*, (30 June 1930), pp. 8 – 9; TNA AIR 9/12, Air Staff Memorandum 52, *Air Control*, (Apr 1933), p. 6.

<sup>4</sup> Peter W. Gray, 'Myths of Air Control and Realities of Imperial Policing', (*Air Power Review* (APR) Vol 4 No 2), 'RAF Air Policing Over Iraq – Uses and Abuses of History', (*APR* Vol 14 No 1); Andrew M. Roe, 'Friends in High Places: Air power on the North-West Frontier of India', (*APR* Vol 11 No 2), "'Pink's War", – Applying the Principles of Air Control to Waziristan, 9 March to 1 May 1925', (*APR* Vol 13 No 3), 'Aviation and Guerrilla War: Proposals for "Air Control" of the North-West Frontier of India', (*APR* Vol 14 No 1); and David Hall, 'Ruling the Empire out of the Central Blue', (*APR* Vol 10 No 2).

<sup>5</sup> TNA CAB 23/15, WC 616A, *Minutes of a Meeting of the War Cabinet*, (15 Aug 1919), p.1. It should be noted that the term, 'ten-year rule' did not come into common use until after the principle had been formally revoked.

<sup>6</sup> TNA CAB 23/15, WC 616A, p. 1.

<sup>7</sup> Robert Graves, *T.E. Lawrence to his Biographers Robert Graves and Liddell Hart*, (London: Cassel & Co., Ltd., 1938), pp. 110 – 111.

<sup>8</sup> John Robert Ferris, *Men, Money, and Diplomacy: the Evolution of British Strategic Policy, 1919 – 26*, (London: The MacMillan Press, Ltd., 1989), p. 17; and George C. Peden, *British Rearmament and the Treasury: 1932 – 1939*, (Edinburgh, UK: Scottish Academic Press, 1979), pp. 6 – 8.

<sup>9</sup> David Killingray, 'Imperial Defence', *The Oxford History of the British Empire: Volume V: Historiography*, Robin Winks, ed., (London: Oxford University Press, 1999), p. 347; TNA CAB 24/71/79, GT 6477, *Memorandum by the Chief of the Air Staff on Air Power Requirements of the Empire*, (9 Dec 1918), p. 1; R.J. Wilkinson, 'The Geographical Importance of Iraq', *Journal of the Royal United Service Institution*, Vol. 67, No. 468, (1922).

<sup>10</sup> See for example, *The Times*, 'Report from House of Commons', (24 June 1920), p. 9.

<sup>11</sup> Henry Probert, *Bomber Harris: His Life and Times*, (London: Greenhill Books, 2001), p. 45.

<sup>12</sup> Brian Bond, *British Military Policy between the Two World Wars*, (Oxford, UK: Clarendon Press, 1980), p. 27.

<sup>13</sup> TNA CAB 23/23, *Conclusions of Cabinet meeting*, (8 Dec 1920), p. 2.

<sup>14</sup> Sir Samuel J.G. Hoare, *Empire of the Air: The Advent of the Air Age, 1922 – 1929*, (London: Collins, 1957), pp. 54 – 56.

<sup>15</sup> TNA CAB 23/15, WC 616A, p. 1. Also TREA 1/12353, *Letter from Controller of Supply and Services*, (July 1919).

<sup>16</sup> C.H.K. Edmonds, 'Air Strategy', *Journal of the Royal United Service Institution*, Vol. 69, No. 474, (May 1924), p. 192.

<sup>17</sup> Trenchard's proposal to implement the scheme approved at the Cairo Conference clearly emphasised the integrated, air-land aspect of air control. TNA AIR 9/14, Memorandum from AM Sir H. Trenchard to Secretary of State, (28 July 1921), *Arrangements for Defence of Iraq by the Royal Air Force*, p. 2. TNA AIR 8/34, *Note on the Method of Employment of the Air Arm in Iraq*, (1 Aug 1924), pp. 1 & 5; and Sir John Salmond, 'The Air Force in Iraq', *Journal of the Royal United Service Institution*, Vol. 70,

No. 479, (Aug 1925), p. 485.

<sup>18</sup> TNA CAB 24/126, CP 3123, *Report on Middle East Conference held in Cairo and Jerusalem, March 12th to 30th, 1921*, (11 July 1921), p. 77, and reinforced in TNA AIR 9/14, ASM 20, *Lecture by Air Marshal Sir J.M. Salmond to the students of the staff college, Quetta*, undated (circa 1923), p. 7.

<sup>19</sup> R.A. Cochrane, 'The work of the Royal Air Force at Aden', *Journal of the Royal United Service Institution*, Vol. 76, No. 501, (Feb 1931), p. 97.

<sup>20</sup> TNA AIR 9/12, ASM 52, *Air Control, A Lecture by the Deputy Chief of the Air Staff at the Imperial Defence College*, (Apr 1933), pp. 10 – 12; 'The Role of Special Service Officers in the Air Intelligence Organization', *Royal Air Force Quarterly*, Vol. 2, No. 1, (Jan 1931), pp. 52 – 54, (no author given).

<sup>21</sup> 'The Role of Special Service Officers in the Air Intelligence Organization', p. 52.

<sup>22</sup> TNA AIR 2/1196, *Notes on Future Intelligence Organisation in Iraq*, (21 Dec 26), p. 1.

<sup>23</sup> Nicholas John Wilkinson, *Secrecy and the Media: The Official History of the United Kingdom's D-Notice System*, (Abingdon, UK: Routledge, 2009), p. 124; and Heinz Duthel, *Global Secret and Intelligence Service III*, (Raleigh, NC: Lulu.com, 2008), p. 205. 'Officers have been employed in intelligence duties since 1918. At the time, officers of the General Duties Branch (mainly pilots on a ground tour or who could no longer fly) performed the duty of Squadron Intelligence Officer, or aircrew on ground tours in the Air Ministry Intelligence Department. By the late 1930s there was a dedicated Intelligence Branch [in the RAF]'.

<sup>24</sup> 'Role of Special Service Officers in the Air Intelligence Organization', *Royal Air Force Quarterly*, Vol. 2, No. 1, (Jan 1931), pp. 53 – 55.

<sup>25</sup> Sir John Bagot Glubb, *War in the Desert: An R.A.F. Frontier Campaign*, (London: Hodder and Stoughton, 1960), p. 70.

<sup>26</sup> J. B. Glubb, 'Air and ground forces in punitive expeditions', *Journal of the United Service Institution*, Vol. 71, No. 483, (Feb 1926), p. 781.

<sup>27</sup> Glubb, *War in the Desert*, p. 70; and Andrew M. Roe, 'Flying in the Blazing Sun: Air Control, District Intelligence Officers and Mixed Results', *British Army Review*, No. 159, (Winter 2013 – 14), p. 67.

<sup>28</sup> Martin Thomas, *Empires of Intelligence*, (Los Angeles: University of California Press, 2008), pp. 182 – 83. TNA CO 732/41/23, *Recruitment of Intelligence Officers for Iraq & Palestine*, (20 Dec 1929 – 22 Feb 1930), provides a series of letters that detail the difficulties the RAF was having 'finding suitable officers for intelligence duties in Iraq, Egypt and Palestine'; and *Flight*, (26 Aug 1932), p. 811.

<sup>29</sup> IWM 4465, *Hutson Oral History Interview*, reel 1.

<sup>30</sup> John Glubb, *Arabian Adventures: Ten Years of Joyful Service*, (London: Cassell, Ltd., 1978), pp. 32 – 33.

<sup>31</sup> Robert S.G. Fletcher, *British Imperialism and 'The Tribal Question'*, (Oxford, UK: Oxford University Press, 2015), p. 28.

<sup>32</sup> SOAS website, [www.soas.ac.uk/centenary/the-soas-story/early-years-1917-36/](http://www.soas.ac.uk/centenary/the-soas-story/early-years-1917-36/) accessed on 15 Dec 2017.

<sup>33</sup> RAF SSOs and staff intelligence officers who served in the Middle East and went on to senior ranks include: ACM Robert M. Foster, Air Cdre John W.B. Grigson, Air Cdre Lionel G.S. Payne, AVM Sydney E. Toomer, and Air Cdre Frank Wooley. Source: [www.rafweb.org/Menu.htm#Personnel](http://www.rafweb.org/Menu.htm#Personnel), accessed on 8 Dec 2017.

<sup>34</sup> Gerald de Gaury, 'An Arabian bibliography', *Journal of The Royal Central Asian Society*, Vol. 31, No. 3, (1944), pp. 315 – 320.

<sup>35</sup> Fletcher, *British Imperialism and 'The Tribal Question'*, p. 23.

<sup>36</sup> Priya Satia, *Spies in Arabia: The Great War and the Cultural Foundations of Britain's Covert Empire in the Middle East*, (New York: Oxford University Press, 2008), p. 166.

<sup>37</sup> An example is John G. Lorimer's six volume geographical, historical, and navigational survey, the *Gazetteer of the Persian Gulf, Oman and Central Arabia*, from 1915. It remains a tool for modern researchers.

<sup>38</sup> Military Handbooks of Arabia 1913–1917, Cambridge Archive Editions, (Cambridge, UK: Cambridge University Press, 1998). Hugh Clout and Cyril Gosme's history and evaluation of the handbooks in 'The Naval Intelligence Handbooks: a monument in geographical writing', notes that the handbooks first produced for the First World War provided a precedent for geographical and intelligence analysis through the Second World, remained valuable, despite being outdated in certain areas, through the present, *Progress in Human Geography*, Vol. 27, No. 2, (Apr 2003).

<sup>39</sup> IWM ID 1118A, *Royal Navy Geographical Intelligence Handbook, A Handbook of Mesopotamia*, Naval Staff Intelligence Department, (Nov 1918).

<sup>40</sup> IWM ID 1215, *A Handbook of Syria (including Palestine)*, (1920); and IWM ID 1128, *A Handbook of Arabia*, (1920).

<sup>41</sup> Gertrude Lowthian Bell, *The Arab of Mesopotamia*, (Basrah, Iraq: Superintendent, Government Press, 1917), reprinted and edited by Paul Rich, (Lanham, MD: Lexington, Books, 2008), p. vi.

<sup>42</sup> IWM, *Straight Tips for "Mespot"*, (Bombay: Thacker and Co., Ltd., 1917), (no author given), p. 35.

<sup>43</sup> Martin Thomas, *Empires of Intelligence*, p. 78.

<sup>44</sup> IWM 4410, *Glubb Oral History Interview*, reel 1; IWM 4465, *Hutson Oral History Interview*, reel 1.

<sup>45</sup> <http://www.rafweb.org/Menu.htm#Biographies>, accessed on 8 Dec 2017.

<sup>46</sup> FO 131/436/5, Letter from Wallace to Cairo Residency, 6 June 1920.

<sup>47</sup> In 1921, RAF Iraq was formed out of the RAF Mesopotamian Group, with Group Captain A.E. Borton as its first commander. Borton had served in the Middle East during the First World War and supported Arab irregular forces under T.E. Lawrence during the 1917-18 Palestine and Syria campaign.

<sup>48</sup> [www.rafweb.org/Menu.htm#Personnel](http://www.rafweb.org/Menu.htm#Personnel), accessed on 8 Dec 2017.

<sup>49</sup> TNA AIR 8/94, *Iraq: 1927 – 1932*, 'Personal Note prepared by Sir Hugh Trenchard in regard to his views on the situation that has arisen in Iraq, in answer to a request by Sir Samuel Wilson', (28 June 1927), p. 2). Also found in TNA CO 730/114/4, same title and date.

<sup>50</sup> J. Salmond, 'The Air Force in Iraq', p. 496.

<sup>51</sup> IWM 4410, *Glubb Oral History*, reels 1 and 2.

<sup>52</sup> Andrew M. Roe calls this 'developing cultural acuity', going beyond just learning the language and getting to the point that one gains 'in-depth understanding of cultural norms and standards', 'What Waziristan Means for Afghanistan', *Middle East Quarterly*, Vol. 18, No. 1, (Winter 2001), p. 42.

<sup>53</sup> IWM 4465, *Hutson Oral History Interview*, reel 1.

<sup>54</sup> TNA AIR 5/170, C.D. 72, ASM 46, *Notes on Air Control of Undeveloped Countries*, (24 Mar 1930), pp. 14 – 15; TNA AIR 5/171, C.D. 79, ASM 47, *Air Power and Imperial Defence*, (8 May 1930), pp. 7 – 8.

<sup>55</sup> IWM 4410, *Oral History Interview*, Lt Gen Sir John Glubb, reel 1, (26 Mar 1979); IWM 4465, *Oral History Interview*, Maj Gen H.P.W. Hutson, reel 1, (1979).

<sup>56</sup> TNA AIR 23/269, *SSO Reports*, provides Flt Lt G.M. Moore's records of his meetings with sheikhs and refugee leaders in Iraq's southern border region, (May – June 1925). TNA AIR 23/23, *SSO Reports*, Series of telegrams, (16 Aug 1925 – 31 Jan 1926).

<sup>57</sup> TNA AIR 23/23, *SSO Reports*, (10 – 12 Feb 1926); TNA AIR 23/27, *SSO Reports*, 1926; TNA 23/408, *Transjordan Intelligence*, (Oct 1927); TNA AIR 23/269, *SSO Report*, (3 Mar 1925).

<sup>58</sup> TNA AIR 23/269, *SSO Report*, (30 June 1925); also TNA AIR 9/12, Air Staff Memorandum 21, *The civilising influence of Medical Service advanced by aid from the Air*, (n.d., circa 1924), p. 1.

<sup>59</sup> TNA AIR 9/12, ASM 21, *The civilising influence of Medical Service*, pp. 1 – 2. TNA 23/408, *Transjordan Intelligence*, (Oct 1927), describes the SSO acting as a liaison with Iraqi tribes on the Syrian border and serving as a lookout for further instances of cholera.

<sup>60</sup> TNA AIR 23/409, *Transjordan Intelligence*, (Apr 1928). Aerial spraying technology was not pioneered until 1924 in the US, and commercial aerial crop-dusting comes much later.

<sup>61</sup> TNA AIR 5/171, ASM 47, *Air Power and Imperial Defence*, p. 7; A. van Huis, 'Can we prevent desert locust plagues?', *New Strategies in Locust Control*, S. Krall, R. Peveling, and D. Ba Diallo (eds), (Basel, CHE: Birkhäuser Verlag, 1997), pp. 453 – 54.

<sup>62</sup> Vincent Orange, *Winged Promises*, (RAF Fairford, UK: The Royal Air Force Benevolent Fund Enterprises, 1996), pp. 73 – 74.

<sup>63</sup> TNA AIR 23/298, *Telegrams between SSO and AHQ Baghdad*, (May 1925).

<sup>64</sup> TNA AIR 9/18, *Somaliland Draft Substitution Scheme with covering note to CAS*, (Mar 1930), p. 3.

<sup>65</sup> Obituary, *Asian Affairs*, Vol. 15, No. 2, (1984), pp. 227 – 28.

<sup>66</sup> *Oxford Dictionary of National Biography*, (Oxford, UK: Oxford University Press, Jan 2007), accessed at on 13 Sep 2015.



# RAF INTER-WAR OPERATIONS ON THE NORTH-WEST FRONTIER

By Wing Commander Dr Andrew Walters

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**Biography:** Wing Commander Andrew Walters joined the RAF in 1982. He completed 13 operational deployments on the Tornado GR1/4 as a Qualified Weapons Instructor, Electronic Warfare Instructor and Targeteer. Following Staff College, he was awarded a Portal Fellowship researching the RAF's inter-War operations on the North-West Frontier of India, for which he was awarded a PhD in 2017.

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**Abstract:** India's North-West Frontier was the one area where the British Raj could suffer a knockout blow from either Russian invasion or tribal revolt. Despite the RAF's operational efficacy in 1920s Iraq, air control was never implemented on the Frontier and air power's potential was never fully exploited. Instead, aircraft were employed to enhance the Army's traditional battlefield capabilities, resulting in efficient tactical co-ordination during the 1930s Waziristan campaign. This article examines the relationship between the Armies in India and the RAF and its impact on the RAF's subsequent strategic bombing policy. It concludes that India's Armies were slow to recognise the conceptual shift required to fully exploit air power. This was reinforced by inter-Service rivalry and the threat of aircraft replacing land forces with a concomitant loss of political standing.

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## INTRODUCTION

The RAF's Centenary provides the opportunity to reflect upon significant events in our Air Force's past, some of which have been overlooked in the annals of history. One such lacuna was the RAF's inter-War operations on the North-West Frontier of India (NWF). Between the First and Second World Wars, RAF(India)'s strength exceeded any other overseas Command and its squadrons undertook significant combat operations throughout the period.<sup>1</sup> Frontier defence was amongst the greatest burdens during India's inter-War years of financial austerity. Yet, although the RAF demonstrated significant operational and financial efficacy in 1920s Iraq, air control was never implemented on the NWF and air power's potential was never fully exploited.<sup>2</sup> Instead, aircraft were employed to enhance the Army's traditional battlefield capabilities, resulting in efficient tactical co-ordination during the 1936-39 Waziristan campaign, the RAF's most operationally-active theatre leading up to the Second World War. Nevertheless, there is no official history of RAF(India) and most authors have focussed on tactical air-land co-operation rather than operational and strategic issues, and important enduring lessons have never been officially recognised.

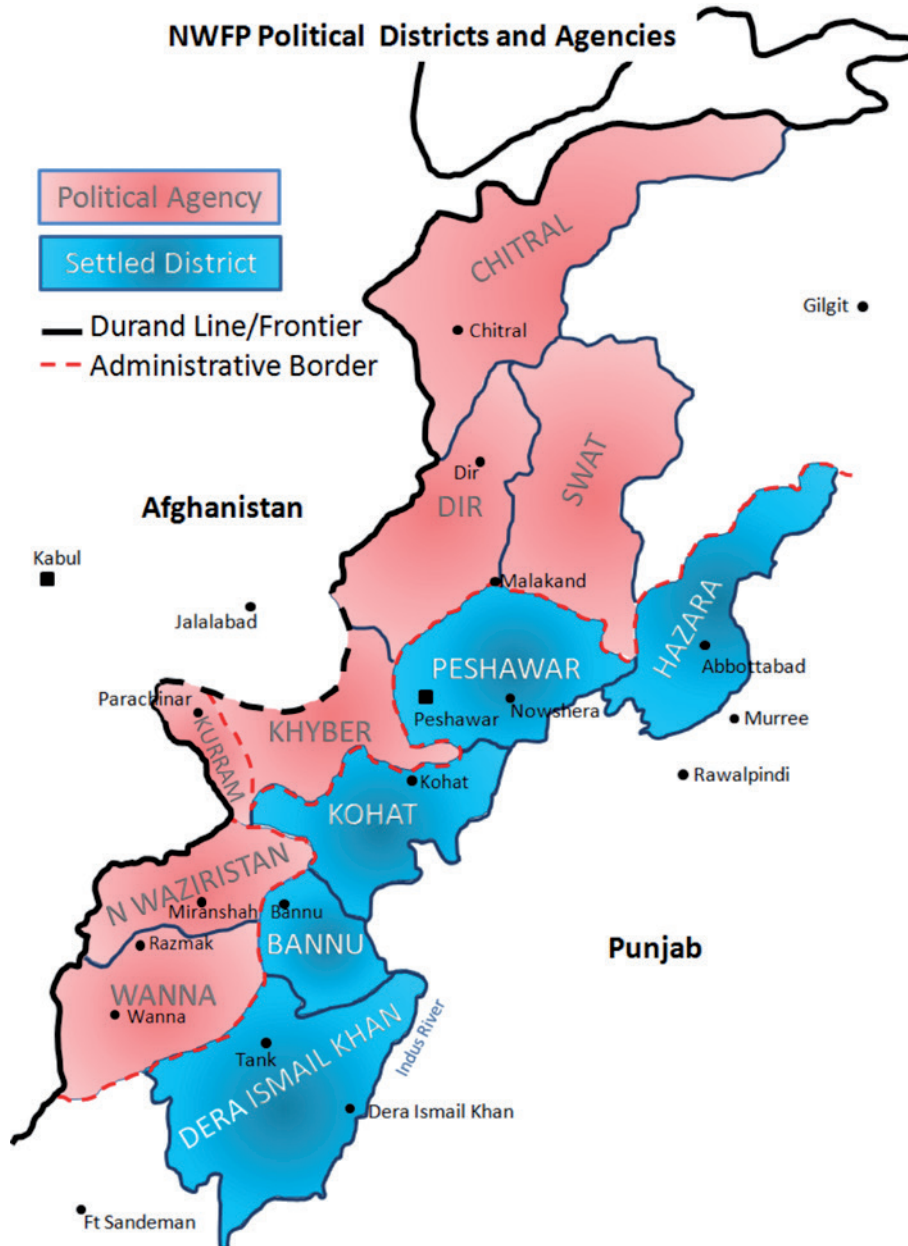
Operation	Date
Third Afghan War	1919
Waziristan	1919-1921
Pink's War	1925
Mohmand Disturbance	1927
Kabul Airlift	1928-29
Red Shirt-Inspired Incursions	1929
Chitral Relief	1932
Upper Mohmands Operation	1933
Bajaur Operations	1933
Loe Agra Campaign	1935
Mohmand Campaign	1935
Waziristan – The Fakir of Ipi's Insurgency	1936-39

Significant NWF inter-War Operations.

## INDIA AND THE NWF ISSUE

The NWF was a vital Imperial border. Afghanistan formed the buffer zone between the competing Russian and British Empires' 'Great Game'. The barren, mountainous NWF also marked a cultural, political and economic discontinuity which generated long-lasting unrest within the fiercely independent, rifle-armed tribes. The British fixated on Frontier problems, from the threat of conventional Russian invasion (the 'major' threat) to irregular warfare by the indigenous Pathan tribesmen (the 'minor' threat).<sup>3</sup>

In 1893, the British coerced the Afghan Amir into delineating Afghan and British spheres of influence along the Durand Line, limiting Afghan trans-border meddling. The NWF Province developed into two very different areas. To the west of the ‘Administrative Border’ were the mountainous, loosely-controlled ‘political agencies’; to the east were the settled, fully-administrated ‘districts’ of the fertile Indus plain.<sup>4</sup>



Initially, under the 'Modified Close Border Policy', the NWF agencies were unadministered. They had no police force and there was little attempt to enforce law. Instead, each agency's government-appointed Political Agent acted as a referee, settling disputes between the tribes. Intransigent tribes were traditionally dealt with by the Army. A typical punitive column comprised a reinforced brigade, whose vulnerable logistical tail varied from four to twelve miles in length as it wound through the mountain passes.<sup>5</sup> The hilltops had to be 'picquetted' by riflemen to suppress hostile tribesmen, slowing the columns to a mere eight miles a day off road. When a hostile village was captured, it was normally demolished, especially the prized wooden roof beams, watch-towers and water channels.<sup>6</sup>

The 1919 Third Afghan War shattered over two decades of relative tribal accord. The subsequent tribal uprisings lingered, on and off, until 1921. The tribes were ultimately subdued by garrisoning two brigade groups across the Administrative Border (one at Razmak and the other at Wana) and two more just east of the Administrative Border.<sup>7</sup> The ensuing Modified Forward Policy was a contentious compromise. Although occupation was expensive, it was forecast that future economies could be made by using the RAF.<sup>8</sup> The new policy required a new method of enforcement: 'control from within' rather than direct rule or the previous lawlessness.<sup>9</sup> The British leveraged the existing *malik* system of democratically elected tribal leaders. Under the principle of collective tribal responsibility, the *maliks* were held responsible for the actions of their tribesmen in return for Government stipends, even though they sometimes had little influence. If necessary, the two garrisons could quickly switch from 'watching' to deploying a mobile column, enabled by a new, costly network of roads.<sup>10</sup> Roads were very much a double edged sword; while they enabled trade and were 'the great carriers of civilisation' for some, the tribes perceived them as facilitating the movement of troops. As such, road building increased tribal unrest.<sup>11</sup>

Frontier strategy balanced three interconnected issues: the 'Great Game' with Russia; Afghan intrigue; and tribal unrest. Imperial strategy was periodically preoccupied with potential Russian advances through Afghanistan against India.<sup>12</sup> Britain went to extreme lengths to ensure that Afghanistan remained within its Imperial sphere of influence (and outside Russia's), resulting in the 1838, 1878 and 1919 Afghan Wars. Although the Russian revolution reduced the threat, it never disappeared. As late as 1926, Russia's occupation of an Afghan island generated Cabinet concern over Russia's expansionist intent, during which the UK Government observed that 'The Air forces[sic] in India are dangerously small'.<sup>13</sup> This prompted India's Commander-in-Chief (C-in-C(India)) to develop an ambitious plan to occupy much of Afghanistan should Russia invade Afghanistan. This 'Blue Plan' was formulated in isolation from London, yet relied on Imperial reinforcement from Britain. It was replaced in 1931 by the less-ambitious, defensive 'Pink Plan' which relied heavily on air power. This allotted six of RAF(India)'s eight squadrons to a strike force against Kabul to seize the initiative and 'force AFGHANISTAN

to sue for peace', with the remaining two squadrons supporting the Army.<sup>14</sup> This counters the perception that the RAF's NWF role was predominantly one of tribal control. Nonetheless, coordination of war plans between India and London remained poor. As late as 1939, London's Chiefs of Staff Committee noted that it had 'not been kept fully informed of India's plans for local defence' and recommended that plans should be subject to the closest consultation between India and the Committee for Imperial Defence.<sup>15</sup>

### **RAF SMALL WARS TACTICS**<sup>16</sup>

Early RAF 'small wars' tactics were based largely on the application of overbearing force, akin to the Army's punitive column. The Air Staff stated publicly in 1921 that 'The attack with bombs and machine guns must be relentless and unremitting', and it was believed that the sharp application of lethal force would rapidly achieve tribal submission.<sup>17</sup> However, by 1922, the RAF's capstone doctrine manual, *CD22*, emphasised that force should only be resorted to when peaceful measures had failed and that women and children should be spared 'whenever practicable'.<sup>18</sup> By 1924, emerging doctrine recommended demonstration flights to overawe tribesmen and the disruption of daily routine to reduce the tribes' morale and force their compliance, rather than inflict casualties.<sup>19</sup> Unlike punitive columns, aircraft denied tribesmen both a fair, sporting fight and the prospect of acquiring loot.<sup>20</sup> The Air Staff also investigated and promoted the psychological and morale implications of bombarding 'semi-civilised' people and the civilising influence of air-delivered medical services.<sup>21</sup> Despite much ignorance-based rhetoric about indiscriminate bombing (exemplified by Sir Henry Wilson, Chief of the Imperial General Staff, as 'the bomb that falls from God knows where and lands on God knows what'), RAF(India) developed a thorough understanding of non-kinetic effect.<sup>22</sup> Squadron-strength demonstrations of aircraft, were often flown overhead negotiations between Political Agents and tribal leaders as shows of strength to increase the psychological pressure on the tribes to comply with Governmental demands.

By 1928, the Air Staff were openly publicising air power's ability to inflict intolerable inconvenience on tribes by driving them from their villages, using minimum force to coerce them into compliance.<sup>23</sup> This minimum force ethic aimed to rebut accusations about the brutality of air power. In 1930, the Air Staff highlighted the incompatibility of the air and land methods. Land operations endeavoured to make tribesmen stand and fight (in favour of their preferred guerrilla activities) where they were vulnerable to massed Western firepower. In contrast to this punitive land action, the 'air blockade' employed escalatory coercive techniques to disperse tribesmen: negotiation; leaflet dropping; demonstration flights; and the bombing of selective buildings to force tribesmen to abandon their villages. Expelled from their homes, it was theorised that tribesmen would move through moods of defiance, to squabbling, then boredom and helplessness, coercing them to concede to terms. At this point, the Government would fly in medical parties and defuse unexploded ordnance.<sup>24</sup> However, it was vital to determine

whether the RAF or Army would have primacy, to determine which strategy (coercive or punitive) would be employed.<sup>25</sup> However, this sophisticated Air Staff doctrine was largely ignored by India, where air power was normally directed by the Army.

Nonetheless, RAF(India) proved adept at employing a variety of weapons to achieve different effects. Practice bombs were used to encourage lingerers to leave their villages during air blockades, followed by small bombs to deter tribesmen from returning. Heavier bombs, followed by incendiaries, were used in punitive operations to cause physical destruction.<sup>26</sup> The Army often criticised the RAF for not causing sufficient damage.<sup>27</sup> Such comments miss the point, as the blockade's effect was moral, rather than physical. Nonetheless, air action could cause considerable damage to buildings when required and RAF(India) often appealed to the Army to suspend punitive bombing because there was nothing left to bomb.

### **THE DEVELOPMENT OF INDIAN AIR POWER**

India's military was swift to recognise the aircraft's 'vast possibilities and its future importance'. By 1914, an Indian Central Flying School had been established.<sup>28</sup> However, at the Great War's outbreak, all India's aircraft deployed overseas.<sup>29</sup> The next year, the Viceroy requested aircraft for the NWF as 'one of the most valuable' measures of mitigating his garrison's depleted strength.<sup>30</sup> Although this was initially rejected, 31 Squadron deployed to India in November 1915, followed by 114 Squadron in 1917.<sup>31</sup> In July 1918, the India Office (IO) requested two additional squadrons:<sup>32</sup>

Recent frontier warfare has shown their extreme value... aeroplanes can bring about a decision in our favour on the frontier more quickly than anything else, and... save many lives, considerable bloodshed, and much money.<sup>33</sup>

Resource limited, the Air Staff was unable to divert any additional squadrons to India.<sup>34</sup> However, it is clear that Army officers recognised the aircraft's potential in both tribal control and deterring the Russian threat, especially when troops were in short supply.

The Armistice catalysed a *volte-face* from both the Air Ministry and IO. The Air Ministry recommended that India establish a twelve-squadron force, its thinly veiled agenda, as it faced the possibility of re-absorption into its parent Services, being to retain as much force structure as possible at India's expense.<sup>35</sup> The IO agreed to a smaller force, resulting in 20, 48, 99 and 97 Squadrons forming in India in 1919.<sup>36</sup> The same year, Trenchard proposed eight squadrons for India 'not as an addition to the military garrison but as a substitute for part of it'.<sup>37</sup> A few months later, 1 and 3 Squadrons formed in India with Sopwith Snipes, but the logistical burden resulted in many aircraft becoming permanently grounded. This first RAF call to substitute aircraft for troops rankled India's established military hierarchy and, without informing the Air Staff and much to their annoyance, the IO withdrew the Snipe squadrons.<sup>38</sup>



*Flying* magazine front cover, 20 August 1938, ©Time Inc. UK

The British had an almost romantic view of the 'noble Pathan savage'. In his 1938 article in the boys' aviation magazine, *Flying*, *Biggles* author W E Johns described recalcitrant hill tribesmen as 'dusky gentlemen' for whom conflict offered 'both business and pleasure' - 'very good fellows' who 'have occasionally expressed their displeasure with their knives on sundry prisoners' but whom also displayed 'a degree of chivalry seldom encountered in countries so-called civilised'.

In 1924, RAF(India) was allowed to conduct a 51-day independent operation to subdue the Abdur Rahman Khel Mahsuds.<sup>39</sup> Following the successful conclusion of what became known as Pink's War, the Secretary of State (SoS) for India asked the RAF to prepare a scheme for implementing air control on the NWF.<sup>40</sup> The Air Staff cautiously submitted a plan whereby seven squadrons would control the Frontier under an AOC, with two additional squadrons in reserve.<sup>41</sup> Trenchard warned that this paper was likely to generate 'a great deal of controversy with the Army'.<sup>42</sup> This proved correct. The Indian Army's Deputy Chief of the General Staff (CGS(India)), besmirched Pink's War: 'the RAF have the sublime impertinence to try and claim all the credit because they squashed a few villages and inflicted eleven casualties'.<sup>43</sup> This focus on casualties indicates he did not appreciate the 'minimum force' nature of the air blockade, viewing it as an airborne version of a punitive expedition.

The 1928/29 Kabul Airlift, when 586 diplomatic staff were evacuated from the besieged British Legation during an Afghan civil war, was an early demonstration of the strategic influence of air mobility. The RAF and politicians drew significant lessons.<sup>44</sup> SoS(Air) concluded: 'the Air Force became the favourite in the family'; aircraft had proven to be 'an instrument of real help and benefit to the British Empire and to humanity at large'.<sup>45</sup> Air power was temporarily finding favour and, in 1929, 11(B) and 39(B) Squadrons deployed to India with their long-awaited Westland Wapitis, finally bringing RAF(India)'s strength to the long-envisioned eight squadrons. However, the enthusiasm appears to have been largely amongst airmen and politicians, as the Kabul airlift went unmentioned in the GoI's *Official History*.

The Air Ministry's most contentious inter-War proposal was Trenchard's 1929 'Swansong'. Based on nearly eight years' RAF experience of air control, it recommended the widespread substitution of troops by aircraft in 'semi-civilised' Imperial regions. As Slessor reflected, 'By far the most drastic proposals, for which we foresaw would meet with the heaviest opposition, concerned India'.<sup>46</sup> Trenchard proposed substituting five or six squadrons for twenty-five-to-thirty infantry battalions and ten artillery batteries, with the Frontier commanded by an AOC reporting to the GoI, saving £2 million annually.<sup>47</sup> It is likely that, in his twilight as Chief of the Air Staff (CAS), Trenchard saw this as 'unfinished business'. Slessor reflected:

This paper fairly took the gloves off and declared unequivocally the belief of the Air Staff that real economies with at least no less efficacy could be secured by the substitution of Air Forces for other arms over a very wide field.<sup>48</sup>

The other Services reacted aggressively. SoS(War) declared himself in complete disagreement and both the Admiralty and War Office questioned the need for a separate air force, something which was only quashed at Prime Ministerial level.<sup>49</sup> This third formal proposal for NWF substitution found no traction with C-in-C(India) and undermined

Army-RAF relations until at least 1935. With hindsight, the staffing of Trenchard's Swansong was less than ideal. Although its drafters had Army backgrounds, they had not consulted the War Office or India's General Staff (GS(India)), leaving their proposal open to tactical criticism. At the strategic level, Trenchard published his proposal as a Cabinet Paper, circumventing and annoying London's Chiefs of Staff Committee, whom he reluctantly informed only the day before. Trenchard's timing was also poor. Published as he left office, when he could no longer defend or promote it, he left his successor, Salmond, with the dilemma of either pursuing the proposal under great inter-Service criticism, or dropping it and risking criticism from Trenchard's loyal staff.<sup>50</sup> Furthermore, India had consistently recognized air power's utility as a force multiplier when troops were in short supply.<sup>51</sup> Therefore, if Trenchard's proposals had been submitted at a time when the Indian Army was hard-pressed, it may have found more traction.

Civil unrest associated with the arrest of Peshawar-based 'Red Shirt' ringleaders during April 1930 brought the relatively benign late-1920s Frontier period to an end.<sup>52</sup> A series of *lashkars* of armed tribesmen crossed the Administrative Border heading towards Peshawar. The subsequent military action revealed a lack of coherent strategy over the control and co-ordination of land and air power. During this unrest, the Chief Commissioner retained operational control, with the Army and RAF commanders advising him and acting independently, attracting criticism from several Army officers.<sup>53</sup> Aircraft were initially constrained to targeting the *lashkars* alone, which merely fixed the tribesmen in caves. However, when the GoI finally sanctioned targeting the leader's villages to 'humanely interrupt tribal life and cause a nuisance' under the auspices of collective responsibility, many *lashkar-walas* immediately dispersed.<sup>54</sup> Nonetheless, political indecisiveness often complicated military affairs, as demonstrated in June 1930 when the Chief Commissioner forbade air action against a 700-strong *lashkar* until it had reached the outskirts of Peshawar.<sup>55</sup> Although subsequent air action inflicted heavy casualties, aircraft tended to disperse the *lashkar* into small bodies, denying the Army the opportunity to inflict a decisive defeat and complicating subsequent co-operative air-land action.<sup>56</sup> This demonstrates the incongruent characteristics of air and land power; air action tended to disperse hostiles, thwarting Western land-based firepower that was optimised against massed formations. The RAF and Army drew different conclusions. To the RAF, difficulties in targeting *lashkars* emphasised the importance of blockading villages, something the Politicals supported.<sup>57</sup> The War Office commissioned a critique aimed at discrediting air power's role, probably to undermine Trenchard's recent Swansong, describing the 'punitive' bombing of villages as 'distasteful to all concerned'.<sup>58</sup> In contrast, the GS(India) noted the lack of serious damage to villages, recommending 'prolonged bombing with the heaviest types of bombs'.<sup>59</sup> The War Office's incorrect use of the term 'punitive' and the GS(India)'s preoccupation with physical damage indicates that they failed to appreciate the air method's coercive, minimum-force nature.

The GoI and Army's inconsistent strategy in the application of air power during a series

of short punitive campaigns in the early 1930s and, in particular, the 1933 Bajaur operation, was criticised both by London's Air Staff and India's Legislative Assembly.<sup>60</sup> At the time, the action was defended by the Indian Army Department's Secretary on the grounds of its economy, low casualties and material damage. However, in 1935, C-in-C(India) retrospectively criticised the operation, attempting to dissociate the Army from this action and leaving the RAF's reputation tarnished.<sup>61</sup>

The appointment of Sir Edgar Ludlow-Hewitt as AOC(India) in March 1935 marked a watershed for in-theatre Army-RAF relations. Having previously been AOC Iraq and Deputy CAS, he was well-suited for this post. He cultivated improved relations with the Viceroy and C-in-C(India) and, whilst against substitution, he appreciated that air action was liable to be met on all sides by bias and prejudice. Similarly, when Slessor arrived as OC 3(Indian) Wing at Quetta from Camberley the same year, he swiftly focussed on developing army co-operation tactics, despite believing that 'in nine cases out of ten, these tribal disturbances... could best be dealt with by... the Air Method'.<sup>62</sup> Slessor soon had the opportunity to practice his tactics with the advent of the 1936-39 Waziristan Campaign.

Operations in the later 1930s revolved around the Fakir of Ipi's insurgency in Waziristan which ultimately involved 61,000 Imperial troops and almost all RAF(India)'s squadrons.<sup>63</sup> Although air support was initially undervalued, its contribution quickly became critical. In the opening gambit, only a single flight of aircraft had been allotted to support two, 15-mile separated columns, and were forbidden from engaging hostile tribesmen, even in self defence, unless directed by the columns.<sup>64</sup> Despite initial issues, the need for operational success during the subsequent escalating counter-insurgency campaign led to good air-land integration at the tactical level, as noted by several authors.<sup>65</sup> Generally, the Army's General Officer Commanding (GOC) was vested with full control of land and air operations, while responsibility for air operations was devolved to OC 1(Indian) Group, side-lining AOC(India). As a result, even when aircraft became the predominant striking element after regular Army units became fixed on defensive road protection duties in early 1937, independent air action was generally restricted to punitive bombing or 'proscription' (whereby an area was prohibited to tribesmen, who were liable to attack if detected). Nonetheless, the politicians' strategy nested comfortably with air power. To stabilise unrest, political pressure was first applied on the *maliks*, followed by progressive punitive and proscriptive air action.<sup>66</sup> These operations were 'punitive' in that, although warnings were always dropped at least 48 hours beforehand, the notices lacked terms of compliance; instead, tribesmen were merely informed that bombing would commence, so could not be coerced into compliance, as there were no terms to comply with.

Following the ambushing of forty-nine lorries in the Shahur Tangi defile in April 1937, most resupply convoys were suspended, leaving the Wana garrison reliant on resupply by the Bomber Transport Flight, demonstrating the use of air transport as a force protection measure.<sup>67</sup> In punishment for the Dargai Sar ambush, six villages were

proscribed or punitively bombed for a month.<sup>68</sup> The Air Staff expressed caution that this 'air proscription without terms' would 'never be permitted by an A.O.C.' and might attract accusations of inhumanity.<sup>69</sup> It did. The German press highlighted Britain's barbaric bombing of Crown citizens.<sup>70</sup>

Lahore's Bomber Transport Flight's expansion to squadron strength was frequently discussed but never funded.<sup>71</sup> Its aircraft could not only transport troops and cargo, but could also loiter for long periods, armed with a variety of bombs. In May 1937, the Flight enabled a daring night troop advance through the Iblanke Pass which outflanked and decisively defeated the Fakir of Ipi's *lashkars*, parachuting rations the next morning to the lightly-equipped troops.<sup>72</sup> Following this joint air-land action, many tribesmen left Ipi's cause and large-scale fighting ceased. Thereafter, the Fakir reverted to subversion and terrorism rather than organised military resistance.<sup>73</sup> Convoys recommenced, but the permanent road picquetting tied-up large numbers of troops, requiring army co-operation aircraft to escort trains.<sup>74</sup>

The improving in-theatre situation abated neither the Army's caution over air power's decisiveness nor the Air Staff's disapproval of the Army's air strategy. The punitive destruction of four insurgent villages in July 1937 led to the tribe conceding.<sup>75</sup> Nonetheless, the Army refused to accept their final terms until a column visited the area.<sup>76</sup> The Air Staff's Indian liaison officer described the operation as 'curious':

It would be difficult to imagine more confused action than this. Constant suspensions of operations took place, there was no true air blockade & the aims & terms were constantly changing.<sup>77</sup>

In contrast, C-in-C(India) noted that 'close and cordial relations between the land and air forces were a marked feature of the campaign'.<sup>78</sup> Thus, while the imperatives of combat were forging closer in-theatre tactical co-operation, the Air Staff remained steadfast in advocating pure RAF doctrine, despite the Army's increasing use of bombing as their primary tactic. In particular, the Army's heavy punitive bombing contrasted with the Air Staff's 'minimum force' doctrine.<sup>79</sup>

During 1938, insurgents increasingly avoided direct confrontation, instead relying on improvised explosive devices against roads, railways, parade grounds and airfields, even damaging a taxiing aircraft at Miranshah.<sup>80</sup> The RAF increasingly became the main offensive weapon.<sup>81</sup> This was, in effect, Army-imposed substitution driven by troop shortages, albeit with air power directed by Army commanders in an unsophisticated, reactive, punitive manner in contrast to the Air Staff's doctrine designed for independent, coercive operations to control tribal behaviour. The Air Staff noted that 'Until control of air operations in India is made over to an Air Staff, misuse of aircraft will continue'.<sup>82</sup>

Over 1938's summer, air operations surged as a multitude of areas were proscribed to deter the Fakir, using a new locally-developed tactic termed 'tactical air proscription'.<sup>83</sup> The Air Staff described this as 'an objectionable form of air action' because it neither imposed terms nor invoked tribal responsibility, concluding that 'trouble appears to be more widespread than ever... an alteration in frontier policy is urgent'.<sup>84</sup> These operations illustrated that, despite effective air-land co-operation and tactical successes, the effect of both punitive columns and aerial proscription was temporary and required constant engagement to counter insurgent activity.

The harassment of Ipi required 300% more sorties in Spring 1939 than the previous year.<sup>85</sup> The GoI simultaneously imposed a successful, forty-three-day air, ration and financial 'blockade' on the transgressing Madda Khel tribe.<sup>86</sup> In London, the Air Staff's new India desk officer, just returned from India, described the blockade as 'an epoch making event so far as air power in India is concerned'.<sup>87</sup> Conceptually, the Madda Khel operation was a stepping-stone between the Army's policy of purely punitive proscription and the Air Staff's endorsed doctrine of coercive air blockading, differing only in that the terms were somewhat vague. By April 1939, the constant aerial harassment and action against Ipi's supporting tribes had nullified his influence, leaving the tribes wanting peace and allowing Waziristan aircraft strength to reduce to peacetime levels.<sup>88</sup> After two years of Army control, the Governor re-assumed political control of Waziristan. Although low-intensity air operations continued, by this stage the Fakir and his supporters were conditioned to react to leaflet-dropping by fleeing, making them unwelcome lodgers to the local tribes, a response acquired through the experience of previous, repetitive harassment.<sup>89</sup>

In an epilogue to the inter-War period, following the partition of India, Pakistan adopted the recommendations of a 1944 Frontier Commission, withdrawing all regular forces from the tribal agencies.<sup>90</sup> Thereafter, effective security was provided by irregular forces backed by the Pakistan Air Force until the events of 9/11 changed the paradigm.<sup>91</sup> This was, in effect, the implementation of the Modified Close Border Policy that India had abandoned almost three decades previously.

