ROYAL AIR FORCE

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**Ex Officio*

EDITORIAL NOTE

As you will be aware, having done a splendid job of producing the journal for several years, Roy Walker has passed the baton to me. I have had to change our printer but it is my intention that future journals should be produced to the same format and standard as those established by Roy. The only innovation that I aim to introduce is to produce three publications every year. The content of two will consist largely of the proceedings of our two annual seminars. The third will be more of a problem. As a starting point, I shall have the speaker's address from the AGM and the winning submission for the Two Air Forces Award. I have to hand a backlog of earlier Two Air Forces papers, both British and American, and I have inherited a small stock of articles submitted in the past. There is sufficient material to sustain us for a year or so but I am going to need more.

Within the obvious constraints imposed by the Official Secrets Act, the need to avoid defamation and so on, there need be no real limits on content. Members are invited to offer, for instance, feedback relating to previous seminars or an academic paper on any appropriate topic. This particular journal contains examples of both of these, John Mitchell's thoughts on observer training in 1939-40, which were inspired by the spring 1998 seminar, and Tony Mansell's analysis of the management of fighter pilots during the Battle of Britain. To give you some idea of length, a page of the journal contains roughly 400 words. Ignoring biographical notes, tables, footnotes, bibliographies and the like, the observer piece runs to about 1,500 words, fighter pilots 1,800 and Wg Cdr Daybell's Two Air Forces paper, 5,500. All of these are perfectly manageable, so you do not need to feel very constrained by length.

If you feel able to contribute something, and can submit a typewritten original (our lack of secretarial facilities makes a longhand draft an unrealistic proposition) let me see it. I cannot, of course, guarantee that everything I receive will be published but there has to be a fair chance.

Jeff Jefford

THE EVOLUTION OF AIR TRANSPORT

RAF MUSEUM, HENDON, 5th OCTOBER 1999

WELCOME ADDRESS BY THE SOCIETY'S CHAIRMAN

Air Vice-Marshal Nigel Baldwin CB CBE FRAeS

Ladies and Gentlemen - good morning. Welcome to what I hope will be a fascinating day. Before I hand over and introduce our Chairman for the day, let me give our usual thanks to Dr Michael Fopp and his staff at the Museum. As always, we are much beholden to them - and we are extremely grateful. Let me also thank Gp Capt Richard Bates who, over several months, has put today's seminar together and masterminded the arrangements. We have chosen an enormous subject but I hope we have succeeded in concentrating on a range of air transport-associated issues that will not only intrigue you today but, when formally recorded in our Journal, will add much to the record of the Royal Air Force's history. I would encourage you, incidentally, to give thought to the two sessions of Questions and Answers. Do not hesitate to seek clarification, to state opinion or to add to the story.

Our Chairman for today is no stranger to most of us in the Society. A navigator who survived tours on Halifaxes during the last two years of WW II, Air Marshal Sir John Curtiss then joined Transport Command (and took part in the Berlin Airlift), flew Meteor night fighters and then Javelins. He commanded Brüggen in RAF Germany, was SASO at No 11 Gp and was Commandant at the Staff College at Bracknell, before finishing his RAF career as AOC No 18 Gp - the maritime group. As such, he was the senior airman in the operational chain of command during the Falklands War in 1982. It is a pleasure for me to introduce him to you as your Chairman for today.

Sir John - you have control.

INTRODUCTION BY SEMINAR CHAIRMAN

Air Marshal Sir John Curtiss KCB KBE FRAeS FRGS

A very warm welcome to you all, to this Seminar on 'The Evolution of Air Transport in the Royal Air Force'.

Your Society Committee recognised at the outset, that to do justice to this subject in one day was a considerable challenge. Not for any shortage of material, but how best to devise a worthy and attractive programme from a wealth of air transport topics in support of the Nation and the Royal Air Force itself, over the past eighty-one years.

A balance between a historical review and a study of selected transport operations emerged as a theme that should produce an interesting and enjoyable seminar. It was also clear that several air transport roles merited separate and dedicated study, and I know your Chairman has this in mind for the future. Helicopters and short-range transport are significant examples, along with aeromedical, clandestine, intelligence and the transport/tanker operation.