### **FUNDING IMPLICATIONS - THE COST OF MONEY...**

Although India has been called the 'jewel of the Empire', the trade slump and exchange rate crash that followed the First World War placed India in financial crisis. Defence consumed over 51% of India's 1920-21 budget, largely on the NWF, a trend that continued until the Second World War.<sup>92</sup> Yet, although the costly Modified Forward Policy had been predicated on anticipated savings from the introduction of air power, and despite the demonstrable savings resulting from the implementation of air control in Iraq and Aden, air power's maximum potential was never realised on the Frontier.

Throughout the inter-War period, Britain and India clashed over India's Imperial role. Britain viewed India's forces as a strategic reserve for Imperial defence. The GoI,

constrained by increasing nationalism, financial austerity and NWF unrest, passed the 1919 Government of India Act which placed India's defence as the Army's priority.<sup>93</sup> In the same year, Churchill announced that 'The first duty of the Royal Air Force is to garrison the British Empire' adding, pivotally, that the cost of the Indian squadrons would be borne by India.<sup>94</sup> This, *de facto*, gave India complete control over RAF(India), but with little money to support it.

As a result, severe cuts were made in the Indian air budget with an embargo on spares, causing a deteriorating serviceability rate and a concomitant impact on RAF morale; towards the close of 1921, 'the Royal Air Force in India almost ceased to exist as a fighting service'.<sup>95</sup> Pressure from a national press campaign, House of Commons questions, and Air Staff protestations resulted in an in-theatre review by Air Vice-Marshal Jack Salmond.<sup>96</sup> Salmond received scant, if any, cooperation from the Indian Army, suspecting C-in-C(India) to be the perpetrator, and although the embargo was lifted, aircraft serviceability only improved marginally.<sup>97</sup>

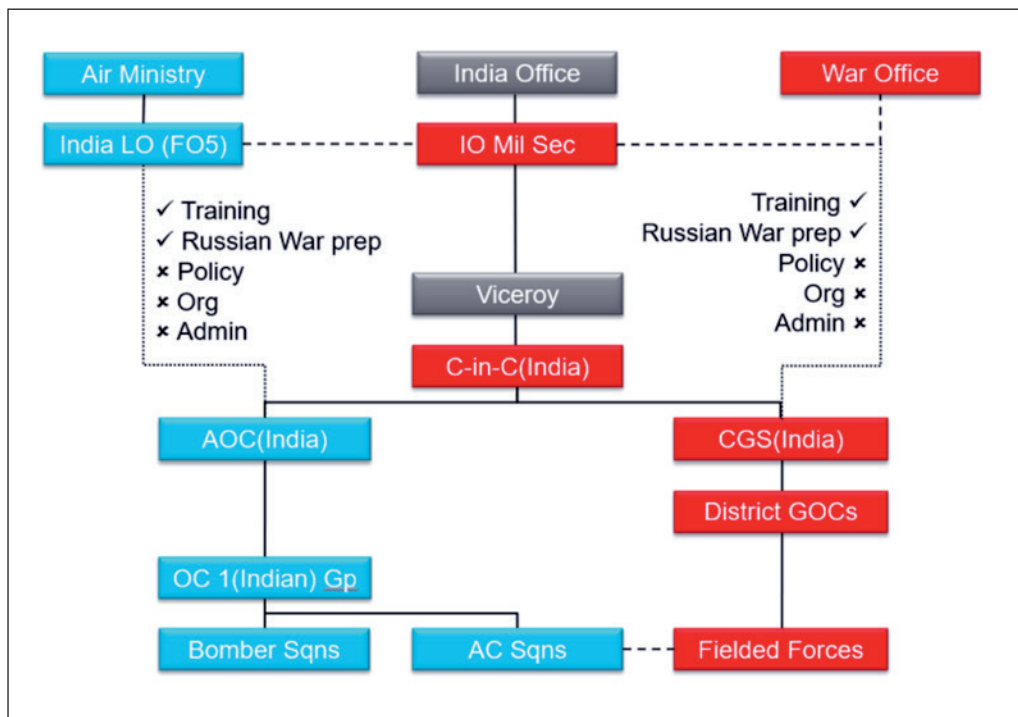
Nonetheless, the Air Staffs in both London and India were wary of RAF(India)'s increasingly obsolescent equipment and inability to counter the Russian threat. London's Defence of India Sub-Committee's 1928 plan for war against a Russian invasion of Afghanistan relied on the assumption that RAF(India)'s squadrons would be modernised. This was partially reconciled by the 1933 Garran Tribunal which made India responsible for internal security while Britain provided £1.5 million/year towards maintaining an Imperial Reserve. Nonetheless, the Sub-Committee emphasised in 1934 that RAF(India)'s essential re-equipment had not happened and that 'types should be selected more with a view to their employment against long range targets in the Central Asian military district than to meet the immediate requirements of frontier operations'. Both the Air Ministry and AOC(India) agreed the next year that RAF(India)'s aircraft were incapable of supporting India's contingency plans against a Russian invasion.<sup>98</sup> By 1938, the GoI had finally recognised the growing Japanese threat but declared to the IO that it was unable to bear the cost of military modernisation;<sup>99</sup> in particular, India stated that the need for modern aircraft 'may well be said to take precedence over all other proposals'.<sup>100</sup> The Air Staff, however, noted that 'this view is not reflected in the [RAF's 4.7%] apportionment of [India's] Defence Budget, nor can I see any possibility of this situation being remedied until the R.A.F. vote ceases to be filtered by the Commander-in-Chief'.<sup>101</sup> Furthermore, CAS (Newall), highlighted RAF(India)'s inability to meet its Imperial commitment to provide two squadrons for the defence of Singapore and four for the Middle East.<sup>102</sup> Interestingly, when Newall suggested that London's Joint Planning Committee should examine India's Imperial role, the War Office objected because the Committee's Naval member might raise the issue of why the Indian Navy was only allocated 1% of India's defence budget.<sup>103</sup> The Air Ministry unsuccessfully proposed directly administrating the Indian squadrons as an 'agency', with an RAF-funded independent RAF(India) Command, an RAF Army Co-operation Wing (funded by

the RAF, but subsidised by the GoI) and a GoI-funded Indian Air Force Wing, the latter two dedicated to India's defence.<sup>104</sup> AOC(India) highlighted that the Forward Policy's requirement for ever-increasing military penetration of the tribal areas and its concomitant increased military expenditure were inconsistent with the financial savings required by the GoI and that the increased use of air power was the solution.<sup>105</sup> Unknown to the Air Ministry, C-in-C(India) commissioned an internal review chaired by Auchinleck, Deputy CGS(India), because 'the Army in India has remained virtually unchanged since the end of the Great War' and 'must be rescued from obsolescence'.<sup>106</sup> Auchinleck's 1938 Modernization Committee lacked any RAF representation yet suggested a drastic reduction in RAF(India)'s strength to fund India's armies. CAS subsequently commented that 'It is astonishing... that quite so narrow a view should have emanated even from so antiquated a military edifice as Army H.Q., Delhi'.<sup>107</sup> After much debate and several reviews, the British Government agreed in 1938 to fund the cost of modernising RAF(India)'s four bomber squadrons, but not the cost of updating India's aerodromes.<sup>108</sup> Nevertheless, C-in-C(India) procrastinated over lengthening India's runways to accommodate the new aircraft. India's defence was still being discussed in Cabinet as late as July 1939, but world events swiftly overtook the modernization plans. Within a month, the Cabinet had authorised the dispatch of two of India's NWF Bomber squadrons to Singapore and dispersed the remaining squadrons into coastal defence flights.<sup>109</sup>

## COMMAND AND CONTROL

The 1919 decision that the GoI should fund RAF(India) resulted in command and control arrangements that were dysfunctional from an RAF and Imperial perspective. India lacked London's tri-service coordination committees, such as the Committee for Imperial Defence (CID). Furthermore, due to India's largely independent status, the UK-based defence committees had almost no influence over India; even the CID's Defence of India Sub-Committee, established in 1927, had no remit to examine India's internal defence.<sup>110</sup> Constitutionally, responsibility for the defence of India rose up from C-in-C(India) to the Viceroy and SoS(India) in London to the British Government.<sup>111</sup> However, when a defence issue could not be resolved within India and was raised to Cabinet level, it was often simply referred back to the Viceroy, as happened in 1939, for example, when the CID highlighted India's lack of bomber squadrons and AOC(India)'s limited access to the Viceroy.<sup>112</sup> London's lack of influence was partially due to the growing 'Indianization' of India's Legislative Assembly, which made the IO and GoI increasingly sensitive to anything that could be interpreted as dictation from London.<sup>113</sup> Indeed, a senior IO official commented in 1938 that 'every Secretary of State for India has the greatest difficulty in practice in imposing his views on defence on the Viceroy and Government of India'.<sup>114</sup> This situation placed C-in-C(India) - the Viceroy's *de facto* minister for defence - in a uniquely pivotal and autonomous position. As the IO, rather than the Air Ministry or the War Office, were responsible for India's defence, the Air Ministry had to pass any concerns over the employment of Indian air power to the IO who would then pass it down through the Viceroy to C-in-C(India). Indeed, correspondence between the

Air Ministry and RAF(India) was strictly limited to intelligence, training and preparation for war, with the IO copied-in; direct correspondence concerning RAF(India) policy, organisation and administration was specifically prohibited.<sup>115</sup> This had a catastrophic impact, as the Air Ministry had to rely on AOC(India)'s monthly reports to C-in-C(India) to gain an understanding on how India's squadrons were being employed, the issues they faced and the degree of success they achieved. As these monthly reports were written by AOC(India) for his superior, rather than the Air Staff, they rarely criticised the Indian chain of command.



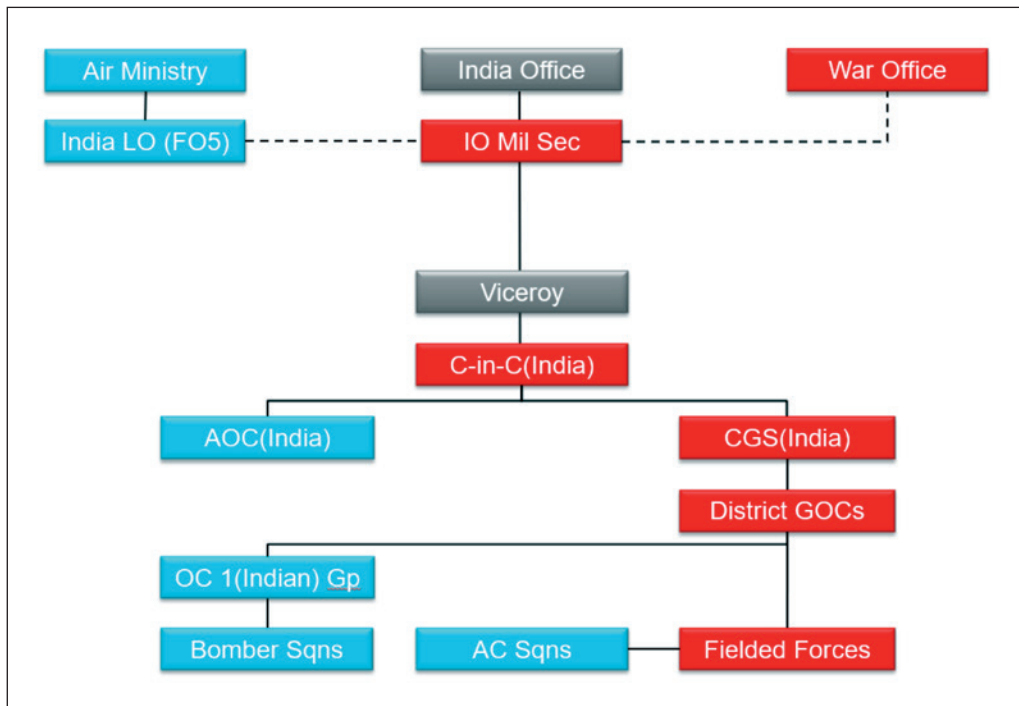
Liaison between the UK and RAF(India).

Furthermore, the Air Staff often lacked an understanding of the context of NWF operations, which sometimes led them to draw incorrect lessons from AOC(India)'s reports. For example, on his return from India to the Air Ministry in 1937, Group Captain Slessor criticised the Air Staff's Indian liaison officer for describing the support of Army columns as 'wasted effort & misemployment of aircraft'.<sup>116</sup> Another enduring issue was AOC(India)'s lack of direct access to the Viceroy. Trenchard first raised the issue through SoS(Air) in 1921, something which the IO and Viceroy opined was 'entirely opposed to constitutional practice'.<sup>117</sup> In 1922, SoS(Air) recommended that AOC(India) be given the right of access to both the Viceroy and the Air Ministry, as was the case with CGS(India) and the War Office.<sup>118</sup> In his 1922 report on the state of RAF(India), Salmond highlighted RAF(India)'s need for a separate, independent budget, informing the Viceroy that:

In every part of the world, with the exception of India, the recognition of the Royal Air Force as a separate service, the junior indeed but “inter-pares” of the three fighting services, is complete : in India I doubt if all the members of Your Excellency’s Council are even aware that such is the fact.<sup>119</sup>

It was eventually agreed that AOC(India) could access the Viceroy, but only if C-in-C (India) vetoed an air submission, something the British Cabinet later commented ‘was likely to lead to friction’.<sup>120</sup> Indeed, as late as 1937, the issue had not been fully resolved, despite AOC(India) having finally been recognised as an ex-officio member of C-in-C(India)’s Military Council.<sup>121</sup> However, the Air Staff sometimes drew the wrong conclusions due to lack of information; in 1938, CAS was about to officially complain about RAF(India)’s lack of latitude to apply appropriate air power when the Acting AOC(India) had to assure him that the facts ‘do not warrant a protest’, assuring him that he had access to C-in-C(India) and CGS(India) and had been consulted ‘on all material occasions’, despite occasional over-rulings by the Political Authorities.<sup>122</sup>

Another point of friction with the command and control of Indian air power arose at the tactical level. While Army Co-operation squadrons were allocated to the GOCs on a day-to-day basis, Bomber squadron remained under AOC(India)’s control. However, during joint Army/RAF operations, Bomber squadrons were often allocated under the



RAF(India) operational Air command and control.

direct control of the local Army commander, side-lining RAF commanders who often complained about their misemployment. For example, during the biennial relief of the Chitral garrison in 1932, GOC Peshawar directed that the villages along the route that were suspected as having sniped at the Army column should be heavily bombed. The RAF Group and Wing Commanders objected strongly, recording that 'It was not apparent to [the GOC] that, the more you bomb a target the harder it is to damage it'.<sup>123</sup> RAF(India) was subsequently criticised for the cost of this operation, something AOC(India) subsequently rebutted by highlighting the GOC's role.<sup>124</sup> The Indian Army's habit of misdirecting the use of air power, and then subsequently criticising the RAF for its actions, was an enduring theme through the inter-War years.

### **CHALLENGES TO THE APPLICATION OF AIR POWER**

During the inter-War years, the Air Staff consistently thought that 'air forces have been grossly mishandled under military control' due to 'the ignorance and gross prejudice of senior military officers'.<sup>125</sup> This was set against the background of financial austerity and international calls for the abolition of aerial bombing, with pressure groups berating that 'there is to most of us something peculiarly revolting in reprisals from the air'.<sup>126</sup> Most parties in India appreciated the utility of air power; the enduring disagreement revolved around who should control it. Nevertheless, the RAF had to rebut consistent Army charges that aircraft generated more tribal resentment than punitive columns.<sup>127</sup> From the early 1920s, the Viceroy recognised that aircraft could be readily misused by political officers, something that was mitigated by controlling air power centrally.<sup>128</sup>

One of the multi-faceted NWF paradoxes concerned the speed of decision making. Despite speed being a primary characteristic of air power (especially compared with the time taken to organise and deploy an Army punitive column), its agility was constrained on the NWF. For example, the need to avoid accusations of brutality drove Air Staff doctrine towards a minimum-force ethic. The resulting air blockade tactic took time to coerce the population into compliance, something that drew criticism from C-in-C(India) after Pink's War, who thought that joint action would have shortened the operation.<sup>129</sup>

RAF(India)'s subordination under C-in-C(India) rankled the Air Staff. The Air Ministry wanted to demonstrate a unique, independent capability, thereby justifying the RAF's continued existence as an independent Service. Conversely, the Indian Armies viewed air power as an auxiliary to support their traditional operations. CGS(India), for example, told AOC(India) in 1937 that 'all operations on the Frontier are combined operations and that the Army as predominant partner must always be in control', an attitude which compromised the post-1935 improving in-theatre inter-Service relations.<sup>130</sup> Under the in-theatre hegemony, the RAF often felt disempowered and misemployed by Army commanders who did not understand air power.<sup>131</sup> While the conservative Indian hierarchy certainly showed hubris towards the RAF, it also felt threatened by the Air

Staff's repetitive calls for substitution, fearing a loss of status. The Air Staff often failed to fully appreciate the context of NWF operations; starved of information by restrictions on Indian correspondence and viewing the theatre from an air perspective, they sometimes drew wrong conclusions and made proposals that were open to criticism. The dysfunctional communications between the Air Ministry and India hampered mutual understanding and coordination. Much of this could have been resolved if the Air Staff's liaison officer had been based in the IO, alongside the IO's Military Secretary.

Another point of friction was the Army's apparent reluctance to publicise RAF exploits. Here was another paradox. The Air Staff had developed what they considered to be an ethically defensible, minimum-force doctrine that they actively publicised. In contrast, under Indian Army direction, air power was generally applied punitively, often with maximum lethality. The Indian authorities often balked at publicising such action and, when scrutinised, the Army sometimes tried to dissociate themselves from the outcome. This frustrated RAF personnel, who saw air power being misdirected and were then blamed for the outcome.

Personality played a significant part in policy. Some C-in-C(India)s were particularly sensitive about outside advice. In 1931, C-in-C(India) complained personally to the Viceroy on a Sunday because the Air Staff had approached the IO about his application of air power. The Viceroy wrote to SoS(Air) explaining that only the CID could advise the GoI, a statement that even the IO thought went 'too far'.<sup>132</sup> Certainly, the relationship at that time between C-in-C(India) and AOC(India) was not constructive.<sup>133</sup> Similarly, Trenchard's poorly-timed 1929 Swansong soured relations until a new AOC(India) arrived in 1935; Ludlow-Hewitt built a pragmatic, conciliatory relationship with his Army colleagues, as did Slessor as OC 1(Indian) Wing. This markedly improved Indian inter-Service relations, albeit forged by the necessity of combat with the Fakir of Ipi.

The Army consistently criticised the air method for its inability to discriminate between the guilty and their women and children, stating that it was 'aimed against the whole population'.<sup>134</sup> The RAF consistently argued from 1924 that the aim of the air blockade was not to cause casualties, but to dislocate daily life using the minimum force necessary. Furthermore, warning notices minimised the risk of women and children remaining in a village while it was bombed. The RAF unswervingly contended that aircraft caused less casualties to both sides than land operations.<sup>135</sup>

Public opinion also influenced the IO to restrict offensive action. Most UK complaints came from workers' parties, women's organisations and peace groups, who were readily dismissed. Nonetheless, they highlighted the perceived hypocrisy concerning Britain's 1937 criticism of air action by the Italians in Abyssinia and Spanish Fascists while the RAF bombed Crown subjects on the NWF.<sup>136</sup> The Air Staff considered the IO to be overly sensitive to adverse press coverage and went to lengths to investigate and rebut

criticism, which was often based on hearsay rather than fact.<sup>137</sup> Nevertheless, the Air Council and War Office did censor tribal casualties during Pink's War.<sup>138</sup>

The IO was also sensitive to the diplomatic ramification of bombing. Although the Air Staff took pains to explain their position, many diplomatic enquiries were directed at the IO who, lacking an in-house air expert, often failed to appreciate the intricacies of coercive air power. Although calls by the international community for the abolition of bombing at the 1932 Geneva World Disarmament Conference for the abolition of bombing ultimately came to nothing, they nevertheless increased the scrutiny on NWF air operations, as did the growing influence of both Axis anti-colonial propaganda and American idealism in the late 1930s.

In India, the Government often shied from using coercive aerial methods, as this required the early determination of terms of compliance, which reduced the diplomatic freedom of action; air power could be applied more quickly than the GoI could define their terms. Additionally, once defined, terms could become a yardstick of success, and any softening of the GoI's stance risked losing face with the tribes. In contrast, punitive air action had no associated terms and could be stopped at any time. Ever increasing scrutiny by Indian political parties, the Indian Legislative Assembly and the Indian press all restricted the latitude for using offensive air power. This was in contrast to areas such as Aden where there was less external oversight and the AOC had more freedom to employ air power.<sup>139</sup>

## **IMPLICATIONS AND LEGACIES**

Unsurprisingly, three years of intense air-to-ground warfare in the late 1930s influenced subsequent RAF doctrine. Unfortunately, many NWF lessons did not translate well into European peer-on-peer warfare and the RAF's Second World War Strategic Bomber Campaign. The lack of an air threat on the Frontier reinforced the belief that 'the bomber will always get through'; it allowed bombers to aim their weapons without having to manoeuvre to evade fighters or effective ground fire, while minimising the effects of crosswind. Furthermore, the refinement of precision bombing was stymied by the lack of necessity – RAF(India) targeted villages because they were large enough to be susceptible to the available technology and, since operations were generally successful, there was little incentive for improvement. These successes, with bombs being aimed by locally-trained ground crew acting as part-time 'air gunners', obscured the need for specialist bomb aimers. All these factors allowed simple, unstabilised bomb sights to produce satisfactory results. Furthermore, as Government forces generally held the initiative in all but ambushes, operations could be largely confined to daylight and good weather. This downplayed the importance of precision navigation, especially at night. Furthermore, as the only two operations where the 'aerial method' of coercive, independent air power was allowed to be used were deemed to be successful, this reinforced the belief in the ability of bombing to decisively influence a population.

The Second World War swiftly illustrated the vulnerability of bombers to high-performance fighters, largely denying daylight operations. The lack of investment in night navigation and the absence of a stabilised bombsight manned by specialist bomb aimers significantly reduced bombing accuracy. This drove Bomber Command into night area bombing against a population who proved to be resilient against coercive bombardment. India's airmen should not be blamed for this. They achieved impressive results with the limited tools at their disposal during a time of financial austerity, while simultaneously balancing the Air Ministry's formal doctrine against local tactics dictated by the Army, all set against the exigencies of combined air-land insurgent warfare. However, their results, viewed in London through the lens of poor inter-theatre communications which denied an understanding of the NWF context, merely reinforced the Air Staff's 'matter of faith' belief about the effectiveness of coercive bombing.<sup>140</sup>

While these factors were similar across most Imperial regions outside Europe, the intensity of the long campaign against the Fakir of Ipi provided substantial evidence and concomitant influence. Had inter-Service relations been improved by embedding the Air Staff's Indian liaison office within the India Office, the invaluable opportunity to thoroughly test independent air power prior to the Second World War might not have been squandered.

## NOTES

<sup>1</sup> From 1929, RAF(India) had eight squadrons and a Bomber-Transport Flight, contrasted with four in Middle East Command, one in Transjordan, six in Iraq and one in Aden (see *The Monthly Air Force List*, (London: HMSO, 1929)).

<sup>2</sup> Although 'air control' is a broad term, it technically referred to a system of control whereby the Air Ministry assumed responsibility for the defence or internal security of a particular region under an Air Officer Commanding (AOC)-in-Chief. When air control was implemented in Iraq in 1922, the cost of garrisoning the country dropped from £20-million in 1922 to under £2-million in 1928. See D J P Waldie, "Relations Between the Army and the Royal Air Force, 1918-1939" (Unpublished PhD Thesis, King's College London (University of London), 1980), 205.

<sup>3</sup> The archaic term 'Pathan', rather than 'Pashtun' is used throughout this article to describe the Pashto-speaking people of the region, as this is the term used in the primary sources of the period.

<sup>4</sup> Olaf K Caroe, *The Pathans - 550 BC - AD 1957* (London: MacMillan & Co Ltd, 1958), 463; Andrew M Roe, *Waging War in Waziristan - The British Struggle in the Land of Bin Laden, 1849-1947* (Kansas: University Press of Kansas, 2010), 3.

<sup>5</sup> General Sir Andrew Skeen, *Lessons in Imperial Rule: Instructions for British Infantrymen on the Indian Frontier* (London: Frontline Books, 2008), 26. The punitive column used in the 1929 Staff College Mountain Warfare exercise required 568 mules, 20 ponies and 14 camels (see Army Staff College, Camberley, "Mountain Warfare Exercise," *Senior Division Directing Staff Lecture Notes* (1929): File 26, Annex A).

<sup>6</sup> Camberley Army Staff College, "Mountain Staff Tour, DS Notes on Exercise No 3," *Senior Division Directing Staff Lecture Notes* (1923); Army Staff College, "North West Frontier Warfare VI: L of C Defence, Permanent Piquets, Destruction of Villages. Future Operations", paragraph 16; AIR 23/5370, India Defence Department, *Frontier Warfare - India (Army and RAF)*, 1939, 169-72.

<sup>7</sup> Christian Tripodi, *Edge of Empire: The British Political Officer and the Tribal Administration of the North-West Frontier, 1877-1947* (Farnham: Ashgate Publishing, 2011), 133.

<sup>8</sup> See Brandon D. Marsh, "Ramparts of Empire: India's North-West Frontier and British Imperialism, 1919-1947" (University of Texas at Austin, 2009), 41-48. With defence already consuming 59% of Indian central expenditure, the Viceroy's Finance Member campaigned for the evacuation of Waziristan because India was on the verge of bankruptcy and garrisoning the tribal agencies was unaffordable (see Marsh, "Ramparts of Empire", 37-42).

<sup>9</sup> Lt Col Charles E Bruce, *Waziristan, 1936-1937: The Problems of the North-West Frontiers of India and their Solutions* (Aldershot: Gale & Polden Ltd, 1938), 4. The Modified Forward Policy was also known as the 'watch and ward' policy.

<sup>10</sup> Brig D E Taunton in G Moore, *Just as Good as the Rest: a British Battalion in the Faqir of Ipi's War, Indian NWF, 1936-37* (Huntingdon: published privately by the author, 1981), 3.

<sup>11</sup> J Coatman, *Years of Destiny: India 1926-1932* (London: Jonathan Cape, 1932), 130; Bruce, *Waziristan, 1936-1937*.

<sup>12</sup> Not everyone recognised the Russian threat; in 1877, Perry observed: 'A Russian statesman would laugh at one in the face if the possibility was suggested of their occupying Afghanistan' (see IOR/L/PS/18/A17, Sir E Perry, *Memo commenting on 'Political Despatch to India No 119'*, 1 August 1877).

<sup>13</sup> CAB 23/53/19, *Cabinet Conclusion 49 (26) 8: Afghanistan*, 30 July 1926, 10. See also: CAB 24/180/15, Earl of Birkenhead, *Cabinet Paper 246(26): Afghanistan*, 17 June 1926, CAB 6/5, Earl of Birkenhead, *Afghanistan (CID 142-D)*, 17 June 1926, CAB 6/5, CID Chiefs of Staff Sub-Committee, *Afghanistan (CID 143-D)*, 12 July 1926; and CAB 6/5, Earl of Birkenhead, *Afghanistan - Second (Interim) Report (CID 145-D)*, 29 July 1926, 8.

<sup>14</sup> IOR/L/MIL/17/14/21/4, Air Staff (India), *Pink Plan - Plan of Operations in the Event of War with Afghanistan: Sections I & II - Appreciation and Plan*, 1, 5; *Ibid.*, Part XI - RAF 1933, 5.

<sup>15</sup> CAB 24/278/22, *CID Chiefs of Staff Sub-Committee Report 874: Report of the Expert Committee on the Defence of India, 1938-39*, 12 May 1939, 2, 4, 20.

<sup>16</sup> For an overview, see A J C Walters, "Air Control: Past, Present, Future?", *RAF Air Power Review* Vol. 8, No. 4 (2005).

<sup>17</sup> Wg Cdr John A Chamier, "The Use of the Air Force for Replacing Military Garrisons", *JRUSI LXVI*, No. 462 (1921), 209-210, 213.

<sup>18</sup> Air Council, *CD 22: Operations Manual, RAF* (London: Air Ministry, 1922), 128.

<sup>19</sup> AIR 9/28, AM Sir John Salmond, *ASM 16: Statement by AM Sir J M Salmond of his Views upon the Principles Governing the Use of Air Power in Iraq*, January 1924, 4.

<sup>20</sup> Flt Lt C J Mackay, "The Influence in the Future of Aircraft upon Problems of Imperial Defence", *JRUSI* LXVII, No. 466 (1922), 298-300.

<sup>21</sup> AIR 9/28, Air Staff, *ASM 19: Memorandum by the Air Staff on the Psychological Effects of Air Bombardment on Semi-Civilised Peoples*, February 1924; AIR 9/28, Air Staff, *ASM 21: The Civilising Influence of Medical Service Advanced by Aid from the Air*.

<sup>22</sup> Slessor, *The Central Blue*, 66.

<sup>23</sup> Wg Cdr R H Peck, "Aircraft in Small Wars", *JRUSI* LXXIII, No. 491 (1928), 542-46.

<sup>24</sup> Air Cdre C F A Portal, "Air Force Co-operation in Policing the Empire", *JRUSI* LXXXII, No. 526 (1937).

<sup>25</sup> AIR 9/28, Air Staff, *ASM 46: Notes on Air Control of Undeveloped Countries*, 24 March 1930, 13-14.

<sup>26</sup> See AIR 20/5480, *Air Staff (India) Memo No. 1: Tactical Methods of Conducting Air Operations Against Tribes on the North-West Frontier of India (draft)*, April 1935, 4-5; "Official History of Operations on the N.W. Frontier of India 1920-35", (Delhi: Manager of Publications Government of India Press, 1945), 194.

<sup>27</sup> The Viceroy wrote in 1925 that 'Experience has now shown that the damage to personnel and even to material that air operations can inflict... is very small'. See IOR/L/PS/12/3260, Viceroy Earl of Reading, *Letter to SoS(India): Principles to be Adopted in Flying on the Frontier*, 15 October 1925.

<sup>28</sup> Norman Macmillan, *Sir Sefton Brancker* (William Heinemann, 1935), 19; "Flying School for India", *Flight*, 11 April 1914. For a good description of the development of Indian air power, see: also Clive Richards, *Origins of Military Aviation in India and the Creation of the Indian Air Force, 1910-1932, Part One: The Origins of Military Aviation in India, 1901-1918*, Manuscript from Author, 2007, 2; Richards, "Origins of Military Aviation in India and the Creation of the Indian Air Force, 1910-1932, Part Two", *RAF Air Power Review* Vol. 11, No.1 (2008).

<sup>29</sup> Michael Paris, "Air Power and Imperial Defence 1880-1919", *Jrnl of Contemporary History* 24, No. 2 (1989): 218.

<sup>30</sup> AIR 1/31/15/1/165 E2, Under SoS(India), *Copy Telegram from Viceroy to SoS. Dated 20th August 1915*, 28 August 1915.

<sup>31</sup> AIR 1/31/15/1/165, B B Cubitt, *Letter, Assistant Secretary to the War Office to Under SoS(India)*, 2 October 1915; James J Halley, *The Squadrons of the RAF & Commonwealth, 1918-1988* (Tonbridge: Air-Britain (Historians), 1988), 190.

<sup>32</sup> AIR 2/68 (A1179), Air Council Secretary, *Letter to Under SoS(India)*, 29 July 1918.

<sup>33</sup> AIR 2/68 (A1179), Lt-Gen Sir Herbert Cox, *Letter, Secretary, Military Department, IO, to Secretary, Air Ministry*, 11 July 1918.

<sup>34</sup> AIR 2/68 (A1179), Air Council Secretary, *Letter to Under SoS(India) Office*, 29 July 1918; AIR 2/68 (A1179), IO Military Secretary, *Letter to Secretary, Air Ministry*, 8 August 1918.

<sup>35</sup> AIR 2/68 (A2177), H W W McAnally, *Letter, Assistant Secretary, Air Council, to IO*, 20 November 1918.

<sup>36</sup> AIR 2/68 (A2177), E15, Sir W A Robinson, *Letter, Secretary, Air Council, to Under SoS(India)*, 6 March 1919; AIR 2/68 (A2177) E16, Lt-Gen Sir Herbert Cox, *Letter,*

*Military Secretary, IO to Secretary, Air Ministry*, 10 March 1919; Wg Cdr C G Jefford, *RAF Squadrons: A Comprehensive Record of the Movement and Equipment of all RAF Squadrons and their Antecedents since 1912* (Shrewsbury: Airlife), 31, 40-41, 53; Bowyer, *RAF Operations 1918-1938*, 153; James J Halley, *The Squadrons of the RAF*, 57-58, 106, 169, 171. In 1920, 48 Squadron remustered as 5 Squadron; 97 Squadron remustered as 60 Squadron; 99 Squadron remustered as 27 Squadron; and 114 remustered as 28 Squadron.

<sup>37</sup> "The Permanent RAF", *Flight*, 18 December 1919, 1622.

<sup>38</sup> AIR 8/40, E1, AM Sir Hugh Trenchard, *Memo: 'Status of the RAF in India', circulated by SoS(Air) to the Committee on Indian Military Requirements*, 8 December 1921; Jefford, *RAF Squadrons*, 23-24.

<sup>39</sup> For comprehensive descriptions of Pink's War, see Bowyer, *RAF Operations 1918-1938*, 170-180 and Roe, "'Pink's War'". The operation derives its name from Wg Cdr Richard Pink, OC 2(Indian) Wing at Risalpur.

<sup>40</sup> Waldie, "Relations Between the Army and RAF, 1918-39", 184.

<sup>41</sup> AIR 1/2399/283/1, Air Staff, *The Progress of the Development of Air Power in India*, Appendix A: *Outline Scheme for the Control of the NWF of India by RAF*, July 1925.

<sup>42</sup> Waldie, "Relations Between the Army and RAF, 1918-39", 184.

<sup>43</sup> Montgomery-Massingberd Papers, Maj-Gen Walter Kirke, *Deputy CGS (India) to Lt-Gen Sir Archibald Montgomery-Massingberd*, 10 June 1926, quoted in Waldie, "Relations Between the Army and RAF, 1918-39", 185.

<sup>44</sup> For detailed descriptions of the Kabul evacuation, see: Anne Baker and Sir Ronald Ivelaw-Chapman, *Wings Over Kabul: The First Airlift* (London: William Kimber, 1975); Anne Baker, *From Biplane to Spitfire: The Life of ACM Sir Geoffrey Salmond* (Barnsley: Leo Cooper, 2003); and Roe, "Evacuation by Air".

<sup>45</sup> Viscount Templewood, *Empire of the Air: The Advent of the Air Age 1922-1929* (London: Collins, 1957), 213, 295.

<sup>46</sup> MRAF Sir John Slessor, *The Central Blue: Recollections and Reflections of MRAF Sir John Slessor* (London: Cassell, 1956), 70. Other regions covered included Sudan, East and West Africa, the Red Sea and Persian Gulf.

<sup>47</sup> IOR/L/MIL/17/13/37, Lt-Gen C J Deverell, *CID: Defence of India Sub-Committee (Enquiry into the Extended Use of the RAF on the NWF of India): Memo by the GS(India)*, 30 October 1930, 4; Slessor, *The Central Blue*, 71.

<sup>48</sup> Slessor, *The Central Blue*, 70.

<sup>49</sup> CAB 24/207, Thomas Shaw, *CP 356(29)*; CAB 24/207, First Lord of the Admiralty, *CP 369(29): The Fuller Employment of Air Power in Imperial Defence: Memo by the First Lord of the Admiralty*, 20 December 1929; CAB 23/63/185, CC 13 (30) 4: *Imperial Defence: The Fuller Employment of Air Power in Imperial Defence*, 5 March 1930.

<sup>50</sup> Trenchard Papers, RAF Museum, MFC 78/23/1, Col Sir Maurice Hankey, *Personal letter to Viscount Trenchard*, 26 February 1936, 3.

<sup>51</sup> This had been demonstrated during the First World War and would occur again in 1937 during the Waziristan counter-insurgency campaign when the regular Army

became fixed on defensive road protection duties and had to rely on air power to deal with outlying areas. See "Official History of Operations on the N. W. Frontier of India 1936-37", (Delhi: Manager of Publications, 1943), 38 and AIR 23/688, AM Sir Edgar Ludlow-Hewitt, *Letter, AOC(India), to Sir Edward L Ellington, CAS*, 5 March 1937, 4.

<sup>52</sup> The 'Red Shirts' were an anti-British Pathan movement. The GoI broke up several meetings in Peshawar, resulting in significant rioting and bloodshed in April 1930, which spread widely within the NWF.

<sup>53</sup> Charles W Gwynn, *Imperial Policing* (London: Macmillan, 1936), 254.

<sup>54</sup> AIR 5/1332, AOC(India), *RAF(India) Monthly General Summary of Work No 138: May 1930*, 1; Air Cdre H le M Brock, "Air Operations on the N.W.F., 1930", *Jrnl of The Royal Central Asian Society* 19, No. 1 (1932): 27-28, 42.

<sup>55</sup> Gwynn, *Imperial Policing*, 282-284; Brock, "Air Operations on the N.W.F., 1930": 35-36.

<sup>56</sup> AIR 5/1332, AOC(India), *RAF(India) Monthly General Summary of Work No 139: June 1930*, 1; Gwynn, *Imperial Policing*, 286-287.

<sup>57</sup> AIR 5/1325, Olaf K Caroe, *Letter, Chief Secretary to Government, NWFP, to Foreign Secretary to the GoI, Foreign and Political Department*, 25 October 1933, 4.

<sup>58</sup> WO 32/3526, Minute 1, Maj-Gen J R E Charles, *Minute, Director of Military Operations and Intelligence to Col K D Murray, MO2*, 5 August 1930.

<sup>59</sup> WO 32/3526, GS(India), *The Action of the RAF on the NWF during the Disturbances of 1930*, 11, 19-21.

<sup>60</sup> AIR 5/1322. Chapter 22, Sqn Ldr A S Bishop, *Memo to Deputy Director Operations and Intelligence*, 26 April 1934, 1.

<sup>61</sup> AIR 5/1322, Chapter 22, P Mason, *Letter from Under Secretary to the GoI to the Secretary, Military Department, IO*, 22 March 1934. See also: AIR 5/1325, Sqn Ldr L Darvall, *Paper for Deputy Director Operations (Gp Capt R H Peck and A T Harris): Air Power on the NWF of India*, 16 October 1935, Annex C: Operations in Bajaur 1933; and AIR 23/687, FM Sir Philip Chetwode, *Letter, C-in-C(India), to Viceroy*, 20 August 1935, 2.

<sup>62</sup> Slessor, *The Central Blue*, 120-121.

<sup>63</sup> The Fakir of Ipi was a charismatic, anti-Government religious preacher attributed with magical powers who united the disparate tribes against the British by calling for a *jihad* against a 'war on Islam'. For an overview of Ipi's campaign, see Hauner, "One Man against the Empire", available on-line at

<http://www.khyber.org/publications/021-025/faqiripi.shtml>. For good land-power perspectives of the air campaign, see: Col Andrew M Roe, "The Troublesome 1930s" and "Aviation and Guerrilla War"; Andrew M Roe, Brian Cloughley, and Lester W Grau, *From Fabric Wings to Supersonic Fighters and Drones: A History of Military Aviation on Both Sides of the NWF* (Solihull: Helion & Company Ltd, 2015); and Roe, *Waging War in Waziristan*.

<sup>64</sup> AIR 75/31, Wg Cdr J C Slessor, *Operations in Waziristan. 24 November 1936 to 15 January 1937*, January 1937, 3-5.

<sup>65</sup> Coningham, for example, concluded that the strategic differences between the RAF and Indian Army did not inhibit the development of 'outstanding' close support.

See Simon Coningham, "Air-Ground Cooperation between the RAF and the Indian Army in Waziristan 1936-37", 4, 7.

<sup>66</sup> A good example of this was the progressive punitive bombing of three Madda Khel villages by Bomber squadrons for the murder of two British officers in February 1937 which secured the surrender of three accomplices. See AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 220: March 1937*, 4-6.

<sup>67</sup> See: AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 221: April 1937*, 8-9; AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 222: May 1937*, 3, 9-10; AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 223: June 1937*, 3; AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 226: September 1937*, 4.

<sup>68</sup> AIR 5/1336, AOC(India), *RAF(India) Monthly General Summary of Work No 233*, 6-7; AOC(India), *Summary of Work No 234*, 8; Gen R A Cassels, "Report on Operations in Waziristan, 16th December, 1937 to the 31st December, 1938", *Supplement to The London Gazette*, 15 August 1939, 5668.

<sup>69</sup> AIR 5/1336, Sqn Ldr L Darvall, *Minute to RAF(India) Monthly General Summary of Work No 234: May 1938*.

<sup>70</sup> Alan Warren, *Waziristan, the Faqir of Ipi, and the Indian Army: The NWF Revolt of 1936-37* (Oxford: Oxford University Press, 2000), 215.

<sup>71</sup> Initially termed the Heavy Transport Flight, its expansion from a two-aircraft flight to a ten-aircraft squadron was still being discussed in 1938. See CAB 24/287/16, AIR 8/255, Lord Chatfield, *CP 133(39): Report of the Expert Committee on the Defence of India, 1938-39 [Chatfield Report]*, 30 January 1939, 41-43. See also AIR 23/687, Air Staff, *Proposal to Form a Bomber Transport Squadron*.

<sup>72</sup> See AOC(India), *Summary of Work No 222*, 3, 6; "Official History of NWF Ops, 1936-37", 89-95, 98; General R A Cassels, "Report on Operations in Waziristan, 16th January, 1937 to 15th September, 1937", *Second Supplement to The London Gazette*, 15 February 1938", 1060.

<sup>73</sup> Rob Johnson, *The Afghan Way of War: Culture and Pragmatism: A Critical History* (London: Hurst & Co, 2011), 197-198; "Official History of NWF Ops, 1936-37", 111-113, 116.

<sup>74</sup> "Official History of NWF Ops, 1936-37", 96. 28(AC) Squadron escorted nine trains during May and nineteen in June 1937 (see AOC(India), *Summary of Work No 222*, 8, AOC(India), *Summary of Work No 223*, 4 and "Official History of NWF Ops, 1936-37", 103-105).

<sup>75</sup> AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 225: August 1937*, 4-5; AOC(India), *Summary of Work No 226*, 8; AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 227: October 1937*, 5-6; "Official History of NWF Ops, 1936-37", 178.

<sup>76</sup> AOC(India), *Summary of Work No 227*, 5-7.

<sup>77</sup> AIR 5/1335, Sqn Ldr L Darvall, *Minute to RAF(India) Monthly General Summary of Work No 227: October 1937*.

<sup>78</sup> Cassels, "Report on Ops in Waziristan, 16 January to 15th September 1937", 1062; "Official History of NWF Ops, 1936-37", 169.

<sup>79</sup> For example, 51 tons of bombs had been dropped on four villages. See AIR 5/1335, AOC(India), *RAF(India) Monthly General Summary of Work No 224*, 4-5; AOC(India), *Summary of Work No 225*, 4-5; "Official History of NWF Ops, 1936-37", 178.

<sup>80</sup> AIR 5/1336, AOC(India), *RAF(India) Monthly General Summary of Work No 230: January 1938*, 3; AIR 5/1336, AOC(India), *RAF(India) Monthly General Summary of Work No 232: March 1938*, 3; AIR 5/1336, AOC(India), *RAF(India) Monthly General Summary of Work No 236: July 1938*, 3.

<sup>81</sup> By May, all six 1(Indian) Group Squadrons and the Bomber Transport Flight were involved. See AOC(India), *Summary of Work No 234*, 4.

<sup>82</sup> AIR 5/1336, Sqn Ldr L Darvall, *Minute to RAF(India) Monthly General Summary of Work No 234: May 1938*.