While these will be mentioned by our speakers, the focus of attention today is on longer-range transport from the early days of the RAF in support of operations, near and far. This is a huge canvas, studded with events following World War II alone, and no doubt recalled by many members of the Society. Apart from the consequences of the war in Europe itself, that enormous global conflict brought in its train, upheaval and withdrawal from empire. Whether these events were peaceful, or marred by conflict, British involvement was invariably heavily dependent on RAF air transport.

There will, of course, be ample opportunity to expand on topics of your choosing in the two discussion periods. And so to our programme.

NEVER PEACEFUL- THE MILITARY AIRLIFT ROLE

Group Captain Richard Bates

After Cranwell, Richard Bates flew Meteor night fighters in Germany, instructed at Oxford UAS and was an ADC in Coastal Command. He spent the next fifteen years in the transport world. First, as a flight commander on Argosies at Benson, then seconded to the Kenya Air Force flying Beavers and Caribous. He commanded No 24 Sqn, operating the C-130 Hercules at Lyneham, before an exchange posting with the United States Military Airlift Command, instructing and examining on the C-141 Starlifter. On returning home, he commanded RAF Brize Norton in the wake of the 1975 Defence Review. He was head of the Intelligence Branch at HQ Strike Command before joining Rolls-Royce.

Many military units have claimed to be the first in and last out of various campaigns. But the truth is that it is nearly always air transport that can truly lay claim to this honour. The primary military requirement, to initiate and then sustain operations, by deploying troops and equipment, and finally to close down activities, has been the vital role of air transport throughout the RAF's history.

My aim this morning is to set the scene for the military airlift role, as an overture to the presentations by our guest speakers, who have kindly agreed to cover selected key eras and operations in the evolution of air transport in the Royal Air Force.

Only the speed and reach of air mobility can deal with the need to react in time, and to keep pace with the rate of development of an operation. Seaborne and overland transport have, and always will have, their place, but increasingly, as the battlefield becomes ever more digital and the rate of response and counter-response ever faster, only aircraft can react with the speed and flexibility demanded. As this distinguished audience will not need reminding, there is little point in deploying a squadron of Tornados, for example, without the wherewithal to keep them flying and operating - the spares; the men and women; the bombs and missiles; the command and control system - *all* must be in the right place at the right time, and are as crucial to

In the early 1970s the Belfasts of No 53 Sqn provided the RAF with a substantial organic heavy lift capability.

modern warfare as they have been in the past. As General Patton remarked, "The officer who doesn't know his communications and supply, as well as his tactics, is totally useless."

The worthy notions of 'front-line first', and maintaining a robust 'teeth-to-tail' ratio, have characterised recent defence reviews, sometimes to the point where the vital air transport function has been depleted without a full appreciation of the logistic impact. The move of a bomber force can generate air transport sorties many times greater than the number of operational aircraft being deployed - and then go on to require sustaining airlift. By the end of 1975, a reducing airlift task for the RAF meant the demise of the Britannia fleet after seventeen year's service, and a reduction in the Hercules and VC10 force, although all of the Belfasts were to be retained. The aircrew and engineering implications were already well in hand, when a further announcement changed the fleet mix – the Belfast was now to be to be withdrawn and we were to operate in-use reserves of the VC10 and Hercules instead. It was my job to relay this message to the 300 Belfast aircrew and engineers, who went on to see their sturdy workhorses recommissioned in the civilian colours of HeavyLift, and continuing to support the military over subsequent years.

We must also remember that RAF air transport forces have been used consistently, and indeed frequently, for humanitarian missions, especially following natural disasters. The ability to cover great distances at speed is just as important when sustaining life as it is when sustaining a campaign. Relief operations can also embrace aerial

Since the late 1970s most of the UK's military heavy lift requirement has been met by civilian contractors, which has often meant renting what used to be the RAF's own Belfasts. (HeavyLift Cargo Airlines)

delivery to valuable livestock - as in the severe winters of 1947 and 1963 when, for lengthy periods, air supply was the *only* supply. Then again, there is the unique role of VIP transport entrusted to the RAF. This special responsibility included Mr Churchill's wartime trips, when the crew would present the Prime Minister with his slippers, ready and warmed in the oven of the aircraft's galley. The King's, and later The Queen's, Flight and, more recently, The Royal Squadron have provided an impeccable service over many years, as we shall hear. Finally, in a distinct category of increasing importance, is the dual-role of the transport/tanker.