<sup>83</sup> AOC(India), *Summary of Work No 236*, 10-11; AIR 5/1336, AOC(India), *RAF(India) Monthly General Summary of Work No 237: August 1938*, 7; AIR 5/1336, AOC(India), *RAF(India) Monthly General Summary of Work No 238*, 7.

<sup>84</sup> Darvall, *Minute to Summary of Work No 236*.

<sup>85</sup> There were about 600 sorties in February/March 1938 vs about 2200 sorties in February/March 1939 (see AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 246: May 1939*, 9).

<sup>86</sup> See AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 243: February 1939*, 11-12; AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 244: March 1939*, 13; AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 245: April 1939*, 7-8.

<sup>87</sup> AIR 5/1337, Wg Cdr B E Embry, *Minute to RAF(India) Monthly General Summary of Work No 245: April 1939*.

<sup>88</sup> See AOC(India), *Summary of Work No 245*, 3-5; AOC(India), *Summary of Work No 246*, 4; AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 247: June 1939*, 4; AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 248: July 1939*, 4; AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 249: August 1939*, 5; AIR 5/1337, AOC(India), *RAF(India) Monthly General Summary of Work No 250: September 1939*.

<sup>89</sup> AOC(India), *Summary of Work No 250*, 4.

<sup>90</sup> Lt Col H E M Cotton, "Operation Curzon - The Evacuation of Waziristan", *The Royal Engineers Jnl* 62 (1948); IOR/L/PS/12/3266, *Tuker Frontier Committee Report*, July 1945.

<sup>91</sup> Renfrew, *Wings of Empire*, 250; Warren, *Waziristan, the Faqir of Ipi, and the Indian Army*, 263.

<sup>92</sup> B R Tomlinson, *The Political Economy of the Raj, 1914-1947: The Economics of Decolonization in India* (London: The Macmillan Press Ltd, 1979), 109; Marsh, "Ramparts of Empire", 37-38.

<sup>93</sup> Elisabeth Mariko Leake, "British India versus the British Empire: The Indian Army and an Impasse in Imperial Defence, circa 1919-39", *Modern Asian Studies* 48, No. 1

(2014): 1, 4. The military perspective is well described in Brian Bond, *British Military Policy between the Two World Wars* (Oxford: Oxford University Press, 1980), 110-126.

<sup>94</sup> House of Commons, Parliamentary Debates, *Pay of the Air Force*, Vol. 123, 15 December 1919, col 102 and col 137, 131.

<sup>95</sup> Air Staff, *The Progress of the Development of Air Power in India*, 2.

<sup>96</sup> Bowyer, *RAF Operations 1918-1938*, 163; AIR 8/46, E4, SoS(Air), CP 4179: *Shortage of Equipment of the RAF in India*, September 1922, 2; John Laffin, *Swifter than Eagles: a biography of MRAF Sir John Salmond* (Edinburgh: William Blackwood & Sons, 1964), 152-153; IOR/L/MIL/7/19272, Capt Frederick E Guest, *Memo from SoS(Air) to Indian Military Requirements Committee: Status of the RAF in India*, 8 December 1921.

<sup>97</sup> See: Dudley Saward, 'Bomber' Harris (London: Sphere Books, 1984), 33; Slessor; *The Central Blue*, 34-35; MFC-76-1-138, AVM Sir J M Salmond, *Personal Correspondence to CAS*, 22 June 1922. For an in-depth analysis of the Army's attitude to Salmond during his review, see Waldie, "Relations Between the Army and RAF, 1918-39", 174-180.

<sup>98</sup> AIR 2/2637, Gp Capt R H Peck, *Minute, Deputy Director of Operations and Intelligence to Deputy CAS*, 15 November 1935; CAB 16/84, Viscount Peel, *Committee of Imperial Defence: Defence of India: Second Report of the Sub-Committee (DI-38/CID 172-D)*, 10 April 1929, 4; CAB 6/6, Adm Sir Ernle Chatfield, Gen Sir Archibald Montgomery-Massingberd, and ACM Sir Edward Ellington, *CID: Afghanistan: British Policy: Defence of India Plan: Report by the Chiefs of Staff Sub-Committee (CID 185-D/COS 326)*, 23 February 1934.

<sup>99</sup> See: CAB 24/278/22, C MacI G Ogilvie, *CP 187(38) Annex 1: Letter, Secretary to the GoI to the Secretary, Military Department, IO*, 9 February 1938, 11; CAB 24/278/9, T W H Inskip, *CP 174(38): Committee of Defence of India: Interim Report*, 18 July 1938, 3. For another perspective on subsequent events, see Waldie, "Relations Between the Army and RAF, 1918-39", 214-218.

<sup>100</sup> AIR 8/1086, C MacI G Ogilvie, *Letter, Secretary to GoI to Military Secretary, IO*, 9 February 1938, 5, 18.

<sup>101</sup> AIR 8/255, Air Staff, *Memo, Necessity for the Independence of the RAF in India, both Administrative and Operational* 1939.

<sup>102</sup> AIR 8/1086, ACM Sir Cyril Newall, *Minute, CAS to SoS(Air)*, 25 March 1938.

<sup>103</sup> AIR 8/1086, Viscount Swinton, *Letter, SoS(Air) to Prime Minister*, 31 March 1938; AIR 8/1086, Marquess of Zetland, *Letter, SoS(India) to SoS(Air)*, 11 April 1938; AIR 8/1086, Marquess of Zetland, *Letter, SoS(India) to Prime Minister*, 11 April 1938. See also AIR 8/529, ACM Sir Cyril Newall, *Letter, CAS to SoS(Air)*, 1 April 1938; AIR 8/529, ACM Sir Cyril Newall, *Report by DCAS on First of the Informal Talks with Indian Delegation on Defence Requirements of India*, 24 April 1938.

<sup>104</sup> AIR 8/529, ACM Sir Cyril Newall, *Directive for AOC(India) (AM P B Joubert de la Ferte)*, 17 September 1937; Pownall, *Pownall Report*, 34.

<sup>105</sup> AIR 23/5388, AM Sir Philip Joubert de la Ferte, *Letter, AOC(India), to AM C L Courtney*, 29 November 1938.

<sup>106</sup> IOR/L/MIL/17/5/1801, Maj-Gen C J E Auchinleck, *Report of the Modernization*

*Committee*, October 1938, 3-4.

<sup>107</sup> AIR 8/529, ACM Sir Cyril Newall, *Letter, CAS to AM C L Courtney*, 10 December 1938, 3, 1.

<sup>108</sup> CAB 23/94, CC 35 (38) 6: *INDIA: Defence Questions*, 27 July 1938, 8, 17-18.

<sup>109</sup> CAB 23/100, CC 39 (39) 11: *INDIA: The Defence of*, 26 July 1939, 18-20; AOC(India), *Summary of Work No 250*, 4.

<sup>110</sup> In the UK, the CID acted as the defence planning agency for the British Empire. Chaired by the Prime Minister, its membership included Ministers and the Service Chiefs of Staff. It had several sub-committees including the Overseas Defence Committee, the Chiefs of Staff Committee and its supporting Joint Planning Committee.

<sup>111</sup> CAB 24/287/16, AIR 8/255, Lord Chatfield, *CP 133(39): Report of the Expert Committee on the Defence of India, 1938-39*, 30 January 1939, 41-43 (also published as ID(38)10 in CAB 27/654), 8.

<sup>112</sup> CAB 23/100, CC 34(39) 3: *INDIA: The Defence of*, 28 June 1939 3, 6-8, 14, 10-12, 14; CAB 24/287/21, T W H Inskip, *CP 138(39): Report on the Report of the Expert Committee on the Defence of India*, 23 June 1939.

<sup>113</sup> CAB 16/87, Committee of Imperial Defence: Defence of India Sub-Committee (Enquiry into the Extended Use of Air Power), *Minutes of the First Meeting (DI(AP) 1st Meeting)*, 26 June 1930, 2-3.

<sup>114</sup> AIR 8/529, The Earl Winterton, *Memo to SoS(Air) and CAS*, 1938.

<sup>115</sup> AIR 8/110, Sir Walter F Nicholson, *Air Ministry Office Memo 389: RAF in India - Correspondence*, 3 January 1928. The WO was subjected to the same technical limitations. However, since C-in-C(India) was a British Army officer, he had a far closer, demi-official relationship with the War Office than the Air Staff.

<sup>116</sup> Covering minute to AOC(India), *Summary of Work No 221*.

<sup>117</sup> Guest, *Status of the RAF in India*.

<sup>118</sup> SoS(Air), *CP 4179*, 1-2.

<sup>119</sup> AIR 8/46, E1, AVM Sir J M Salmond, *Report by AVM Sir John Salmond on the RAF in India*, August 1922, 15-21.

<sup>120</sup> CC 34(39) 3, 11-12.

<sup>121</sup> AIR 2/2051, Enclosure 20A, Sqn Ldr L Darvall, *Note on Meeting at IO with Military Secretary*, 24 November 1937, 2; AIR 23/5388, G R Tottenham, *Letter, Secretary of the GoI to CGS, Adjutant General in India, Quartermaster General in India, Master General of Ordnance in India and Financial Adviser, Military Finance*, 8 March 1937.

<sup>122</sup> AIR 23/688, AM Sir Philip Joubert de la Ferte, *Letter, AOC(India), to Senior Air Staff Officer, India, Air Cde Richard Peck*, 16 June 1938; AIR 23/688, Air Cdre Richard H Peck, *Letter, SASO, India, to AOC(India)*, 21 June 1938.

<sup>123</sup> AIR 23/687, OC 1(Indian) Group, *Extract, letter, OC 1(Indian) Group to SASO, HQ RAF(India) (Air Cdre A S Barratt)*, April 1932.

<sup>124</sup> AIR 23/687, AM Sir Edgar Ludlow-Hewitt, *Bombing Policy*, 9 September 1935.

<sup>125</sup> AIR 9/12, E33, Air Staff, *Instances of Misemployment of Air Forces in India by GOC*, 28 May 1930, 5.

<sup>126</sup> C F Andrews, *The Challenge of the NWF: A Contribution to World Peace* (London: George Allen & Unwin, 1937), 120-121.

<sup>127</sup> See, for example, AIR 9/12, Enclosure 57A, Air Plans, *Fallacies of "Inhumanity" and "Rancour"*, October 1932.

<sup>128</sup> CAB 6/5, Earl of Reading, *Principles to be Adopted in Flying on the Frontier: Despatch from the GoI (Foreign and Political Department), (No. 11 of 1925), to SoS(India) (CID 141D)*, 15 October 1925.

<sup>129</sup> Gen Sir Claud Jacob, "An Account of the Recent Operations by the RAF against certain Recalcitrant Sections of the Mahsuds in March, April and May, 1925", *The London Gazette*, 17 November 1925, 7595.

<sup>130</sup> Joubert de la Ferte, *AOC(India) to SASO(India), 16 June 1938*. Trench recorded another, tactical, example whereby an outspoken Frontier Officer attending a high-level operations conference by a 'very senior' officer on air control responded with: 'Listen, chum, your job is to drive the f\_\_\_\_\_g aeroplane' (see Charles Chenevix Trench, *Viceroy's Agent* (London: Jonathan Cape, 1987), 77).

<sup>131</sup> Slessor reflected of his 1921 Indian flight commander tour that 20 Squadron was 'hampered by absurd restrictions based... largely on ignorance and prejudice, not untinged by jealousy'. See Slessor, *The Central Blue*, 36.

<sup>132</sup> IOR/L/PS/12/3260, Earl of Willingdon, *Letter from Viceroy India to SoS(Air)*, 3 December 1931.

<sup>133</sup> FM Sir Philip Chetwode and AM Sir John Steel.

<sup>134</sup> See, for example, IOR/L/PS/12/3171, Lt-Gen Kenneth Wigram (CGS(India)), *General Staff Criticism of the Tribal Control and Defence Committee*, 19 May 1931, 5.

<sup>135</sup> For example, during a 1925 operation, it is estimated that there were only 11 humans killed and wounded after 154 tons of bombs and 100,000 rounds of ammunition had been expended. See IOR/L/PS/12/3260, Viceroy Earl of Reading, *Letter to SoS(India): Principles to be Adopted in Flying on the Frontier*, 15 October 1925.

<sup>136</sup> IOR/L/PS/12/3251, *Policy: Correspondence with Members of the Public Regarding Policy (including Air Action) on the NWF*, 1935-42.

<sup>137</sup> AIR 2/2065, MRAF Sir Edward L Ellington, *Minute, CAS to SoS(Air)*, 23 June 1937. As an example of 'fake news', see the series of exchanges in the 1935 *Manchester Guardian* in AIR 9/12, E97.

<sup>138</sup> AIR 5/298 Part II, Sir Walter F Nicholson, *Letter, Secretary of the Air Ministry to The Under SoS, Military Department, IO*, 17 August 1925; Trenchard, *CAS to Deputy Director Operations and Intelligence*, 27 August 1925; AIR 5/298 Part II, Col W E Wilson-Johnston, *Letter, IO to Secretary, Air Ministry*, 2 September 1925.

<sup>139</sup> See, for example, AIR 23/708, E10, Wg Cdr G C Pirie, *Letter from Air Ministry to AOC, Aden Command*, 4 February 1937.

<sup>140</sup> For detailed accounts of the development of the RAF's inter-War bombing policy, see: Sir Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany, 1939-1945*, 4 vols., Vol. I: Preparation (Uckfield: Naval & Military Press, 1961); and John Terraine, *The Right of the Line: The Role of the RAF in World War Two* (Barnsley: Pen &

Sword Military, 2010). Webster and Frankland's excellent work is an embellished version of the RAF's Air Historical Branch Narrative, AIR 41-39, RAF Air Historical Branch, *RAF Narrative: The RAF in the Bombing Offensive Against Germany: Volume I: Pre-War Evolution of Bomber Command, 1917 to 1939* 1948 and AIR 41-40, RAF Air Historical Branch, *RAF Narrative: The RAF in the Bombing Offensive Against Germany: Volume II: Restrictive Bombing, September 1939 to May 1941* 1948.

# THE AIR DEFENCE OF GREAT BRITAIN: AN OVERVIEW, 1920-1936

By Dr David Jordan

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**Abstract:** In the aftermath of the First World War the RAF's dedicated home defence force capability dwindled to almost nothing. In an era of post-war financial austerity and the lack of any extant threat, air defence seemed an unlikely area for investment, yet it was carefully developed throughout the interwar period. This article outlines the reconstitution of air defence capability and the developments which provided the United Kingdom with the most effective air defence system in the world by 1939. Highlighting the work in this area of John Ferris, John Alexander and others, the paper argues that air defence was a constant feature of British air power, and that victory in the Battle of Britain in 1940 lay in the ongoing development of air defence capability during the inter-War period.

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## INTRODUCTION

On 20 January 1920, Number 203 Squadron of the Royal Air Force (RAF) disbanded, with little fanfare. Yet this was a significant moment in that it meant that there was not a single air force squadron in the United Kingdom tasked with air defence.<sup>1</sup> Although this capability gap was brief, it was a notable nadir for the air defence of the UK. While it is fair to say that the capability offered by 203 Squadron's Sopwith Camels was relatively limited, since any attacking force would have outnumbered it, the Camel was still able to intercept most extant bomber types. The reason that such a step could be taken was because there was no immediately obvious threat to the United Kingdom from aerial attack, making the disbandment less of an alarming characteristic than it might first appear. The only bomber force within range was that of France, Britain's erstwhile ally in the First World War, and it would have been stretching credulity to think that in the opening months of 1920 there was any reasonable prospect of a French bombing campaign against the United Kingdom.

The RAF's primary task during the 1920s and early 1930s was to support low intensity operations in the British Empire and Mandated Territories, notably Iraq and Afghanistan. With the exception of the aforementioned French bomber force, there was no obvious threat of air attack from a major European opponent with the will and ability to strike against the British mainland in any strength. While possible threats could be posited, these were more theoretical than real. Germany, which had conducted attacks throughout the First World War, was crippled by the Versailles settlement; Russia was too far away for any aircraft then extant to strike Britain, even had the Bolshevik government had the means or the will to do so in the midst of a bitter civil war post-revolution; while the limitations of aircraft technology meant that most other European nations were similarly unable to carry out an air attack against the British mainland (and this again presupposed some unlikely *casus belli* which would prompt a desire to conduct such an operation). The only threat – that of attack by what we would now term a 'non-state actor' – was implausible, even though there is evidence to suggest that Irish republican leaders contemplated the possibility of an air raid against London had negotiations over Irish independence gone awry in 1922.<sup>2</sup> All of this was set against a backdrop of financial austerity in the aftermath of the war. Yet despite this apparent lack of threat, the 1920s were marked by a debate over the value of air defence within the broader context of defending the homeland against air attack. As this short article seeks to highlight, the government of the day concluded that although there was no obvious threat, it was sensible to ensure that a level of air defence capability was maintained, upon which any future expansion of the home defence force might be based. The appreciation that to abandon air defence entirely left Britain, and particularly London, vulnerable to a future threat led to deliberate steps to regenerate the capability that had been all but lost in the 24 months following the Armistice of 1918. The reason for this was articulated clearly by the man who had established the first integrated air defence network – albeit it a limited one protecting London – Major General EB Ashmore:

In the months after the Armistice the question: “can there be another war?” had but one answer. By 1923 the Everlasting No [sic] had taken on a far less confident tone.<sup>3</sup>

Although the British public was not eager to see increased defence spending at a time of austerity, there was a clear feeling within the country that there was a risk of air attack. Where such an attack might come from was far from clear, but the experiences of the First World War, with the nation under bombardment from both airship and fixed-wing aircraft, meant that it was difficult for the government to be complacent about air defence, even if the strategic situation in the early 1920s meant that it was difficult for the advocates of robust air defences to point confidently in the direction of a possible future threat. Over the course of the next decade, aviation was regarded with a mixture of adoration and dread as the public thrilled to various record attempts made by both military and civilian aviators and digested an array of earnest literature, often in the form of rather poorly thought out pulp fiction which built upon the nascent fear of air attack, but also including more serious analyses of the possible threat which came from recognised military figures whose credibility was not in question. This created an environment in which the air defence of the nation could not be overlooked by the government even if it wished to do so. In fact, despite the infamous – and oft-misunderstood – ‘Ten Year Rule’, the RAF had not fared badly in relation to the other services when it came to defence spending during the period.<sup>4</sup> It is, in fact, arguable that the RAF suffered more from the decision in 1932 to abandon the Ten Year Rule which ‘had greatly benefited it by concentrating resources on mechanical devices over manpower.’<sup>5</sup>

The often-overlooked concerns of the electorate are all-too often combined with a disregard for the actual security considerations of British governments during the inter-war era and a failure to fully comprehend the actual doctrinal position of the RAF with regard to air defence. To compound this problem, the manner in which the air defences of Great Britain moved from their nadir in 1920 through to being able to fight and win the Battle of Britain in the summer and early autumn of 1940 is not helped by historical accounts which attempt to suggest that all this was achieved by a mixture of military mavericks (notably in the shape of Air Chief Marshal Sir Hugh Dowding Air Officer Commanding in Chief (AOC-in-C) of RAF Fighter Command 1936-1940) and prescient civilians (particularly in the form of Sir Robert Watson-Watt, the ‘father’ of radar and Sir Thomas Inskip, the Minister for the Coordination of Defence) overcoming the dogmatic obsession with strategic bombing held by a monolithic Air Staff.<sup>6</sup> In fact, there was considerable debate within the RAF as to the efficacy of defence against air attack, and the view that held that defence was possible actually gained the upper hand very early on in the period under consideration. Thought about air power was not monolithic in the RAF, but because of the dominance of Marshal of the Royal Air Force Viscount Trenchard in the historiography of the early years of the Service and his firm views on the lack of

utility of defensive activity, an assumption that RAF policy was robustly ‘Trenchardian’ has developed. In fact, the way in which Trenchard ran the Air Force meant that a wide pool of senior leaders had influence and the means to ‘out-vote’ their Chief on policy and doctrine. Air Defence was perhaps the most obvious area where this occurred. Despite Trenchard’s protests that having anything more than a token fighter force (to assuage public fears) was a waste of effort and an improper use of air power, he was unable to prevent the RAF from adopting a course which saw air defence developed during the 1920s and 1930s. The clumsily named Air Defence of Great Britain (ADGB; sounding more like a separate body than an integral part of the RAF) arose from the ashes of 1920, and took forward air defence until its replacement in 1936 with Fighter Command. ADGB has been seriously underestimated by most historical accounts, yet John Ferris goes so far as to suggest that by 1934, ‘British air defence was the best on earth’, a case he robustly supports in his writing.<sup>7</sup> Ferris also makes one critical point which has gone unregarded for too long in the consideration of the supposed mothballing and regeneration of the air defence capability: in fact, air defence was comparatively well resourced throughout the interwar period.<sup>8</sup>

To understand the air defence of Great Britain in the interwar period it is necessary to appreciate that in the teeth of doctrinal debate over the best use of an air force (and in the early part of the 1920s whether one should exist at all), the Air Staff, supported by the government, was willing to expend time, effort, money and intellectual capital in engaging in the maintenance, and where finances permitted, expansion of an element of air power which was designed to address a putative future war. This maintained a clear focus upon the fundamental principle of maintaining security for the home base. When the time came in 1940 for this to be tested, the investment in an area which might be seen as an unlikely repository for funding over the course of the period 1919-1934 paid off handsomely. That is not to say that the air defence system was a ‘golden child’ of the Air Force, doted upon while other areas had to make do with a meagre proportion of the austere amount of money granted to the RAF in the interwar period – relative fiscal restraint was still the order of the day; the point is that carefully targeted investment and keeping the capability in touch with developments by maintaining a cadre of skills amongst a relatively small force (which would have been hard pressed to defend much of southern England beyond the environs of London) enabled prompt development and, when needed, expansion so that many of the difficulties that would have inevitably arisen had the RAF been forced to start from scratch were avoided. There was, for example, little confusion over the need for an effective command and control (C2) system, or debate over what this should look like, since a C2 system was already in place to be built upon.

First, it was necessary to work on the presumption that although the immediate threat might not be obvious, the generation of a possible security challenge must not be discounted. Second, practical projections of likely near and medium-term threats were

required, grounded in an appreciation of the technologies which might underpin the threat and an effective response to it. Such considerations demanded careful thought and the use of intelligence – which was not always forthcoming in the period discussed here – to arrive at sound conclusions as to how to configure air defences. This, in turn, demanded a third key factor, namely flexibility of thought and an ability and willingness to make relatively swift changes in procurement and force structure planning.

Fourth, all of this required money. This may appear to be a rather glib and obvious assertion, but in the straitened circumstances of the 1920s and 1930s, where the economic picture was rarely rosy, and where the three armed services fought with some vigour over the apportionment of government spending for defence, this was more complicated than might be imagined. The government was eager to avoid spending any more than it thought was reasonable on defence during this period, in part meeting the poor economic conditions and partly to accord with the clearly expressed opposition of the electorate to anything which might be seen as notable rearmament of the country with the concomitant risk of rearmament increasing the likelihood of another European war. Yet in spite of all this, the Air Staff, the government and various civilian advisors from the scientific community were able to develop the air defence network of which Ferris speaks so approvingly.

## **REBUILDING CAPABILITY: CONTEXT AND DEBATES**

Although air defence capability in terms of fighter aircraft reached its nadir in January 1920, the RAF was not without an air defence capability for very long. On 26 April, Number 25 Squadron reformed at Hawkinge in Kent.<sup>9</sup> It was equipped with Sopwith Snipes, a move which pointed to the economies underpinning defence at the time. A development of the famed Sopwith Camel, the Snipe had been ordered in reasonably large quantities prior to the Armistice, and there were some 500 airframes in storage.<sup>10</sup> The Snipe was, arguably, not the best aircraft available for the air force, since the now-forgotten Martinsyde F4 ‘Buzzard’ was faster, more powerful and may have been better suited to the air defence role than the Snipe.<sup>11</sup> Unfortunately for Martinsyde, their aircraft was at a slightly earlier stage of development, and not available in any numbers at the time of the Armistice – there were only around 50 airframes on charge with the RAF at that point – and this sealed the type’s fate. Martinsyde ended up buying back the airframes in RAF service and then selling them (along with several hundred airframes which had not been fully completed in 1918, but finished subsequently as a private venture) to a few European air arms who, at least one historian would argue, ended up with better fighter aircraft than the RAF as a result.<sup>12</sup> This marked a point of the RAF being forced to make the best of what was available rather than what might have been procured, even at relatively little extra cost. Perhaps indicative of the rather odd manner in which air defence was regarded in 1920, 203 Squadron had reformed in March, again with Sopwith Camels (because they were available), albeit with the primary duty of cooperating with the fleet, rather than protecting the UK from possible air attack.<sup>13</sup>

This state of affairs did not last long. A requirement for a Snipe replacement had been issued in 1918, and as it became clear that there was a need to maintain some form of military aircraft production in Britain, with manufacturers being starved of orders, this specification (the Type 1 S.S. [Single Seat] Fighter) was allowed to continue. The chosen design, the Nieuport Nighthawk, was not particularly successful. Only 63 aircraft reached the RAF, and then only to form a single squadron, overseas, in 1923.<sup>14</sup> Number 25 Squadron soldiered on with its Snipes until changing political circumstances meant that the air defence of Great Britain became a notable political consideration again in 1922. Although Britain and France had been closely allied during the First World War, by 1922, their relationship had become more fractious. The French attitude towards German reparations was a notable source of tension, and some siren voices suggested that there might be a threat to the United Kingdom from the French Air Force, which was notably larger than the RAF.

Brett Holman has analysed a variety of air scares and panics in Britain which dated from before the First World War, and notes that the presence of Germany as the main danger was a constant theme, even in 1922. While the French Air Force's 220 squadrons of aircraft were frequently referred to as presenting the sort of threat that Britain might face, this was more in the manner of an indication of what was possible, rather than likely.<sup>15</sup> The *Daily Mail* noted with concern that there were twice as many civilian aircraft in Germany than in Britain, with the implication being that this was a possible threat: after all, the Allied Commission on Air Questions had made an observation in 1919 that civilian aircraft could be turned into war machines with relatively little effort.<sup>16</sup> This was not news to British airmen, many of whom could recall the Bristol Scout, a racing aircraft turned early fighter reconnaissance aircraft, as but one example of this from the First World War. The manner in which the ease of turning civilian types into bomber aircraft helped to scupper disarmament conferences in the 1930s and the fact that a number of the *Luftwaffe's* bomber types in the Second World War had begun life under the guise of fast aircraft for delivering post and cargo demonstrated the validity of this point, even if the *Mail's* threat assessment was perhaps a little too pessimistic in 1922.

A series of articles in *The Times* in 1922 (later published in book form) by Brigadier-General PRC Groves gave clear public articulation of the potential threat, while concern over the possible French threat was played out largely in Whitehall without media attention.<sup>17</sup> Groves could not be dismissed as a mere pessimistic crank, since he had been the British Air Representative to the peace conferences in 1919, and had gone on to serve on the body tasked with monitoring German compliance with the Terms of the Versailles settlement.<sup>18</sup> While the Germans had followed the demand to rid themselves of fighter aircraft, Groves had been unable to avoid the conclusion that there was something amiss with the proliferation of civilian types, and had decided that certain types of transport aircraft could readily be converted into bombers.<sup>19</sup> Groves' concern

was taken up by a number of newspapers, and was a theme which made a number of reappearances in the British press during the 1920s and 1930s. The publication of Basil Liddell Hart's book *Paris, or the Future of War* in 1925, and its respectable sales figures meant that a significant minority of the public was presented an apocalyptic vision of air attack. Once more, coming from someone with recognised credentials as a military commentator, this did nothing to remove the thought of air attack against Britain from the public conscience, even if it would be a gross overstatement to suggest that the 'man on the Clapham Omnibus' thought about the threat on a regular basis.<sup>20</sup> It would be equally fallacious to suggest that public concern translated into political panic and a hurried resurgence in air defence. Not only was political concern about the potential threat measured, by the time that Liddell Hart's work had appeared, steps to improve Britain's air defences had already been taken.

The disparity in strength between the French Air Force and the RAF had been noted in British political and military circles in 1921, and from the autumn of that year, this had begun to have an influence on defence planning as well as wider diplomatic considerations.<sup>21</sup> This came at a propitious time for the RAF. In January 1921, there had been an upsurge in comments from senior officials and politicians to the effect that the RAF might be an extravagance, unless it could demonstrate a clear ability to fulfil some of the functions of the army and navy, and in a more economical fashion.<sup>22</sup> This, in turn, prompted Trenchard, as Chief of the Air Staff, to set out a clear role for the RAF which would be more economical than the other two services. This created considerable ill-feeling within the Army and Royal Navy, not least because by the autumn of 1921, Trenchard's rhetoric had reached notable heights. He made clear his view that civilian morale was the key factor in any future war, and that this could be influenced directly by bombing, rather than the 'old-fashioned' and sanguinary methods of blockade and fighting the enemy's army which had been seen between 1914 and 1918.<sup>23</sup> This coincided with a notable decline in relations with France. By the end of 1921, France appeared to be a serious threat to British interests. There was a further confluence of events which benefitted the RAF's air defence structures when as part of the planning process for the Washington Arms Conference, the government became painfully aware of just how great a difference there was between French and British air strength. Arthur Balfour, Lord President of the Council and an elder statesman of the Conservative Party (and thus a key figure in the Lloyd George coalition government) stated that he was filled with alarm at the fact that the French could stage an 'aerial invasion' without much interference from the RAF. He claimed that Britain was 'more defenceless than it has ever been before,' giving Trenchard the ideal opportunity to press his claims for the air force.<sup>24</sup> Efforts at obtaining a diplomatic settlement over Anglo-French differences came to naught, and in early 1922, the threat of the French 'Air Menace' led to firm consideration as to how this might best be addressed, even if the prospect of an actual war between the two countries seemed to be rather unlikely, even allowing for the poor relationship between them.

As a result of these concerns, the Committee of Imperial Defence established the Continental Air Menace Sub-Committee, which reported on 26 April 1922. The sub-committee report included a paper by the Air Staff which concluded that Britain was at risk of near-certain destruction from air attack if robust air defence measures were not put in place. The sub-committee accepted this contention with a caveat that it neither agreed nor disagreed with it, but noted that there was no actual experience upon which to quantify such alarming suggestions.<sup>25</sup> The Air Staff also argued that defence was best achieved through the mechanism of 'a vigorous offensive'.<sup>26</sup> This was entirely in keeping with the thoughts first expressed by Trenchard in his memorandum 'Future Policy in the Air' in September 1916, in which the then General Officer Commanding of the Royal Flying Corps in France had given clear articulation of his view that the aircraft was not a weapon of defence, not least since the amount of airspace to be defended meant that it was almost impossible to prevent enemy aircraft from crossing the front line.<sup>27</sup> Trenchard had made much of the 'moral' effect of air power during the First World War, and his thoughts on the matter had changed little, even if his views on exercising air power through an independent service which concentrated upon bombing were substantially different from his negative and pessimistic views during the last year of the war.<sup>28</sup> Trenchard felt that home defence would be best achieved by a force almost entirely made up of bombers, with a few token fighter aircraft thrown into the mix to assuage the concerns of the public; he had, after all, been fully aware of the feelings of soldiers who could not see friendly aircraft overhead during battles on the Western Front, and therefore felt that it was important to at least do something, even if nothing more than a token gesture, to ensure that the less robust civilian population did not feel as though it was utterly undefended.<sup>29</sup> It was here, however, that Trenchard was to find himself out of kilter with his subordinates, some of whom held rather less bomber-centric views. This was not of immediate importance, though, since deliberations over the best response to the threat continued.

In July 1922, the Committee of Imperial Defence, building upon the sub-committee report, concluded that the threat of air attack merited the creation of a home defence air force, a decision endorsed by Prime Minister Lloyd George the following month.<sup>30</sup> It appeared that these steps were timely when Anglo-French relations sank yet further with the Chanak crisis, and then in January 1923, British political opinion was horrified at the French decision to occupy the Rhur in response to the strike that had broken out there in protest at the ruinous nature of reparations. This was very much a last-ditch move by the French, but the shock that it caused in London was considerable. In February 1923, with a new government in Britain following the collapse of the Lloyd George coalition, the Air Ministry presented its recommendations for the Home Defence Air Force (HDAF). The recommendation was sent on to the National and Imperial Defence Subcommittee of the Committee for Imperial Defence, far better known by the name of its chairman, Lord Salisbury.<sup>31</sup>

The Salisbury Committee accepted the view put forward most vocally by Trenchard that bombing was likely to decide any future war, and thus recommended that it was essential

for the creation of the Home Defence Air Force (HDAF) to protect the nation against air attack. The HDAF was to be 52 squadrons strong, and, as might have been expected from a service led by Trenchard, when discussions over the structure of the HDAF were complete, the emphasis was placed upon bomber aircraft. This, though, is misleading. Trenchard felt that effective air defence was simply impossible, and that the value of home defence fighters and anti-aircraft guns was little more than a waste of resource, albeit with value for the maintenance of morale. He found that his view was not universally accepted.

A number of RAF officers felt that Trenchard undersold the importance of air defence, perhaps influenced by his experience of the Western Front and lack of contact with the air defence organisation which had emerged during the latter part of the war. The most prominent dissident was perhaps Air Commodore TCR Higgins. Higgins had commanded the RFC and then RAF home defence effort in the United Kingdom from February 1917, seeing the force grow from a wing through to a full brigade. He noted, quite reasonably, that the home defence forces had been extremely efficient once they had been given sufficient resources to combat the threat. This had been further enabled by the creation of the London Air Defence Area (LADA) under Major General EB Ashmore in 1917, which created the means whereby the careful blending of a nascent C2 network with which to direct air defence had blunted the German day bomber threat. When the German air effort had moved to night attacks, similar pain had been inflicted on the enemy raiders after only a short period of adjustment to intercepting fixed wing aircraft at night.<sup>32</sup>

Regarded as being amongst the RAF's primary experts on air defence, Higgins' views carried some weight. He was further supported by the Air Officer Commanding (AOC) India, Air Commodore John Chamier, whose war record invested him with considerable credibility and the respect of his peers, even if his background was in Army Cooperation. Chamier had commanded the Wireless and Observation School, and prior to his appointment as AOC India, he had served in the Directorate of Operations and Intelligence.<sup>33</sup> This meant that he was more than equipped to support Higgins' view that the use of radio-telephony to allow communication between ground stations and aircraft, and enabling the provision of timely information about incoming raids would permit defending aircraft to intercept approaching bombers and to destroy them. They had further support from the Air Member for Supply and Research, Air Vice-Marshal Geoffrey Salmond, who opined that the developments in radio-telephony meant that it ought to be possible to concentrate defending forces at a particular location in a manner that was simply not possible during the First World War.<sup>34</sup>

Despite the profound misgivings of the Chief of the Air Staff, the outcome of the planning led to a proposed force structure for the 52-squadron HDAF of 17 fighter squadrons and 35 bomber units. The bomber units were to include squadrons from the soon to be formed Auxiliary Air Force and the RAF Special Reserve, which meant that the

achievement of the full bomber strength of the 52-squadron force would be somewhat slower, given the time required to form and then train reserve units from scratch; in fact, the 52-squadron force was never completed, the plan being superseded by expansion programmes from the mid-1930s.

## **IMPLEMENTATION**

Once the decision to create a HDAF had been announced in parliament on 26 June 1923, the task of creating a meaningful air defence capability had to begin.<sup>35</sup> This required expansion of the number of fighter squadrons to meet the desired targets, and as noted above, this was able to progress at a swifter rate than was to be the case with bomber aircraft. There was, however, a difficulty, in that the development of the fighter force was just as constrained by finances as was the bomber element of the HDAF – thus the increase in force size was relatively slow. The Sopwith Snipe, the design of which had begun six years previously – an extremely long time by the standards of the day – remained at the forefront of the HDAF, although it was clear that improvements were needed. This prompted an upsurge in fighter development, leading to improved types such as the Armstrong Whitworth Siskin and Hawker Grebe in the near-term, followed by types such as the Bristol Bulldog and Hawker Fury in due course. The developments in fighter types and the relatively rapid turnover of types in use for the home defence role (squadrons in the empire still soldiered on with First World War types such as the Bristol Fighter and DH.9A) stemmed from the realisation that the increasing speeds of aircraft meant that the need to be able to launch interception sorties and to climb to height became paramount. While the Snipe could reach a height of 10,000 feet in just over 10½ minutes, the Siskin III, which appeared in 1925, could reach 5,000 feet higher in the same time. The Bulldog, of 1929 vintage, was able to reach 20,000 feet in 14½ minutes, while the Fury Mark I could reach this altitude in what was then the astonishing time of fractionally over 7½ minutes.<sup>36</sup> While the capability of the fighter aircraft increased, their numbers rose rather less impressively, and it was clear that without a proper system of gaining information about incoming raids, improvements in aircraft performance were not the only answer.

This factor is of note when considering the implications of maintaining capability in a time of financial restraint – although the need for advanced equipment was clear, the RAF's success lay in working out how best to use that equipment and creating the means by which tactics and procedures appropriate to the latest threat could be adopted fairly swiftly. The use of communications technology served as a force multiplier, while the structures that were created to provide a basic level of air defence were managed in such a way that when the time came for expansion, they could be built upon. The RAF, in conjunction with the War Office (which had responsibility for anti-aircraft guns, barrage balloons and searchlights) invested much intellectual capital when financial capital was less readily available. This involved close co-operation between the services and a willingness to draw upon advice from civilians – particularly scientists – where



A Sopwith Snipe fighter pictured at Hendon.



Armstrong Whitworth Siskin IIIAs of 41 Squadron based at RAF Northolt c. 1928/29.

appropriate. Relations with aircraft manufacturing firms were at worst kept cordial; it is perhaps notable how many aircraft specifications of the time were realistic and able to be met in a timely fashion. Finally, the RAF adopted what might now be considered a 'cross-governmental approach', creating a system which could be used by other government departments to allow a prompt response in the aftermath of air attack on the United Kingdom.

The first case of expenditure of intellectual capital might be said to have come in the run up to the creation of the HDAF, with what became known as the Steel-Bartholomew Committee. This was the shorthand title for what was officially called the Joint Air Ministry and War Office Committee on Anti-Aircraft Defence, established in July 1922 under the leadership of Air Commodore John Steel, the Deputy Chief of the Air Staff and Director of Operations and Intelligence, and Colonel William Bartholomew, the War Office representative. The Committee's report recommended the creation of a prepared Aircraft Fighting Zone (AFZ), divided into sectors each with a fighter squadron, (plus one fighter squadron in reserve). This zone would be equipped with searchlights to permit night interception, while an Outer Artillery Zone along the edge of the AFZ would contain anti-aircraft guns which as well as seeking to bring down enemy bombers (known from the First World War to be a difficult task), would help to disrupt bomber formations, making individual aircraft easier targets for the defending fighters as they lost the mutual protection that formation flying provided.<sup>37</sup> Steel and Bartholomew noted that they could not provide the sort of protection that was perhaps hoped for within the financial constraints of the time; a number of key coastal areas such as Portsmouth, Dover and the Thames estuary were not provided with any aircraft defences, and had to rely entirely upon anti-aircraft guns for their protection.<sup>38</sup> Steel and Bartholomew thus laid down important parameters for air defence, even if they were rather constrained in what they could recommend – their solution provided a degree of protection for London, but the remainder of the UK, including important industrial areas in the Midlands and the North could not be provided for. Although this was not a major concern at the time, given the inability of most military aircraft to reach that far into Britain, the potential risks were not ignored; in something of an echo of today's situation, the air defence of the nation was, to an extent, taken 'at risk' because of the relatively low threat level.<sup>39</sup> This was exacerbated by a general reduction in tension in Europe in 1925, with the signature of the Locarno Treaties, which encouraged the government to slow down the development of the HDAF.<sup>40</sup> Nonetheless, Steel and Bartholomew laid the foundations upon which ADGB was able to build when it took responsibility for the HDAF upon its formation under Air Marshal Sir John Salmond in 1925.

In addition to the creation of a structure which could readily be adapted (as occurred with the reorientation of the system in the mid-1930s to meet the growing threat from Germany), the investment of thought and analysis into the problems of air defence brought further dividends.<sup>41</sup> It had been understood since the days of the LADA in the



A Bristol Bulldog IIa biplane of 17 Squadron pictured in 1930.



A formation of 1 Squadron Hawker Fury fighters.

First World War that one of the most important difficulties faced by the defending air force was to get its aircraft airborne and into the vicinity of the enemy bombing formations as quickly as possible. In the days before radar, this was extremely difficult, but it is instructive to note that LADA was capable of receiving information about an incoming raid (from observers and signal intelligence) within a minute of a report's origination, and to have fighters airborne no more than five minutes later.<sup>42</sup> LADA thus provided a foundation upon which ADGB's capabilities might be built, and was instrumental in planning between 1923 and 1924. A coordinated network drawing in information was developed and refined, thus enabling the Aircraft Fighting Zone squadrons to take off as quickly as possible; the effects being demonstrated in a number of air defence exercises during the period. The wisdom of having an effective C2 system was further illustrated by another intellectual investment during the period, namely in the form of the Romer Committee (after Major General CF Romer, the chairman), another joint enterprise between the War Office and the Air Ministry. Romer recommended the creation of observer posts which would cover all the country south of a line drawn from the Bristol Channel to the Humber. The 18 observer groups which controlled the individual posts were provided with a means of communication to their own Observer Centre, which in turn had direct links to the headquarters of ADGB. In addition, those observer stations which were close to fighter sectors in the AFZ had links direct to the sector headquarters, reducing the time taken for information to reach the body responsible for 'scrambling' the aircraft.<sup>43</sup>

Although these developments naturally required financial investment to realise, it is not unfair to say that for a relatively limited amount of expenditure (for instance, £500,000 in 1923-24), an effective, if limited capability was maintained.<sup>44</sup> Because careful thought and study went into the planning, even the limited, 'at risk' capability held some degree of credibility, and – more importantly – was not likely to head off down blind alleys should the need for expansion come. This is not to say that the process was error free: the RAF's decision to adopt the 'vic' formation proved erroneous, as did the decision to embark upon production of the Boulton Paul Defiant turret fighter. The key point, though, is that both of these decisions were made after a careful analysis of the available evidence. Only after combat was joined in 1940 did it become clear that the 'vic' was inappropriate for operations where enemy fighters were likely to be encountered, and the Defiant's rationale – the concentration of a heavy weight of machine gun fire by flights of the aircraft, picking off unescorted enemy bombers in turn was undermined by the German occupation of France, which meant that the Defiant's concept of operations was no longer valid.<sup>45</sup> Overall, then, the process of thinking about air defence in a detailed and meaningful way, the relative lack of funds notwithstanding, made a difference.

The RAF in fact took this a stage further. Close relationships with the scientific community evolved during the 1920s and 1930s. Improvements in interception technology were brought forward; for instance the creation of sound mirrors (to magnify the noise of



An early production Boulton Paul Defiant two-seat fighter aircraft.

approaching aircraft formations, thus giving some early warning) which employed scientific investigation to determine the best size and shape of these devices, which – for all their limitations – were considered to be ‘fundamental to the scheme of defence’ as early as 1926.<sup>46</sup> The mirrors in fact performed with variable results, but in the air defence exercises of 1934, they located every raid sent against areas they defended – the problem lay in the fact that the range at which the incoming raids were detected varied considerably, and in those cases where the raid was in close proximity to the sound mirror, the difficulties in scrambling defending fighters were considerable.<sup>47</sup> It was in part concern over the varied efficacy of the sound mirrors which encouraged the scientific community (at the behest of the Air Ministry) into considering alternative means of detection – leading, ultimately, to the creation of radar.

## TOWARDS 1939

By 1934–35, the air defences of Great Britain had expanded but slowly. Of the 52-Squadron defence force, only 42 squadrons of fighters and bombers were extant by the end of 1933.<sup>48</sup> Nevertheless, although this critical capability had been maintained with a low level of funding, the RAF had been able to mitigate many of the problems faced. Failure to succumb to the temptation of investing the majority of money and effort into fighting ‘the war’ (or, more specifically, supporting a whole series of colonial policing actions) and to concentrate upon an area which would be of importance in a major conflict – no matter how unlikely this seemed at the outset of the process –

enabled the development of an effective set of foundations upon which Fighter Command was to be built from 1936.