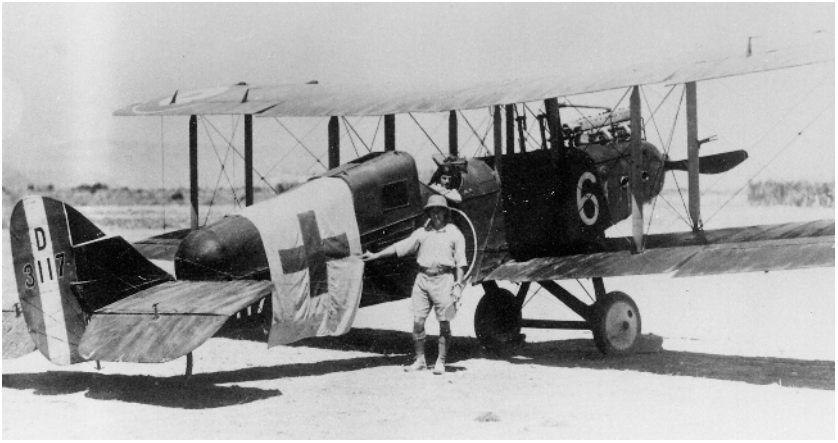
An operation that became the benchmark for the term 'Humanitarian Support', and a defining moment in the evolution of logistic support, was Operation PLAINFARE, which won the battle for the hearts and the bellies of 2.5 million Berliners. The scale of the airlift involved is astounding, both in the intensity of aircraft flow and the amounts transported. The statistics are mind-blowing when we look at the equipment that was used. One, etched on my memory, is the city's need for 38 tons of salt - *per day!* Today's jumbo jet-travelling, instant-news generation, wearing wrist watches having more computer power than existed in 1948, would perhaps find the payloads less staggering, until they had grasped the intensity of the airlift - and all flown by a hodgepodge of converted bombers, tactical transports – and even anti-submarine flying boats.

Most would recall the uplift of food to stop the population of West Berlin starving. Many are aware of the enormous quantities of fuel for heat and power, but few appreciate the transport of raw materials in, and finished goods out. But it was exactly this support of a fragile industrial base that sustained Berlin as a city rather than as an overgrown refugee camp. Tales of heroism abound with crews operating to the limits of the performance envelopes of their aircraft, many of which had not been designed for the task, and often in appalling weather. That courage and skill, about which we will be hearing first-hand from our Chairman, has remained a characteristic of the RAF's air transport business.

These post-war military aircraft had been procured for the prosecution of operations, not to sustain operations. They were aircraft, many of them converted bombers, which were intended to deliver troops for short periods of conflict. The German airborne assault on Crete in 1941 is, perhaps, the example *par excellence* of air transport in the prosecution of operations, while the ill-fated Operation MARKET GARDEN at Arnhem, is a clear example of the importance, and serious limitations, of air resupply - and well remembered, not least for the valour of Flt Lt David Lord VC. However, sufficient transport, handled well, and flown with skill and courage, could make the leap from the rather limited role implicit in the term 'resupply' to the awesome responsibility of sustaining operations.

The potential of air transport in this military role was recognised by Brigadier Orde Wingate who masterminded the extraordinary Chindit operations in Burma. We will hear a presentation on the Burma Campaign; it suffices to say in this overview, that the troops on the ground were dependant on air transport for everything. Indeed, one substantial lift was dedicated to delivering boots and clothing, which rotted through after only a couple of months in the sweltering jungle humidity. Wingate also knew that medical evacuation was a crucial element in maintaining the morale and effectiveness of his force.

And 'medevac' is certainly a humanitarian operation. I could go back to the DH9 and the first evacuation, in the sense that we recognise it. In 1920, in British Somaliland, eight stretcher cases were medevaced from Eli dur Elan to Berbera using a DH 9 which had been adapted to carry one sitting case and one on a stretcher, in place of the observer and bomb load.



A DH 9 adapted for medevac work and put to good use during the brief campaign in Somaliland in 1920. (P H T Green)