The willingness to invest in intellectual activity, drawing together civilian and military personnel to properly analyse the challenges, drawing upon a mixture of experience and reasoned judgement about the likely threat over a relatively limited future timescale further enhanced the efficacy of ADGB. This should not disguise the fact that possessing equipment mattered – the evolution of ADGB’s capabilities would have been hindered without the willingness to procure fighter aircraft that were sufficiently advanced enough to meet any likely threat. This point is perhaps reinforced by occasional scares that the RAF’s fighter force was simply not fast enough to catch incoming bombers, as when Number 12 Squadron’s Fairey Fox bombers outpaced defending fighters, and then again in the 1930s when the Hawker Hart bomber and then the Bristol 142 light transport had a maximum speed equal or greater than that of most of the fighter force. In the latter instance, the scare came when the RAF was, in many ways, ahead of the game, since planning for the introduction of the aircraft which became the Hawker Hurricane and Supermarine Spitfire was underway (and the Bristol 142, when developed into the Bristol Blenheim bomber, proved hideously vulnerable to fighters). All of these factors enabled the creation of Fighter Command in 1936. While there were inevitable teething problems for the new command, it was able to develop a world-beating capability by 1940, using



Spitfire IAs of 610 Squadron, Biggin Hill, 24 July 1940.

an effective reporting and C2 network to direct a well-equipped force of fighters to defend the nation against air attack. Further developments of the system were required to match the rise of night bombing, but by 1944 and the so-called 'Little Blitz', Fighter Command was able to inflict serious losses on German raiders.<sup>49</sup>

## FINAL THOUGHTS

As John Alexander has sagely observed, AJP Taylor's allegation that Britain's air defence was 'despised and neglected' during the interwar period simply cannot be sustained.<sup>50</sup> In fact, as he demonstrates, (and adding to the work of John Ferris on the subject), Britain's interwar air defences were given careful thought and attention, even when there was little in the way of an obvious threat. Planning and preparation, not derision and neglect were the hallmarks of interwar air defence, upon which the success of the Battle of Britain was based. As Ferris has suggested, funding for defence was never quite as parlous as is popularly assumed and particularly not for the air force, but this should not obscure the fact that this was an era of fiscal restraint and – until the obvious threat of Germany emerged in the mid 1930s – one in which lavish spending on armaments was not politically acceptable. Within this construct, the willingness of the RAF to maintain sufficient skill sets and capabilities to operate a force which could be expanded if the threat changed (as it did in 1934-35), and which had the necessary infrastructure underpinning it was impressive. Although we are now 100 years into the history of the RAF, it is striking that it is only relatively recently that understanding of the air defence efforts of the service prior to 1939 has begun to emerge. It is also notable that the historiography of air defence after the Battle of Britain remains rather patchy, and it seems not unfair to suggest that while Taylor's characterisation is inaccurate, historians have certainly neglected the subject of Britain's air defence. Given that it was the question of air defence that gave rise to the Smuts Report and the formation of the RAF, this is ironic – and perhaps the sign that the area is ripe for further study and research, so as to fill the gaps in our knowledge about this vital constant in the RAF's history.

## NOTES

<sup>1</sup> CG Jefford, *RAF Squadrons: A Comprehensive Record of the Movement and Equipment of all RAF Squadrons and their Antecedents since 1912*, 2nd edition (Marlborough: Crowood Press, 2001), p. 70.

<sup>2</sup> Michael O'Malley, *Military Aviation in Ireland 1921-1945* (unpublished PhD Thesis, University of Maynooth 2007), pp. 21-24.

<sup>3</sup> Major General E B Ashmore, *Air Defence* (London: Longmans, 1929), p. 131.

<sup>4</sup> See John Ferris, *The Evolution of British Strategic Policy 1919-1926* (London: Palgrave, 1988) for a full examination of this issue.

<sup>5</sup> Neil Young, 'British Home Air Defence Planning in the 1920s', *Journal of Strategic Studies*, Volume 11:4 (1988), p. 492; NC Fleming, 'Cabinet Government, British Imperial Security and the World Disarmament Conference, 1932-1934', in *War in History*, Vol 18:1 (2011), p. 72.

<sup>6</sup> For a discussion of this, see Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military* (Ithaca: Cornell University Press, 1994), pp. 13-14.

<sup>7</sup> John Ferris, 'Achieving Air Ascendancy: Challenge and Response in British Strategic Air Defence, 1915-40', in Sebastian Cox and Peter Gray (eds), *Air Power History: Turning Points from Kitty Hawk to Kosovo* (London: Frank Cass 2002), p. 34. See also John Ferris, 'Fighter Defence before Fighter Command: the Rise of Strategic Air Defence in Britain 1917-1934', *Journal of Military History*, 63:4 (1999), pp. 845-84.

<sup>8</sup> *Ibid*, *passim*.

<sup>9</sup> Jefford, *Op Cit*, p. 36.

<sup>10</sup> JDR Rawlings, 'Royal Air Force Fighters', *Wings of Fame*, Volume 5 (London: Aerospace Publishing, 1996), p. 147.

<sup>11</sup> JM Bruce, *The Aeroplanes of the Royal Flying Corps Military Wing* (London: Putnam, 1992), pp. 280-284 and 544-54.

<sup>12</sup> JM Bruce, 'From Pachyderm to Bird of Prey', *Air International*, August 1977, pp. 85-86; Francis K Mason, *The British Fighter Since 1912* (Annapolis: The Naval Institute Press, 1992), p. 138. Perhaps surprisingly, the largest sale was to the newly created Soviet Air Force, which bought 100.

<sup>13</sup> Jefford, *Op Cit*, p. 70; Rawlings, *Op Cit*, p. 149.

<sup>14</sup> Rawlings, *Op Cit*, p. 148. Some Nighthawks were also sent to 8 Squadron in the Middle East, but only as a back-up to the squadron's main type, the DH9.

<sup>15</sup> Brett Holman, *The Next War in the Air: Civilian Fears of Strategic Bombardment in Britain 1908-1941* (University of Melbourne, unpublished PhD thesis, 2009), particularly p. 232.

<sup>16</sup> *Daily Mail*, 22 June 1922, cited in Holman *Op Cit*, p. 233.

<sup>17</sup> Brigadier-General PRC Groves, 'Our Future in the Air', *The Times*, 22 March 1922, cited in Holman, *Op Cit*, p. 56, also *Our Future in the Air: A Survey of the Vital Question of British Air Power* (London: Hutchinson, 1922). Groves had retired from the RAF as an Air Commodore in 1922, but had been granted the honorary rank of Brigadier-General, which he had held during the First World War, rather than using his air force rank.

<sup>18</sup> Holman, *Op Cit*, p. 55-56.

<sup>19</sup> *Ibid*.

<sup>20</sup> BH Liddell Hart, *Paris, Or the Future of War* (London: EP Dutton, 1925).

<sup>21</sup> Hines H Hall III, 'British Air Defense and Anglo-French Relations, 1921-1924', *Journal of Strategic Studies*, Volume 4:3 (1981), p. 271.

<sup>22</sup> John Ferris, 'The Theory of a "French Air Menace"', Anglo-French Relations and the British Home Defence Air Force Programmes of 1921-25', *Journal of Strategic Studies*, Volume 10:1 (1987), pp. 63-64.

<sup>23</sup> *Ibid*.

<sup>24</sup> Ferris, 'Theory of a "French Air Menace"', p. 66.

<sup>25</sup> Young, 'British Home Air Defence Planning', p. 494.

<sup>26</sup> *Ibid*.

<sup>27</sup> Trenchard Papers, RAF Museum, MFC 73, 'Future Policy in the Air'.

<sup>28</sup> David Jordan, 'Sir Hugh Trenchard', in Matthew Hughes and Matthew Seligmann, *Leadership in Conflict* (Barnsley: Pen & Sword, 2000).

<sup>29</sup> For the complaints of soldiers during the Third Battle of Ypres and consideration of these aspects during defensive planning in late 1917, see The National Archives, AIR 1/524/16/12/20 and AIR 1/526/16/12/36.

<sup>30</sup> Hines, 'British Air Defense', p. 275.

<sup>31</sup> Ibid, p. 276.

<sup>32</sup> See Ferris, 'British Strategic Air Defence', pp. 26-27; Christopher Cole and EF Cheesman, *The Air Defence of Great Britain 1914-1918* (Oxford: Bodley Head, 1984) cover the development of home defence under Ashmore and Higgins in considerable detail.

<sup>33</sup> A brief outline of Chamier's career may be found at <http://www.rafweb.org/Biographies/Chamier.htm> (accessed 26 January 2018).

<sup>34</sup> Ferris, 'British Strategic Air Defence'. p. 27. Geoffrey Salmond later commanded Air Defence of Great Britain and succeeded his brother John as Chief of the Air Staff in 1933 (although he was already terminally ill at his appointment and died less than a month after taking office).

<sup>35</sup> *Parliamentary Debates (Hansard)*, House of Lords Debates 26 June 1923, Vol. 54, Columns 570-572.

<sup>36</sup> Ferris, 'British Strategic Air Defence', p. 33.

<sup>37</sup> TCG James, *The Growth of Fighter Command 1936-1940* (London: Frank Cass, 2002), pp. 2-3. As an aside, the benefits of formation flying for bombers had been proven during the First World War (see Cole and Cheesman, *Op Cit*), but proved to be of less utility during World War Two thanks to the increase in the capability of air defences.

<sup>38</sup> Ibid.

<sup>39</sup> Young, 'British Home Air Defence Planning', p. 497.

<sup>40</sup> Ibid.

<sup>41</sup> For the reorientation of air defence in the 1930s, see James, *Op Cit*, pp. 26-33.

<sup>42</sup> Ferris, 'British Strategic Air Defence', p. 31.

<sup>43</sup> James, *Growth of Fighter Command*, pp. 3-4.

<sup>44</sup> Young, 'British Home Air Defence Planning,' p. 497.

<sup>45</sup> For an analysis of the Defiant's rationale (and that of the 'turret fighter' concept, see Alec Brew, *The Turret Fighters: Defiant and Roc* (Marlborough: Crowood Press, 2002), pp. 5-20.

<sup>46</sup> David Zimmerman, 'Information and the Air Defence Revolution, 1917-40', *Journal of Strategic Studies*, Vol 27:2 (2004), p. 375.

<sup>47</sup> Ibid, p.376.

<sup>48</sup> James, *Growth of Fighter Command*, p.2.

<sup>49</sup> See Ron Mackay, *The Last Blitz: Operation Steinbock, the Luftwaffe's Last Blitz on Britain* (Walton on Thames: Red Kite Publishing, 2011).

<sup>50</sup> John Alexander, 'Despised and Neglected? British Fighter Defence 1922-1940', *RAF Air Power Review* Volume 18 No.2 (2015), pp. 162-181.



# REAPING THE WHIRLWIND – BOMBER COMMAND’S WAR

By Mr Sebastian Cox

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**Abstract:**

*“For they have sown the wind, and they shall reap the whirlwind”, Hosea vii, 7.*

There is a vast and ever expanding literature on the Combined Bomber Offensive and Bomber Command’s part within it. It was, is, and will remain, a subject of intense debate and controversy. It was a complex and ever changing campaign which spanned the six years of the War, almost from the first day to the last. This article cannot hope to cover all the many technical, tactical and strategic changes and the twists and turns of changing fortunes but hopefully it will help to establish a broad understanding of Bomber Command’s struggle and achievements, as well as some of the factors which lay behind the decision making of those involved.

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## INTRODUCTION

On 18 December 1939, some six weeks after the start of the Second World War, a formation of 22 Vickers Wellington bombers led by Wing Commander Richard Kellett approached the German naval base at Wilhelmshaven. Their intent was to strike German naval units at anchor, though they were specifically forbidden to attack warships moored alongside the quays. The formation from 9, 37 and 149 Squadrons had flown in more or less a straight line from the UK and were detected by an experimental German *Freyja* radar whilst still 114 kilometres short of their target and thus, despite the fact that Germany did not at that point have a sophisticated Command, Control and Coordination (C3) system in place, it was not difficult for the *Luftwaffe* to effect an interception. The defending Messerschmitt Bf 109 and Bf110 fighters made short work of the Wellingtons. In order to minimize the threat posed by the Wellingtons' defensive armament, the fighters mostly made beam attacks, or fired cannon shells into the bombers from outside the range of the latter's rifle-calibre .303 machine guns. The rear turret of Wellington N2983 of 9 Squadron was hit and the gunner killed and another shell tore the bottom from the front turret. The front gunner, AC2 Charlie Driver, remembered looking down and seeing the sea beneath him. Twelve of the 22 Wellingtons were shot down and three more were written off on landing. A previous raid had seen five out of twelve Wellingtons lost.<sup>1</sup> A loss rate of 50% on raids which had not even penetrated beyond the enemy coastline was militarily unsustainable and raised some very fundamental questions.

These early raids tell us as much about the RAF's pre-war assumptions, doctrine, equipment and planning (as well as the British Government's attitude and concerns) as they do about the efficiency of the *Luftwaffe*. RAF pre-war doctrine emphasised the strategic bomber, or more accurately, the view that aircraft were essentially an offensive weapon. This was, in and of itself, not an untenable view, and it did not, as some commentators have suggested since, indicate that RAF doctrine excluded any form of defensive or tactical employment of air power. However, many of the more comfortable assumptions underlying the RAF's policy and doctrine were seriously undermined by these early and unsuccessful raids. The RAF, in large part because of exiguous inter-war budgetary provision, took the view that providing escort fighters for bomber aircraft was ineffective and potentially reduced the number of bombers.<sup>2</sup> As early as 1923, when discussing the policy for future expansion within a fifty-two squadron ceiling, Sir Hugh Trenchard as Chief of the Air Staff (CAS) had ruled that 'no special long-distance fighter squadrons can be raised to escort our bombing squadrons' and that the bombers ought 'to defend themselves'.<sup>3</sup>

The events of December 1939 showed pretty conclusively that, by day at least, the supposition that, by maintaining tight formation discipline when under attack, the bombers could ward off fighter attack and fight their way through to a target was illusory. The lesson was to be relearned by the USAAF in 1943, when the same fate befell

very much larger and more heavily-armed formations of B-17 Flying Fortresses attacking the ball bearing plants of Schweinfurt, deep inside Germany. It was not, however, simply pre-war tactical policy which was brought into question. If tactical penetration was impossible, then the strategic offensive on which much of the intellectual edifice of the inter-war RAF doctrine was built was also in question. In addition the Government itself, at least temporarily, had undermined the doctrine of strategic bombing. The Wellingtons were only permitted to attack warships at anchor in the roadstead and not those alongside in dockyards. This was because the Government was anxious to avoid any form of reciprocal strategic attack on the UK which it regarded, not without reason, as being more vulnerable than Germany. It did not wish any bomb to hit German soil because it feared starting a bombing 'competition' it felt it could not win. Despite the fact that the pre-war expansion of the RAF, and in particular Bomber Command, had in part been predicated on its capacity to deter German air attack, it was thus effectively the British Government which was deterred initially – in the phrasing of the day, it drew an analogy to bare-knuckle fighting and would not be the first to 'take the gloves off'.<sup>4</sup>

Before the War, Bomber Command had drawn up thirteen separate plans for war with Germany, designated the Western Air Plans, or WA1 to WA13. The most important were: WA1 – attack on the German Air Force and aircraft industry; WA4 – attack on German communications, especially if Germany invaded France or the Low Countries; and WA5 – attack on German industry, especially the Ruhr. This was the first time that the RAF moved from the realm of what might be termed 'doctrinal speculation' to that of serious operational planning. The results were not encouraging. The then AOC-in-C of Bomber Command, the fiercely analytical Sir Edgar Ludlow-Hewitt, calculated that in a concentrated attack on Germany he would lose his entire force in seven and a half weeks.<sup>5</sup> The dense communications system of Western Germany meant the planners calculated that WA4 was unlikely to cause significant problems to German military moves and that the bomber force would suffer heavy casualties. WA1 would simply take too long to have any serious impact on the *Luftwaffe* in the event of a German air offensive against the UK. If Bomber Command could thus not directly affect the outcome of German attacks in the air or on land this left only WA5, the attack on industry, which itself most closely accorded with RAF pre-war thinking and doctrine. Here an air of unrealism infected the planners. They calculated that attacking 19 coking plants and 26 power plants in the Ruhr would paralyse Germany's war-making capacity and would require 3,000 sorties and cost 176 aircraft.<sup>6</sup> War would soon show that, even had the bombers been able to find the 45 plants, it would require far more than 3,000 sorties, that is 66 sorties per plant, to destroy them.

The Government's reluctance to be the first to initiate strategic bombing on the outbreak of war meant that the only pre-war plans that could be implemented were WA7, the attack on German warships in Wilhelmshaven, and WA14, the dropping of propaganda leaflets, hence the raid of 18 December 1939. That Bomber Command was woefully

unprepared for war cannot be denied, and for the first three years of the War, its ability to inflict significant damage on Germany itself was severely limited. The German offensive in the West opened on 10 May 1940 and saw the 'gloves come off' and the critical situation quickly led the War Cabinet to authorise Bomber Command to implement an offensive against the Ruhr, with oil targets at the head of the list of priorities. Bomber Command thus embarked on the offensive which was to absorb the major part of its attention for the next five years. Its early operations were to expose notable weaknesses in its aircraft, equipment, weaponry, training, tactics and procedures. Its only marked success in the next two years was paradoxically its contribution to the defensive victory in the Battle of Britain, where, in attacks on Channel ports in France and the Low Countries, it sank between ten and twelve per cent of the German barges assembled for the putative invasion of Britain and helped reinforce the considerable doubts of the *Kriegsmarine* concerning the wisdom of invasion. But the continental ports were close to Britain and, like all coastal ports relatively easy to find from the air, did not require penetration of enemy territory and were defended only by flak and not night fighters. They were, in other words, relatively speaking an easy target.

Over Germany, however, it was different, and the Command was almost entirely ineffective. Crews struggled to find their targets in the dark, to hit them even if they found them, and to damage them with the ineffective bombs they carried even when they did. The gross over-optimism of crew reports and the inadequacies of bomb damage assessment in the early years were cruelly exposed when the first detailed analytical assessment of bombing results was undertaken by a Cabinet Office official in August 1941. The so-called Butt Report showed that only one-in-five Bomber Command aircraft despatched dropped its bombs within five miles of its intended target in Germany – a five mile radius which therefore covered seventy-five square miles of ground. Over the Ruhr, the proportion dropped to one in ten.<sup>7</sup> The idea that this level of performance could seriously affect any particular target set was thus exposed as chimerical. The Prime Minister told the CAS, Sir Charles Portal, 'It is an awful thought that perhaps three quarters of our bombs go astray...'.<sup>8</sup> Awful indeed, and indicative of an offensive incapable of implementing its then stated policy of selective and precise attack on particular target sets, be they oil, railways, or aircraft factories. The Butt Report, if not literally, at least figuratively, brought the Air Staff to earth with a jolt. Current levels of navigation, target identification and bomb-aiming were utterly inadequate to achieving the stated aim. It also dented the Prime Minister's confidence in some of the Air Staff's more sanguine predictions for the offensive, and he told the CAS in October 1941 that he deprecated placing 'unbounded confidence' in it and thought it 'an unwise man who thinks there is any *certain* method of winning this war...'.<sup>9</sup> Strategically, however, there was little alternative to continuing the offensive, short of a complete reorientation of British strategy, which would take years to implement. Germany had just instigated a two-front war by invading the Soviet Union, but in the summer and autumn of 1941 the long-term survival of the latter seemed problematic. Other than arms supplies, direct

military assistance to Russia could only come through air attack. The British Chiefs of Staff explicitly stated in July 1941 that the economic life and morale of the Third Reich had to be destroyed by bombing before any return by the Army to the Continent of Europe would be possible.<sup>10</sup> *Faute de mieux*, the offensive would continue. What was now required was to make it effective.

Work had in fact already started prior to the Butt Report on providing Bomber Command with some form of radio navigation equipment to improve its navigational performance. Work on the *Gee* navigational system was already underway and had reached the trial stage.<sup>11</sup> The CAS, in response to Butt, issued instructions that investigation be made as to whether the airborne Air-to-Surface Vessel radars developed for use by Coastal Command could be utilised as a bombing aid by aircraft which had navigated near to an objective using *Gee*.<sup>12</sup> In May 1941, work had also started on the blind bombing device which came to be known as *Oboe*. Before the War and in its early period, all the scientific and industrial resources in the field of radar had been concentrated on solving the defensive activities of Fighter Command, and it was only in 1941 that attention and resource began to refocus on the offensive potential of the electro-magnetic spectrum.

At the point where the first fruits of this increased scientific support to the offensive began to appear, there was a simultaneous change in the strategic direction and command of the bomber force. The appointment of Air Chief Marshal Sir Arthur Harris to the post of, AOC-in-C Bomber Command was a watershed in the history of the bombing offensive. Sir Arthur Harris combined a single-minded, not to say messianic, devotion to the doctrine of strategic bombing with a determination to fight all comers for the primacy of his Command, and, just as importantly, the right of the AOC-in-C to direct the force as he saw fit to achieve the broad objectives set out in the Directives he received from the Air Ministry. He took up his appointment at Bomber Command's High Wycombe Headquarters on 22 February 1942, eight days after the Air Ministry had issued a new and most significant Directive to his new Command.

The Directive marked the point at which the Government and the Air Staff accepted and directed that, in the future, Bomber Command should direct its efforts at undermining both the will and the capacity of the German people to wage war, and that this required the Command to focus on the progressive destruction of German industrial cities, principally by area attacks utilising a high proportion of incendiaries.<sup>13</sup> We should note, in passing, that the Directive pre-dated Harris' appointment, and that he was not, as



Air Marshal Arthur Harris pictured at his desk at HQ Bomber Command, High Wycombe, 15 May 1942.

is sometimes suggested, the instigator of the area bombing policy, even if he was to become its most ardent executor.

The Directive made specific reference to (and indeed was predicated upon) the successful introduction of the new *Gee* radio navigation aid. *Gee* allowed the navigator to fix his aircraft's position on a special chart with a degree of accuracy far greater than dead-reckoning navigation would normally achieve. Its range was, however, restricted by the curvature of the earth, and it was anticipated that the enemy would resort to jamming its transmissions within six months. The Directive contained within it, however, the first seed of future divergence and conflict between the views of the Air Staff, particularly the Directorate of Bomber Operations, and those of Sir Arthur Harris. The 14 February Directive specifically referred to *Gee* as a 'blind bombing device' and postulated that experience might show it capable, 'under favourable conditions', of permitting 'effective attack on precise targets'. The AOC-in-C was asked under these circumstances to consider the attack of precise targets within *Gee* range and specified targets beyond its range.<sup>14</sup> The introduction of *Gee* encouraged and coincided with the beginning of proper target marking, i.e. the technique of using a small advanced guard of aircraft to illuminate the target with flares and incendiaries for the main force of bombers following on behind. The initial technique, known as *Shaker*, simply involved *Gee* equipped aircraft dropping strings of flares across the target city accompanied by incendiaries, a following *Gee*-equipped wave carried the maximum load of incendiaries, and the larger force of non-*Gee* aircraft would use the flares and fires to guide and illuminate the bombing.<sup>15</sup> Efficient target marking was to prove fundamental to the success of the bomber offensive. In the early period of the War, individual aircraft navigated their own way to the target, identified it, and bombed it – or not, as the Butt Report showed. In addition to aiding in identification of the target, the *Shaker* technique highlights other developments in Bomber Command: in particular recognition of the need for concentration of the force in time and space.

A technique which relied on the leading aircraft illuminating the target with flares clearly required these aircraft to arrive first and on time, and the first of the successive waves to arrive before the flares burnt out. In addition, however, and adopting a tactic learned from the *Luftwaffe*, it was recognised that setting a city on fire through incendiary attack was a more effective and destructive technique than pure high explosives. Concentration in time ensured that the thousands of incendiaries would start myriad fires which would coalesce and overwhelm the efforts of the firefighters on the ground. Additionally, in response to Bomber Command's early efforts, the German air defences had been greatly expanded and reorganised into defensive 'boxes'. The radars located within each 'box' controlled a night fighter and directed it onto its target bomber. However, the box could only control one fighter at a time, so the effectiveness of the defences could be ameliorated and reduced by passing the maximum number of bombers through the box in the shortest possible time with the fighter only able to effect one interception.

The same was true of radar predicted flak over the target – the more the bombers concentrated in a short period, the less opportunity for the individual guns to engage successive targets. Thus, concentration of the bomber stream in time and space simultaneously allowed for better target identification and marking, more concentrated and thus more effective bombing, and lessened opportunities for the defences.

It was the question of target marking which was to lead to the first clash between Sir Arthur Harris and the Directorate of Bomber Operations (DBOps). Within a month of his arrival at High Wycombe, Harris received a proposal from Group Captain Sydney Bufton of DBOps suggesting that the crews with the best record of locating and bombing the target should be ‘creamed off’ into separate squadrons to form a specialist Target Finding Force, which, as the name suggested, would take on the role of finding and marking the target for the main bomber force. Harris was vehemently opposed to the idea. He had a rooted objection to what he termed ‘corps d’elite’. He believed taking the best crews away from squadrons would remove an essential core of leadership and expertise from the ordinary squadrons of his Command and thus reduce their efficiency. He wanted instead to identify the squadron which performed best each month and designate that squadron as the ‘raid leader’ the following month. Harris was infuriated when, having turned Bufton’s proposal down, the Group Captain circulated a questionnaire to selected squadron commanders in the Command behind Harris’ back. Bufton, however, won the backing of both the Vice-Chief of the Air Staff, Air Marshal Sir Wilfrid Freeman, and the CAS, Sir Charles Portal. The target marking force was imposed on Harris against his will, though he refused to allow the proposed name and instead called it the Pathfinder Force (PFF). The PFF, despite Harris’ attitude, proved essential to the development of effective target marking techniques. Harris is frequently severely criticised over the PFF issue and there is no doubt that he was wrong in his view that it was not needed. He had a point, however, over the removal of the strongest crews from his other squadrons. His critics tend to forget that at the time these arguments raged, Harris had only 38 operational medium and heavy bomber squadrons in his Command and that taking the best crews to form the PFF would adversely affect the performance of his other squadrons. In the event, the PFF did not necessarily have first call on the best crews.<sup>16</sup> The PFF was officially established in August 1942 and flew its first mission on the 18th of the month. The timing was not propitious as the Germans had started jamming Gee earlier in the month.<sup>17</sup> At this point the target markers were also still relying on ordinary flares to mark their targets as no effective target marker bombs had yet been developed. The PFF did not therefore achieve a noticeable improvement in Bomber Command’s performance until 1943.

Harris faced many significant problems other than target marking in turning Bomber Command into an effective force. In particular, aircraft production had lagged behind and his Command was constantly being called upon to provide reinforcement to other commands. In all, diversions of aircraft from Bomber Command, (either from production or the Command itself), amounted to 510 aircraft. His medium bomber force shrank

as Whitleys and Hampdens were phased out and seven squadrons were transferred to other commands. Meanwhile, the heavy bomber force, partly because of production problems, did not grow as intended. By September 1942, his force had actually shrunk from the 44 Squadrons in March (not all operational) to 38 squadrons, but of these seven were non-operational and three were understrength, so his Command was effectively no more than thirty squadrons strong.<sup>18</sup> At the same time, Harris was coming under intense political pressure to demonstrate that his Command was effective. Politicians and senior officers of the other Services were pointing to the major commitment of manpower and resources and asking what there was to show in return for this investment.<sup>19</sup> In order to demonstrate the potential of his Command, Harris was determined to show what could be achieved if the promised expansion of the bomber force occurred. He therefore drew on the full resources of his Command, including operational training units, as well as drawing reinforcements from other commands, to mount the three one-thousand bomber raids. The effort required to mount these raids is best illustrated by the fact that the figure for the average monthly operational availability of aircraft and crews in Bomber Command in 1942 was between 331 and 427, and 250 bombers airborne on one night would previously have been considered a strong force.<sup>20</sup> The bombs from the first thousand bomber raid on 30 May 1942 may have fallen on Cologne, but the intended target was just as much Whitehall. The bombing destroyed 600 acres of the city in one raid and, as Harris intended, demonstrated the results which could be achieved if a force of sufficient strength was dispatched against a single target.<sup>21</sup> He achieved the headlines he wanted, and showed what might be achieved if his force was strengthened rather than weakened. In September, the Prime Minister instructed the Secretary of State for Air to prepare a programme which would ensure that Bomber Command achieved a front-line strength of fifty Squadrons by 31 December 1942.<sup>22</sup> Harris had successfully silenced some of his Command's domestic critics, ensured its future expansion, and, under pressure from the Air Staff, taken a significant step towards improving its performance.

The year 1943 was the year that Bomber Command 'came of age'. The first true blind bombing aid, *Oboe*, was introduced, allowing a limited number of aircraft to be controlled from a ground station which transmitted a signal of sufficient accuracy that it could indicate when they should drop their bombload. Although its effective range was limited to targets in western Germany, this at least included much of the Ruhr Valley, and *Oboe* held the real prospect of very accurate target marking. The main bomber force also began to receive their own airborne mapping radar known as *H2S* – a development of air-to-surface vessel search radar, it was crude by modern standards, but it did allow skilled crews to identify particular built-up areas and being carried in the aircraft it was, unlike *Gee*, almost immune to jamming. In addition, purpose-designed marker bombs, known as target indicators (known colloquially as 'TIs'), were introduced. TIs burst and scattered burning roman candles across an area of some 250 square yards and were difficult for the Germans to extinguish or replicate as part of their target spoofing

attempts. They were also much more visually distinctive to the bomber crews than the strings of flares previously used. The first tentative steps were also taken to introduce electronic countermeasures against German radars and night fighter radios. These developments held the distinct promise of making both the Pathfinder Force and, by extension, the main force, much more effective. By the end of 1943, all the medium bombers, including the sturdy Wellington, had been phased-out of Bomber Command, and the Stirlings were excluded from attacking German targets from November after suffering unacceptably high losses. The force increasingly composed only Halifaxes and the incomparable Lancaster.

The acute concern within Government regarding the U-boat threat in the early part of 1943 saw Bomber Command divert much of its effort in the first two months of the year to bombing the French ports of Lorient and St Nazaire. The degree of anxiety the U-boat threat induced is well illustrated by the wording of the Directive Sir Arthur Harris received which stated '...the War Cabinet has given approval to a policy of area bombing against U-boat operational bases on the west coast of France.'<sup>23</sup> Harris' frustration is clear from his *Despatch*, wherein he wrote: 'These attacks ... left little undestroyed in either town except for the U-boat bases, which were protected by the heaviest concrete shelters'.<sup>24</sup> Harris' protests at the futility of attacks were to no avail.

The main focus of Harris' effort in the first half of 1943 was the Ruhr. Utilising the new marking techniques and equipment to the full, Bomber Command bombarded Essen and other Ruhr cities relentlessly. The opening attack in the 'Battle of the Ruhr' was a raid on Essen on 5 March. The marking by *Oboe* Mosquitoes was followed by a main force attack which lasted 40 minutes with 362 aircraft bombing the city. The Krupps works were badly hit, with 53 buildings struck by bombs.<sup>25</sup> Seven days later, Bomber Command returned with another raid of 384 aircraft. In all, over 2,000 tons of bombs hit Essen in a week. Other cities followed: Duisburg, Bochum, Dusseldorf, Gelsenkirchen, Cologne and Dortmund were all hit more than once.<sup>26</sup> In May, 617 Squadron led by Guy Gibson destroyed the Möhne and Eder dams, inundating the Ruhr and further disrupting its economy. Professor Adam Tooze, in his monumental study of the German war economy, records steel production dropped by 200,000 tons. Between February 1942 and May 1943, the economic policies of Reich Minister for Armament and Production, Albert Speer, had seen average monthly growth of 5.5% in armaments production. From May 1943 onwards, as the effect of the bombing campaign fed through, growth stagnated and flat-lined. Tooze concluded that the Battle 'had negated all plans for further increase in production. Bomber Command had stopped [Albert] Speer's armaments miracle in its tracks.'<sup>27</sup> This victory did not come without cost. Bomber Command mounted 43 major attacks on German targets during the Battle, totalling 18,506 sorties at a cost of 872 aircraft. The loss rate over Germany was 4.7%, which was perilously close to the 5% figure at which losses were reckoned to render the force ineffective.



An Avro Lancaster of 1 Group, Bomber Command, silhouetted against flares, smoke and explosions during an attack on Hamburg, 1943.

Bomber Command’s travails over the Ruhr (known ironically to the crews as “Happy Valley”) were ameliorated, if only temporarily, in the next major assault, known as the ‘Battle of Hamburg’. It was to be followed by the ‘Battle of Berlin’ which was to tax Bomber Command to the limits of its endurance. The ‘Battle of Hamburg’ ran from 24 July to 18 November 1943 and involved 33 major attacks totalling 17,021 sorties and the loss of 695 aircraft, or 4.1% of the force. The reduced loss rate was almost entirely the result of the decision to deploy the countermeasure *Window* against the German radars, the first operational use of what we now know as ‘chaff’. In four attacks spread over ten days, with two smaller American daylight raids in between, Bomber Command dropped 8,622 tons of high explosive and incendiaries on the city, starting a devastating firestorm where temperatures reached 1,000 degrees centigrade. It took the city more than six months to recover and shook the Nazi leadership, with Albert Speer telling Hitler that six more such attacks would halt German armament production.<sup>28</sup>

This did not happen, in part because Harris attempted to wreck Berlin in the same manner that his Command had devastated Essen, Hamburg and the Ruhr valley. Berlin, however, required much deeper penetration into Germany, was a much larger city which did not give a good return on *H2S*, was beyond *Oboe* range, and was more heavily defended than any other target. In the autumn and winter, it was also frequently blanketed by cloud. Bomber crews named it 'The Big City'; a label which simultaneously reflected the awe it inspired in them and the difficulty they encountered in attacking it successfully. For all their mighty efforts against it, and the enormous destruction they wrought, the existing marking techniques, weather, and the city's geography conspired to defeat their efforts to lay waste to it as they had cities in Western Germany. The 35 major attacks during the winter campaign, totalling 20,224 sorties, saw more than a thousand aircraft lost.<sup>29</sup> The Germans had devised effective methods to neutralise *Window*; indeed, they now tracked the 'bomber stream' by following the radar image of the *Window* cloud and using passive receivers to track the bombers' own *H2S* radar transmissions. The controllers gave a running commentary on the bomber stream's position and direction and fed the fighters into it to make individual interceptions. They inflicted a horrifying 16.8% casualty rate on the Halifax Mark II and Mark V aircraft (which had inferior performance to the Lancaster and Halifax IIIs) in a raid on Leipzig in February, and Sir Arthur Harris felt he could no longer justify sending them into Germany, a decision which removed ten squadrons from the frontline.<sup>30</sup> The last attack of the 'Battle of Berlin' saw the *Luftwaffe*'s greatest ever triumph against Bomber Command, when 95 Lancasters and Halifaxes were lost on the raid of 31 March 1944 against Nuremburg – a disaster which saw more Bomber Command aircrew lost than Fighter Command suffered in the entire Battle of Britain.<sup>31</sup>

From April 1944 onwards, Bomber Command's effort was to be directed firmly to the direct support of the Normandy invasion. Harris tried one last-ditch effort to persuade the Air Staff that his force was unsuited to making relatively precise attacks in France and that it should continue the assault on Germany. His arguments were unconvincing, and Portal instructed him to mount three raids on French marshalling yards, which showed very clearly how precise Bomber Command could be using *Oboe* and given the right weather. Harris was placed under the direction of General Eisenhower and the Supreme Headquarters Allied Expeditionary Force (SHAEF) which effectively meant Air Marshal Sir Arthur Tedder, Eisenhower's British deputy. Despite his frustration, Harris carried out his responsibilities under his new masters loyally. He still mounted occasional raids into Germany, as he was permitted to do under the Directive, but his Command also played a major role in disrupting the French railway system in concert with the tactical air forces. The effort was successful in imposing major delays on German troop movements towards the invasion area. Harris' bombers were also used in direct support of the Allied armies, bombing German positions close to the Allied frontlines, or French towns through which German troop movements had to pass. Despite occasional errors resulting in friendly casualties, these operations were on the whole very successful,

though overall the Allied bombings in France were regrettably responsible for the deaths of more than 60,000 French civilians. Given his frequently troubled relationship with the Air Staff, of which more anon, it is more than a little surprising to note Harris' view on being placed under the command of an American soldier principally in support of a land campaign which he had frequently derided as unnecessary. Describing his tenure of command at High Wycombe as analogous to a ship beset by competing winds attempting to blow it off course, he wrote: 'As the harassed mate of this sorely beset vessel ... I recall only one period of calm sailing in those three and half bitter years – a veritable centre of the hurricane – when all went well, when all pulled together, when there was at last continuity of contact between the compass course required and the lubber line – and that was during the all too short period [!] when Eisenhower was Admiral and Tedder the Captain on the bridge.'<sup>32</sup> Eisenhower in turn, commenting on Harris' reputation for being awkward, stated 'he actually proved to be one of the most effective and co-operative members of the team', a view that Tedder shared.<sup>33</sup>

On 25 September 1944, overall responsibility for directing the Combined Bomber Offensive passed from SHAEF back to Sir Charles Portal and his American opposite number. Bomber Command's effectiveness was greatly restored from the position at the end of the Battle of Berlin because the German early warning chain had been pushed back to the Reich by the Allied armies advance into Belgium. Not only were the radars further back, but the bomber stream could approach over allied territory reducing both warning time and time exposed to the defences. In addition, ground stations for radio aids such as *Oboe* and *Gee* could be located in liberated territory, extending their ranges. This final phase of the War is amongst the most controversial and sees Sir Arthur Harris once more at loggerheads with the Air Staff. He has been severely criticised by many historians with some going so far as to characterise him as disobeying orders.<sup>34</sup> The criticisms rest largely on the statistics relating to the division of the bombing effort between different target sets during the last months of the War. Critics point to the statistics quoted in the British Official History which stated that 53% of Bomber Command's effort in the last three months of 1944 were devoted to area attacks on cities, and just 14% to oil and 15% to communications, despite the higher priority accorded to the latter in the bombing Directives.<sup>35</sup> Historians are also understandably and inexorably drawn to the extensive correspondence which flowed between the AOC-in-C of Bomber Command and the CAS in the autumn and winter of 1944-45, wherein Sir Charles Portal sought to persuade Sir Arthur Harris to devote more of his effort to oil and which therefore appears to support the case against the latter.

Yet the issue is far from clear cut. Three Directives were issued to Bomber Command in late 1944, on 25 September, 13 October and 1 November. The first and third Directives placed oil as first priority, but specifically referred to mounting area attacks on industry when 'weather or tactical conditions are unsuitable' for priority targets. The October Directive made specific reference to the need to attack communications

in the Ruhr under plans designated Hurricane I and II.<sup>36</sup> For Bomber Command, Hurricane I specified 'undamaged parts of the major industrial cities of the Ruhr' and under the more weather-dependent Hurricane II, 'the Ruhr-Rhineland synthetic oil plants'. Thus, although 75% of Bomber Command's effort was directed to industrial attacks and only 6% to oil targets in October, 65% of the total dropped in area attacks was aimed at the Ruhr and Cologne, or 44.5% if Cologne is excluded, and 97% and 95% respectively was dropped between 13 and 31 October and thus conformed to the Hurricane Directive. In November, Bomber Command's effort against oil rose to nearly 25%, and if we include categorised area attacks on Gelsenkirchen and Wanne Eickel, which were principally oil targets, the percentage increases to 33%.<sup>37</sup> By the end of the month, 'all of the RAF's synthetic oil targets were suspended because they were no longer operating'. In December, the percentage effort against oil fell to just over 10%, but according to the Air Ministry's statistics, a further 34% was aimed at transportation – second in priority to oil – and a further 27% was aimed at town centres specifically associated with rail facilities, and during the month Bomber Command had also been required to bomb such facilities to disrupt the German Ardennes offensive. Bearing these more nuanced statistics in mind, the following careful wording from the British Official History takes on added significance: 'There is always difficulty in making functional distinctions about the Bomber Command effort...For example, in area attacks against ... the Ruhr, which were recorded under the heading of industrial areas, substantial damage was sometimes done to Benzol plants which, of course, belonged to the oil plan.'<sup>38</sup> Bomber Command was also under remit to assist the Admiralty if required, and it mounted occasional attacks on ports and U-boat pens in this period, and 9 and 617 Squadrons using 12,000 pound *Tallboy* bombs famously sank the battleship *Tirpitz* in her Norwegian lair, and have argued ever since as to who struck the mortal blow.

The early months of 1945 saw Bomber Command devote between 25 and 30% of its effort to oil.<sup>39</sup> There was little in the way of respite for German cities, however. Although this further destruction is sometimes characterised as wanton, particularly in the case of the infamous raid on Dresden in February, it was in large part driven by strategic considerations and was certainly not simply undertaken at the whim of Sir Arthur Harris. Several factors underlay the continuing use of the Allied bombers against German cities. The weather continued to affect the bombers' ability to undertake precision attacks. Allied confidence had also been severely shaken by the German Ardennes counter-offensive, and this, together with fears regarding the potential impact of Germany's new jet fighters and very quiet Type XXI U-Boats on Allied command of the air and sea, meant added pressure to end the war quickly. The opening of the major Soviet offensive on the Eastern Front, the success of which the Western Allies fervently wished for, led to proposals to bomb German cities behind the Eastern front to disrupt communications. Berlin, Dresden, Chemnitz and Leipzig were specifically referred. Added pressure came directly from the Prime Minister who pressed hard for such attacks, not least because he was shortly to meet with Stalin at Yalta. It was this combination

of factors which led directly to the raid of 13/14 February on Dresden. Much of the city's defences had been withdrawn to protect oil refineries, and the bombers were directed during the raid by a 'master bomber' using VHF radio to communicate directly with them. The absence of flak allowed him to bring the bombers down to around 14,000 feet which, along with the lack of opposition, made the bombing much more concentrated. The fires started by the bombing combined with perfect meteorological conditions to create a firestorm which is estimated to have killed 25,000 people. It quickly became a matter of controversy at the time, with Churchill trying to distance himself despite his own significant responsibility for instigating the attack, and has remained so ever since. It was, however, in the context of the strategic situation and its location a legitimate target. Dresden prior to the raid was a notably beautiful city. In this context it is interesting to note that the following day Bomber Command, using precisely the same technique and a roughly similar force of bombers, and for precisely the same reason, attacked the unprepossessing German industrial city of Chemnitz. The weather was less propitious, the marking was scattered and difficult to see, and the raid was in essence a failure which has never been heard of since. Lady luck smiled on ugly Chemnitz and not beautiful Dresden. Some of Bomber Command's later attacks, notably those against Wurzburg and Pforzheim were, unlike Dresden, of doubtful strategic value.