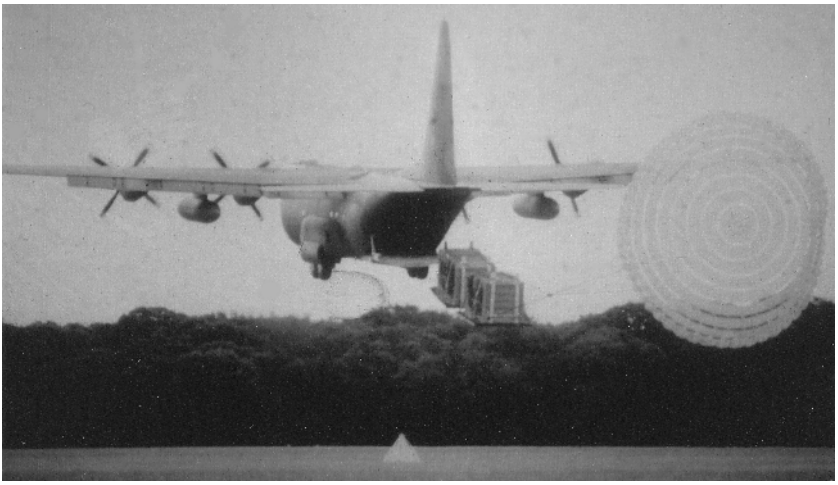
We will hear about transport operations in World War Two, during the Confrontation with Indonesia and in the Middle East. More recently, the Rhodesian Unilateral Declaration of Independence in November 1965, badly affected neighbouring Zambia. Since that country had no seaport and no useable road access, six RAF Britannias mounted an oil lift from Dar es Salaam to Lusaka and Ndola from just before Christmas 1965 until October 1966. This enterprise eventually consumed over 10,000 flying hours, the crews flying in civilian clothes to protect the sensitivities of the Tanzanians until the airhead was transferred to Nairobi. Zambia's air defence concerns were met by moving No 29 Sqn's Javelins to Lusaka. Air-mobile radar and elements of the RAF Regiment were positioned by a stream of Argosies, routing via Akrotiri and Teheran, with lengthy delays at Masirah and Aden while awaiting political decisions. Subsequently, a detachment of Coastal Command Shackletons was based at Majunga in the Malagasy Republic to mount the Beira Patrol, which policed the Mozambique Channel; this too was dependant on the airlift of supplies.

The late 1960s witnessed the zenith of RAF air transport's global reach. The Britannias now shared the routes with the newly-acquired VCl0s of No 10 Sqn. The Belfasts of No 53 Sqn were establishing themselves. No 216 Sqn was gaining Comet C.4s to offset its reducing complement of C.2s, while the veteran Beverley and Hastings

continued in the tactical role alongside their newer brethren, the Argosy and Andover. The C-130 arrived in 1967, in time to make an impressive RAF debut supporting the withdrawal of British forces from Aden. In Sqn Ldr David Berry's book about the Britannia, *Whispering Giant*, Air Chf Mshl Sir Jock Kennedy, then Group Captain Strategic Operations at Upavon, recalls reporting to the AOCinC each morning, that well over 100 aircraft were en route across the world. These 100 aircraft represented more than 500 aircrew, among them some new flying badges and ranks. VC10 captains were given the acting rank of squadron leader - a move not universally acclaimed - and the aircrew category of air quartermaster, which had not existed before the Britannia entered service, was introduced. This created instant senior NCO status for many young men, *and* women - the first females to wear a Royal Air Force flying badge.

This was also a time when a key priority for air transport was supporting the V-Force in its strategic deterrent role. Operations associated with these bombers included maintaining the 'West-About' route to the Far East, via the USA and the Pacific Islands, and Bomber Command's periodic Exercise MICKEY FINNs to test generation and dispersal procedures. After one of these exercises in 1964, the CAS reported to the Secretary of State that all seventeen of the transport aircraft required to deploy the personnel and equipment necessary to mount the V-Force detachments had arrived at the main bomber bases 267 Sqn, operating Argosies at Benson, I recall the exercise being

An Andover of FEAF's No 52 Sqn. (MAP)



While humanitarian relief supplies are often robust enough to be able to withstand a free-fall delivery (thus conserving parachutes), more delicate items need to be treated with a little more respect. Even so, with the aid of a shock-absorbing pallet and a parachute to extract the load and slow it down, they can still be delivered at ultra low-level – and with extreme precision. (R Bates)

conducted under the watchful eye of the formidable Air Chf Mshl Sir Kenneth Cross - AOCinC of both Bomber and Transport Commands in successive appointments during the 1960s.