In this final period of the War, Bomber Command continued to attack oil, transportation targets and German cities as well as assisting the Allied armies directly, notably in support of the Rhine crossings. Among other notable precision attacks, it drained the Mittelland and Dortmund-Ems canals more than once, and downed the important railway viaduct at Bielefeld using *Tallboy* and its bigger brother, *Grand Slam*, bombs. The transportation attacks, greatly favoured by Sir Arthur Tedder, were eventually successful in more or less isolating the Ruhr, cutting off coal supplies to much of the rest of German industry and reducing the once proud *Reichsbahn* to a shadow of its former self.<sup>40</sup>

Bomber Command had come a very long way from its early and inauspicious efforts over Wilhelmshaven in 1939. By the War's end it could put more than a thousand bombers into the air directed against two separate targets and, using a variety of bombing aids (particularly over western Germany) and marking techniques, was by the standards of the day capable of remarkable precision. In its last year of operations it made a major contribution to the success of the Normandy invasion, in concert with the USAAF it reduced German oil production from a peak of around 380,000 metric tons in March 1944 to 20,000 metric tons in mid-February 1945, which effectively meant that the Reich's much vaunted Panzer divisions were rendered static and incapable of operational or even occasionally tactical manoeuvre, whilst the *Luftwaffe*, already a shadow of its former self, was effectively grounded.<sup>41</sup> As we have seen, in the Battles of the Ruhr and Hamburg Bomber Command capped, and in some instances reduced, German war production. The diversion of resources to counter the Allied bombers was

also enormous. German aircraft production was increasingly skewed to producing only fighters so that by the end of 1944, bomber production had almost ceased. The fighters themselves were pulled back into Germany with 1,650 aircraft defending the airspace by January 1944. This left around 400 for the whole of the vast expanse of the Eastern Front to the great benefit of the Soviet Air Force.<sup>42</sup> Similarly, by February 1944 there were 13,500 heavy flak guns, 7,000 searchlights and 21,000 light flak guns defending the Reich. Production of heavy flak weapons in 1944 was 8,402, and light flak a staggering 50,917. In the first two quarters of 1944, anti-aircraft ammunition absorbed 17 and 16% of the *Wehrmacht's* ammunition budget. As flak pieces required twice as much productive labour as ordinary artillery weapons, even more artillery pieces could have been produced had the effort been applied in that direction. However, German flak was famously dual capable and proved equally formidable in the anti-tank role. Some 1.2 million men and women were also employed in the flak arm, but 44% were civilians or auxiliaries and, of the service personnel, 56% were older than 39 years or medically unfit for combat.<sup>43</sup>

None of the achievements of the Combined Bomber Offensive would have been possible without the extraordinary courage and perseverance of the crews flying night after night over Germany often in the knowledge that their chances of surviving a tour were not good. Some 125,000 aircrew are believed to have served in Bomber Command and 55,573 paid the ultimate price. This was a British Commonwealth effort, with significant numbers hailing from Canada, Australia and New Zealand as well as Poles, Frenchmen and not a few Americans.

## NOTES

<sup>1</sup> The details of the raid come from the Official History, Sir Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany 1939-1945* (London, HMSO, 1961) [hereafter SAOG and volume number], Volume 1, pp.199-201, and John Terraine, *The Right of the Line: The Royal Air Force in the European War 1939-45* (London, Hodder & Staughton, 1985) pp.103-107.

<sup>2</sup> See Air Historical Branch, Air Publication 1300, *The RAF War Manual Part 1 – Operations*, (1928 Edition, reprinted with amendments 1935), Chapter VII, para 6 and Chapter VIII, para 25.

<sup>3</sup> Quoted in The National Archives [hereafter TNA] AIR41/39, Air Historical Branch Narrative, *The Bomber Offensive Against Germany*, Volume 1, p.27.

<sup>4</sup> The Prime Minister announced in the House of Commons in June 1938 that Britain would only bomb military objectives, and the Air Staff had itself concluded that restrictions on bombing were advantageous to Britain. See SAOG, Vol 1, p.99.

<sup>5</sup> SAOG, Vol 1, p.95.

<sup>6</sup> *Ibid*, p.97. It is interesting to note that the planners also stated that the destruction of the Mohne and Sorpe dams could cause equal disruption, though the bombs of the time were not capable of breaching them.

<sup>7</sup> The full text of the Butt Report is at SAOG, Vol 4, Appendix 13.

<sup>8</sup> Quoted in Air Historical Branch Monograph, *Signals, Volume 3, Aircraft Radio*, [hereafter *AHB Radio*] p.26.

<sup>9</sup> Quoted in SAOG, Vol 1, pp.184-5.

<sup>10</sup> COS (41)155(O) Chiefs of Staff memo of 31 July 1941 quoted in SAOG, Vol 1, p.181.

<sup>11</sup> For details of the design and development of all the navigation and blind bombing aids discussed here see *AHB Radio*, *passim*.

<sup>12</sup> *Ibid*, p.26.

<sup>13</sup> The Directive is printed in full at SAOG, Vol 4, Appendix 8, pp.143-8.

<sup>14</sup> *Ibid*.

<sup>15</sup> SAOG, Vol 1, p.386 contains a fuller description of the technique.

<sup>16</sup> On the arguments surrounding the establishment of the PFF see SAOG, Vol 1, pp.418-432; Sir Arthur Harris, *Despatch on War Operations 23rd February 1942 to 8th May 1945*, (Frank Cass, London, 1995), pp.9-11 and the introduction by Sebastian Cox pp. xiii-xiv; for a sympathetic portrayal of Bufton's struggle with Harris see Hugh Melinsky, *Forming the Pathfinders*, (The History Press, Stroud, 2010), pp.66-77.

<sup>17</sup> *AHB Radio*, p.160-161.

<sup>18</sup> TNA AIR41/42, Air Historical Branch Narrative, *The Bomber Offensive Against Germany*, Volume 4, pp.7-12.

<sup>19</sup> For example a speech by Sir Stafford Cripps in the House of Commons on 25 February 1942. SAOG, Vol 1, pp.328-9.

<sup>20</sup> Harris, *Despatch*, table 2, p.45.

<sup>21</sup> Air Historical Branch, Bomber Command Operational Research Section, *Night Raid Report Number 74*.

<sup>22</sup> TNA AIR41/42, p.12.

<sup>23</sup> SAOG, Vol 4, p.152, Directive of 14th January 1943.

<sup>24</sup> Harris, *Despatch*, pp.14-15.

<sup>25</sup> Martin Middlebrook and Chris Everitt, *The Bomber Command War Diaries: an operational reference book*, (Viking, Harmondsworth, 1985), pp.365-6.

<sup>26</sup> Air Historical Branch, *Air Ministry War Room Monthly Summary of Bomber Command Operations*, March 1944.

<sup>27</sup> Adam Tooze, *The Wages of Destruction: the making and breaking of the Nazi economy*, (Allen Lane, London, 2006), pp.598-600.

<sup>28</sup> SAOG, Vol 2, p.211.

<sup>29</sup> SAOG, Vol 2, pp.193-197. Sixteen of the thirty-five attacks targeted Berlin.

<sup>30</sup> Middlebrook & Everitt, p.447. A few Halifax IIs continued to operate with the Pathfinders.

<sup>31</sup> Martin Middlebrook, *The Nuremburg Raid*, (Allen Lane, London, 1973), pp.278-9.

545 aircrew died, one more than in the entire Battle of Britain, and 159 became PoWs, some of whom were wounded, and fifteen men evaded and made it back to the UK.

<sup>32</sup> Quoted in Henry Probert, *Bomber Harris – His Life and Times*, (Greenhill Books, London, 2003), p.303.

<sup>33</sup> *Ibid*, pp.302-3.

<sup>34</sup> “Disobeying orders”. The accusation appears in both Randall Hansen, *The Fire and the Fury*, (Penguin Books, New York, 2009), p.246, and Anthony Verrier, *The Bomber Offensive*, (Batsford, London, 1968) p.277. Stephen Garret in his book, *Ethics and Air Power in World War II* (New York, St Martin’s Press, 1997), p.56, wrote of Harris ‘carrying out a different strategy despite his superior’s specific instructions to the contrary’.

<sup>35</sup> SAOG, Vol 3, p.184. Amongst other historians to quote these statistics and to use them as the basis for criticising Harris are: Terraine, *Right of the Line*, p.675, Max Hastings, *Bomber Command*, (Michael Joseph, London, 1969), p.334,

<sup>36</sup> Directives in SAOG, Vol 4, pp. 172-179.

<sup>37</sup> Figures and percentage contained in or calculated from Air Historical Branch, *War Room Monthly Summary of Bomber Command Operations*, October and November 1944.

<sup>38</sup> SAOG, Vol 3, p.189.

<sup>39</sup> Air Historical Branch, *Air Ministry War Room Summaries of Bomber Command Operations*, January to March 1945.

<sup>40</sup> On the bombing of the Reichsbahn see the generally excellent study by Alfred Mierzejewski, *The Collapse of the German War Economy, 1944-1945: Allied Air Power and the German National Railway*, (University of North Carolina Press, Chapel Hill NC, 1988), *passim*. Mierzejewski’s work is only marred by his attribution of some Bomber Command raids to the USAAF.

<sup>41</sup> Air Historical Branch, Chiefs of Staff Committee, Technical Sub-Committee on Axis Oil, AO(46)1, *Oil as a Factor in the German War Effort, 1939-1945*, March 1946. Figure 5.

<sup>42</sup> E R Hooton, *Eagle in Flames: the fall of the Luftwaffe*, (Arms and Armour Press, London, 1999), p.265.

<sup>43</sup> Edward B Westermann, *Flak: German Anti-Aircraft Defenses 1941-1945*, (University Press of Kansas, Lawrence KS, 2001) pp.234-6, 295-6.



# COASTAL COMMAND IN THE SECOND WORLD WAR

By Professor John Buckley

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**Abstract:** From 1939 to 1945 RAF Coastal Command played a crucial role in maintaining Britain's maritime communications, thus securing the United Kingdom's ability to wage war against the Axis powers in Europe. Its primary role was in confronting the German U-boat menace, particularly in the 1940-41 period when Britain came closest to losing the Battle of the Atlantic and with it the war. The importance of air power in the war against the U-boat was amply demonstrated when the closing of the Mid-Atlantic Air Gap in 1943 by Coastal Command aircraft effectively brought victory in the Atlantic campaign. Coastal Command also played a vital role in combating the German surface navy and, in the later stages of the war, in attacking Germany's maritime links with Scandinavia.

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## INTRODUCTION

In March 2004, almost sixty years after the end of the Second World War, RAF Coastal Command finally received its first national monument which was unveiled at Westminster Abbey as a tribute to the many casualties endured by the Command during the War. That it took so long is perhaps an indication of the shadow that other RAF Commands and the Royal Navy have cast over the contribution of Coastal Command, and a reflection of the awkward institutional position in which the Command was placed betwixt the Admiralty and the Air Ministry. Quite tellingly, in the post-1945 years, Air Chief Marshal Sir John Slessor, a future Chief of the Air Staff (CAS) and an erstwhile Air Officer Commanding-in-Chief Coastal Command, was embroiled in a squabble over the contribution the Command had made during the War. As part of a campaign to prevent the formation of a separate US Air Force, the US Navy was claiming that RAF Coastal Command had failed in the War because it had been part of an independent air force and not part of the Royal Navy. It rankled with Slessor and the RAF that elements of the Royal Navy broadly agreed. He grumbled that he had spent considerable effort in 1943 putting Admirals Dudley Pound and Ernest King right about how to use aircraft in battling submarines, yet in 1947 the battle was still not won.<sup>1</sup>

Fighting over resources and the place of Coastal Command both before and during the war had been constant. In November 1940, the First Lord of the Admiralty, AV Alexander, referred to Coastal Command as the ‘Cinderella of the RAF’ as part of a wider effort to highlight their shortages and to squeeze extra resources out of the Air Ministry to combat the growing threat of the German U-boat arm.<sup>2</sup> The claim was parried by Sir Archibald Sinclair, the Secretary of State for Air, but the impression then (and much repeated since) was of Coastal Command struggling to assert itself against the more glamorous Fighter Command and the long-term vested interests of the Bomber Barons and the Air Staff. The Admiralty complained at many points both before and during the War that maritime air power needs came last when resources were being allocated by the Air Ministry, and that Britain’s ability to defend its sea lines of communication and supply were put at risk as a result.

Whilst there is some validity in this interpretation, it should be recalled that the employment of air power resources to meet strategic aims and objectives is more complex than simply aligning aircraft to different Commands, something Slessor and other senior airmen, though not all, appreciated. The RAF required a variety of air assets from different Commands and nations to combine to meet threats, and Coastal Command was only one of the formations that played a part in securing Britain’s maritime survival. Indeed, Bomber Command grumbled throughout the War that they were devoting too much effort and too many resources to the maritime war, attacking U-boat installations and production plants, and dropping mines, for example. Air Chief Marshal Sir Arthur Harris on one occasion even referred to Coastal Command as ‘an obstacle to victory’.<sup>3</sup> The RAF’s war in support of maritime objectives was not solely

dependent on resources allocated to Coastal Command; it is tempting and too easy to see Coastal Command and the resources it received in isolation from other forms of air and naval power in this regard.

It is, however, the case that Coastal Command played a pivotal role in defending the United Kingdom in the Second World War, particularly between the summer of 1940 and the late spring of 1943, when the Atlantic campaign raged. Indeed, alongside the defence of the British Isles in the late summer of 1940 by the RAF, most obviously Fighter Command, it can be argued that Coastal Command's contribution to Britain's survival in the first major Atlantic campaign of 1940-41 stands as the RAF's most vital effort of the war.<sup>4</sup>

### **PREPARATIONS FOR WAR**

The transition made by Coastal Command was all the more remarkable considering its plight on the outbreak of war in 1939. The Command had been created in 1936 when the RAF was restructured into the organisational formation that was to fight the Second World War, principally Fighter, Bomber and Coastal Commands. Yet the roots of the Command, its equipment, and doctrine lay further back into the post-First World War period when the future of land-based maritime air power was shaped. During the Great War at sea, the most important part played by the Royal Naval Air Service (and latterly the RAF) had been the contribution to the defeat of the U-boat menace in 1917, but by the 1920s the newly formed RAF Coastal Area (the forerunner to Coastal Command between 1919 and 1936) had been repositioned away from trade defence. With little credible threat to trade defence from a major power (other than the perennial French) the future of maritime air power was perceived by the Admiralty as naval co-operation and by the Air Ministry as a small highly specialised imperial prestige force.<sup>5</sup>

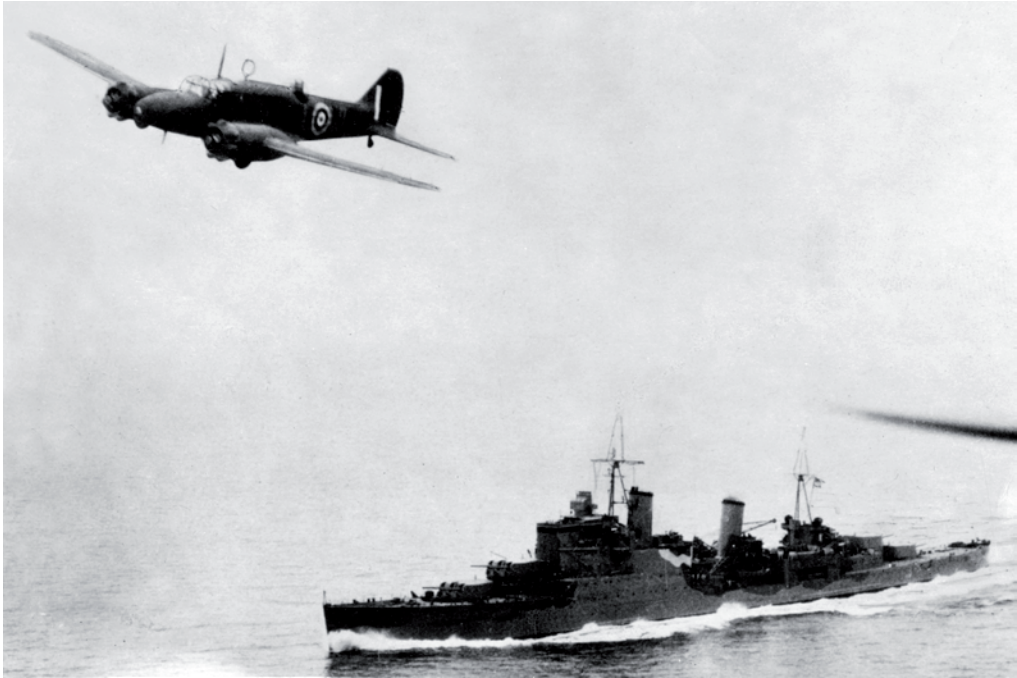
By 1925, Coastal Area (save the Fleet Air Arm which remained part of the RAF until 1937) had been reduced to just eleven front-line aircraft – all flying boats – supported by 18 further training aircraft.<sup>6</sup> The next decade or so saw the RAF and Royal Navy bickering over the role of, and investment in, maritime air power, although until 1937 the Admiralty's primary concern remained the return of the Fleet Air Arm to the Navy. Land-based maritime air power was something of an adjunct and there was little agreement between the Royal Air Force and the Royal Navy over its most effective role. For the Navy, the primary concern was for Coastal Area to function as a reconnaissance force to patrol the waters around the British Isles, principally to aid the surface fleet in its likely actions against enemy naval forces. Some strike potential was considered useful, but was a secondary concern, as the Admiralty was unwilling to accept that properly prepared naval vessels were vulnerable to air attack, despite the implications of the Mitchell Trials in the USA.<sup>7</sup> For the Air Staff, particularly by the 1930s, the primary concern was the concentration of air power resources on the development of the main bombing fleet to act as a deterrent and to pose a credible threat to enemy powers.

The vision of a short sharp air campaign saw maritime air power not only as redundant, but as a distraction and a dangerous drain on scant resources.<sup>8</sup> In 1936, the Air Staff even pondered fitting new maritime patrol aircraft with engines better suited to high-altitude bombing duties, at the expense of their ability to act at low level against maritime targets.<sup>9</sup>

One consequence of this debate was the lack of effective land-based maritime strike aircraft by 1939. The United Kingdom's own anti-shipping trials, largely based around the *HMS Centurion* tests from 1929 onwards, had demonstrated that dive bombing was the most effective way of hitting a moving vessel at sea, a fact later underscored repeatedly in the Second World War.<sup>10</sup> Yet, the Air Staff argued that high-altitude level bombing was up to the task of stopping an enemy naval force, largely because it allowed them to avoid investment in specialised maritime bombers, aircraft which would be of little value in a major bombing campaign against continental targets. Despite lobbying by Air Marshals Sir Arthur Longmore and Sir Philip Joubert de la Ferté, both early Commanders-in-Chief of Coastal Command, by 1939 there was no dive-bomber in Coastal Command.<sup>11</sup> Even the torpedo bomber survived only because the types deployed to the role (the Vickers Vildebeest and the Hawker Horsley) could also double-up as general purpose bombers, or had been ordered simply to keep their manufacturers in business; indeed, neither type was initially designed as a torpedo bomber.<sup>12</sup> The Bristol Beaufort was to prove the only purpose-designed torpedo bomber the RAF acquired, and its development was not without mishap and delay, resulting in its not being in service at the outbreak of War.

The Royal Navy's primary inter-war desire for a maritime patrol and reconnaissance aircraft had also fallen short by 1939. When the first air rearmament schemes began in 1934, the Air Staff had allocated resources to the introduction of a short-range land-based patrol aircraft. The Royal Navy and Coastal Area wanted flying boats, and would continue to argue this case into the early Second World War, but the Air Staff demurred, arguing they were too expensive to build and maintain.<sup>13</sup> Flying boats were therefore rejected predominantly on financial grounds; the annual costs of maintaining a twin-engine flying boat were over three times those of a twin-engine land-based aeroplane.<sup>14</sup> Alas, the Avro Anson, the land based aircraft adopted by the RAF for short-range maritime duties in 1935, though reliable, was simply inadequate; it carried insubstantial ordnance and had limited range, such that it could not patrol the width of the North Sea. Despite these weaknesses, the Anson remained the principal patrol aircraft at the outbreak of War.

Coastal Command was also to suffer from the dramatically increased pressure placed on the British aircraft industry in the mid-to-late 1930s. Priority was given to fighter and bomber design and production, so replacements for ageing flying boats, a new torpedo bomber and the Anson all failed or were seriously delayed. Orders for maritime



Avro Anson of 612 Squadron over a Royal Navy warship in early 1941.

aircraft were given to companies considered by the Air Council as higher risk, such as Saunders-Roe and Blackburn, or to better companies but whose priorities lay elsewhere. Ultimately because of the failure of the Blackburn Botha patrol aircraft / bomber and the SaRo Lerwick, twin-engine flying boat, the Air Staff had to sanction buying in American aircraft to plug the gap – initially the Lockheed Hudson (though these were only available in limited numbers by September 1939) and ultimately the Consolidated Catalina flying boat.<sup>15</sup>

What also proved to be a most critical failing of the inter-war era was the lack of focus on trade defence by Coastal Area/Command, despite the evidence of the Great War. In the absence of a major threat, there was no necessity for a large investment in anti-submarine warfare capability by the RAF, but to allow the role to wither so much proved highly damaging and was to contribute to the near disaster of the 1940-1 campaign in the Western Approaches and the Atlantic. The RAF's lack of interest was compounded by the Royal Navy's overweening faith in ASDIC, which caused the Naval Staff to claim in 1937 that, 'the submarine should never again be able to present us with the problem it had in 1917'.<sup>16</sup> The two Services' approaches combined to lower Coastal Command's immediate anti-submarine capability in 1939 quite significantly, a capability undermined still further by combined Service tactics not having been worked through, and by the RAF not having properly tested its anti-submarine bomb against a submarine.<sup>17</sup> With a procurement programme that had fallen woefully short, inadequate ordnance and

equipment, and a poorly defined purpose, Coastal Command entered the Second World War in something of a mess.

### **OPENING PHASE**

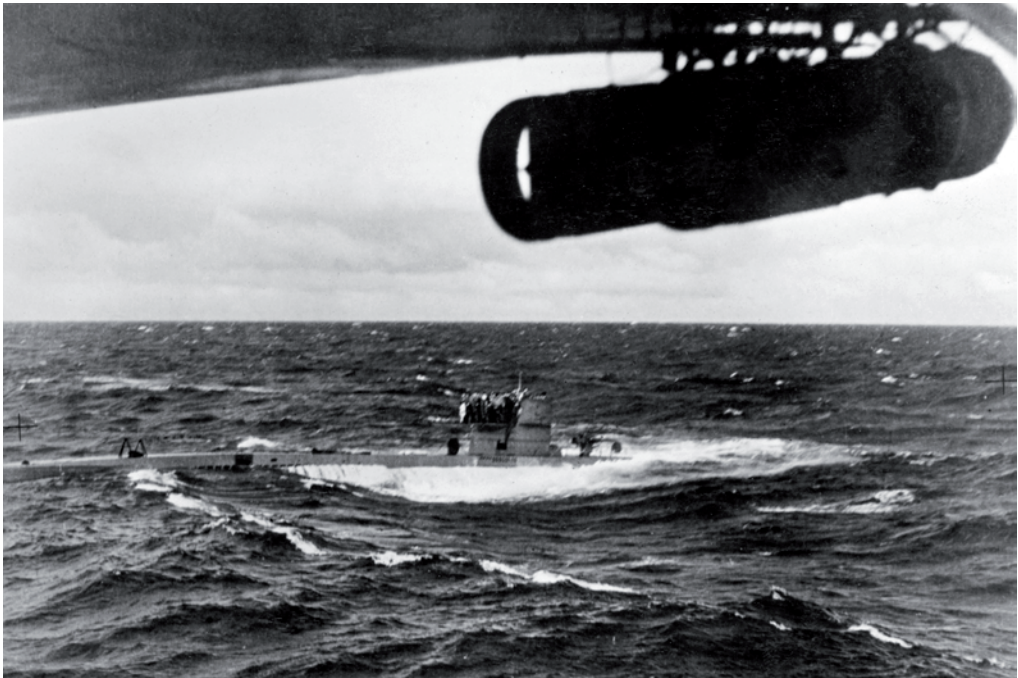
On the outbreak of war the command was equipped with seventeen squadrons, ten of which flew the inadequate Anson. Two squadrons were still equipped with biplane flying boats – Supermarine Stranraers and SaRo Londons – whilst the two torpedo-bomber squadrons soldiered on with the obsolete Vildebeest. The only truly modern aircraft were the two squadrons of Short Sunderland flying boats and the one of imported Lockheed Hudsons. Both aircraft were well regarded with excellent range and capabilities, but were in short supply. Shorts could only produce a trickle of Sunderlands (three per month) and Lockheed were only just beginning to deliver Hudsons in greater quantity, though this was hindered by having to ship them across the Atlantic and reassemble them when in the United Kingdom. Ultimately, Coastal Command was still well short of its 1937 target strength of 339 when war came.<sup>18</sup> Organisationally, there were three frontline groups, No.15 based at Mount Batten (Plymouth), No.16 at Chatham and No.18 at Donibristle (Rosyth), working closely with the Royal Navy.<sup>19</sup> Leadership of Coastal Command was still the responsibility of Air Marshal Sir Frederick Bowhill, who commanded from Northwood. He had been in charge since 1937 and was regarded as having excellent leadership qualities, though this estimation did not apparently extend to his attention to detail and administration.<sup>20</sup>

The opening stages of the War demonstrated that the initial priorities for Coastal Command were in need of some revision. Pre-war planning had placed reconnaissance and naval co-operation as the principal tasks, ahead of convoy protection. The Air Staff even argued that convoys would make such vulnerable targets for enemy aircraft that they should be rejected as a viable option.<sup>21</sup> Other than the RAF having to deploy four squadrons of Blenheims as fighters to cover East Coast convoys in the autumn of 1939, aircraft which by December had transferred fully into Coastal Command, this aerial threat to convoys did not develop to crisis levels.<sup>22</sup> It was soon, however, abundantly clear that shortcomings in ASDIC equipment had elevated the importance of providing extra air cover for convoys. Fortunately, although U-boats were proving an irritating nuisance, there simply were not enough of them to cause havoc. Individually, U-boats achieved some of their best tonnage hauls of the War in the autumn of 1939 and spring of 1940, but with so few available – under sixty U-boats in total, many of which were short-range Type IIs – they could not do enough.

British trade defence forces were therefore afforded time to regroup. Paradoxically, the British had to readopt First World War methodology as the hard learned lessons of 1917 proved entirely applicable to 1939-40. The basic principle that it was best to wait for U-boats to show their hand rather than looking for them was as valid in 1940 as it was in 1917, even if it went against the grain for the Admiralty and, indeed, Coastal Command.<sup>23</sup>

Coastal Command shifted the balance of its operations as 1939 passed into 1940. The German surface fleet proved much less active and threatening than had been imagined by the Admiralty, and with convoys being heartily embraced once again in October 1939 air cover for them became a priority, alongside general patrolling work as a deterrent against U-boat attacks.<sup>24</sup> As early as 13 November 1939, Bowhill issued a directive placing the destruction of U-boats as an equal priority task with attacks on enemy surface vessels.<sup>25</sup> Coastal Command staff worked hard to allocate their scant resources to their various tasks, but with the added burden of having to cover for the Anson's inadequate range. As the longer-ranged Hudsons became available, they were initially absorbed into establishing the patrol line right across the North Sea – a task beyond the Anson's capabilities. By mid-1940, Coastal Command still had only four flying boat squadrons, two land based reconnaissance squadrons, and one long-range fighter squadron to cover the Western Approaches. That many U-boat successes throughout the first few months of the war occurred well within range of Hudsons and Sunderlands was indicative of the patchy coverage caused by inadequate numbers.<sup>26</sup>

The Command was confronted with further worrying developments: its aircraft were occasionally spotting U-boats in daylight, although by visual methods only at this stage and, therefore, hardly ever at night. The first Air-to-Surface Vessel (ASV) radar (or RDF as it was still known in the UK) Mark 1 ASV was introduced in early 1940, but was little



27 August 1941, a Hudson of 269 Squadron surprised a U-boat on the surface and, after the aircraft dropped depth charges the German crew surrendered. Photograph taken from a Catalina after the attack.

trusted by RAF crews who still preferred to rely on visual sightings.<sup>27</sup> Yet even if sightings were achieved, Coastal Command aircraft could offer little in the way of offensive capability, and thus close co-operation with Royal Naval surface units was essential, if limiting. To a significant extent, this impotence was caused by the wholly inadequate anti-submarine bomb. The bomb had been introduced in 1931, but bizarrely was never properly tested against a submarine, despite trials taking place in the mid-to-late 1930s.<sup>28</sup> Within weeks of the outbreak of the War, serious doubts about the anti-submarine bomb began to emerge and, over the ensuing twelve months, faith in the weapon had evaporated altogether. Up to the end of August 1940, some 133 U-boats had been sighted north of 56 degrees North by Coastal Command aircraft. Most were attacked with anti-submarine bombs, but not a single sinking was confirmed, and it appeared that only one had been damaged. Blue-on-blue incidents provided telling evidence of the ineffectiveness of the anti-submarine bomb, and aircrews reported that the bomb's peculiarities rendered it dangerous to use. A replacement weapon was urgently required.<sup>29</sup> Initially this proved to be the 450lb depth charge, but only flying boats were large enough to carry it, and it was dangerous to use at night due to the need to be sure about the altitude from which it was deployed. Nevertheless, even the early depth charges were three and a half times more likely to damage a U-boat and could claim a sinking, unlike the anti-submarine bomb.<sup>30</sup> Ultimately, it would take until 1942 for a fully functioning and properly effective aerial depth charge to be in widespread use.<sup>31</sup>

Despite its lack of teeth, Coastal Command aircraft could contribute to successes against U-boats by locating and harrying U-boats long enough for naval vessels to press home attacks. The first such success occurred in January 1940, but truly independent kills remained beyond Coastal Command.<sup>32</sup>

By the summer of 1940 the Command, in conjunction with other arms and Services, appeared to be on the way to putting in place the pieces to contain the German threat posed to maritime trade. Increases in the numbers of more modern aircraft, improved co-operation with the Royal Navy and better tactics had brought Coastal Command to a higher level of capability. However, the RAF still lacked an effective air maritime striking capability; Bomber Command proved woeful in this regard, whilst Coastal Command's torpedo bomber force, such as it was, was still slowly converting to Bristol Beauforts.

## **THE ATLANTIC CAMPAIGN 1940-41**

Coastal Command's greatest challenge, and indeed its most important contribution to Allied victory, came in the first sustained U-boat campaign against Britain, which lasted for some twelve months from the summer of 1940. The crisis exploded because of the radical shift in the strategic balance of power on the continent following the collapse of France in June 1940 and the earlier occupation of Norway. From this point onwards the Germans could deploy U-boats and aircraft much closer to the Western Approaches, dramatically increasing their time on patrol. No longer did U-boats have to slip through

the North Sea into the Atlantic, as from France's north-western ports they were already practically there. In effect, by the late summer of 1940 Coastal Command faced a significant increase in the level of threats and enemy assets it would have to confront on a regular basis, notwithstanding the immediate possibility of resisting an invasion of Britain itself. And still further, Bowhill was called upon to deploy aircraft to the Mediterranean now that Italy had joined the War on Germany's side.

The German U-boat arm, under the command of Vizeadmiral Karl Dönitz, was now in a position to put into action its *Rudeltaktik* concept, better known in English as the Wolfpack. Featuring groups of co-ordinated U-boats to swamp convoy escort forces, usually attacking on the surface to confound ASDIC, and at night to reduce visual sightings, Wolfpacks soon began to inflict appalling casualties on Allied shipping. Until June 1940 the Allies suffered the loss of around 50,000 tons per month in the Atlantic, but for the ensuing twelve months that rate rocketed up to a monthly figure of 266,000. In total, from all causes, the British lost 585,000 tons of shipping in June 1940 and averaged 450,000 tons per month for the next year, levels which if maintained would have crippled Britain's ability to wage war.<sup>33</sup>

U-boats were also soon operating further out into the Atlantic. Until the fall of France, Atlantic shipping losses composed around a quarter of the total, but from then on that



A Short Sunderland I of 210 Squadron on shipping escort duties, Summer 1940.

balance shifted to 60%. Naturally this exposed Coastal Command's dearth of long-range aircraft, such as the Sunderland. Yet, even in the deteriorating situation of the autumn of 1940, the importance of air cover for convoys when it could be provided was amply demonstrated; convoy SC2, despite taking heavy losses, was protected during daylight by Coastal Command Sunderlands which compelled the U-boats to dive and lose contact for a time.<sup>34</sup> U-boats of the period had limited underwater capability and endurance; they were in effect submersible torpedo boats rather than true submarines. Once forced underwater to avoid continued detection by lurking aircraft, U-boat speed dropped away dramatically from around 17 knots on the surface to well under ten when submerged; this underwater speed was exceeded even by convoys. Thus, even though Coastal Command aircraft lacked much in the way of offensive weaponry to tackle U-boats, they *could* suppress them, improving the chance of convoys evading the submarines or at least reducing losses. This was titled the Scarecrow Effect by Air Chief Marshal Sir Philip Joubert de la Ferté, Bowhill's replacement as AOC-in-C, Coastal Command. The very fact that U-boats focused their attacks increasingly in the Mid-Atlantic Gap, beyond the range of Coastal Command aircraft, was testimony to the value of air cover.<sup>35</sup>

Coastal Command also had to confront the Luftwaffe's long-range aircraft which from the autumn of 1940 onwards could also reach well out into the Atlantic from airfields in Northern France; some of these aircraft, such as the Focke Wulf 200 Condors, were also equipped with bombs and took a not inconsiderable toll on Allied shipping. Yet the Condor was not well suited to such operations and when confronted by Sunderlands, usually lost out. But once again it was the lack of long-range aircraft that was hampering Coastal Command's operations. To add further to Coastal Command's responsibilities, the threat of Germany's surface fleet grew once France's Atlantic ports became available to Germany's battlecruisers and cruisers, and still further when new ships such as the powerful battleship *Bismarck* entered service. Keeping tabs on these raiders was a crucial role, but success was patchy. Perversely, for much of the first half of the War, Coastal Command had the skills to operate more successfully at sea against surface targets, but lacked the striking power to do so; Bomber Command had the firepower, in theory, but soon demonstrated an inability to operate effectively at sea. High-level bombing proved repeatedly impotent against moving targets at sea.<sup>36</sup>

The key for Coastal Command by the autumn of 1940 was to obtain sufficient aircraft to meet its burgeoning responsibilities. More aircraft were still required for close-in protection of shipping around the British Isles, and the Luftwaffe remained a significant threat here too, but it was the shortage of long-range aircraft that was most pressing. Bowhill and the Admiralty began agitating for increased numbers of long-range aircraft, but the Air Ministry was determined to maximise numbers of such aircraft for bombing duties; this too was a vital concern. In June 1940 the Air Staff had even blocked the allocation of long-range aircraft for Coastal Command operations from Iceland.<sup>37</sup>

Thus was set the tone of Coastal Command's relationship with the Admiralty on one side and the Air Ministry (usually backed by Churchill) on the other, for the next three years. As Joubert de la Ferté later remarked, when it came to resources Coastal Command was 'kicked by the Admiralty for not asking enough and blamed by the Air Ministry for asking impossibilities'.<sup>38</sup> As the Atlantic campaign took a decided turn for the worse in the autumn of 1940, the inter-Service squabbles grew more intense, not aided by non-Service voices stirring-up trouble. At a War Cabinet meeting in November, Max Beaverbrook (then Minister for Aircraft Production) suggested transferring Coastal Command in its entirety to the Royal Navy, as this might solve many issues, although not, of course, the underlying problem of aircraft shortages for which he may ultimately be responsible. Even the First Sea Lord, Admiral of the Fleet Sir Dudley Pound, balked at the idea of such a change in the middle of the Atlantic campaign; he just wanted more aircraft of the necessary types for Coastal Command. John Slessor, later an AOC-in-C Coastal Command himself, was less polite about the protagonists in this putative transfer:

Beaverbrook's crass ignorance of air-sea warfare was only excelled by the unsoundness of his judgement on anything connected with the conduct of the war. [Admiral Roger] Keyes was a very stupid old blue water Admiral whose ignorance and fear of Air Power in principle were sharpened by his personal vendetta with his brother-in-law, Trenchard.<sup>39</sup>

The full transfer idea came to nothing, but operational control was technically handed over to the Admiralty, though as they were working closely with Coastal Command anyway it is difficult to identify if the organisational change made that much, if any, practical difference. Slessor and Air Chief Marshal Sir Sholto Douglas, another future AOC-in-C Coastal Command, certainly thought it did not.<sup>40</sup> Indeed, though a planned move of Coastal Command HQ from Northwood to a location closer to the Admiralty was agreed, it never took place due to logistical issues, and this seemed to cause no obstacle to the functioning relationship of the Royal Navy and Coastal Command.<sup>41</sup>

Though the planned transfer was rejected, it was undoubtedly a factor in the Air Ministry suddenly agreeing to find extra aircraft for Coastal Command, including three more squadrons: Wellingtons, Beauforts and Beaufighters.<sup>42</sup>

Reinforcements for No.15 Group Coastal Command covering the North-western Approaches were added at a steady rate, with new bases being opened in Iceland, Northern Ireland and the Hebrides. By the early summer of 1941, these extra air assets, alongside increases in naval escorts for convoys and intelligence work, began to bear fruit and the losses in the Atlantic began to recede. In the second half of 1941, Atlantic shipping losses fell back to a rate of around 100,000 tons per month.

Bowhill continued to agitate for more aircraft. The waters close to the British Isles were becoming relatively safe due to the increase in numbers of aircraft available to Coastal Command, but there were crucial shortages in the longer-range types of aeroplanes such as Sunderlands, Whitleys and Wellingtons. It was also true that crews on Wellingtons and Whitleys (twin-engine aircraft) were being asked to patrol across great expanses of ocean in aircraft that could not fly on one engine if problems occurred. Bowhill was nevertheless persuaded to give up hope of obtaining any of the new four-engine bombers entering service in the RAF. The Whitley was also the only aircraft in Coastal Command that was equipped with the new LRASV (long range ASV) equipment, essential for night-time sorties, yet squadrons were short of aircraft and the Air Staff was still planning to transfer a Whitley squadron to other duties.<sup>43</sup>

### **FIGHTING BACK: ENHANCING ANTI-U-BOAT CAPABILITY, 1941-1943**

By the summer of 1941, shipping losses had been brought under control and though still high were, for the time being, sustainable. Convoys were now escorted across the Atlantic, and Hitler had moved some of his submarine fleet to the Mediterranean. Coastal Command had played a vital role in the 1940-41 campaign, perhaps its most important of the War, but it was still a scarecrow force, effectively incapable of inflicting serious damage on U-boats. The next step for Coastal Command was therefore to develop the equipment and tactics to begin inflicting casualties on the enemy; imposing attrition on U-boats would in the long term play a major role in winning the Battle of the Atlantic.

This was a driving factor in the reappointment of Air Chief Marshal Sir Philip Joubert de la Ferté as AOC-in-C Coastal Command in June 1941 as replacement for Bowhill who was moved on to Ferry Command after four years in post, a move that did not please him.<sup>44</sup> Joubert, who had previously headed Coastal Command in 1936-7, brought intelligence and imagination to the Command, as well as experience of the development of advanced technical equipment. He also, however, brought some baggage, having previously fallen foul of Churchill in 1940 over media appearances and interviews, which resulted in him becoming the country's best known Air Marshal, much to the irritation of the Prime Minister who ordered that Joubert should focus on his job.<sup>45</sup> Air Chief Marshal Sir Wilfrid Freeman, Vice-Chief of the Air Staff, was also unsure as to whether Joubert would toe the Air Ministry line in the way that Bowhill generally had, perhaps an indication of the delicate balancing act that the head of Coastal Command had to maintain.<sup>46</sup> Ultimately, however, Joubert lost the support of the Admiralty and this sealed his fate. After only sixteen months in charge, Admiral of the Fleet Sir Dudley Pound lobbied for Joubert to be replaced by someone with better operational grip; this proved to be Air Marshal John Slessor, though he could not take over until early 1943.<sup>47</sup> Nevertheless, during Joubert's tenure Coastal Command was transformed into a force much more capable of locating, attacking and destroying U-boats.

A crucial development that began shortly before Joubert arrived in June 1941 was the appointment of Professor Patrick Blackett as Scientific Advisor to Coastal Command, thus initiating the input of civilian specialists into the workings of the Command. Blackett was well known to Joubert who had pressed for his appointment to close-out weaknesses in the Command's assimilation of new technology, principally ASV radar. This initiative soon developed into an Operational Research Section (ORS), mirroring the type of work done successfully at Fighter Command.<sup>48</sup>

Blackett's main brief was to boost the effectiveness of ASV equipment in Coastal Command. New centimetric wavelength ASV equipment appeared to be the best long-term solution, but Blackett argued that the second generation ASV equipment, LRASV (or ASV II), based on a 1.5 metre wavelength, was perfectly capable of doing a decent job. Over half the Command's aircraft were fitted with ASV equipment by mid-1941, but it was not having the impact imagined; ASV was only locating U-boats before visual contact was made in 20-25% of cases. Blackett's team soon began watching Coastal Command's operations and providing analysis. Their most important recommendation was to wean crews off reliance on visual sightings and to switch to LRASV equipment, preferably whilst using cloud cover wherever possible. Aircraft were likely to be spotted by U-boats before the aircraft visually sighted the U-boat and this was affording too much time for the U-boat to escape. In order to increase the likelihood of hitting and damaging a U-boat, an attack had to be initiated quickly, within 30 seconds of the U-boat spotting and reacting to the aircraft, and preferably within 15 seconds.<sup>49</sup> If aircraft hid in clouds and used ASV to locate U-boats, their chances of surprising and attacking quickly were considerably improved. Professor Evan Williams, who replaced Blackett in early 1942, noted that by using the new tactics and relying on LRASV, Coastal Command aircraft improved their chances of locating a U-boat fivefold, although this effect would not be indefinitely valid as the Germans were likely to introduce detectors matched to the wavelength of LRASV equipment.<sup>50</sup>

A further ORS initiative included changing camouflage schemes. No 15 Group Coastal Command had requested in early 1941 that they be allowed to repaint the undersides of their aircraft light blue as the standard black, a counter-measure to searchlights, was redundant over the sea. The ORS went further and pressed for the undersides of Coastal Command aircraft to be painted white to camouflage the aircraft in grey and cloudy skies by better reflecting the light, making the aircraft 20% less likely to be spotted from the sea. RAF officers took some convincing, but by the autumn of 1941 white undersides were standard.<sup>51</sup>

Though there were many other ORS initiatives, some developments lay outside their remit, but were also crucial innovations such as the development of the Leigh Light. A technical deficiency and major problem with LRASV equipment was that it went blind

during the final 1,000 metres run-in to an attack on a U-boat.<sup>52</sup> As darkness was an ideal period for air attacks on U-boats as it concealed the aircraft from observation, Wing Commander Humphrey de Verd Leigh, largely on his own initiative, developed a searchlight solution that allowed the target to be illuminated in the final moments of the attack, enhancing the chances of success. Despite some resistance from Joubert, who initially favoured a different solution, the Leigh Light proved successful and enhanced the chances of achieving an accurate surprise attack.<sup>53</sup>

New Torpex-filled depth charges that increased lethal radius by some 30% and new detonators added to the mix of measures. As diving to escape began to prove increasingly perilous some submarines began to try and fight it out on the surface relying on their guns to dissuade aircraft from pressing home accurate attacks. Coastal Command crews pointed out that once their depth-charges had been used, their .303 machine-guns were of limited use against U-boats. Heavier cannon and guns were eventually introduced to provide aircraft with an effective weapon against surfaced submarines.

Ultimately, the efficiency of sightings and attacks on U-boats by aircraft rose significantly as 1942 progressed. Between 1939 and 1941 Coastal Command had independently accounted for one U-boat. In the first six months of 1942 they sighted 83, attacked 79 and sank two more, but when all the new measures and equipment came into use, the figures rose to 505 sightings, 346 U-boats attacked and 24 sinkings.<sup>54</sup> The lethality of Coastal Command attacks on U-boats rose from 2-3% in 1941 to 40% by 1944.

A development of this greater success in 1942 was the Bay Offensive in which Coastal Command assets were specifically assigned to attacking U-boats as they crossed the Bay of Biscay. German submarines had generally travelled on the surface at night to charge their batteries, safe in the knowledge that air cover was usually present in the shipping lanes and around convoys. But when Coastal Command aircraft equipped with LRASV, Leigh Lights and improved tactics began scouring the Bay of Biscay, night-time offered even greater danger than daytime. The Germans resorted to diving at night and providing air patrols for surfaced U-boats during the day.<sup>55</sup>

The Bay Offensive fell away in significance in the late autumn of 1942 when the Germans began equipping U-boats with *Metox* radar detectors that alerted German crews to the presence of Allied aircraft using LRASV. The ORS at Coastal Command had predicted such a move and the only real solution was to move onto CMASV or ASVIII radar which used shorter wavelength and would defeat *Metox*. Unfortunately that would take until the spring of 1943 to materialise. Until then, stop-gap solutions such as flooding the area with LRASV transmissions to panic U-boats into diving repeatedly were developed.<sup>56</sup>

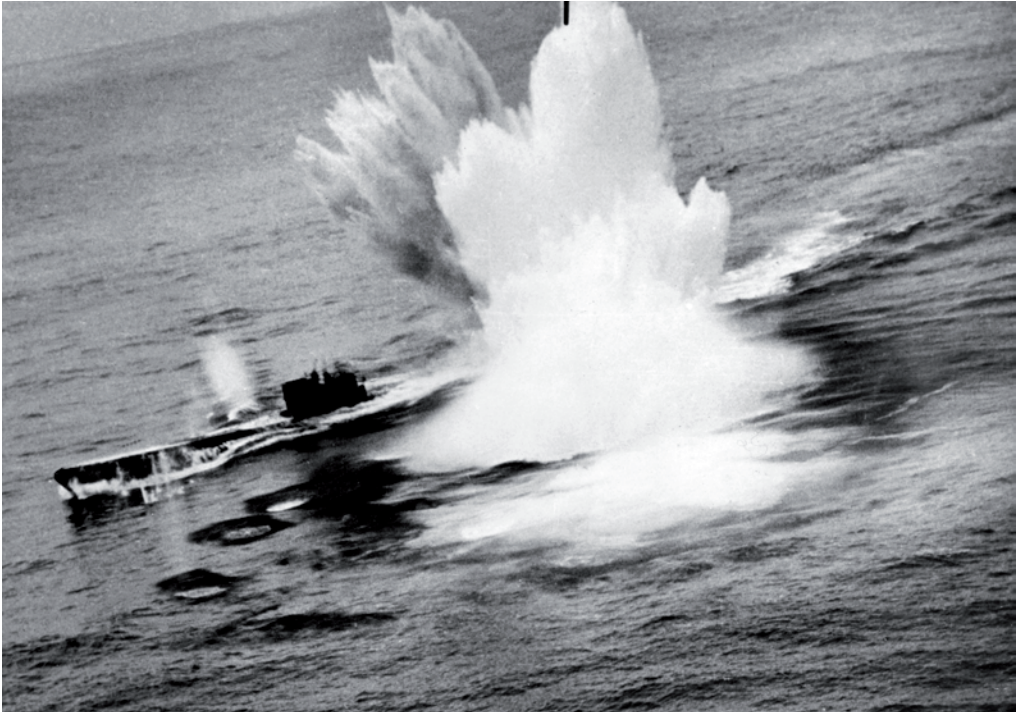
### THE MID-ATLANTIC AIR GAP 1942-3

The success of the Bay Offensive was to play a role in blinding the Allies to the growing problem of the inadequate air cover in the mid-Atlantic, principally because the Admiralty and Coastal Command spent much of the first nine months of 1942 lobbying Churchill and the Air Ministry for aircraft to support the Bay Offensive; there was no pressing concern over the mid-Atlantic, as there was little activity there. Consequently, of the aircraft coming into Coastal Command that summer, none were suitable for operations in the mid-Atlantic.

Yet, by the autumn of 1942, the Battle of the Atlantic had turned against the Allies once more. The loss of *Ultra* intelligence due to the addition of a fourth rotor to German naval intelligence *Enigma* machines increased numbers of operational U-boats, and the need to provide secure escorts across the entirety of the Atlantic following the entry of the USA into the War, were major contributory factors to the dramatically increased shipping losses, which peaked in the November of 1942.

Yet, arguably the most important factor, and perhaps the key to victory, was the provision of air cover in the mid-Atlantic which became increasingly essential as U-boat activity was now concentrated in this area, where Allied aircraft could not operate. The best way to provide air cover in the mid-Atlantic was far from clear, however. Joubert considered it inefficient for Coastal Command to fulfil this role, as at such extended ranges the chances of his aircraft linking up with the convoy they were to escort fell away significantly.<sup>57</sup> More importantly still, the number of aircraft with 'very long range' (VLR) capability was tiny – only the Mark I Liberator was up to the task and, though they had been around since 1941, they were in such small numbers and with no provision for replacement, they offered no solution, something of which the Admiralty was well aware.<sup>58</sup> Escort carriers seemed to offer a better option for the mid-Atlantic, and a small supply of them had been secured from the USA. But the Admiralty was much more interested in using them in other roles and had sent them to dockyards for refitting and conversion; by the autumn of 1942 and for the near future, escort carriers provided no immediate answer.<sup>59</sup>

Consequently, and despite Joubert's concerns, Coastal Command would have to do the job, if suitable aircraft could be found. Unfortunately, the British did not have an easily and quickly adaptable home-grown aircraft for the task. The only viable option in the short term was to convert Liberator Mark IIs into VLR aircraft. As built, their range was substantially lower than Mark Is (1,800 miles compared to 2,400 miles), but they could be altered to increase range to a suitable level by removing self-sealing fuel tank equipment and other ancillaries. John Slessor, then ACAS (Policy) and soon to be AOC-in-C Coastal Command, was not entirely happy about the proposed conversion programme, but there was no alternative. Yet, even when finally agreed, the process was painfully slow as the aircraft required considerable work and modification; it was spring



Photograph taken from Short Sunderland III of 422 Squadron RCAF while attacking a U-boat in the Atlantic with depth charges and machine gun fire, 1944.

1943 before the new VLR Liberators became operationally available in sufficient numbers to begin making a difference.<sup>60</sup>

With the 'air gap' closed by Coastal Command, their efforts eventually being supplemented by Royal Navy escort carriers, and with other intelligence and resource measures coming into play, by the late spring of 1943 the U-boat threat began to abate. Shipping losses fell away whilst Dönitz's fleet began to haemorrhage, nearly 100 being lost in the May-July period. By the summer of 1943, he had to withdraw his U-boat fleet from the Atlantic to prevent its destruction, and Coastal Command had been crucial in forcing this decision. Although the U-boat threat would never entirely melt away, and Coastal Command would continue to play a key role in containment, by the late summer of 1943, the Battle of the Atlantic had been won.

### **DEFEATING THE GERMAN SURFACE FLEET**

The U-boat was to prove the principal threat to Britain's maritime security in the Second World War, but the German surface navy still persisted and had to be contained or neutralised in some manner by the Allies. Coastal Command's role would eventually expand to play an important part in this effort and would develop into a potent offensive arm which was deployed against the Axis shipping fleet in the closing stages of the war.

Yet back in 1942 Coastal Command was about to reach its nadir against the German surface fleet. When the Asia-Pacific War broke out in December 1941, a proportion of Coastal Command's already small force of strike aircraft was hurriedly transferred to the Indian Ocean causing alarm at the Admiralty over the RAF's decreased ability to act against German surface vessels around the British Isles. Rear Admiral Arthur St George Lyster, the Fifth Sea Lord and Chief of Naval Air Services, predicted in December 1941:

It is very obvious that the strength of the home Coastal Command is inadequate. ...a breakout which is not intercepted and destroyed would take some laughing off, especially if it was done by any of the Brest party.<sup>61</sup>

On 11 February 1942 Lyster's Brest party, the elements of the German surface fleet still holed up in French Atlantic ports since 1941, did exactly as he had feared. The battlecruisers *Scharnhorst* and *Gneisnau*, along with the heavy cruiser *Prinz Eugen*, departed Brest and steamed quickly up the English Channel heading back to Germany; they remained undetected for close on twelve hours. The British response was sluggish at best and the reaction poorly co-ordinated. Coastal Command aircraft failed in basic reconnaissance tasks and then lacked the wherewithal and the resources to intervene in a meaningful manner. By 13 February the German ships were home in port in Germany, though two had hit mines. The RAF exacted some form of revenge a few weeks later when a bombing raid put the *Gneisnau* out of action for good, but what became known as the Channel Dash had been an embarrassing fiasco. As *The Times* noted the German fleet had 'succeeded where the Duke of Medina-Sidonia failed'.<sup>62</sup>

Joubert's response at the subsequent Board of Inquiry was to state lamely that 'one does what one can with the aircraft one has got'.<sup>63</sup> More tellingly, the Inquiry concluded that relying on Bomber Command to intervene against fleeting German surface vessels, a task for which they were untrained, was a clear mistake. Coastal Command aircraft had at least pressed home attacks against the naval ships, whereas out of 242 Bomber Command sorties only 39 found a target, and there was evidence that it might not have been the correct one in every case.<sup>64</sup> The policy of Coastal Command locating targets at sea for Bomber Command to deal with, along with the meagre force of specialist torpedo bombers, had been repeatedly questioned since the start of the War, but its failings were ruthlessly exposed in February 1942.<sup>65</sup>

Though the Channel Dash was a tactical success for the German fleet, it was, as Admiral Raeder predicted, a strategic blunder. The threat of the German surface navy receded from that point because it was holed up in German ports or transferred to Norway. Bomber Command was freed from targeting the German warships in France and could turn to objectives in Germany itself, whilst Coastal Command's thin anti-shipping forces could be relocated and concentrated in the northern British Isles to counter any moves from Norwegian ports. The German surface fleet represented a lingering threat

to Arctic Convoys, until slowly whittled away, picked off in sea battles (as in the case of the *Scharnhorst*) or eventually dealt with by Bomber Command (the *Tirpitz*).<sup>66</sup>

Coastal Command kept a watching brief on German naval vessels, backed by its increasingly potent strike force, which by the time of Operation OVERLORD in 1944 was more sophisticated and flexible, being well able to deal with lighter German craft such as destroyers and E-boats.

### THE ANTI-SHIPPING CAMPAIGN

For much of the War, Coastal Command's role appears passive or reactive – tactically at least, even if at a strategic level it was crucial. Yet this was also misleading, for the Command was increasingly committed to a growing and highly dangerous campaign against Axis merchant shipping. This task had become significant once Norway had been attacked and occupied by Germany; indeed, it was only at this point that Coastal Command was released to attack enemy shipping in the Skagerrak.

Germany was dependent on raw material imports from Scandinavia, the most efficient route into Germany being by shipping along the Norwegian coastline into German ports, later supplemented by Rotterdam once occupied in May 1940. This route offered a tempting target for the British, but Coastal Command initially lacked the aircraft, ordnance and techniques to operate effectively in this anti-shipping role. Bowhill was forced to employ Hudsons as the Beauforts had engine reliability issues and lacked sufficient defensive armament for operations so far from home and beyond escort fighter range. Blenheims also offered an option for anti-shipping duties. Low-level attack was the preferred method as it increased the likelihood of success, if at the expense of higher losses. Blenheim losses on operations against North Sea shipping ran at 20%.<sup>67</sup> Some modest success ensued, but the drain on anti-shipping resources to the Mediterranean in 1941 and then the outbreak of war in the Asia-Pacific theatre set Coastal Command's anti-shipping capability in the British Isles almost back to square one. New aircraft were urgently required to replace the Blenheims, Hudsons and Beauforts, all of which had certain limitations and issues, whilst the Germans were enhancing their defensive capabilities; the increasing deployment of Sperrbrecher ships, laden with flak, was a sobering development. Low-level attacks were abandoned in July 1942 which kept aircraft casualties down, but at the expense of limiting the damage inflicted on merchant ships.<sup>68</sup>

Little headway was made in developing the anti-shipping campaign until the later months of 1942 when Beaufighters and Torbeaus (torpedo equipped Beaufighters) began to arrive in the Command. Initially, much of the new output of these types went to other theatres, but by the autumn it was Coastal Command's turn.<sup>69</sup> Such was the impact of these aircraft with their high speed, flexibility and array of weaponry that Joubert argued for a focus on the Beaufighter as the aircraft of choice in the new Strike Wings that were

to be developed and deployed in late 1942 specifically for anti-shipping actions. As ever, demand outstripped supply and converted Hampdens had to soldier on as torpedo bombers until sufficient Torbeaus / Beaufighters began to arrive.<sup>70</sup>

The campaign was further underpinned by the intelligence gathered by the Ministry of Economic Warfare and its estimations of the possible impact of an effective anti-shipping campaign on the German economy and state. Coastal Command's ORS also became involved in sharpening upon the methods and tactics of the campaign and they issued a stream of recommendations from 1942 onwards. A key tactical pointer was that fighter and bomber attacks should hit targets first in order to suppress flak resistance prior to attacks by torpedo bombers. Torpedoes, once supplies increased, were still the best way of sinking ships, but delivering them remained very dangerous to aircraft and crews. The use of Beaufighters, which sported a heavy array of forward firing cannons and machine-guns, in this suppression role was to prove highly effective.<sup>71</sup>

In November 1942 the Strike Wing concept was put into action, but the first operation was to prove a 'costly shambles' and it took some months for results to improve.<sup>72</sup> In 1943, the attacks grew in effectiveness as the new aircraft were supplemented by better equipment and enhanced techniques. Rockets were introduced, which, alongside torpedoes, bombs, cannon and machine guns, offered a potent mix. New radar and bomb aiming equipment were incorporated, and the increasing employment of fighter escorts ensured that the Beaufighters were able to achieve many more objectives without interference from the increasingly elusive and absent Luftwaffe. Success off the Dutch coast forced the Germans to switch their main continental port of entry from Rotterdam back to Germany, a far less efficient way of importing raw materials. Neutral shipping had also begun to lose faith in the protection the Germans offered and had long since withdrawn to the Baltic.<sup>73</sup> Nevertheless, Coastal Command losses remained high. Operations off Norway were hampered by the lack of a long-range fighter for escort duties and thus the development of a Strike Wing to operate in this area was hindered.

By 1944 the threat from the U-boat menace in the Atlantic had receded and though effort was given over to supporting Operation OVERLORD, Coastal Command was able to concentrate ever more on the anti-shipping campaign. Indeed, the Strike Wings were employed in suppressing and disabling German light surface assets to aid the invasion in June, as well as Coastal Command playing a vital role in effectively eliminating the U-boat as a threat to the landings and maritime supply routes. Some twenty-three squadrons were deployed to these roles.<sup>74</sup>

Throughout 1944, Coastal Command actions accounted for 170 enemy ships totalling 183,000 tons for the loss of 165 aircraft, which was nearly one aircraft per ship, a much-improved ratio and performance compared to the previous year. By the autumn, Swedish shipping had lost its government's insurance against loss if using German



A Short Sunderland of 201 Squadron escorting an Atlantic convoy on Coastal Command's last operational patrol of the war.

ports, because the threat from the RAF had grown so much. At a stroke, therefore, the German government lost over a quarter of its accessible merchant shipping. The assault by Coastal Command continued into the spring of 1945, yielding still more significant returns; 104 vessels were sunk in less than five months, a figure higher than all the kills between April 1940 and December 1943. Bomber Command's mine laying campaign was proportionally more effective than direct attack in accounting for enemy shipping, and at a much lower cost in sorties, aircraft lost and aircrew casualties; at least two thirds of Coastal Command's total personnel killed in the war came in anti-shipping operations. But the Germans also had to deploy considerable resources to escorting and defending their dwindling merchant shipping fleet, effort that would not have been absorbed by mine laying.<sup>76</sup>

## FINAL ASSESSMENT

When Germany finally surrendered in May 1945, Coastal Command's long vigil came to an end. The final months of the war had seen new Type XXI U-boats threatening to overturn the cosy superiority the Allies and Coastal Command had enjoyed over the German submarine fleet since mid-1943, but such innovations came far too late to prove a real problem. Whilst the Command had developed air-sea rescue capability and had housed the RAF's photo-reconnaissance assets, its main roles throughout the war remained trade defence and offensive action against enemy shipping. In both tasks the Command proved successful.

Throughout the War, Coastal Command accounted for over 200 U-boats destroyed, the great majority in the 1942-45 period, sank or damaged over 1 million tons of Axis shipping, and rescued over 10,000 people from the sea. Ultimately, the Command flew in excess of one million hours, suffered the loss of some 2,000 aircraft and sustained nearly 6,000 fatalities between 1939 and 1945.<sup>77</sup>

By 1945, Coastal Command, from relatively inauspicious beginnings, had been transformed into a potent force which had clearly overcome the legacies of the muddled thinking of the inter-war years and had gone on to embrace new approaches and techniques. Ultimately, its most vital contribution was during the 1940-41 Atlantic campaign helping to turn around British maritime interests after they had reached their nadir; this success was achieved with very limited weaponry, technology and scientific intervention.<sup>78</sup> Its later success in sinking U-boats, peaking at 35% of total U-boat losses in 1943, undoubtedly helped to break the back of the German threat to Britain's trade routes, but even at this point it was the allocation of a small number of VLR aircraft to close the Atlantic air gap in the spring of 1943 that effectively sealed the fate of Dönitz's fleet. Whether this might have been achieved earlier remains a contested subject, but ultimately it proved to be the final piece in winning the Battle of the Atlantic and securing the Allies' road to victory.

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<sup>2</sup> TNA AIR 41/73, DV Peyton-Ward, *The RAF in the Maritime War – Volume II*, (Air Historical Branch Narrative), p.275.

<sup>3</sup> Harris to Churchill, 17 June 1942, in Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany 1939-45 – Volume I*, (London: HMSO, 1961), pp.340-1.

<sup>4</sup> The best studies of Coastal Command in the Second World War are Christina Goulter, *A Forgotten Offensive: Royal Air Force Coastal Command's Anti-Shipping Campaign 1940-1945*, (London: Cass, 1995); Andrew Hendrie, *The Cinderella Service: RAF Coastal Command 1939-1945*, (Barnsley: Pen and Sword, 2006); and John Buckley, *The RAF and Trade Defence 1919-1945: Constant Endeavour*, (Keele University Press, 1995).

<sup>5</sup> See for example Wing Commander RM Bayley, 'Fundamentally Aquastrian – Being an Article on Flying Boats in Peace and War', *RAF Quarterly*, Vol.III, No.4, October 1932.

<sup>6</sup> TNA AIR 8/79, Air Staff memo, 1925-6.

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<sup>9</sup> TNA AIR 2/2729, Deputy Chief of Air Staff (Christopher Courtney) to Deputy Director Plans (Arthur Harris), 27 November 1936.

<sup>10</sup> TNA AIR 9/26, *Centurion* bombing trials, 1933-5.

<sup>11</sup> Arthur Longmore, *From Sea to Sky*, (London: Bles, 1946), p.166 and Philip Joubert de la Ferté, *Birds and Fishes*, (London: Hutchinson, 1960), p.177.

<sup>12</sup> TNA AIR 20/3, memo to CAS, 9 January 1928.

<sup>13</sup> TNA AIR 15/66, Frederick Bowhill, 'Some Notes on the Role of Coastal Command', 16 January 1939; AIR 8/249, Air Expansion Schemes, Scheme A, 1934; AIR 6/23, Air Council minutes, 6th and 13th meetings, 17 September and 5 November 1935.

<sup>14</sup> TNA AIR 15/65, Geoffrey Bromet, Senior Air Staff Officer, Coastal Command, to Wing-Commander Collier, 12 February 1938.

<sup>15</sup> TNA AIR 6/24-38, Air Council minutes and memoranda, 1936-1938; Buckley, *RAF and Trade Defence*, pp. 95-107.

<sup>16</sup> ASDIC – widely and erroneously believed to be Allied Submarine Detection Investigation Committee. No such committee appears to have existed and the term ASDIC is probably drawn from Anti Submarine Division with -IC added in much the same way as sonic; Stephen Roskill, *The War at Sea – Volume I*, (London: HMSO, 1954), p.34.

<sup>17</sup> TNA AIR 15/65, 'Role of Aircraft Detailed for Anti-Submarine Duties', Wing Commander RL Crofton to Bromet, SASO, Coastal Command, 16 March 1938; Wing Commander GH Boyce to Bowhill, 22 March 1938.

<sup>18</sup> TNA AIR 41/73, Air Historical Branch (AHB) Narrative, *The RAF in the Maritime War – volume II: Atlantic & Home Waters – The Defensive Phase, September 1939-June 1941*, appendix V; CAB 53/33, Protection of Trade, 11 October 1937, CoS 621(JP); Stephen Roskill, *The War at Sea – Volume II*, (London: HMSO, 1956), p.107.

<sup>19</sup> TNA AIR 15/66, Frederick Bowhill, 'Memo on the Employment of Coastal Command in a Continental War', 31 January 1939.

<sup>20</sup> TNA AIR 19/183, Charles Portal (CAS) to Archie Sinclair (Sec of State for Air), 13 December 1940.

<sup>21</sup> TNA AIR 15/66, Frederick Bowhill, 'Memo on the Employment of Coastal Command in a Continental War', 31 January 1939.

<sup>22</sup> TNA AIR 15/46, Frederick Bowhill - Aircraft Operational Requirements, 27 September 1939; AIR 2/8012, Transfer of Fighter Squadrons to Coastal Command, December 1939-January 1940.

<sup>23</sup> Basil Collier, *The Defence of the United Kingdom*, (London: HMSO, 1957), Chapter V.

<sup>24</sup> TNA AIR 41/73, AHB Narrative, *The RAF in the Maritime War – Volume II*, p.41.

<sup>25</sup> TNA AIR 41/73, AHB Narrative, *The RAF in the Maritime War – Volume II*, p.16.

<sup>26</sup> TNA AIR 15/213, Expansion and Re-equipment Estimates, June 1940 to June 1942, p.193.

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<sup>32</sup> Roskill, *War at Sea – Volume I*, p.129.

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# LEARNING TOGETHER, WINNING TOGETHER: AIR GROUND COOPERATION IN THE WESTERN DESERT

By Colonel Dr Robert Ehlers USAF (Retired)

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**Biography:** Robert Ehlers is a retired USAF colonel and intelligence officer. He holds a PhD from The Ohio State University. Dr Ehlers teaches at the graduate level and has authored two books - *Targeting the Third Reich: Air Intelligence and the Allied Bombing Campaigns* and *The Mediterranean Air War: Airpower and Allied Victory in World War II*. Both won national scholarly awards.

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**Abstract:** The contest for control of the Mediterranean Basin during the Second World War, with North Africa the central arena of air-ground operations, highlighted the importance of combined-arms warfare. Its advantages became increasingly clear from Italy's declaration of war in June 1940 until the Axis collapse in Tunisia in May 1943. In North Africa, the British proved more adept than their adversaries at combined-arms warfare. This occurred both in spite of and because of early German victories. Pushed back on their heels, the British had to learn or lose. Despite inevitable inter-Service rivalries, British soldiers and airmen in North Africa worked together exceptionally well. Ultimately, this increasingly close cooperation allowed them to outfight the Axis in the air-ground arena. The vital lessons they learned carried forward into Italy, France, and Germany.

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## INTRODUCTION

The contest for control of the Mediterranean Basin during the Second World War, with North Africa the central arena of ground-air operations, highlighted the importance of combined-arms warfare across air, land, and sea domains, and the absolute necessity of coordinating the three. The advantage of effective combined-arms warfare became increasingly clear from Italy's declaration of war in June 1940 until the Axis collapse in Tunisia in May 1943. In North Africa, the British ultimately proved more adept than their Axis adversaries at combined-arms warfare. This occurred both in spite of and because of early German victories and Allied defeats. Pushed back on their heels, the British had to learn or lose. Conversely, the Germans believed, with some justification, that their way of war had proven itself in the conflict's first year. However, the Battle of Britain gave them their first taste of defeat. When the Germans faced the RAF in the Mediterranean, the Luftwaffe again proved unable to prevail. Axis defeat in the air played a direct role in the eventual British victory precisely because it had such profoundly negative impacts on the Axis conduct of both ground and sea operations.<sup>1</sup>

British air-ground cooperation in North Africa developed rapidly beginning with the lessons learned in the defeat of the Italians in Italian East Africa (IEA), continuing through the see-saw campaigns for control of North Africa, and culminating at El Alamein and in Tunisia. Historian Richard Overy and Air Chief Marshal Lord Arthur Tedder, who commanded RAF Middle East (RAFME) for most of the North African campaign, have asserted that British combined-arms efforts ultimately resulted in victory because they treated air power as a key part of a larger, coordinated strategy that involved the C-in-Cs from all three Services. This effort matured steadily, weathered significant challenges from Axis forces, particularly on the ground, and ultimately delivered a victory that had major implications for the conduct of the remainder of the war. While there was inter-Service rivalry, cooperation predominated.<sup>2</sup>

Any study of combined-arms operations in North Africa must be properly situated and discussed within larger contextual realities. The British achieved their policy and military-strategic objectives because they became better than their adversaries at waging combined-arms operations. An increasingly effective ground-air effort *within a given historical, geographical, and grand-strategic context* ultimately brought the Allies a series of victories, and the Axis a series of catastrophes from which, in conjunction with the disasters in Russia, they never recovered.

The North African campaign involved an extraordinary level of interdependence between the Services. Interestingly, while the historical record is full of references to 'supporting air forces,' there are few instances when senior officers referred to the army or navy as 'supporting forces,' even though victory or defeat in North Africa ultimately hinged as much on control of airfields and effective use of land-based air forces as it did on armies

or navies. As Air Marshal John Slessor said during the war, ‘The fact is that ‘Army Air Support’ is really an obsolete term, as is the conception that the Air is a ‘supporting arm’ just like artillery.’<sup>3</sup> He continued:

It’s not only a question of the Air supporting the Army but of the Army supporting the Air. It is a question of seeing how the Air and the Army...can best collaborate and play into each other’s hands—and the Air factor may have a preponderating influence on the whole plan. It may—in fact already has—determined where an attack can be made. And the primary essential principle underlying the whole thing must be the old principle of concentration of decisive force at the decisive time and place—i.e. flexibility...<sup>4</sup>

Similarly, Air Chief Marshal Lord Charles Portal, the RAF’s Chief of Air Staff (CAS), felt compelled to state at the 260th Chiefs of Staff (CoS) meeting, the RAF’s position regarding command of air forces in the Middle East. ‘I am of course aware,’ he said, ‘that the C.I.G.S.’ [Chief of the Imperial General Staff, Field Marshal Sir Alan Brooke’s] conception of the correct state of affairs is that the air force should always be subordinate to the Army in any theatre of war in which the Army and Air Force are together engaged. This conception I regret I am quite unable to accept.’<sup>5</sup> Fortunately, most soldiers and airmen in North Africa shared Portal’s views.

Any examination of ground-air efforts in North Africa must begin with an assessment of the larger theatre’s grand-strategic importance. Because of its geography and climate, combat featured major air activity. Land-based airpower often set the tone and direction of the conflict, although always in conjunction with, and correspondingly dependent upon, land and naval forces. How each of the warring powers employed forces was tied to its grand-strategic views. Unfortunately, most studies mischaracterize the Mediterranean as a subsidiary or irrelevant theatre. This was putatively the result of a misconceived British approach that wasted lives and resources that would have been better spent elsewhere. These arguments fail to account for the fact that North Africa was the only place British ground and air forces could attack the Axis directly to hone their operational skills. Holding and winning in the Mediterranean was important for maintaining the Empire’s global logistics network, and for giving the British a place where they could learn to fight and beat the Germans.<sup>6</sup>

The Mediterranean war was a vital part of a larger global conflict that determined the fate of the democratic powers. Douglas Porch says, ‘while the Mediterranean was not the *decisive* theatre of the war, it was the *pivotal* theatre, a requirement for Allied success,’ one in which the Allies were able ‘to acquire fighting skills, audition leaders and staffs, and evolve the technical, operational, tactical, and intelligence systems required to invade Normandy successfully in June 1944.’<sup>7</sup>

Moreover, British defeat in North Africa would have been disastrous. The Axis would have seized enormous oil resources for their use or at least denied them to the Allies; gained passage for U-boats through the Suez Canal to the Indian Ocean; opened a back door into the Soviet Union; gained serious leverage in its efforts to bring Turkey and Spain into the war on the Axis side; and perhaps linked up with the Japanese to destroy the British position in India.<sup>8</sup>

British policymakers viewed the Mediterranean Basin and its surrounding areas as ‘a single geo-strategic unit’ within which the complex interplay between air, ground, and naval operations would determine success.<sup>9</sup> Churchill insisted that the British would fight to the ‘last inch and ounce for Egypt.’<sup>10</sup> He understood that the Mediterranean campaign could not win the war but might well lose it and used this as leverage with Roosevelt for American support. Churchill believed that losing the Suez Canal would be a calamity ‘second only to a successful invasion and final conquest’ [of the UK].<sup>11</sup> The strategy was to conquer North Africa first, re-open the Mediterranean, and force Italy’s surrender.<sup>12</sup> These were never intended to be substitutes for an invasion of the Continent, but rather indispensable preliminaries to shore up Britain’s strategic position and weaken the Axis while awaiting American entry into the war.

The Italian conquest of Abyssinia prompted the British to take actions that paid major dividends once the war began. It refocused their attention on the vital importance of the Suez Canal as the ‘hinge’ in the Empire’s commerce. The growth of air routes to India, Singapore, and Australia also depended on a secure Middle East, and it had the added benefit of creating a far-flung network of airbases that proved its worth in the coming contest.<sup>13</sup>

The Commanders-in-Chief (C-in-Cs), Mediterranean and Middle East Theatre of Operations, began addressing key issues including basing requirements, logistics, operational planning, and inter-service cooperation.<sup>14</sup> Given the theatre’s contextual realities, ground and air units had to be highly mobile and in close contact. This required a basing infrastructure, supply organizations, salvage and repair capabilities, a dense communications network, and huge numbers of vehicles. The C-in-Cs ultimately met these challenges by developing a field army and a parallel Metropolitan air force in Egypt, and by reaching out to Dominions and colonies within the Empire for supplies. The distance between London and Cairo was too great to allow for other solutions. The C-in-Cs’ ensuing focus on logistics, intelligence, and C2 paid enormous dividends.<sup>15</sup>

Axis strategic and military approaches to the theatre were generally unrealistic and ineffective. They lacked a clear strategic vision. Although Hitler and Mussolini sought dominion over the Mediterranean Basin, Hitler’s focus on conquering the Soviet Union eclipsed his thinking about the Middle Sea. This contributed to a series of inconsistent, contradictory, and ineffective decisions. The lack of Axis grand-strategic,

military strategic, operational, and combined-arms acumen played a major role in sealing their fate.<sup>16</sup>

The British understood Italian weakness and German predispositions relatively well by 1939. From March 1939, senior RAF officers reorganized RAFME and received Air Ministry approval to expand it in time of war to include all air assets in theatre. Centralized control—a now widely-employed but then still much-debated principle—was in place when Italy declared war. The ability to move air assets rapidly to localities where the Army needed them, and to work together effectively once there, proved vital. Reinforcements began arriving.<sup>17</sup>

To pre-empt Italian raids on targets in Egypt, the C-in-Cs planned to raid Italian airfields immediately to gain air superiority pending the start of a major British ground offensive. They prioritized objectives rather than allowing dissipation of air effort. Since the best way to blunt Italian air attacks was with continuing raids on airfields, RAFME made this its top priority, forming a mobile air stores park (ASP), supply and transport column, railhead-handling unit, and Repair and Salvage Unit (RSU), and building forward landing grounds to facilitate operations.<sup>18</sup>

To maximize effectiveness, Army and RAF headquarters were ‘in close proximity.’ A senior air staff officer served as liaison to the Army staff. ‘It must be appreciated,’ the guiding document said, ‘that this connecting link between the G.O.C. [General Officer Commanding] Mobile Division and the Advanced Wing Commander is not an ideal organisation, and the Officer Commanding the Wing must take every opportunity of establishing personal contact with the G.O.C. Mobile Division.’<sup>19</sup> Collocation of headquarters thus became the norm well in advance of the start of Operation COMPASS in December 1940.

The Services also improved ‘administration,’ the process of providing forces with all items required for operations and sustainment. A high degree of ground mobility proved essential in what became a series of military operations designed, in large part, to capture airfields in the Western Desert and operate from them quickly to facilitate the Army’s further advance. Airfields were also vital for attacking Axis shipping carrying supplies. The Army provided logistical services, but the RAF had its own maintenance organization including supply, repair, salvage, and transport. Land-based aircraft required a huge infrastructural investment and much lead-time to get into position for combat operations. The C-in-Cs thus built a second depot and established an advanced RSU in the Western Desert.<sup>20</sup>

When Air Chief Marshal Arthur Longmore took command of RAFME on 13 May 1940, he had less than a month of peace remaining to prepare his forces. There were 308 aircraft in theatre. The Regia Aeronautica had over 400 in Egypt and 170 in IEA, although their

organizational seams and logistical woes soon became apparent. Longmore received Hurricanes and Blenheim IV's to even the odds. He and the other C-in-Cs decided that major air operations would begin only when reconnaissance and intelligence made clear the Italians were preparing to do so. Then, RAFME would pre-empt to gain air superiority.<sup>21</sup>

The Italians declared war effective one minute after midnight on 11 June 1940. British commanders struck immediately. Bombing of airfields in IEA was particularly successful. Longmore knew he had to keep the Regia Aeronautica on the defensive. Italian raids were small and ineffective. British soldiers and airmen in Egypt used the desert to their advantage, operating far from the coastal road and building multiple landing grounds. The Italians stuck to roads and outposts, and used existing airfields, providing excellent targets.<sup>22</sup>

In a review of military strategy three months into the war with Italy, and despite their successes in the air to date, the C-in-Cs emphasized that

[T]he Italian (possibly supplemented by German) air forces are likely to constitute the greatest threat not only to Egypt itself but also the Naval base at Alexandria and in certain circumstances to the military forces, and, therefore, *their neutralization is to be regarded in principle as of primary importance*. On the other hand, direct support for the land and naval forces may from time to time and for limited periods have prior claim on our air efforts.<sup>23</sup>

They stuck to this, with RAFME maintaining air superiority almost constantly. The Services worked closely to fulfil the C-in-Cs' guidance. Air superiority was the enabler; effective combined-arms operations were the ultimate focus. This effort began in IEA and reached maturity in the Western Desert.

Italy's unpreparedness to face a long war was especially evident in IEA. It was isolated, and the supply situation became disastrous after concerted RAF attacks. The destruction of aircraft and supplies began immediately on 11 June, rendering the Regia Aeronautica combat-ineffective within a month and depriving Italian ground units of air support. The RAF quickly gained air superiority, secured passage of merchant vessels through the Red Sea, and provided direct support to ground units. Ground and air commanders co-located their headquarters. The C-in-Cs had insisted on this. Victory in IEA ensured that the Empire's last remaining Sea Line of Communication (SLOC) for reaching Egypt—the Gulf of Aden and Red Sea—stayed open. The aggressive British bid for air superiority, and joint operations facilitated by joint headquarters, became the norm in the Western Desert.<sup>24</sup>

As the campaign in IEA unfolded, the C-in-Cs planned for coordinated operations further north. They expected hostilities across much of the Mediterranean Basin, requiring a

well-orchestrated effort centred on Egypt. The most fundamental problem was logistics. As the British developed the infrastructure required to support a *de facto* parallel RAF, field Army, and fleet, Wavell sought help from the Eastern Group Central Provision Office in New Delhi, which coordinated the shipment of war materiel from various colonies and Dominions to the Middle East. This brought a centralized logistics capability to maturity. Wavell emphasized RAFME's need for new aircraft models to hold air superiority, attack Italian logistics, and set conditions for the ground phase of Operation COMPASS. Air and ground reinforcements soon began arriving.<sup>25</sup>

The C-in-Cs' efforts ensured that RAFME and the Western Desert Force became highly capable and interoperable. The ability to keep them in being, despite heavy diversions and losses to come, relied on steady deliveries of vehicles and aircraft from overseas, and the support provided by supply, maintenance, and repair organizations in the Nile Delta. These processes improved rapidly once Air Marshal Arthur Tedder took command of RAFME in June 1941 with Air Vice-Marshal Graham Dawson as Chief Maintenance and Supply Officer, and when General Claude Auchinleck took command from Wavell in July 1941.<sup>26</sup>



Air Marshal Sir Arthur Tedder.

The keys to successful combined-arms operations were rapid movement and resupply. This required the speedy construction of landing grounds to which squadrons could 'leapfrog' forward or back as fortunes on the ground dictated. Rapid ground mobility allowed air units to stay in the fight alongside ground troops, helping them to exploit successes and shielding them from pursuit and encirclement after defeats. The RAF enablers here were RSUs, which supplied new aircraft, repaired damaged ones, and rebuilt salvaged ones. Aircraft Maintenance Units (AMUs) also increased in number and capabilities.<sup>27</sup>

When Mussolini ordered the Italian advance into Egypt on 9 September 1940, the C-in-Cs were ready. Italian airmen were to attack airfields, supply points, command posts, and then troop formations and vehicles. Heavy air action began on 13 September. The RAF pre-empted by attacking airfields and supply convoys while Italian bombers reciprocated but with little effect. The Italians made no concerted effort to gain air superiority, operating mostly as flying artillery for ground commanders. Conversely, the RAF gained air superiority and then devoted 60 sorties a day in round-the-clock attacks on Graziani's supply lines, going after trucks to create a logistical crisis. The dense network of RAF airfields constructed in 1939-1940 allowed aircraft to maximize sorties.<sup>28</sup>

The RAF soon turned from stopping the Italian advance to raiding airfields and logistics even more intensively in advance of Operation COMPASS, which was designed

to eject the Italians from Egypt and exploit further opportunities. The RAF deployed 1,200 airmen to provide rapid maintenance and repair, and a quick return of repaired aircraft to forward airfields. Longmore also received a new Deputy AOC-in-C, Tedder, just in time for Operation COMPASS. Tedder proved to be one of the outstanding senior officers of the war. Longmore gave Tedder command of air operations while he coordinated policy, military-strategic, and administrative issues with other C-in-Cs and the Air Ministry.<sup>29</sup>

The air phase of Operation COMPASS began with a deception scheme that habituated the Italians to a 'standard' pattern. Just before the ground attack, major raids on airfields rendered remaining Italian aircraft ineffective. A vital, if nascent, Army/Air Component stood up under General Officer Commanding WDF, General Sir Richard O'Connor. O'Connor and Air Commodore Raymond Collishaw (Air Vice-Marshal Arthur Coningham's predecessor as Commander of what became the Western Desert Air Force, or WDAF), and their staffs, were collocated at HQ Western Desert Force (HQ WDF). O'Connor also controlled an Army Cooperation Wing with two squadrons of fighters and a flight of reconnaissance aircraft. These innovations were the first step toward the Tactical Air Force (TAF) that became the norm in the RAF and USAAF.<sup>30</sup>

Having gained air superiority, the RAF inflicted severe losses on supply columns, halting the Italian advance. Italian soldiers arriving at Sidi Barrani were shaken and malnourished. Graziani tried to stockpile supplies, but RAF raids destroyed so many trucks that deliveries slowed to a trickle. Bombers raided Tobruk, closing the port and forcing the Italians to move troops, equipment, and supplies from Benghazi, which wore out their vehicles. During Operation COMPASS, advancing troops found 32 ships sunk at Tobruk and smaller ports. They also overran 1,100 aircraft and over 1,000 trucks destroyed or damaged by air attacks. The RAF set conditions for success in the ground phase of COMPASS by neutralizing the Regia Aeronautica and creating a supply crisis for the Italian Army.<sup>31</sup>

A final round of intensive airfield attacks began on 7 December, followed by more raids on ports, supply points, and troop concentrations. Night bombing proved particularly valuable since the Italians had no countermeasures and aircrews became skilled at bombing ports using their distinctive visual cues. Within a week, Italian air operations had largely ceased. As soon as troops advanced on 10 December, moving squadrons forward became challenging given the precipitous Italian retreat. 'Leapfrogging' techniques—also known as 'bounding'—were not yet mature, although RAF units were motorized, allowing for rapid movement. RAF logisticians and Army Royal Engineers mastered the rapid construction of forward landing fields. They also brought forward an ASP, RSU, and Air Explosives and Fuel Park (AEFP). Rapid airfield mobility emerged with the introduction of these units. RAFME was able to move with the Army.<sup>32</sup>

Operation COMPASS was an effective combined-arms operation. The Army moved into position as the RAF bombed troops and went after airfields. The navy bombarded enemy positions, causing enormous damage. Initial successes prompted commanders to advance into Libya. The attack on Bardia, from 3 to 4 January 1941, was an effective joint operation, with the RAF providing photo reconnaissance, bombing enemy strong points, and maintaining a bomb 'curtain' in front of advancing troops. The Italians lost 45,000 men captured along with tanks, artillery, and vehicles. They had lost over 20,000 men previously and fled toward Tobruk.<sup>33</sup>

The assault on Tobruk involved a coordinated air, naval, and artillery bombardment of airfields and key defensive positions. When troops encountered strong points, bombers attacked. Tobruk fell on 22 January, the harbour began receiving shipping on 24 January, and the Army had a secure supply base from which to continue advancing. Another 20,000 Italians became prisoners. The C-in-Cs followed up each successive victory. Fuel and munitions came by truck over the Via Balbia, allowing effective ground-air operations to continue.<sup>34</sup>

Despite logistical challenges, the C-in-Cs decided to capture Benghazi. This would alleviate growing logistical challenges and facilitate bombing raids on Tripoli, Sicily, and southern Italy. Air operations from Benghazi would also combine with those from Malta to put enemy shipping in a vice. Benghazi fell on 7 February after O'Connor's victory at Beda Fomm, which bagged the rest of the Italian Army in Cyrenaica. Yet just as British victory in the desert appeared possible, events in Greece pulled ever more assets away. By 25 February Collishaw's command had 64 aircraft, and a most unwelcome new arrival appeared: The Luftwaffe. German air operations grew rapidly in scope. Luftwaffe raids closed Benghazi, exacerbating their logistical problems.<sup>35</sup>

Even as Luftwaffe units arrived, the RAF remained a 'learning organization.' To maximize air-ground cooperation, Air Liaison Sections became active at Army corps and division levels. These units represented the first dedicated effort to coordinate all aspects of ground-air operations. The Lysander, a slow reconnaissance aircraft associated with these efforts, was vulnerable, but with Hurricane escorts it provided superb reconnaissance and artillery spotting.<sup>36</sup>

'Informal reconnaissance,' which yielded information on enemy forces provided by aircrews after missions, proved important as the joint staffs learned to incorporate intelligence into plans and operations. Intelligence officers debriefed aircrews while communications specialists relayed intelligence to headquarters. However, despite the rapidly growing need for photo reconnaissance and photo interpretation, there was only one Hurricane equipped with cameras and a small section to develop, annotate, and distribute prints. Desert terrain required multiple passes to find troop concentrations and give photo interpreters enough prints to produce charts to help soldiers find and

engage these forces. In January 1941, photo reconnaissance aircraft brought back 980 negatives, from which photo interpreters made 15,500 prints—a diminutive effort by later standards but an important first step.<sup>37</sup>

Despite major improvements, air-ground cooperation remained imperfect. Collishaw ordered several attacks on troop concentrations without coordination at Army HQ, resulting in an ineffective employment of air assets during mobile phases of the ground battle—a problem the Services did not fix until summer 1942. Equally troubling was the difficulty telling friend from foe. Army and RAF liaison officers were just beginning to receive communications gear for vectoring aircraft to target, and to develop ground markers to point aircraft to their targets. The beginnings of a permanent solution awaited the advent of Air Support Controls, or ASCs, during Operation CRUSADER nearly a year later.<sup>38</sup>

Regardless of these problems, air reconnaissance gave O'Connor the insights he needed to win at Beda Fomm. The entire campaign lasted 10 weeks. The Regia Aeronautica made no appreciable impact. By 15 February 1941, Italian Army losses totalled 130,000 POWs, 380 tanks, and 845 guns. After that, the Italians requested German military assistance. On 27 November, Hitler ordered *Fliegerkorps X* forward but wanted them back by February—one month away. Evidently, he expected quite a bit from this unit in such a short period. It had orders to close the Mediterranean to British shipping, neutralize Malta, protect the transport of the *Afrika Korps* along with reinforcement and resupply convoys to Tripoli, and raid shipping in the Suez Canal. German airmen fought a determined campaign for over two years, but their leadership's failure to employ air assets effectively as part of a combined-arms effort hamstrung efforts to gain air superiority and thus help Erwin Rommel win.<sup>39</sup>