More recently, the RAF transport force has become synonymous with relief operations. Following the Turkish invasion of northern Cyprus in July 1974, 22,612 people were evacuated from Dhekelia to Akrotiri. This included the current known record of cramming 139 souls into a C-130, and anyone who has seen, or been in, one of Her Majesty's 'trucks', will know just what a remarkable feat that was! The aftermath of the Balkans campaign saw a mini-Berlin Airlift to sustain Sarajevo under Operation CHESHIRE which ran from July 1992 until January 1996. In the run-up to the Gulf operation in 1990, and thanks to dedicated airlift, the first Tornado squadron was soon operational in Saudi Arabia. Today, nine years later, RAF air transport is still supporting units deployed in this region, as our serving Squadron Commanders will illustrate.

This was, and still is, clearly a military task but, unfortunately,

conflict almost inevitably causes suffering for civilians. In Iraq, this was manifest in the plight of the Kurds, who had to be sustained by air as part of Operation PROVIDE COMFORT. Some bitter lessons were learnt from that operation. The most efficient way of delivering food was in one-ton packs, free-dropped from very low altitude. Hard though it may be to believe, sitting here well fed and comfortable at Hendon, starving people tried to catch these 120 mph one-ton containers! We are still mounting airlifts to the Balkans: sleeping bags by the thousand to refugees in Albania; supplies to NATO forces in Macedonia and Kosovo; and now East Timor - and long after the ground attack squadrons have returned to their home bases.

Six points in summary:

First, air transport has been, and always will be, a crucial component in the initiation and sustaining of operations. The Air Transport Force is never peaceful.

Second, sustaining an operation can mean very long commitments: well over a year in Berlin; very nearly a year in Zambia; and Tristars and Hercules continue to transit the 8,000 miles to the Falkland Islands - as well as to nearer destinations in the Gulf and the Balkans.

Third, the term ‘Air Transport’ embraces a wide spectrum of roles. These include: strategic and tactical deployment and re-deployment; resupply; aeromedical evacuation; humanitarian support and the dual-role of the transport/tanker.

Fourth, air transport is a military task involving military risks which may involve having to operate in the face of real threats. A ‘favourable air situation’ or, in the more modern parlance, ‘air dominance’, has always been, at the very least, desirable. Airborne radars provide some passive collision-avoidance capability but more active self-defence protection against the ground threat is now regarded as essential and aircrews wear body armour, as and when deemed necessary.

Fifth, air transport is an ‘anywhere, anytime’ commitment – and that includes Fridays and Christmas Eve. It must also be able to operate with the minimum of local support and in rugged places.

And finally, air transport is a crucial element in the psychology of conflict resolution. It sustains people’s hopes and pride, as well as keeping them properly fed - the whole enterprise relying on the dedication and flexibility of the aircrew and groundcrew, and all those in support, including the important morale-sustaining back-up of

families at home.

I am very grateful to AVM Nicholl, the Assistant Chief of the Defence Staff Operational Requirements (Air Systems), for the use of his presentation to the Royal Aeronautical Society earlier this year. He concluded with mention of a unique air transport operation at the very end of the Cold War, and hitherto not known to many. Transport aircraft may not be seen as obvious 'war-winners', but they can be, and they can certainly be 'peace-winners', as this anecdote illustrates.

It was the evening of 9th November 1989 when he was at HQ RAF Germany with responsibility for our small transport force and, under the extraordinary air defence rules of the time, responsible, with a USAF colleague, for air access to Berlin. Television news had just announced that the Berlin Wall had been breached. Out came the champagne. Then the telephone rang. At a very senior celebration in Bonn, someone had suggested a nightmare scenario: there were literally thousands of Soviet conscript soldiers around the streets of East Berlin, with loaded rifles, intermingled with tens of thousands of merry West Berliners. One shot in a stupid argument might lead to panic and a blood bath. We might need someone with the presence and authority to get the West Berliners back west of the wall in a hurry.

There was only one real choice: Herr Willy Brandt. But this was the culmination of Willy Brandt's life's work. He was celebrating all round Bonn and Cologne. So, all that night, we did what the military always does - we planned - 'just in case'. All night, the Bundespolizei kept a motorcycle team within seconds of wherever Herr Brandt was celebrating. The US kept a Black Hawk helicopter close by to collect him from the motorcyclists and deliver him to us. And we, the RAF, kept shuffling aircraft to the nearest airfield, cleared straight through to Berlin, just in case.

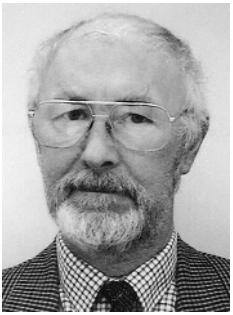
Ladies and gentlemen, hot war, cold war - or no war at all, air transport has always been there at the beginning and at the end - and vital to the operation throughout. Thank you.

Acknowledgements:

AVM S M Nicholl CBE AFC BA FRAeS RAF: Presentation to the RAeS, May 1999.
Sqn Ldr D Berry, *The Whispering Giant in Uniform* (Keyham, 1996).
Humphrey Wynn, *Forged in War* (HMSO, 1996).

THE BOMBER TRANSPORT AND THE BAGHDAD AIR MAIL

Wing Commander 'Jeff' Jefford



'Jeff' joined the RAF in 1959 as a pilot but, due to 'imperfections in the selection system', he (was) soon remustered as a navigator. His flying experience included tours with Nos 45, 83 and 50 Sqns and instructing at No 6 FTS. Administrative and staff appointments involved sundry jobs at Manby, Gatow, Brampton and a total of eight years at HQ Strike Command. He took early retirement to read history at London University, graduating with First Class Honours in 1994. He has two books to his credit, RAF Squadrons *(1988) and* The Flying Camels *(1995), another in the works and has been the Society's Secretary since 1998.*

While my presentation will concentrate, as advertised, on the bomber-transport concept of the inter-war years, to present a more rounded picture, I am going to start with a little pre-history.

It is always dangerous to claim an historical 'first' in aviation, so I will do no more than say that the British air services made what was *probably* the earliest serious attempt to sustain a community entirely by air as early as the spring of 1916. It was hardly a Berlin Airlift, but it was certainly a brave attempt. The location was Kut-al-Amara, on the right bank of the Tigris, where an army of 14,000 men had been besieged by the Turks since December 1915. In the following April Maj-Gen Townshend signalled GHQ at Basrah that he was down to five day's supply of food – he meant, the remaining horses.

By this time a few key items had already been dropped into the perimeter by air, leading to speculation as to whether this technique might not be exploited to sustain the entire garrison. A simple calculation indicated that eight aircraft, each carrying 200 lbs and flying three sorties per day, could deliver about 2½ short tons of essentials – sufficient to provide every man with a five- or six-ounce subsistence ration. There were fourteen aircraft available; six belonged to the navy and eight to the army. Air operations were being conducted under the overall direction of Wg Cdr Robert Gordon

(RNAS) who assigned four of No 30 Sqn's BE2cs to the airlift, the navy contributing a Henry Farman, a Voisin and three Short seaplanes.

Twenty sorties were flown on the first day, some 3,350 lbs being delivered. Sadly, this was 1,600 lbs short of the target figure and lost sorties, due to the weather and unserviceability, meant that even this achievement would never be repeated. Furthermore, intense small arms fire forced the aircraft to operate at above 5,000 feet from which height accuracy was uncertain due to the unpredictable ballistics of a sack of flour in free-fall; something like 10% of the loads dropped were never recovered. During the second week enemy aircraft put on an appearance, one of the seaplanes being shot down and one of the BEs limping back to base with thirty-two holes in its airframe and two in its pilot. This dictated the use of escorts, which further depleted the supply dropping force.

By 22nd April Townshend's men were dying of starvation at a rate of twenty per day and he was authorised to negotiate a surrender. It was all over on the 29th. In the course of 140 sorties (not all of which had been successful) 16,800 lbs of rations had actually been delivered to Kut. Unfortunately, the staff calculation had been based on a sustained maximum effort and 100% serviceability, neither of which were realistic planning assumptions in 1916. Furthermore, after some experimentation to devise a practical means of carrying and releasing sacks, it was found that, even with the aircraft being flown solo, the practical load was closer to 150 lbs than the 200 lbs that had been used for planning. The combined effect of these factors meant that the average daily delivery had been less than a third of the essential minimum.

Now this was not the only attempt to mount an airlift during WW I and in 1918 several successful resupply operations were carried out, the first during July when a dozen of No 9 Sqn's RE8s each flew four sorties to deliver more than 110,000 rounds of small arms ammunition by parachute to sustain an advance being made by the 4th Australian Division. No 9 Sqn's pioneering supply-dropping effort was not unique, similar operations later being flown by Nos 7, 35, 53, 82 and 218 Sqns, delivering ammunition, barbed wire, rations - whatever the occasion demanded.