Hitler's Directive No. 22 of 11 January 1941 said German assistance was vital 'for strategic, political, and psychological reasons.'<sup>40</sup> A blocking detachment deployed to hold Tripolitania while Luftwaffe units attacked the British fleet, disrupted SLOCs, and interdicted British troop movements. Rommel arrived in Tripoli on the 12th. The *Afrika Korps* was at the front within days. Of 220,000 tons of cargo sent to Libya in February and March 1941, 90 percent arrived as German aircraft attacked Malta and closed the SLOCs. Despite heavy losses over England, the Luftwaffe was still a formidable instrument, as its raids quickly proved. Nonetheless, it became involved in a new theatre of war at a moment when it was at its weakest point since September 1939 and with Operation BARBAROSSA on the horizon. German airmen laboured under the exigencies imposed by this three-front air war, the often incapable senior leadership directing it, and a marginally effective ground-air coordination effort in North Africa.<sup>41</sup>

*Fliegerführer Afrika* became active on 20 February with *General der Flieger* Stephan Fröhlich arriving on 1 March. Göring ordered Fröhlich to 'direct and commit the elements

of the German Air Force employed in the African theatre of war—such as flying and antiaircraft units—in a manner that will guarantee maximum support of the Army units employed in that area.’<sup>42</sup> The initial objective was for the Luftwaffe to go after the RAF and Benghazi while covering Rommel’s forces. However, subsequent directives changed the focus to control of the SLOCs and destruction of British warships. These conflicting priorities pulled *Fliegerkorps X* and *Fliegerführer Afrika* in multiple directions. The two units failed to give one another, or the ground and maritime efforts, the full range of support required to prevail in the theatre.<sup>43</sup>

However, things went well initially as veteran soldiers and aircrews went after a tired and ill-supplied adversary at his culminating point. Luftwaffe reconnaissance aircraft let Rommel know how dispersed British formations were. Air attacks began on 14 February. Once British forces retreated, Luftwaffe units could not keep up with *Afrika Korps* because they had insufficient vehicles to ‘leapfrog.’ Heavy RAF attacks slowed *Afrika Korps*’ advance. Incomprehensibly, raids on RAF airfields, which at that point were highly vulnerable, remained minor. Conversely, RAFME planes constantly raided Luftwaffe airfields. This took its toll on aircraft and personnel. The gradual wearing-away of men and machines was a crucial factor in determining the course of events.<sup>44</sup>

Rommel’s efforts to seize Tobruk from 9 to 30 April drained Luftwaffe assets. Me. 109s flying close escort lost their advantages. During Rommel’s initial efforts to take the port the Luftwaffe was bringing forward its aircraft and could not provide support. This was due to vehicle shortages created by German Armed Forces High Command (Oberkommando der Wehrmacht (OKW)) requisitions for Barbarossa, and to Rommel’s purloining of others. The Tobruk air effort marked another requirement in a war where *Fliegerkorps X* had already been moved to Greece and its remaining assets in the central Mediterranean, along with those of *Fliegerführer Afrika*, were at the limits of their endurance. It was the culmination of the Luftwaffe’s first and initially successful intervention, underscoring problems with C2 and the movement of air units over long distances. Failure to gain air superiority when the RAF was at its weakest was a colossal error. Luftwaffe dispersion of effort, logistical problems, and command deficiencies, and Rommel’s actions, were already hampering the ability to capitalize on *Afrika Korps* victories.<sup>45</sup>

It became increasingly clear that Rommel could not exploit tactical and operational successes to achieve strategic ones. Conversely, the British Army could not defeat Rommel or survive his counterattacks without RAF air superiority. The seesaw battles that ensued were emblematic of these basic realities. The side that learned more quickly and was better able to address logistical requirements would have an advantage. Tedder resolved to keep his aircraft concentrated and focused on air superiority. He observed that effective German combined-arms operations in Greece, a product of air supremacy, had facilitated a rapid victory.<sup>46</sup>

Tedder thus ordered his units to raid airfields often. His great worry was that Luftwaffe fighters would launch a ‘real blitz’ against RAF units. Tedder thus made them highly mobile, dispersing them widely and procuring additional mobile radar sets. Only fighters ready to scramble stayed at airfields. The rest went to dispersal sites. His advanced HQ brought together intelligence, logistics, plans, and operations specialists along with Army liaison officers. It remained collocated with HQ WDF (renamed Eighth Army on 24 September 1941).<sup>47</sup>

Tedder’s innovations after Operation COMPASS included the creation of an Advanced Wing comprised of one fighter and four bomber squadrons that gave direct support to troops and cooperated closely with HQ WDF. He also established Air Headquarters (AHQ) Western Desert in June 1941 under Air Vice-Marshal Arthur Coningham (replacing Collishaw’s No. 204 Group). Implementation of Tactical (AHQ Western Desert—the WDAF), Strategic (No. 205 Group), and Coastal (No. 201 Naval Cooperation Group) components of RAFME in October 1941 made RAFME more effective. Self-contained mobile wings allowed fighter squadrons to keep pace with ground formations. Rapid salvage and repair, and mobile field units evolved. No. 253 Army Co-operation Wing also stood up to maximize air-ground coordination. The Air Support Control (ASC) Organization that emerged greatly improved joint operations.<sup>48</sup>

Two key elements in this increasing combined-arms effort were intelligence and communications. The British had a holistic view of intelligence as a vital asset at all levels of war, and held an ace with Ultra. It was a force-multiplier, particularly in North Africa where long-haul communications went by wireless transmission. Ultra was the most important source of strategic intelligence, helping commanders to understand the pivotal importance of logistics. However, it lacked the detail required to plan operations. Dissemination of intelligence also improved, although messages marked ‘Most Immediate’ took up to 12 hours to get to commanders until late 1941. Poor signals discipline contributed to this problem, as messages flooded in with no prioritization and too few trained operators to process them. An early innovation designed to correct this placed small Army units, known as Air Intelligence Liaisons (AIL), with reconnaissance and fighter squadrons. They worked with aircrews to maximize intelligence collection and dissemination. A relatively sophisticated communications network connected each squadron directly to the division or corps headquarters with which it worked. Despite growing pains, the combination of effective intelligence and a rapidly improving C2 network became key building blocks of the air-ground team.<sup>49</sup>

In the communications arena, RAFME Chief Signal Officer (CSO), Group Captain William Mann, found capabilities in theatre barely adequate despite the fact that it had highest priority for delivery of communications personnel and equipment. The War Office agreed to send him 4,000 communications specialists. A three-man Operations Research Section analysed the signals system in detail, leading to more effective communications

networks. Mann also worked tirelessly to bring VHF communications into theatre for improving ground-air cooperation. Fighter units received 75 VHF sets for tactical communications and reconnaissance. Over 400 mobile VHF vehicles arrived at Army formations to facilitate communication with VHF-equipped aircraft. All sector headquarters and flying squadrons had these capabilities by summer 1942. Finally, wireless observer units with special vehicles began reporting on enemy aircraft activity using the latest height-finding/direction-finding, air-intercept, and ground-controlled-intercept radar.<sup>50</sup>

As British air-ground cooperation improved, Rommel's forces tried to advance further despite heavy air attacks. Blenheims began the process. Pairs of fighter-bombers then attacked from the rear, at very low altitude, out of the sun. Once additional fighter-bombers became available in summer 1941, two entire squadrons made these attacks. With Eighth Army badly attrited, the RAF had to halt Rommel's advance. His supply convoys could not endure the constant raids and dispersed.<sup>51</sup>

The Luftwaffe then concentrated its fighters over Tobruk in a defensive role to keep the RAF from attacking Rommel's vehicle convoys, or in fighter sweeps that were predictable and easy to avoid. There were not enough fighters to fly sweeps and standing patrols everywhere, or enough ground radar sets, so commanders adopted an air observation system that scrambled fighters only when they received sighting reports, making the process reactive. This defensive posture wasted resources and squandered opportunities to defeat the RAF.<sup>52</sup>

The RAF also denied Axis forces the use of Benghazi, as the Luftwaffe had done to British forces. Blenheims and Wellingtons attacked virtually every day and night. Most supplies thus came from Tripoli—a 1,000-mile journey. This was difficult due to vehicle shortages after Italian defeats; the amount of fuel these convoys used; wear-and-tear on trucks; and RAF attacks. Captured Axis airmen said their aircraft were constantly short of fuel as a result of targeted raids on the vehicles, transport aircraft, and ships carrying it.<sup>53</sup>

On 18 April, *General der Flieger* Hoffman von Waldau, Luftwaffe High Command Chief of Staff, visited Luftwaffe units to assess the state of affairs. He did not like what he found. His biggest concern was the RAF's air superiority. Waldau called for additional Me. 109s but none arrived. Further, he emphasized the exhaustion brought on by excessive mission types and operations tempo. Supply and maintenance problems were serious as was the shortage of airfield-construction units. Rommel had taken most of the Luftwaffe's trucks and Flak, making it even less capable of 'leapfrogging,' and leaving its airfields extremely vulnerable.<sup>54</sup>

With Rommel's first offensive over, the C-in-Cs sought to regain the initiative. The operations intended to do so - Operations BREVITY and BATTLEAXE - failed but

reinforced critical lessons. For instance, Tedder detected serious weaknesses in Luftwaffe's employment of the Stuka without air superiority, and in its effectiveness as an attack platform in desert soil types. He concluded that RAF fighter-bombers and light bombers, and not any sort of dive bomber, should continue to have the ground-attack role. Soldiers reported that Stuka attacks did negligible damage. Conversely, low-flying Me. 109s were a menace, killing and wounding troops and destroying vehicles. 'We hated them,' one soldier said. Yet the Germans rarely used fighter-bombers.<sup>55</sup>

Operations BREVITY and BATTLEAXE also marked the Army leadership's last bid to exercise control of air units. This had become increasingly rare as most soldiers and airmen realized that working together and allowing each service to control its own assets maximized aggregate effectiveness. Nonetheless, General Allen Brooke, Chief of the Imperial General Staff, tried once more. Wavell supported this—one of several reasons Churchill fired him. Portal's staff calculated that meeting stated Army requirements for a specialized ground-support force would require 98 squadrons. Tedder had 44.5 in theatre. Churchill came to the RAF's rescue in a roundabout way, asking Wavell why he had not mentioned the RAF in his plans and wondering whether his staff was working with Tedder's, and telling him to concentrate on joint operations. This ended the last significant Army effort to control air assets. Wavell's successor, Auchinleck, championed co-equal ground-air efforts.<sup>56</sup>

During Operation BREVITY (15-16 May 1941) and Operation BATTLEAXE (15-17 June) the RAF raided airfields and vehicle convoys. However, soldiers and airmen were not yet entirely in step. Army commanders requested that fighters establish defensive patrols over advancing troops, with medium bombers on call. Tedder agreed against his better judgment, quickly reconfirming that employing air assets in this way constrained their flexibility, split them into small packets, and kept bombers grounded too often. Operation BATTLEAXE failed in the face of excellent German anti-tank tactics. Wavell blamed the RAF, prompting Portal to ask Tedder whether there was any truth to Wavell's claim that 'we never had air superiority,' and that the RAF did not provide direct support. Tedder said there was not and sent Portal a series of signals proving Wavell's claims groundless. However, he emphasized that both Services had problems, saying it was 'Increasingly clear that crux of whole problem is communications.'<sup>57</sup> Portal sent 16 Air Control Officers to fly special communications-liaison aircraft that facilitated direct-support missions.

Churchill's decision to replace Wavell with Auchinleck did much to fix combined-arms shortcomings. The lull in operations during summer 1941 proved a crucial time for air-ground cooperation. Auchinleck and Tedder directed a series of major joint exercises to improve communications and coordination, calls for air support, and aircraft and munitions usage in different situations. They also formed an inter-Service committee to improve combined-arms operations by developing Army Training Instruction No. 6,

which set forth training and skills requirements for tactical communications. New Army Air Support Controls (AASCs) would select battlefield targets and call for attacks on them along with assistance from collocated RAF Air Support Controls (ASCs).<sup>58</sup>

The new air-ground cooperation system that followed was a major improvement but nowhere near mature. Teething problems included a lag time of three hours from a request for air support to arrival of aircraft over target, delays in routing messages through ASCs, and difficulties finding targets. The RAF and Army solved these problems by summer 1942, but providing effective air support during mobile phases of the battle remained problematic.<sup>59</sup>

The Services had to cooperate closely to win given Rommel's tactical and operational acumen. Without air superiority and air support, the Army would have trouble advancing. Without an Army advance, the RAF could not occupy airfields in the Cyrenaican Hump—a requirement for giving RAF units the range to support a further Army advance, reach Axis ports, and engage in joint anti-shipping missions with the Royal Navy. The first instance of a ground-air liaison team was an Air Liaison Section (ALS), comprised of a group captain and a squadron leader, at HQ WDF.<sup>60</sup>

Each corps and armoured division received a highly mobile ASC comprised of a joint-service staff with an advanced wireless communications capability known as a tentacle, which linked the ASC to each brigade. An RAF support team known as the Forward Air Support Link (FASL) also worked at each brigade headquarters and had two-way radios for talking with aircraft engaged in support missions. Rear Air Support Links (RASLs) completed the picture, connecting advanced airfields and landing grounds with ASC headquarters. The RASLs and air staff at advanced headquarters had radios to monitor reconnaissance aircraft communications with the FASLs. Air support gradually became more rapid and lethal, with armed tactical reconnaissance aircraft and brigade commanders using tentacles to guide airstrikes. Whenever an ASC commander validated a request, his staff told the RASL at a given landing field to launch aircraft. Aircraft received directions to the target with pre-planned coordinates, from a reconnaissance aircraft, or by FASL guidance. Key ground features defined bomb-lines, while flares and Verey lights helped pilots distinguish friend from foe. The first two ASCs became operational on 8 October—six weeks before Operation CRUSADER. Despite missteps and modifications, this system ultimately resulted in an effective combined-arms capability.<sup>61</sup>

One crucial result of this effort was 'Middle East Training Pamphlet No. 3—Close Air Support,' released in September 1941, which set clear guidelines for air-ground cooperation. The most important change was the increase in tentacles within each AASC from 7 to 9—one for every division and brigade headquarters. AASCs processed requests for air support from reconnaissance aircraft and forward Army units through

the tentacles. At least one formation of six aircraft in each squadron was at 'instant' readiness, with others at two-hour readiness.<sup>62</sup>

Meanwhile, Air Commodore Sir Basil Embry, who Portal had sent at Tedder's request to teach aircrews the latest fighter tactics, determined that an elite team of German fighter pilots was hammering RAFME. Tedder was impressed with Embry's tactics and requested the loan of seasoned commanders and pilots from the UK to implement them. Portal sent 105 pilots.<sup>63</sup> Once Operation CRUSADER began, Tedder said, 'Our chaps have for the time being knocked the enemy right out of the air. I had a few seconds to talk...with Basil Embry this evening. Said things were very satisfactory, but the Hun won't fly—they can't take it.'<sup>64</sup> Eighth Army Commander, General Neil Ritchie, said the air situation was 'like France, only the other way round.'<sup>65</sup>

As British ground-air cooperation improved, Axis efforts lagged. Their C2 capabilities were deficient. This was clearly the case with Rommel and Fröhlich. On 4 July 1941, Rommel complained that while *Afrika Korps* headquarters was at Bardia, *Fliegerführer Afrika's* headquarters and airfields were in Derna—150 miles away. Consequently, Rommel said, 'Owing to this wide separation and the long approach flights which consequently must be made, there is no longer any guarantee of close co-operation, quick support for the Africa Corps' ground operations and secure and close communication between the two headquarters. In addition to the wireless there is a telephone connection to Derna, but the line is impossible...Repeated requests to move up his formations were rejected by the Fliegerführer.'<sup>66</sup> Fröhlich based these refusals on logistical and supply difficulties, limited mobility, and inadequate Flak—problems Rommel had helped to create. The Luftwaffe remained incapable of 'leapfrogging' with the Army.

These problems paled in comparison to the tangled Italo-German C2 structure. An agreement between Axis air forces called for close cooperation but did not compel it. The *ad hoc* division of labour hampered unity of action. Reconnaissance aircraft were not under unified command. Photo intelligence was to be passed immediately to all interested headquarters, but there was no means for ascertaining which ones were interested because air-reconnaissance request and tasking processes were fractured. Germans flew the most dangerous missions, suffering the highest losses. There was no combined staff—just a collection of liaisons who rarely de-conflicted operations. Axis air forces fought parallel air campaigns, further hampering ground-air coordination.<sup>67</sup>

As both sides struggled to rebuild and pre-empt with a major offensive, Auchinleck and Tedder visited London in July 1941. All participants in their high-level meetings agreed the WDAF needed more aircraft, and more modern types, to maintain air superiority and support ground forces. All the Middle East C-in-Cs supported this increase in air assets. Churchill supported Portal and Tedder, and Tedder found a kindred spirit in his new operational commander, Air Vice-Marshal Arthur Coningham.<sup>68</sup>

Coningham began his tenure as Commander of WDAF by improving tactics. Tedder helped by restructuring flying wings, and giving them organic maintenance and logistics organizations. These improvements were in place by the start of CRUSADER in November. Greater flexibility and mobility followed. Coningham also oversaw the air aspects of the major joint exercises both Services agreed were necessary. He served on the inter-service committee Auchinleck and Tedder stood up to study air support for the Army, and was a key drafter of 'Middle East Training Pamphlet (Army and Royal Air Force) No. 3 – Direct Air Support.'<sup>69</sup>

Coningham's efforts paid off as Tedder saw his pilots moving from a 'village cricket' to a 'test-match' level of ground-air cooperation. Coningham followed Tedder's guidance to 'get together' with Army commanders. Doing so was of 'fundamental importance and had a direct bearing on the combined fighting of the two Services until the end of the war.'<sup>70</sup> During joint exercises with the Army, wing headquarters 'leapfrogged' each other to ensure effective C2 of forward assets. Each squadron developed three specialized parties for rapid mobility, including advanced refuelling and maintenance teams that moved with maximum speed to advanced landing fields, and a party that remained at the primary airfield with the squadron's workshops and logistical assets. Army Royal Engineers built advanced landing grounds. Tedder worked with Dawson to ensure units had organic repair, salvage, logistics, and supply capabilities.<sup>71</sup>

The air component of CRUSADER began nearly five weeks before ground forces attacked on 18 November 1941. Reconnaissance; concerted raids on airfields, SLOCs, and vehicle supply routes; and attacks on German reconnaissance flights began in force. The new Strategic Reconnaissance Unit conducted long-range, high-altitude collection flights with Spitfire and Mosquito photo reconnaissance aircraft arriving from the UK; the Photographic Reconnaissance Unit focused on specific points closer to the battle area; and the Survey Flight worked with the Army to provide photos for mapping. A sophisticated photo interpretation and analysis capability made full use of the much-increased number of aerial photographs.<sup>72</sup>

Despite the arrival of the Me. 109F, Tedder was confident the RAF would control the air. As the air effort began, RAF aircrews concentrated on Axis airfields. RAF operations from 14 October to 17 November consisted of 3,000 sorties and did significant damage to Axis logistics. On 17 November, the day before ground operations began, Tedder wired Portal that 'Squadrons are at full strength, aircraft and crews, with reserve aircraft, and the whole force is on its toes.' He wished his forces 'Good hunting.'<sup>73</sup>

Meanwhile, Hitler again changed his mind and decided to make a bid for primacy in the theatre. Führer Directive No. 38 of 2 December 1941 ordered *Luftflotte 2* to deploy from Russia under the command of *Generalfeldmarschall* Albert Kesselring as C-in-C South. His tasks were to establish naval and air superiority by neutralizing Malta, and to help

ground forces in North Africa secure a decisive victory. In theory, Kesselring commanded all Axis air assets and could give orders to naval forces. In reality, the Italians resisted combined operations, and Rommel undermined Kesselring with direct appeals to Hitler. Stunningly, Fröhlich was subordinate to *Fliegerkorps X* in Greece. This and other seams in the Luftwaffe command structure left nearly half the aircraft in theatre sitting partially idle under *Fliegerkorps X* control while those in *Fliegerführer Afrika* fought tooth and nail.<sup>74</sup>

Eighth Army went forward on 18 November 1941, with twenty fighter and thirteen bomber squadrons in direct support. Attacks on airfields and supply convoys intensified after 18 November. The Axis response was initially ineffectual. Kesselring was visiting Rommel's headquarters and succeeded in obtaining air-transport units to fly in fuel. *Fliegerkorps X* sent reinforcements on 21 November, bringing Fröhlich's strength to about 300 aircraft. Kesselring assigned an officer to revitalize the supply system, but logistical problems transcended the Luftwaffe. Heavy shipping losses reduced supply deliveries, as did RAFME raids. Heavy fighting consumed the rest, compelling Rommel to abandon the siege of Tobruk, the Sollum Line, and then all of Cyrenaica.<sup>75</sup>

RAF airfield parties and Army Royal Engineers kept up with Eighth Army's pursuit, repairing the Gazala airfields in two days under artillery fire and bringing in 10,000 gallons of aviation fuel *in advance* of Eighth Army's forward units. They repeated this during the move to Mechili, moving 15,000 gallons of fuel and receiving another 60,000 gallons from Army motor-transport companies. Then they moved to Msus with another 10,000 gallons of fuel. Here, landing parties built two 1,500 foot runways with dispersal points, and 11 squadrons flew in. Agility, improvisation, and risk-taking underpinned these successes.<sup>76</sup>

On 7 December 1941, the day the war in the Pacific began, Tedder noted that Rommel was putting up fierce resistance. The RAF held the upper hand in the air, but it was a constant struggle. Tedder felt that despite Rommel's tactical advantages, heavy attacks on vehicle convoys, especially those carrying fuel and ammunition, would cause the enemy to break. Air superiority facilitated Eighth Army's situational awareness and responsiveness to Rommel's counterattacks. From 10 to 13 December, Rommel's forces were nearly encircled at Gazala, yet the Army did not close the trap, and RAF bombers sat idle due to problems telling friend from foe. Rommel withdrew to El Agheila on 24 December under constant air attack as the British occupied Benghazi and Sollum. With both sides exhausted, the front stabilized.<sup>77</sup>

British inter-Service liaison continued to improve during Operation CRUSADER. At GHQ, an Inter-Service Intelligence Staff Conference and an Inter-Service Operational Staff Conference met daily to exchange information and funnel it to the C-in-Cs and field headquarters. ALOs and their Army counterparts received special training to maximize

coordination. Both Services placed a premium on clear and timely joint communications. Wings notified HQ WDAF of aircraft available for commitment to direct-support sorties, allowing Coningham to assign aircraft rapidly as requests arrived.<sup>78</sup>

However, signals from headquarters to flying units still took up to 20 minutes to arrive. Army formations requesting strike missions often did not receive confirmation that they were en route, and if the aircraft found their targets and the units they were supporting, the latter lacked an identification system visible from the air. Pilots were often unable to complete their missions. To solve this problem, AASC tentacle units used 15-foot white cloth arrows to point toward the target, with bars on the arrow indicating distance to target. Army units painted white Saint George's crosses on a black background on the top portions of all their vehicles. They soon replaced these with RAF roundels. An RAF/Army instruction on recognition methods directed that aircraft inbound on direct-support missions fire white illuminating flare cartridges. Troops responded with a smoke bomb or canister, a large 'T' ground strip, and a 'V' sign pointed at enemy troops. However, the friction involved in such operations made good solutions elusive. Fratricide remained a problem, and the communications bottleneck continued restricting the flow of orders and air-support requests.<sup>79</sup>

In addition to making direct support difficult, unrealistic bomb-lines created C2 problems. Army commanders often knew less about the position of their own forces than did the RAF with its advantage of altitude. This resulted in the conservative placement of bomb-lines. RAF senior officers and pilots fumed about this but did not understand fully how chaotic the ground situation was, and how difficult it was for troops in combat to provide exact positions, much less take time to deploy ground markers. Finally, sound joint planning depended on clear processes, and there were few until summer 1942 for coordinating bomb-lines. The bomb-line was 50 miles from friendly troops, giving Axis convoys within it relative immunity.<sup>80</sup>

Despite these challenges, the RAF's handiwork quickly became clear. At Derna, Berka, and Benina airfields, the Allies found 172 Axis aircraft abandoned. Aircraft losses due to airfield raids and a shortage of spare parts proved disastrous for the Luftwaffe and Regia Aeronautica. Tedder visited Derna and Benina on 21-22 January. 'Derna,' he said was,

an extraordinary sight, littered with aircraft, mostly Hun, in all stages of repair and disrepair! Some, obviously deliberately 'demolished,' others equally obviously knocked out by our bombing and low shoot-ups...Benina even more of a sight than Derna. Hun aircraft everywhere.<sup>81</sup>

During Operation CRUSADER, the Army captured 450 aircraft in various states of repair, 250 of which were German. Axis aircraft losses totalled nearly 800.<sup>82</sup>

Aside from detailing the damage RAF assets did to Axis logistics during Operation CRUSADER, German POWs, diaries, and other sources made clear the pain and demoralization they caused troops. Captured intelligence summaries emphasized WDAF air superiority, making air reconnaissance dangerous. Air attacks on ports and airfields in Cyrenaica were particularly painful. Fighters also took a toll on air-transport flights bringing in aviation fuel. By 22 December, Me. 109s were nearly grounded. Transport pilots delivered enough to keep them flying, while Luftwaffe reinforcements facilitated increasingly serious attacks on British troops.<sup>83</sup>

As Operation CRUSADER ground to a halt, more Luftwaffe units arrived. Renewed German strength began to tell. Tedder pushed his staff to be ready for Operation ACROBAT, designed to drive Axis forces across Tripolitania and, if possible, out of North Africa. However, as supply lines lengthened, fighting units wore down, and diversions to the Far East continued, prospects dimmed. The Germans had gained local air superiority and were using Me. 109Fs to strafe ground forces. For the first time, the RAF could not keep them away from Army units.

Operation CRUSADER was a victory, if a hard-fought and incomplete one. The RAF and Army were learning to work together but were exhausted by the hard fighting and the long advance. As Rommel recouped his losses from convoys steaming into Tripoli, he planned a counterattack. His logistical situation improved as Kesselring gained control of the SLOCs. Intelligence reports confirmed the British were disorganized, spread out, and tired. Rommel realized that he had to act while the British were weak.<sup>84</sup>

The German counteroffensive began on 21 January 1942. Rommel destroyed several British units, and Panzer units advanced so quickly that they captured 25 aircraft and destroyed another 10 on the ground. This drove Coningham and Tedder to stand up the RAF Regiment, giving airfields dedicated defensive assets. WDAF raids slowed but could not stop Rommel's advance. Benghazi fell on 29 January. Luftwaffe air-ground cooperation was effective. Bombers inflicted significant damage, with air reconnaissance facilitating the effort. After these opening rounds, Luftwaffe units moved slowly to forward airfields, taking them out of the fight from 4 to 6 February.<sup>85</sup>

During Eighth Army's retreat, WDAF kept the Luftwaffe from causing serious damage. Tedder applauded the complementarity of effort but lamented that the Germans once again had the upper hand in the battle for the SLOCs, and that for the first time, the RAF had lost general air superiority. 'Our forward aerodromes,' Tedder sighed, 'lacking good anti-aircraft defences, had been bombed and shot up with impunity by the 109s with heavy losses to ourselves. We could only reply with night bombing raids.'<sup>86</sup>

Rommel's counter-offensive continued. However, whenever German units outran their fighter cover, they sustained heavy losses. 'Own fighter cover,' *Panzerarmee's* report said,

‘was not possible since the ground organisation in Martuba could not function before midday on 6 February at the earliest.’<sup>87</sup> The Luftwaffe’s shortage of motor vehicles once again hampered attacks on the retreating Eighth Army and protection of Axis troops. Nonetheless, in his summary of the offensive, Rommel said,

Co-operation between Panzer Army Africa and Fliegerfuehrer Africa was always good and was strengthened and further improved by the frequent visits of Field Marshal Kesselring, who took a particular interest in the constant personal contact with Panzer Army Headquarters...Luftwaffe formations always provided excellent support for Panzer Army’s operations...<sup>88</sup>

The Luftwaffe achieved its greatest feats during the six months after Kesselring’s arrival.

By February 1942, improving British signals capabilities, better intelligence personnel, greater air-reconnaissance and photo reconnaissance resources, dedicated fighter-bombers, and better ground-attack tactics were coming together. As a result of experience gained during Operation CRUSADER, the air-tasking system could task fighter-bombers to bomb targets and re-task them in flight to strafe others. A new signals plan implemented in early 1942 underpinned these successes by giving all wings three radio links to joint headquarters. With all-terrain signals vehicles in place, tentacles advanced alongside Army units to provide terminal attack guidance based on visual acquisition of enemy positions. The Rover David system was developing and would soon come to fruition.<sup>89</sup>

Concurrently, mature AASCs began operations in March 1942, replacing the earlier Operation CRUSADER structure. Located at the combined Army/Air Headquarters or occasionally the corps level, it had two elements. The first had two Army staff officers and a small staff that controlled a wireless radio network consisting of 12 tentacles. These were assigned to forward brigades and divisions based on need for air support. The second element included an RAF officer with a small staff that controlled eight wireless sets through a FASL. In 1942, Coningham added two wireless sets at all RAF units on their airfields. This network distributed air-support notifications and intelligence. Changes in bomb-line calculations went hand-in-hand with these evolutions. Ground units reported their positions every two hours at minimum, and hourly when on the move. They also radioed in key terrain features to help aircrew navigate to target.<sup>90</sup>

As planning for Operation HERCULES, the invasion of Malta, developed, Rommel prepared to launch a major offensive of his own: Operation THESEUS. With the logistical situation as good as it would ever be Rommel brought supplies and troops into place. On 30 April, he briefed senior officers on the offensive and said it would begin in early June, once Malta had fallen. If the capture of Malta took longer than expected, *Panzerarmee Afrika* might attack anyway based on the likelihood of success.<sup>91</sup>

Rommel proposed to destroy British forces in front of Tobruk, take the port, consolidate his logistical situation, and advance to Cairo. In a meeting on 28 April, Kesselring and Rommel reviewed guidance from Hitler. Malta had to be taken, since the Allies would otherwise win the logistical struggle once most Luftwaffe units returned to Russia. Kesselring also noted that reinforcements were pouring into North Africa at unprecedented rates. At a 6 May meeting of senior officers, Kesselring agreed to reinforce *Fliegerführer Afrika* with 90 aircraft and a *Flak Abteilung*, while Ju 88s and Me. 110s of *Fliegerkorps X* would support Rommel's offensive. Kesselring also noted that, due to delays in preparation, Operation HERCULES was postponed. Rommel's offensive would thus begin before Malta's capture.<sup>92</sup>

Operation THESEUS began on 26 May and ended four weeks later with the fall of Tobruk. Luftwaffe aircraft made substantial efforts at El Adem and Bir Hacheim. In one of their last great showings, Stukas engaged in mass attacks to support Rommel's advance in late May and early June. Piecemeal Eighth Army counterattacks were ineffective. British armour losses were high as commanders continued sending tanks to impale themselves on anti-tank guns. The RAF, already outnumbered, could not keep the Army's position from collapsing, but it once more played a pivotal role in saving it from destruction so it could fight again at El Alamein.<sup>93</sup>

Part of Tedder's challenge in protecting Eighth Army was the arrival of a new *Fliegerführer Afrika*, *General der Flieger* Hoffman von Waldau, formerly Luftwaffe High Command Chief of Staff, who understood the principles of air operations. However, von Waldau soon learned the difficulties of working with Rommel as the latter again disappeared with his staff. For two days, von Waldau's requests for information from ground forces went unanswered. Rommel's staff had not included von Waldau's in the preparation of the operations order. Air reconnaissance did reveal two concentrations of British forces, which Luftwaffe units attacked on 31 May and 1 June, and von Waldau finally located Rommel. Rommel ordered intensive air support for the assault on Bir Hacheim but failed to send in enough ground troops to capitalize on it. From 2 to 10 June, the Luftwaffe and Regia Aeronautica flew over 1,500 sorties. Waldau, fed up with repeated raids in support of too few attacking troops, informed Rommel on 9 June that Bir Hacheim had already absorbed 1,030 sorties—all of which, in the case of the fighters stuck in 'close' escort, could have been employed to gain air superiority, which von Waldau sought to achieve. On 10 June, the combination of three more major raids and sufficient ground forces forced the garrison to retreat.<sup>94</sup>

As the Luftwaffe exhausted itself over Bir Hacheim, Eighth Army bled out further north. British counterattacks were piecemeal, with a poor use of armour and absent or conflicting C2. The disaster in the Cauldron on 6 June was further proof that air support could not engage effectively without a clear bomb-line and in poor weather. All-out efforts to concentrate remaining air assets over advancing troops proved pivotal in the

speed and magnitude of the breakthrough. RAF planes attacked Axis troops heavily around El Adem on 15 June, allowing Eighth Army to retreat with minor additional losses. The 21st Panzer Division reported gloomily on the 'Continual attacks at quarter hour intervals by bombers and low flying aircraft.'<sup>95</sup>

RAF efforts slowed the Axis advance but could not halt it. In an indication that he was beginning to understand the importance of airfields, Rommel sent the *Afrika Korps* specifically after Gambut. 'Primarily,' he said, 'this advance was directed at the R.A.F. who, in their short flight time from neighbouring bases, were being unpleasantly attentive. We intended to clear them off their airfield near Gambut and keep them out of the way during our assault on Tobruk.'<sup>96</sup> Coningham ordered an evacuation on 17 June. Ground crews stayed in action until the last moment while generating 450 sorties a day—three for every available aircraft—to protect Eighth Army's withdrawal.<sup>97</sup>

Rommel and von Waldau met to coordinate the attack on Tobruk. It proved to be the best-coordinated Axis air-ground operation of the North African campaign. The assault began on 20 June with every available aircraft attacking the south-eastern sector of the defences. Tobruk fell the next day. Axis forces captured 45,000 troops, over 1,000 tanks, 400 guns, huge numbers of vehicles, and large quantities of fuel. The road to Cairo appeared tantalizingly open. It was the last time Axis air forces would play a major role in the Western Desert.<sup>98</sup>

Eighth Army was in full retreat toward El Alamein, with its two secure flanks: the Mediterranean and the Qattara Depression. Axis leaders now made two errors of strategic significance. First, Rommel miscalculated that he could overrun El Alamein. Had he paid closer attention to his intelligence officers, he would have understood that the British had been working on defences there for weeks and had strong reinforcements waiting to integrate Eighth Army's retreating elements. Second, he convinced Hitler and Mussolini to abandon Operation HERCULES. Malta thus continued its rebound as an offensive platform against Axis convoys even as the Americans delivered immense quantities of materiel to Suez after Tobruk fell.<sup>99</sup>

With Operation HERCULES off the table and Axis troops advancing into Egypt, Rommel's headquarters again kept the Luftwaffe in the dark until 13 June. Waldau received no insights regarding the reasons for the many disjointed air attacks Rommel's staff required, all of which involved heavy dive-bomber attacks with heavy fighter escort, giving the RAF major tactical advantages. A frustrated von Waldau lamented the fact that Army requests for air support were not based on a sound conception of combined-arms operations.<sup>100</sup>

Rommel believed that captured vehicles and supplies could carry his Army to the Nile Delta before Malta once again became a threat to Axis convoys. It was a fatal error in

judgment. Rommel underestimated British recuperative powers and downplayed the Luftwaffe's exhaustion. As Axis forces advanced, the RAF threw everything at them with hourly raids. Fighters flew up to seven sorties a day. Fighter-bombers savaged vehicle convoys, destroying 1,050 trucks. Tedder was certain that continuing raids on Lines of Communication would eventually allow Eighth Army to capitalize on the advantages thus accrued. As a result of this all-out air effort, the War Office said, there 'can be no doubt but that the RAF saved the Eighth Army.'<sup>101</sup>

Paradoxically, Rommel believed that the poor long-term logistical situation required him to gamble on an offensive. He had beaten the British several times and nearly annihilated Eighth Army. His troops sensed victory, he had captured immense amounts of supplies, and he felt that it was now or never. However, The British controlled the SLOCs again, this time permanently, and sank one-third of Axis tonnage bound for Africa from July to November. Surviving ships had to land supplies further from the front, making the shrinking vehicle pool cover huge distances. These worn-down convoys endured frequent air attacks. By the time Rommel's final offensives began, most of his trucks were destroyed or immobile. Fighting with too few supplies, aircraft, tanks, and guns, and too little fuel, Axis forces headed for disaster.<sup>102</sup>

Churchill and Brooke arrived in Egypt on 3 August for an inspection and to change the Army leadership. Churchill relieved Auchinleck and named General Harold Alexander overall commander. General Bernard Law Montgomery took command of Eighth Army, improving morale and operational acumen. Cooperation between the Services continued its rapid improvement. Montgomery briefed airmen and soldiers, saying

I have brought you together to tell you that I have made a plan—and when I say I've made a plan it's not quite right because I've made a plan in conjunction with the Air Force. Every plan has to have an intention—mine is to go to Tripoli, and it's the intention of the Air Force too to go to Tripoli. In fact we're all going to Tripoli together.<sup>103</sup>

On 7 September, Tedder signalled Portal that he had 'Returned Saturday from visit to Western Desert. General feeling is that threat to Egypt has been scotched...Difference between this land battle and previous ones is that in this one soldiers have refused to play enemy game and send tanks against guns. Enemy has been forced to send his tanks against our guns.'<sup>104</sup> Liaison with the Army was much improved. Portal replied, 'We are deeply impressed by the remarkable effort put out by your squadrons and delighted by their success especially the splendid work done against the German troops and the Axis shipping...Delighted to hear of your good relations with the Army. Best wishes to you all.'<sup>105</sup>

Intelligence pinpointed the start of Rommel's final offensive on 30-31 August. Air attacks

forced him to call it off almost immediately. Vehicles, artillery, and anti-aircraft positions suffered severe losses. Several units lost almost all of their vehicles. Consequently, Rommel ordered a major change in Army dispositions to create greater depth and breadth, reducing losses. This worked well in its stated purpose but placed his army in an unfavourable position to repel a major offensive.<sup>106</sup>

During the lull from early September to late October, British combined-arms initiatives came to fruition. As Montgomery put the finishing touches on his offensive (Operation LIGHTFOOT, to be followed by Operation SUPERCHARGE during the breakout phase), Tedder and Coningham readied RAFME. The ensuing victory at El Alamein—and the unbroken string of victories in the Western Desert afterwards—was due in large part to steady improvements in ground-air cooperation. The rapid learning that occurred in Tunisia after the Torch landings was also a product of the generally high levels of cooperation and innovation between British—and later Anglo-American—soldiers and airmen.

By the time the North Africa campaign ended on 13 May 1943, Axis ground and air units had suffered defeats from which they could not recover. They lost 250,000 men in Tunisia and another 250,000 or so in the Western Desert.<sup>107</sup> Air losses from June 1940 to May 1943 totalled around 9,700 aircraft. From January 1942 to May 1943, 40 percent of German aircraft produced went to the Mediterranean Theatre.<sup>108</sup> The Axis also lost 762 merchant ships there prior to the collapse in Tunisia—42 percent of shipping losses in the European Theatre. The Mediterranean Basin became a graveyard for Axis shipping, air forces, and field armies.<sup>109</sup>

The new Anglo-American ground-air capabilities that emerged in North Africa moved forward into Sicily and Italy and from there to France and Germany. Tedder's appointment as Eisenhower's Deputy Supreme Commander highlighted the degree to which soldiers and airmen had come to value co-equal and interdependent roles. The British and then the Americans had learned to maximize air-ground cooperation and in the process beat the Germans at their own game of *Bewegungskrieg*. British Army and RAF officers could look back on a well-earned victory gained in large part because they had learned together how to succeed.

## NOTES

<sup>1</sup> The British Empire employed military units from the Dominions and other locations. In the interests of economy of verbiage, all such forces are referred to as "British." German and Italian forces are referred to individually, or collectively as "Axis."

<sup>2</sup> Richard Overy, *The Air War 1939-1945* (New York: Stein and Day, 1980), 107; Lord Arthur Tedder, *Air Power and War* (London: Hodder and Stoughton, 1947), 29-30, 89.

<sup>3</sup> Slessor to AC C. R. Cox (Army Co-operation Command, RAF), 25 August 1942, 1, AIR 75/43, The National Archives of the United Kingdom (henceforth "TNA").

<sup>4</sup> Ibid., 4.

<sup>5</sup> Portal, "Command in the Middle East: Note by the Chief of the Air Staff," 11 September 1942, AIR 75/43, TNA.

<sup>6</sup> See these authors' views and detailed counterarguments in Robert S. Ehlers, Jr., *The Mediterranean Air War: Airpower and Allied Victory in World War II* (Lawrence: University Press of Kansas, 2015), Chapters 1-2.

<sup>7</sup> Douglas Porch, *The Path to Victory: The Mediterranean Theater in World War II* (New York: Farrar, Straus and Giroux, 2004), 10, 12.

<sup>8</sup> Gerhard Weinberg, *A World at Arms: A Global History of World War II* (Cambridge University Press, 1994), 307-348.

<sup>9</sup> Michael Simpson, "Superhighway to the World Wide Web: The Mediterranean in British Imperial Strategy, 1900-45," in John B. Hattendorf, ed., *Naval Policy and Strategy in the Mediterranean: Past, Present and Future* (London: Frank Cass, 2000), 51.

<sup>10</sup> Major General John Strawson, in Derek Wood, ed., *The End of the Beginning: Bracknell Paper No. 3, A Symposium on the Land/Air Cooperation in the Mediterranean War 1940-43* (Bracknell, UK: Royal Air Force Historical Society), 20 March 1992, Chapter 4, "The Shape and course of the Mediterranean War 1940-43," 14.

<sup>11</sup> Quoted in Porch, 107.

<sup>12</sup> Strawson, in Wood, ed., *The End of the Beginning*, Chapter 4, 14.

<sup>13</sup> Major-General I. S. O. Playfair, *The Mediterranean and Middle East*, vol. I, *The Early Successes against Italy [to May 1941]* (Uckfield, UK: Naval and Military Press, 2004), 1-3. This and all subsequent volumes of British Official History are referred to henceforth as "BOH" with volume number.

<sup>14</sup> General Sir Archibald Wavell was the theater and senior ground commander. Other C-in-Cs included Air Chief Marshal Sir William Mitchell and Admiral Sir Andrew Cunningham. Wavell's successors were General Claude Auchinleck and General Harold Alexander. Mitchell's were Air Chief Marshal Sir Arthur Longmore and Air Chief Marshal Sir Arthur Tedder. Cunningham was eventually replaced by Admiral Sir John Cunningham.

<sup>15</sup> BOH I, 17-21; Humphrey Wynn, in Wood, ed., *The End of the Beginning*, Chapter 5, "The RAF in the Mediterranean Theatre," 21.

<sup>16</sup> For a detailed discussion of competing grand strategic aims, and the warring powers' different levels of interest in and engagement with combined-arms warfare, see Ehlers, *Mediterranean Air War*, *passim*.

<sup>17</sup> BOH I, 35-37; Roderic Owen, *The Desert Air Force; an Authoritative History Published in aid of the Royal Air Force Benevolent Fund* (London: Hutchinson, 1948), 90 (henceforth "Owen, DAF").

<sup>18</sup> GHQME, "Combined Plan for the Defence of Egypt 1939," February 1939, AIR 23/770, TNA, 11-16.

<sup>19</sup> Drummond, "Appendix 'C' to R.A.F. Middle East Operation Plan: Directive to Air Officer Commanding, Egypt Group," 11 May 1939, AIR 23/781, TNA, 1-4.

<sup>20</sup> BOH I, 56-73; Owen, DAF, 112.

<sup>21</sup> Longmore, "Despatch No. 1 on Middle East Air Operations, 13-5-40 to 31-12-40,"

1 February 1941, AIR 23/808, TNA., 4-5 (henceforth “Longmore, “Despatch No. 1”).

<sup>22</sup> Longmore, *Sea to Sky*, 221-222; Air Marshal Sir Patrick Dunn, in Wood, ed., *The End of the Beginning*, Chapter 8, “Digest of the Group Discussions,” 68; BOH I, 113-115.

<sup>23</sup> HQ RAFME, “Royal Air Force Middle East Operational Plan,” 14 September 1940, WO 201/335, TNA. Italics added.

<sup>24</sup> BOH I, 113-114, 165-167; MacGregor Knox, *Mussolini Unleashed: Politics and Strategy in Fascist Italy's Last War* (Cambridge: Cambridge University Press, 1982), 150-155; Longmore, “Despatch No. 1,” 4-6.

<sup>25</sup> BOH I, 185-187.

<sup>26</sup> Mr. Humphrey Wynn, in Wood, ed., *The End of the Beginning*, Chapter 5, 21.

<sup>27</sup> Ibid., 22-23; Owen, *DAF*, 59.

<sup>28</sup> BOH I, 208-209, 228; Longmore, *Sea to Sky*, 224; Hans Werner Neulen, *In the Skies of Europe: Air Forces Allied to the Luftwaffe, 1939-1945* (Ramsbury: Crowood), 2005, 46-47.

<sup>29</sup> BOH I, 252-254; Lord Arthur Tedder, *With Prejudice: The World War II Memoirs of Marshal of the Royal Air Force Lord Tedder, Deputy Supreme Commander of the Allied Expeditionary Force* (Boston: Little, Brown and Company, 1966), 34-35 (henceforth “Tedder, *WP*”).

<sup>30</sup> BOH I, 261-264.

<sup>31</sup> R. Collishaw, “Brief Report on Royal Air Force Operations in the Western Desert From the Outbreak of War with Italy—The Capture of Cyrenaica to the Time of the Enemy Counter Offensive,” 19 April 1941, AIR 23/6475, TNA, 1-3 (henceforth “Collishaw, ‘Brief Report’”).

<sup>32</sup> Longmore, “Despatch No. 1,” 14-16; BOH I, 261-282.

<sup>33</sup> Collishaw, “Brief Report,” 4.

<sup>34</sup> Longmore, “Despatch No. 1,” 5-6; BOH I, 292-294.

<sup>35</sup> Ibid., 6-8.

<sup>36</sup> HQ ME, “Report on Army Co-operation,” 2-3.

<sup>37</sup> Ibid., 4-5.

<sup>38</sup> Ibid., 6-10.

<sup>39</sup> BOH I, 316-318, 362-366; HQ ME, “Report on Army Co-operation,” 2; Helmuth Felmy, “The German Air Force in the Mediterranean Theater of War,” AFHRA, K113.107-161, 39 (henceforth “Felmy”); Cajus Bekker, *The Luftwaffe War Diaries: The German Air Force in World War II* (New York: Da Capo, 1994), 200-201.

<sup>40</sup> BOH I, 367.

<sup>41</sup> OKW to OKH, 6 February 1941, and OKW to OKH, 19 February 1941: “High Level Reports and Directives Dealing with the North African Campaign, 1941,” Trans. VII/81, A.H.B.6, 19 November 1948, Royal Air Force Air Historical Branch (henceforth “AHB”), 12; Felmy, 39-41; Karl Gundelach, *Die deutsche Luftwaffe im Mittelmeer* Vol. I (Frankfurt am Main: Peter D. Lang, 1981), 81 (henceforth *DLM*).

<sup>42</sup> German Air Ministry, “The Activities of Fliegerkorps X in the Mediterranean January – February 1941,” dated 26 February 1941, Trans. VII/54, Air Ministry A.H.B.6, 15 November 1947, AHB, 1-3. Italics added.

<sup>43</sup> “Situation Report of the Air Force High Command Intelligence Officer,” 156-292;

Felmy, 54-56; B. H. Liddell Hart, ed., *The Rommel Papers* (New York: Harcourt, Brace and Company, 1953), 98 (henceforth “RP”). See also *DLM*, 96-98, 107-109, 125.

<sup>44</sup> Axis Operations in the Mediterranean 31st March – 5th April, 1941, Situation Reports Issued by Luftwaffe Fuehrungsstab IC,” Trans. VII/113, Air Ministry A.H.B. 6, July 1952, AHB, 19-20; “Axis Operations in the Mediterranean 20 – 27 April, 1941, Situation Reports Issued by Luftwaffe Fuehrungsstab IC,” Trans. VII/115, Air Ministry A.H.B. 6, July 1952, AHB, 1, 9-19, 35; Felmy, 51-61; *DLM*, 126-133.

<sup>45</sup> Felmy, 73-74, 79-80; *RP*, 121; *DLM*, 135, 146; Franz Halder, Charles Burton Burdick, and Hans Adolf Jacobsen, *The Halder War Diary, 1939-1942* (Novato, CA: Presidio Press, 1988), 348.

<sup>46</sup> Tedder to Freeman, 1 May 1941; Tedder to Freeman, 25 April 1941; both in AIR 23/1386, TNA.

<sup>47</sup> Tedder to Freeman, 25 April 1941, AIR 23/1386, TNA.

<sup>48</sup> “The Middle East Campaigns,” Vol. 1, AIR 41/44, TNA, 6, 25-28; “Middle East: Strategy for Operations (August 1940 – February 1941),” AIR 8/514, TNA, 55-59; “Air Support,” AIR 10/5547, TNA, 47; “Army Air Support,” WO 277/34, 40.

<sup>49</sup> Brad William Gladman, *Intelligence and Anglo-American Air Support in World War Two: The Western Desert and Tunisia, 1940-43* (New York: Palgrave MacMillan, 2009), 2-3, 9, 58-62 (henceforth “Gladman”); “Some Signals Lessons of the Libyan Campaign, November 1941 to February 1942,” Part Two – Detailed Technical Lessons, WO 201/369, TNA, paragraph 16 (i); GS 30 Corps War Diary 1941, Notes on First Phase Operations in Libya 18 November – 10 December, 1940, WO 169/1123, TNA; Eighth Army Main Headquarters Signals, December 1941, WO 169/3904, TNA; Military Intelligence Service, War Office, Notes and Lessons on Operations in the Middle East, 30 January 1943, WO 169/6638, TNA, 14; “Air Support,” AIR 10/5547, TNA, 47-48; “Army Air Support,” WO 277/34, TNA, 39-40; “The Middle East Campaigns,” Vol. 1, AIR 41/44, TNA, 7; Tedder *Report*, Signals Appendix, 9.

<sup>50</sup> “Report on Visit to the United Kingdom by Chief Signals Officer, R.A.F. M.E., Chief Signals Officer, Air Formation Signals, and Chief Radio Officer, R.A.F. M.E.,” 27 October 1941, AIR 23/1293, TNA, 1-11.

<sup>51</sup> Collishaw, “Brief Report, 1-2.”

<sup>52</sup> *Ibid.*, 2-3.

<sup>53</sup> *Ibid.*, 5-6.

<sup>54</sup> *DLM*, 136-142.

<sup>55</sup> Troopers (Churchill) to Mideast, 6 May 1941; RAFME to Troopers (r) Freeman and Portal, 11 May 1941; Tedder to Freeman, 15 May 1941, all in AIR 23/1386, TNA; *DLM*, *Anlage 25* (Illustration 25), located at end of Volume 2.

<sup>56</sup> Portal, “Army Air Requirements: Memorandum by the Chief of the Air Staff,” June 1941, AIR 75/43, TNA; Churchill to Wavell, 9 June 1941, AIR 23/1395, TNA.

<sup>57</sup> Tedder to Portal, 20, 21, 22, and 23 June 1941, all in AIR 23/1395, TNA.

<sup>58</sup> Minutes of Joint Meetings of the Air Support Committee (August 1941, Appendix C), AIR 20/2996, TNA; Hall, 104-105; “The Middle East Campaigns,” Vol. 1, AIR 41/44, TNA, 174-

175; "Air Support," AIR 10/5547, TNA, 52-54; Army Training Instruction No. 6, 31 October 1941, reprinted in "Air Support," Appendix 2, AIR 10/5547, TNA, 194-199; Tedder, *WP*, 124-128, 138-143, 163; BOH II, 14-15, 294-295, 414-419.

<sup>59</sup> "The Middle East Campaigns," Vol. II, AIR 41/25, TNA, 40, 213-214; "Army Air Support," WO 277/34, TNA, 46-48; BOH III, 43; Sebastian Cox, "Digest of Group Discussions," in *The End of the Beginning*, 81; Brad Gladman, "the Development of Tactical Air Doctrine in North Africa, 1940-1943," in Sebastian Cox and Peter Gray (eds.), *Air Power History: Turning Points from Kitty Hawk to Kosovo* (London: Routledge, 2002), 188-206.

<sup>60</sup> Gladman, 47; No. 202 Group Index, Air 25, TNA; Longmore, "Air Operations in the Middle East, 1 January to 3 May 1941, CAB 106/626, TNA, 3.

<sup>61</sup> Middle East (Army and RAF) Training Pamphlet No. 3, "Direct Air Support," in "The Middle East Campaigns," Vol. II, AIR 41/25, TNA, 57-61; "Air Support," AIR 10/5547, TNA, 56-59; "Army-Air Co-operation," CAB 101/136, TNA, 29-32; BOH II, 295.

<sup>62</sup> GHQ MEF and HQ RAF ME, "Revised Draft of M.E. Training Pamphlet No. 3 – Direct Air Support," AIR 23/1762, TNA.

<sup>63</sup> Basil Embry, *Mission Completed* (London: Quality Book Club, 1957), 209-216.

<sup>64</sup> Tedder to Portal, 25 October 1941; Portal to Tedder, 25 October 1941, AIR 23/1395, TNA; Tedder to Portal, 30 October 1941; Tedder Journal, 21 November 1941; all in Tedder, Box 3, AHB.

<sup>65</sup> Tedder Journal, 21 November 1941, Tedder, Box 3, AHB.

<sup>66</sup> "The Mediterranean Campaign: Signals and Directives concerning problems of supply and German-Italian co-operation June – October 1941," Trans. VII/129, Air Ministry A.H.B. 6, February, 1954, AHB, 5-6.

<sup>67</sup> *Ibid.*, 6-7.

<sup>68</sup> Portal to Tedder, 5 September 1941, AIR 23/1395, TNA.

<sup>69</sup> BOH II, 294-295; Owen, *DAF*, 61.

<sup>70</sup> Orange, in Wood, ed., *The End of the Beginning*, Chapter 7, "The Commanders and the Command System," 36-40.

<sup>71</sup> Tedder to Ludlow-Hewitt, 6 September 1941, Tedder Box 4, AHB; BOH III, 11-13.

<sup>72</sup> BOH III, 15.

<sup>73</sup> *Ibid.*, 16-19; Tedder, *WP*, 184-192; *DLM*, 308-310.

<sup>74</sup> Overy, *The Air War*, 66; Hinsley 2, 291, 322-325; Owen, *DAF*, 66; *DLM*, 311; BOH III, 20-22; Jak P. Mallmann Showell, *Führer Conferences on Naval Affairs, 1939-1945* (London: Chatham, 2005), 243-244.

<sup>75</sup> Arthur Tedder, *Report by Air Marshal Tedder on his tenure in the post of Air Officer Commanding-in-Chief* (London: MLRS Books, 2010), 65-66 (henceforth "Tedder, *Report*"); Felmy, 172-191; Cross, *Straight and Level*, 157.

<sup>76</sup> Coningham to Tedder, 5 January 1942 in Tedder, "Note on Air Operations in Support of Crusader, January-December 1942," Tedder Box 6, AHB, 10.

<sup>77</sup> Tedder to Portal, 7 December 1941, Ritchie to Tedder, 12 December 1941, both in AIR 23/1396, TNA; Tedder, *WP*, 206-210.

<sup>78</sup> Operations in the Middle East, 5 July 1941 – 31 October 1941, CAB 106/535, TNA; War

Diary of No. 2 AASC, January and March 1942, WO 169/6638, TNA; Army Air Support and Photographic Interpretation, 1939-1945, Organization and Training of Air Liaison Officers, WO 277/34, TNA, 4, 35; "Organization and Application of Air Intelligence in a Tactical Air Force, n.d., AIR 23/1209, TNA.

<sup>79</sup> GS, 30 Corps War Diary 1941, Air Support and Signals Exercise, October 1941, and Appendix KK to 30 Corps Operational Instruction No. 1, Ground-Air Recognition, 7 November 1941, WO 169/1123, TNA; Lessons from Operations – Cyrenaica No. 1, November 1941, WO 106/2255, TNA, 2; John Ferris, "The Usual Source: Signals Intelligence and Planning for the 'Crusader' Offensive, 1941," *Intelligence and National Security*, Vol. 14, No. 1 (1999), 112.

<sup>80</sup> Air Chief Marshal Sir Frederick Rosier, in Wood, ed., *The End of the Beginning*, Chapter 6, "How the Joint System Worked (1)," 26-30; Air Marshal Sir Patrick Dunn, in Ibid., Chapter 8, 68-70; Tedder, *Report*, 68. Cross emphasized RAF-Army communications problems in *Straight and Level*, 158-159: "W/T communications from forward Army HQ and vice-versa simply did not work...the location of friendly formations was often unknown and this made planning bomber operations difficult and sometimes impossible."

<sup>81</sup> Air Chief Marshal Sir Frederick Rosier, in Wood, ed., *The End of the Beginning*, Chapter 6, 28.

<sup>82</sup> Coningham to Tedder, 2 January 1942; Coningham to Tedder, 5 January 1942; both in AIR 23/1391, TNA; Tedder, *Report*, 69-72.

<sup>83</sup> Tedder to Sinclair, 17 February 1942, AIR 23/1396, TNA; Franks, 47; BOH III, 76.

<sup>84</sup> Felmy, 208-209; Tedder to Evill, 13 March 1942, AIR 23/1315, TNA; BOH III, 140-141; RP, 192.

<sup>85</sup> "War Diary of Panzer Army, 21 January – 6 February 1942," Trans. VII/118, Air Ministry A.H.B. 6, September 1952, AHB, 24-27; Felmy, 216-224; *DLM*, 348-349; BOH IV, 17.

<sup>86</sup> Tedder, WP, 242-243. Cross noted that the Luftwaffe missed yet another opportunity to savage RAF formations crowded onto several small airfields. "Fortunately," he said, "the Luftwaffe had been left far behind by the Wehrmacht and were out of range for we were certainly an excellent target." See *Straight and Level*, 174.

<sup>87</sup> "War Diary of Panzer Army, 21 January – 6 February 1942," Trans. VII/118, Air Ministry A.H.B. 6, September 1952, AHB, 24-27; BOH IV, 52-53.

<sup>88</sup> Ibid., p. 63.

<sup>89</sup> Operations Record Book of the Forward Desert Air Force, February 1942, AIR 24/443, TNA; War Diary of No. 2 AASC, 14 March and 9 May 1942, WO 169/6638, TNA; Tedder, *Report*, 74-75, Signals Appendix.

<sup>90</sup> Army Air Support and Photographic Interpretation, 1939-1945, WO 277/34, TNA, 44; "The Middle East Campaigns II, June 1941 – January 1942," AIR 41/25, TNA, 60; Report by Air Marshal Sir T. Leigh-Mallory on his visit to North Africa, April 1943; The Application of Direct Support, December 1941, WO 201/488, TNA, 14.

<sup>91</sup> Various German Senior Officers, "High Level Reports and Directives Dealing with the North African Campaign, 1942," Trans. VII/80, A.H.B.6, 30 October 1948, AHB.

<sup>92</sup> "War Diary of Panzer Army 24 April 1942 to 25 May 1942," Trans. VII/110, Air Ministry

A.H.B. 6, April, 1952, AHB, 1-7.

<sup>93</sup> BOH III, 229-230.

<sup>94</sup> Felmy, 257-275.

<sup>95</sup> BOH III, 233-235; *RP*, 212, 222, *DLM*, 366-373.

<sup>96</sup> *RP*, 227.

<sup>97</sup> BOH III, 257-259.

<sup>98</sup> Felmy, 285-296; *DLM*, 372-373.

<sup>99</sup> Felmy, 278-280.

<sup>100</sup> *Ibid.*, 281-283.

<sup>101</sup> Tedder to Portal, 29 June 1942, 1-4, AIR 23/1397, TNA; Military Intelligence Service, War Office, Notes and Lessons on Operations in the Middle East, 30 January 1943, WO 106/2270, TNA, 14; "War Diary of the German Africa Corps, June 1942," Trans. VII/88, A.H.B.6, 19 July 1949, AHB, 26, 30-35; Orange, in Wood, ed., *The End of the Beginning*, Chapter 7, 40; Tedder, *Report*, 108-111, 124; Felmy, 296-298.

<sup>102</sup> "War Diary of the German Africa Corps, June 1942," Trans. VII/88, A.H.B.6, 19 July 1949, AHB, 26, 30-35; Tedder, *Report*, 124.

<sup>103</sup> Rosier, in Wood, ed., *The End of the Beginning*, Chapter 8, 65-66.

<sup>104</sup> Tedder to Portal, 7 September 1942, in Tedder, Note on Air Operations in Support of Crusader, January-December 1942, Tedder Box 6, AHB, 206.

<sup>105</sup> *Ibid.*, 208.

<sup>106</sup> "War Diary of the German Africa Corps 3rd August – 22nd November 1942," Trans. VII/101, A.H.B.6, November 1950, AHB, 24-28, 39; Various German Senior Officers, "High Level Reports and Directives Dealing with the North African Campaign, 1942," Trans. VII/80, A.H.B.6, 30 October 1948, AHB, 69-89.

<sup>107</sup> BOH IV, 460; MacMillan, 213.

<sup>108</sup> HQ RAF ME Intelligence Officer to HQ RAF ME Records, "Enemy Aircraft Casualties," 30 January 1945, AIR 23/1207, TNA; HQ 15th AF, "The Statistical Story of Fifteenth Air Force," 1945, SMS1136, Package, USAFA, 1-11,; HQ MAAF, "Air Power in the Mediterranean, November 1942-February 1945," AIR 23/1478, TNA, 32.

<sup>109</sup> HQ RAF ME Tactics Assessment Office, "Air Tactics and Operational Notes on 201 Naval Co-operation Group, R.A.F.," N.D. (probably June 1943), Appendix xii, "Enemy Merchant Shipping Losses," AIR 23/1282, TNA; Admiralty Trade Division, "Summary of Enemy Merchant shipping Losses," 24 September 1945, AIR 23/1175, TNA.



## Book Reviews

# THE ROYAL FLYING CORPS, THE WESTERN FRONT AND THE CONTROL OF THE AIR, 1914-1918



BY JAMES PUGH

PUBLISHER: ROUTLEDGE, 1 EDITION (16 MAY 2017), (ISBN-13: 978-1472459725), 208 PAGES

### REVIEWED BY SQUADRON LEADER PHIL CLARE

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**Biography:** Squadron Leader Phil Clare is an RAF Logistics officer. He is currently serving as a member of the Directing Staff at the UK Joint Services Command and Staff College and holds an MA in the British History of the First World War from the University of Wolverhampton.

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### INTRODUCTION

If you are looking for a book that will provide you with either a narrative of the air war over the Western Front or, indeed, a glimpse into the lives of the famous aces, you may need to look elsewhere. If, on the other hand, you want a work that dissects the underlying principles behind what it means to control the air, its development throughout the First World War, and the way in which the concept has to be both championed and tested, then I strongly advise you read on.

This is an academic work that unashamedly places control of the air at its heart. By doing so, it provides Pugh with the scope to address some of the omissions contained in the historiography surrounding Britain's attempt to gain control of the air during the First World War. It also gives him the latitude to explore the term 'control of the air' and its many definitions and interpretations that have developed since the concept was first mooted. The reader will very quickly realise that although Pugh recognises the attraction of the propagandised 'Knights of the Air', he quickly moves the debate away from the heroic and romantic aspects of air-to-air fighting, which he believes mask the underpinning theory and principles of control of air – principles which, Pugh believes, had

a more fundamental basis. His starting point rests on the overlooked pre-war theories of early air power proponents such as Burke and Capper who realised there would be a need for aircraft to fight each other, but attempts to develop aircraft to accomplish that task were hampered by the technology of the day. Pugh then analyses in a chronological manner how these early ideas and concepts were tested and developed from the start of the War through to Neuve Chapelle and Loos in 1915.

The Somme battles, where Trenchard had achieved the desired mass to dominate the air in July and August 1916, are used as both a pivot and a portal to access the increasingly attritional air battles of 1917 and 1918. For Pugh, emphasising how the British Army under Haig began to understand the need to gain and maintain control of the air to realise effective tactical air support is a key driver to countering the critical narratives of how the air war was conducted. The relationship between Trenchard and Haig was key to aligning the new Corps' organisational values and ethos with those of the wider British Army – a relationship and an understanding that were developed through the production of a series of pamphlets and air instructions that reflected the growing importance of gaining and maintaining control of the air. The air battles over Arras and particularly the campaigns of 1918 are, for Pugh, the RFC's own 'learning curve', where Trenchard's mantra of the relentless offensive was tempered by Salmond's more nuanced view.

Pugh's focus on the Western Front is understandable, but his gaze is also quite rightly drawn to London where the call from politicians and the public for better home defence against Gotha raids in 1917 and a move towards independent air power threatened to challenge the primacy of the RFC. Instead of being distracted by the Home Front, Pugh uses such developments to reinforce his argument that the primary role of the RFC was to win control of the air and provide air support to the British Expeditionary Force on the continent. Trenchard's fighter squadrons were only 'leant' to Home Defence for limited periods, for example, and Trenchard's case to advance the front line in Belgium to force Gotha raiders further from the coast or to force them to fly over British lines before they crossed the Channel was factored into Haig's plan for the Third Battle of Ypres. By the middle of 1918, the majority of raids flown by the RAF's Independent Force were actually against German airfields rather than German towns and cities. This is somewhat surprising for a Force born out of the clamour for reprisal raids but it certainly reinforces Pugh's argument that control of the air over the Western Front, which included these offensive counter air missions, remained paramount until the War's end.

It is this part of the book that provides a fascinating sub-text surrounding not equipment, doctrine or tactics, but personalities. In essence, Haig and Trenchard and the Western Front versus Henderson, Sykes and the development of independent air power: powerful individuals who shaped the arguments and policies at the strategic and operational levels.

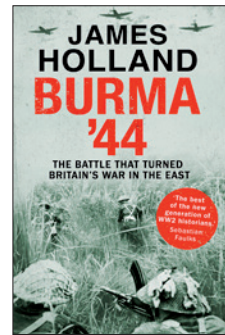
Do not let the book's title distract you. Although Pugh's work focuses on the period between 1912 and 1918, issues such as doctrine, politics and personality from that era remain relevant today, be it for control of the air or, indeed, other domains such as space and cyber. To that end, this book has much to recommend for a wide audience. It is an essential read for those who study the First World War and air power. It is also of significant interest to anyone who wishes to better understand the sacrifice and determination required to gain and maintain control of the air and the benefits that brings to our fighting forces and civilian population.

James Pugh is a Lecturer in Modern History at the University of Birmingham. His research includes the history of air power during both World Wars. His latest work explores the history of amphetamines in Britain between 1935 and 1945.



## Book Reviews

# BURMA '44: THE BATTLE THAT TURNED BRITAIN'S WAR IN THE EAST



BY JAMES HOLLAND

PUBLISHER: CORGI, 1 EDITION (20 APRIL 2017), (ISBN-13: 978-0593075852), 448 PAGES

## REVIEWED BY SERGEANT DAVID BETT

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**Biography:** Sergeant David Bett is an RAF Medic based at RAF Akrotiri. He is currently studying for an MA in Air Power in the Modern World with King's College London as the 2016 38 Group Dowding Fellow. His dissertation will focus on air-minded followership.

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## INTRODUCTION

British and Commonwealth forces campaigning in the South East Asian theatre of the Second World War have not received the same recognition as those operating in European or African theatres. This neglect was such that the XIVth Army was given the unfortunate epithet of the 'Forgotten Army' - an appellation that endures despite a growing appreciation of both the nature and importance of that campaign. James Holland seeks to address this imbalance in his book *Burma '44*, which focuses on the 'Battle of Admin Box', a small but significant part of the Allies' Burma offensive in early 1944.

Holland, a fellow of the Royal Historical Society, has presented and contributed to a number of documentaries based on his publications, exploring some of the more nuanced, yet strategically significant, actions of the Second World War. In *Burma '44* Holland argues that despite suffering over 3,500 casualties in the battle, British and Commonwealth forces achieved the first significant land victory against Japanese forces, who were considered to be superior jungle fighters. Churchill congratulated the XIVth Army post-battle and the Allied commander in the theatre, Lord Mountbatten, believed this victory was of equal significance to El Alamein, suggesting that this was

the turning point of the war in the East. Moreover, RAF Air Command South East Asia was fundamental in securing this victory but was, and to an extent is still, underrepresented in written histories. Therefore, it is refreshing that Holland addresses the change in Allied air power strategy which is given additional colour by the first-hand accounts of tactical air operations in austere conditions.

The lengthy prologue introduces a number of prominent personalities and units down to company level, which for a theatre of operations is obviously extensive, making the first 16 pages rather heavy going. However, the first section of Holland's book concisely describes the context, and rigours, of the Burma campaign. Tactical vignettes transition smoothly into strategic themes. The reader is introduced to the plethora of challenges faced by the XIVth Army's commander, General 'Bill' Slim, some of which were entirely of British making. These range from the frustrations of operating with equipment deemed obsolescent in other operational theatres to circumventing the extreme logistical challenges of jungle warfare. Accompanying the predictable friction of combined and joint operations, the logisticians of the XIVth Army had to source dozens of different types of rations to cater for religious and dietary variance amongst the British, Australian, Indian and Gurkha units of the Army, all in the aftermath of the 1943 Indian famine.

The chapters of the first section are short, rarely more than 10 pages, focusing primarily on one topic (such as regional geopolitics and the impact that the Indian independence movement had on the preparations for the 1944 Burma offensive), interspersed with relevant tales based around an individual or small formation, providing historical and tactical granularity. In this regard, Holland presents the campaign from a top-down perspective cogently, without risk of confusing the casual reader. The use of first-hand accounts is especially effective in conveying the horrors of jungle warfare, the brutality of the XIVth Army's Japanese adversary and the pervasive anxiety felt by Slim's men.

Section two focuses on the 15 day 'Battle of the Admin Box', in which Allied forces had become encircled and fought to hold their ground. The pace of the narrative remains rapid, mirroring the tactical situation. The florid use of language is particularly effective in conveying the sensations experienced in battle. As a tale of a comparatively small, isolated group of men fighting for survival in the face of extreme odds, similarities with Rorke's Drift or Thermopylae are inevitable. What sets this story apart are the personal insights of the battle: a soldier receiving a 21st birthday card from his mother during a resupply drop toward the end of the battle or another's anguish at the sounds of British soldiers being slaughtered but being unable to assist for fear of exposing his section's position.

Augmenting the stories of the XIVth Army's exploits is a significant focus on air operations in the theatre. Though perceived mainly as a land campaign, the RAF and USAAF were vital to the success of operations in the theatre. The main Japanese ground tactic was to

outflank and isolate formations, force a withdrawal, then occupy captured positions and exploit abandoned supplies. This meant that the Imperial Japanese Army infantryman was able to move and fight with relatively small loads, maximising mobility and speed. Slim's new order was that, if about to be surrounded, XIVth Army units were to form a 'box', stand their ground and await responsive aerial resupply whilst the Japanese ran out of rations and ammunition.

Establishing control of the air was ultimately fundamental in ensuring this victory and turning the tide of the war in the East. With newer marks of Spitfire replacing the older, less effective Hurricanes, the balance of control of the air swung in the favour of the Allies, affording Dakotas freedom of manoeuvre to effectively sustain the men in the 'Admin Box'. The integration of forces and use of air power in such an innovative manner remains exemplary. It is testament to Holland's appreciation of the joint nature of the campaign that the air effort is so well captured and rightly presented as decisive.

*Burma '44* provides an informative insight into a number of concepts that remain relevant to present day commanders at all levels. For example: fostering a learning culture and supporting innovation; the necessity for responsive logistics systems in support of mobile operating formations; the 'warfighter first' mentality that Slim championed; the benefits of integrated command and control mechanisms; and the requirement for leaders, both tactical and strategic, to embrace and nurture moral, physical and conceptual development. These points, combined with an increased appreciation of the campaign, make this book a worthwhile investment. As a story of victory in the face of extreme adversity, of the indomitable spirit of British and Commonwealth fighting men, and of the decisive leadership of Slim, the content will resonate with more general audiences too.



## Book Reviews

# MAKING JET ENGINES IN WORLD WAR II: BRITAIN, GERMANY AND THE UNITED STATES



BY HERMIONE GIFFARD

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### REVIEWED BY MR MARK RUSSELL

**Biography:** Mark Russell is completing an MA in Air Power at the University of Birmingham. His poor eyesight precluded any aviation-related career, so for the last 30 years he has worked for a major accounting firm, helping clients review, challenge and change their processes. He is currently writing his dissertation on the RAF's approach to developing, testing and refining tactics in the late 1920s and early 1930s.

### INTRODUCTION

“Engine supply was the limiting factor in aircraft production.” This statement by Ely Devons, a planner in the Ministry of Aircraft Production (MAP) during World War Two, demonstrates the importance of Giffard's subject. Her book does the subject justice - a judicious blend of the technical with a wider view of how each country moved from developing to producing jet engines, providing new insights into “an advanced manufacturing industry [that] involves scientific, managerial and engineering problems of extraordinary complexity”. Her approach differs from previous authors, and her conclusions provide a well-argued alternative to their views, making this a valuable contribution to the historiography.

Looking first at Giffard's approach, she works back from production to invention, the better to focus on the key contribution made by the production engineers in bringing the jet engine to mass production. Andrew Nahum has already done significant work in relation to the British jet engine story, outlining the significant support Whittle received from the Air Ministry and MAP, but what Giffard adds is a broader examination of the

role played by manufacturers in bringing designs into production. She convincingly shows how this understanding of production engineering was central to manufacturing engines in useful quantities, and how the feedback between designers and engineers was essential to successful volume manufacturing. In looking at mass production, she extends our knowledge beyond Anthony Kay's work on turbojet development, which is more focused on development than the problems of production, and does not offer the same level of comparison between the three countries Giffard covers. She makes the point that not having both sets of expertise in-house, Power Jets' (Whittle's company) wish to lead the development while subcontracting the manufacturing would have slowed this essential feedback. Thus Giffard sees Whittle's view that industrial leadership was stolen from Power Jets as incorrect; Power Jets lacked the manufacturing expertise to lead the mass production of jet engines.

This feedback from the needs of mass production into design is also seen in Giffard's description of how the German Ministry of Aviation's (RLM's) demands for output led German designers to design jet engines to make best use of the "unique and desperate" conditions of late-war Germany – not to develop the high quality, high technology solution that the popular view of German wartime engineering would expect.

This is Giffard's most significant new perspective on the three countries. Edward Constant puts forward the popular view, namely that "Germany also probably had the most comprehensive programme for advanced turbojet development, both engine and airframe, of any of the powers," and Sterling Pavelec has echoed this. However, Giffard sees the German engines as an 'ersatz' solution to the Luftwaffe's needs: cheap, mass-produced and low quality, while the British and American manufacturers focused less on wartime urgency and more on building a firm foundation for the postwar era, which was expected to be dominated by jet engines. She shows that the British engines were much more robust in service; a Welland could run for 150 hours between overhauls, whereas the Jumo 004 required an overhaul after only 25 hours, and "something like a third of the engines produced never entered service" due to quality issues.

Germany was "the third country to decide to produce jet engines", and did so because of the "failure to develop new, faster piston-engined aircraft", which left the jet engine as the answer to matching the superior Allied piston engines. This was the military logic for moving to jet engines, but Giffard also makes a strong case for the economic argument for developing jet engines as the war progressed. Giffard cites manufacturing times of 700 hours for the Jumo 004 engine v. 3,000 hours for piston engines (cut to 1,250 for certain BMW piston engines by the end of the war) while the British Welland engine took "many times longer". The resulting German engines were, however, "dangerous" and "routine flights were often fatal", again in contrast to the British approach.

Giffard's conclusion that the British were adopting an approach focused on long term success, which paid off after the war, is persuasive and a valuable challenge to much of the historiography. This is a key contribution to our understanding - the fact that German jet engines were not a breakthrough, focused on high technology and quality, but were "evidence not so much of technological superiority as of the turbojet engine's ability to be mass-produced under conditions of extreme scarcity and using brutal, authoritarian labor practices". Britain and America did not have the same need for jet engines; their piston engines were superior to those produced by the enemy, and they had the resources to produce them, unlike the Germans who lacked the resources to build enough engines, which were not as good as the Allied ones anyway.

In conclusion, this book is an excellent example of how an examination of the detail of a subject, using an alternative approach, can throw light on wider issues and help the reader revisit and reshape how they look at an historical question. It provides a new perspective on the way jet engines were developed and manufactured, and in doing so provides a useful counterbalance to the 'heroic inventor' approach to the subject. As such, it should be read by all those interested in air power, since as Tony Mason has pointed out, the strength of the industrial base is a key part of air power. It will also provide useful insights and examples to those interested in the relationship between the inventor of a technology and its eventual production.



## Book Reviews

# A MOST ENIGMATIC WAR: R.V. JONES AND THE GENESIS OF BRITISH SCIENTIFIC INTELLIGENCE 1939-45



BY JAMES GOODCHILD

PUBLISHER: HELION AND COMPANY (15 DEC 2017), (ISBN-13: 978-1911512554), 658 PAGES

## REVIEWED BY FLIGHT LIEUTENANT LILIE WEAVER

**Biography:** Flight Lieutenant Lilie Weaver is serving as a pilot on XIII Squadron, having previous experience in Joint Helicopter Command and teaching cadets at the 'Thunder Lab' flight school, Kabul. Having completed an MSci in Natural Sciences at the University of Cambridge and working for EADS Astrium before joining the RAF, she combines a background in science and technology with a strong interest in air power and history.

## INTRODUCTION

**A** *Most Enigmatic War: R.V. Jones and the Genesis of British Scientific Intelligence 1939-45* is the first full length publication from James Goodchild, and based on his PhD thesis. The book is predominantly structured on the wartime memoirs of Reginald Victor Jones (*Most Secret War*, published 1978), a Scientific Officer who formed the basis (indeed at times constituted the entire department) of the Assistant Directorate of Intelligence (ADI) (Science), a branch of Intelligence established within the Air Ministry during World War Two. Primarily as a result of his many post-war media appearances and publication of his memoirs, Jones attained fame as, among other scientific achievements, the man who “bent the beams” during the Blitz. Goodchild is clearly fascinated by his main protagonist but seeks to place Jones and ADI (Science) within the larger context of the war (and broader scientific and technical intelligence pursuits) as well as redressing a perceived historiographic imbalance due to over-reliance on Jones’ memoirs as the definitive version of the events it narrates. Goodchild’s book is best read in conjunction with *Most Secret War*, (a much lighter read) which is much referenced throughout.

*A Most Enigmatic War* is an academic text, and not always an easy read; however, it does provide a fascinating insight into the defensive application of science in war – trying to understand the enemy’s technological and scientific capability, and how to counter this capability when applied to weapons of war. This may seem second nature to RAF personnel today, who are well-briefed on foreign powers’ radar, surface-to-air missile (SAM) and other capabilities. However, at the time this approach was completely novel and encountered many objections within Whitehall, not least because if British scientists had yet to make a certain technological advancement, it was often assumed to be “impossible”. This was particularly evident in the early assessment of the state of German rocketry.

Goodchild seeks to expand on the stories told by Jones by examining the accuracy of his recall and contextualisation of events as well as contributing many additional primary and secondary sources, background evidence and analysis to expand the scope of the history of scientific intelligence. In particular, Goodchild covers the “Battle of the Beams”, *Luftwaffe* night fighter defences (including ground-controlled interception (GCI) organisation) and the *Vergeltungswaffen* “Vengeance” weapons. In critiquing Jones’ version of events, the author highlights that many other agencies were deeply involved in much of the work that Jones takes unique credit for, and he gives interesting overviews of the functions of the Y-section (signals intercept), A1(k) (POW interrogation) and the Telecommunications Research Establishment (TRE), as well as confirming the well-known role of ULTRA decodes in this as in so many other areas of wartime intelligence. The author seems in two minds about his main protagonist, at times taking great pains to discredit Jones and his ‘egotistical’ and ‘magnificently boastful’ personality, whilst at other times acknowledging the important contribution that he made to the field.

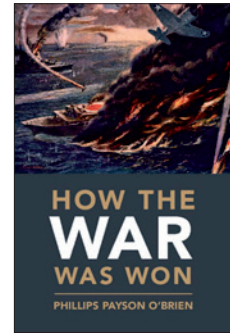
The book undoubtedly achieves its aim of providing a long overdue robust historical analysis on a fascinating subject. However, by covering only issues which directly involved Jones the author draws rather narrow conclusions, focussing on his task of ‘rebalancing’ the history, and contending that Jones vastly overblew his own contribution to Allied success in World War Two. More broadly, Goodchild does contend that scientific intelligence remains an important field, having grown exponentially during the technologically driven Cold War, and now permeates RAF consciousness. The author also largely concurs with Jones in suggesting that scientific intelligence should be at the heart of the intelligence community and not relegated to individual Services. While Goodchild does not explicitly suggest how any lessons learnt during this period should be applied today, we can certainly take from the various narratives the importance of not only having a good understanding of the enemy’s technological understanding, but of being able to place this within a wider picture. In particular, understanding how it relates to the enemy’s organisation, how technology is applied and operated, and what countermeasures would therefore be effective. Nowhere is this better illustrated than the extent to which ADI (Science) became experts on German

radar defences, their night fighter distribution and organisation and their GCI system for countering Allied bomber raids. It may be a pertinent reminder in this era of ever-increasing reliance on technological superiority that it is not just science or technology which can win a conflict, but understanding and application.



## Book Reviews

# HOW THE WAR WAS WON: AIR-SEA POWER AND ALLIED VICTORY IN WORLD WAR II



BY DR PHILLIPS PAYSON O'BRIEN

PUBLISHER: CAMBRIDGE UNIVERSITY PRESS (12 FEBRUARY 2015), (ISBN-13: 978-1107014756), 640 PAGES

REVIEWED BY GROUP CAPTAIN JOHN ALEXANDER

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**Biography:** Group Captain John Alexander is deputy secretary of the D-Notice Committee and an RAF Reserve. As a regular he specialised in air/land integration, including in the Falklands and various Middle Eastern campaigns, was twice a CAS Fellow, conceptualised future conflict for the MOD, and spent six years working on counter-terrorism in Afghanistan and Pakistan.

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### INTRODUCTION

‘There were no decisive battles in World War II.’ Thus, Phillips Payson O’Brien begins his persuasive argument against the orthodoxy that the War was won on the Eastern Front by the Red Army’s systematic destruction of the German Army in a succession of massive and bloody land battles. Instead, O’Brien shows that in terms of production, technology and economic power, the war was a contest of air and sea supremacy. It was Anglo-American air and sea power which, from 1943, put unbearable pressure on German and Japanese fighting power in a ‘super-battlefield’ over Europe, in the Atlantic and in the Pacific, destroying over half of Axis materiel before it had even reached the front-line.

Central to O’Brien’s argument is the premise that Germany’s fate was determined in the summer of 1943 once its U-boats could no-longer damage Allied convoys. The Battle of the Atlantic was Germany’s only ‘modern’ air-sea campaign, which, until early 1943, significantly damaged and diverted Allied effort (for example for the first six months of 1942 the US Army Air Forces (USAAF) in the UK were devoted entirely to anti-submarine

operations) whereas U-boat production represented only 10% of total German weapons production in 1942. Yet Germany was to lose 20% of its operational U-boats (41) in May 1943 alone, by attacking convoys increasingly well protected by: escorts, carriers and aircraft; sensor and weapon technology; and by increased convoy speeds.

Meanwhile, from mid-1943 the Anglo-American Combined Bomber Offensive's targeting of German production, oil and transport forced Germany to strip the battlefield of fighter cover, and dedicate 60% of its weapons production to aircraft and anti-aircraft munitions to protect itself. In contrast the armoured fighting vehicle (AFV) losses at Kursk, the war's largest tank battle, represented less than one per cent of German weapons production for 1943. The impact of Allied air operations continued in 1944 with *Luftwaffe* losses increasing to an average of 73% of its fighter strength each month. Half of these were through non-combat losses from poor production standards and reduced training capacity resulting from the impact of Anglo-American bombing. This at a time when the average attrition rate for Allied bombers fell to 1.4% per sortie. O'Brien's insights on the material impact of the air campaigns include that V-2 rocket production cost Germany as much as all AFV production from 1939-1945 (although the RAF and USAAF dropped more ordnance to counter V-1 and V-2s than in support of Allied armies in Normandy) and that by 1944 28,000 people were employed building air-raid shelters in Germany.

O'Brien also highlights the scale and impact of the air-sea campaign in the Pacific. Japanese fighting power, initially greater than the USSR's, was rapidly degraded in 1943 when US submarines prevented Japan importing resources essential for aircraft production and, as a result, for pilot training. One result was that between November 1942 and June 1944 the Japanese Navy lost 5889 aircraft in non-combat operations compared to 2754 in combat, and in the 'Marianas Turkey Shoot' it lost 426 aircraft, 90% of its force, in 2-days largely because of poorly trained pilots.<sup>1</sup> In comparison to the impact of the air-sea campaign, O'Brien reflects that Macarthur's Philippines campaign and Britain's Burma campaign were utterly insignificant in the damage they did to Japan.

O'Brien provides insight on the differing perspectives of the Anglo-American leaders behind the air-sea strategy. The Army chiefs Field Marshal Sir Alan Brooke and General of the Army George C. Marshall had a narrow battlefield perspective, where air and sea supported armies. Churchill swung between seemingly understanding the potential of air-sea operations (wanting to conserve British manpower and supporting strategic bombing) to relapses, such as championing the Italy campaign on the basis of diverting German divisions, for O'Brien 'a World War 1 analysis of World War II'. Roosevelt is portrayed as very different, wanting the US to dominate air-sea, and decisively, even before Pearl Harbour, overruling Marshall and prioritising aircraft instead of army equipment production. General 'Hap' Arnold (Commanding General, USAAF) and Admiral of the Fleet Sir Dudley Pound (Royal Navy First Sea Lord) tended to view air and sea

respectively in isolation, whereas Marshal of the Royal Air Force Sir Charles Portal (Chief of the Air Staff), Fleet Admiral King (Commander in Chief, US Fleet and Chief of Naval Operations), and Fleet Admiral Leahy (Roosevelt's chief of staff) understood the potential of air and sea power, although King's focus was very much on the Pacific. O'Brien suggests that Portal recognised the importance of attacking German oil and transport from 1941 but was unable to convince Air Chief Marshal Sir Arthur Harris (AOC-in-C Bomber Command) to divert effort from city bombing, a controversy much explored in the literature.

Overall, O'Brien's argument is persuasive but perhaps too one-sided, giving limited consideration to land campaigns and individual battles. The importance of geography also warrants greater consideration as the German and Japanese conquests of 1938-1941 increased Axis access to resources and these conquests were stopped in the battles of Britain, Moscow, Stalingrad, El Alamein, and Midway. Furthermore, USAAF B-29 bombers could reach Japan only once the Mariana Islands were taken and, as Richard Overy has recently reminded us, Germany was only finally defeated with the Red Army's capture of Berlin and the death of Hitler.<sup>2</sup> Finally, O'Brien surely underplays the impact of Germany's manpower commitment on the Eastern Front and its tremendous losses. O'Brien's arguments, however, are supported by significant statistical research and analysis.

Nevertheless, *How the War Was Won* is highly recommended as a stridently revisionist account, highlighting the RAF's contribution to winning the War in the grand strategic context of Anglo-American air-sea power. Like Adam Tooze's *The Wages of Destruction: the Making and Breaking of the Nazi Economy*, for O'Brien the Combined Bomber Offensive significantly degraded German war production from 1943, rather than 1944 as more commonly viewed. The book is also a timely reminder of the importance of air-sea power and economic warfare given Western militaries' renewed focus on peer adversaries.

## NOTES

<sup>1</sup> The 'Marianas Turkey Shoot' was the nickname given by USN aircrew to the Battle of the Philippines Sea 19-20 June 1944, when the USN totally destroyed Japanese carrier capability.

<sup>2</sup> Richard Overy, 'Bombed Into Defeat?', *The RUSI Journal*, 160.4 (2015), 10-13 <<https://doi.org/10.1080/03071847.2015.1079037>>.





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