We have insufficient time to deal with it in any detail today, but we should at least record that, once the Armistice had been signed,

redundant bombers were extensively employed in the transport role, maintaining air mail links between the UK and troops still stationed on the Continent, and with the British delegation at the Versailles Peace Conference. This activity was sustained until August 1919.

While these examples show that the potential of air transport had clearly been recognised during WW I, what had actually been achieved had been severely limited by the capacity and weight-lifting capabilities of the aeroplanes of the day. If this potential was to be realised bigger and better aircraft would be required and the need for them soon made itself felt in the Middle East. It is, perhaps, worth making the specific point that, throughout the inter-war years, air transport operations *within the UK* were largely confined to VIP work. There were a few exceptions - in 1919, for instance, when the RAF provided a makeshift air mail service to outflank industrial unrest on the railways, and again in 1926 when this exercise was repeated during the General Strike, aircraft also being used on that occasion to distribute the Government-sponsored news sheet, *The British Gazette*. In general, however, while the overseas commands were making increasing use of air transport – at home, everything moved via the 'pre-Beeching' railway network.

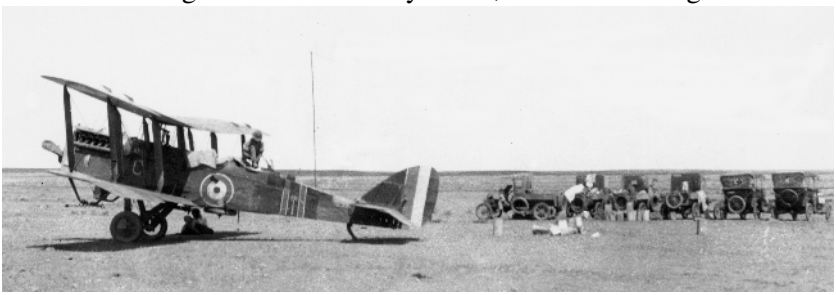
It is not necessary for us to discuss the, not entirely honourable, wartime diplomacy which eventually resulted in Great Britain's acquiring mandates over Palestine, Transjordania and Iraq. Suffice to say that early in 1921 Winston Churchill, as Secretary of State for the Colonies (and for Air), convened a conference in Cairo to decide how best to deal with this vast new tract of *de facto* empire. In the context of today's seminar, two crucial decisions were taken. First, that Mesopotamia would be used to test Trenchard's contention that territory could be policed, both cheaply and effectively, by air, and secondly, that an air link would be needed to connect the regional hub of British power in Cairo with its new outstations at Jerusalem, Amman and Baghdad.

The local air commander, AVM Sir Geoffrey Salmond, was an enthusiastic advocate of air transport, having, as early as January 1919, submitted proposals which envisaged the RAF's operating air services between Cairo and both the Cape and India – and ultimately Australia. Trenchard was not convinced that such undertakings were entirely appropriate for a military service, but contemporary technology simply would not have supported such ambitious plans in

any case. Nevertheless, because no one else *could* do it, Trenchard agreed that, until commercial aviation was mature enough to take over, the RAF would demonstrate the feasibility of operating the essential air link between Cairo and Baghdad – which just happened to be the most difficult sector of the projected route to India.

To avoid having to rely on French goodwill, the easy option of staging through Damascus was dismissed in favour of a direct connection between Amman and Baghdad. This would involve a 500 mile flight across barren terrain, almost totally devoid of distinctive features, which was going to make navigation difficult. Salmond's initial answer to that problem was to provide some features by using explosives to blow holes in the desert at one mile intervals. In the event, a less extreme solution to the problem of the trackless waste was adopted - it was decided simply to provide a track. Wg Cdr P F M Fellowes was given the job and his expedition left Amman in June 1921 mounted on six Crossley tenders. They were escorted by three Rolls-Royce armoured cars and supported by three DH 9As of No 47 Sqn. To mark their passage, one of the Crossleys dragged a chain harrow the whole way.

In the meantime a similar enterprise, commanded by a Maj A L Holt, was groping its way westwards from Baghdad, his air support being provided by No 30 Sqn. The two parties met somewhere in the middle, Holt's team then returning to Baghdad in company with the RAF convoy which reached its destination on 26th June. No 47 Sqn's three aircraft flew back to Amman on the 30th, thus making the first non-stop east-to-west transit. One of these aeroplanes promptly flew on to Cairo, to connect the two capitals in a single day. The first west-to-east crossing was made ten days later, this one bearing the first air



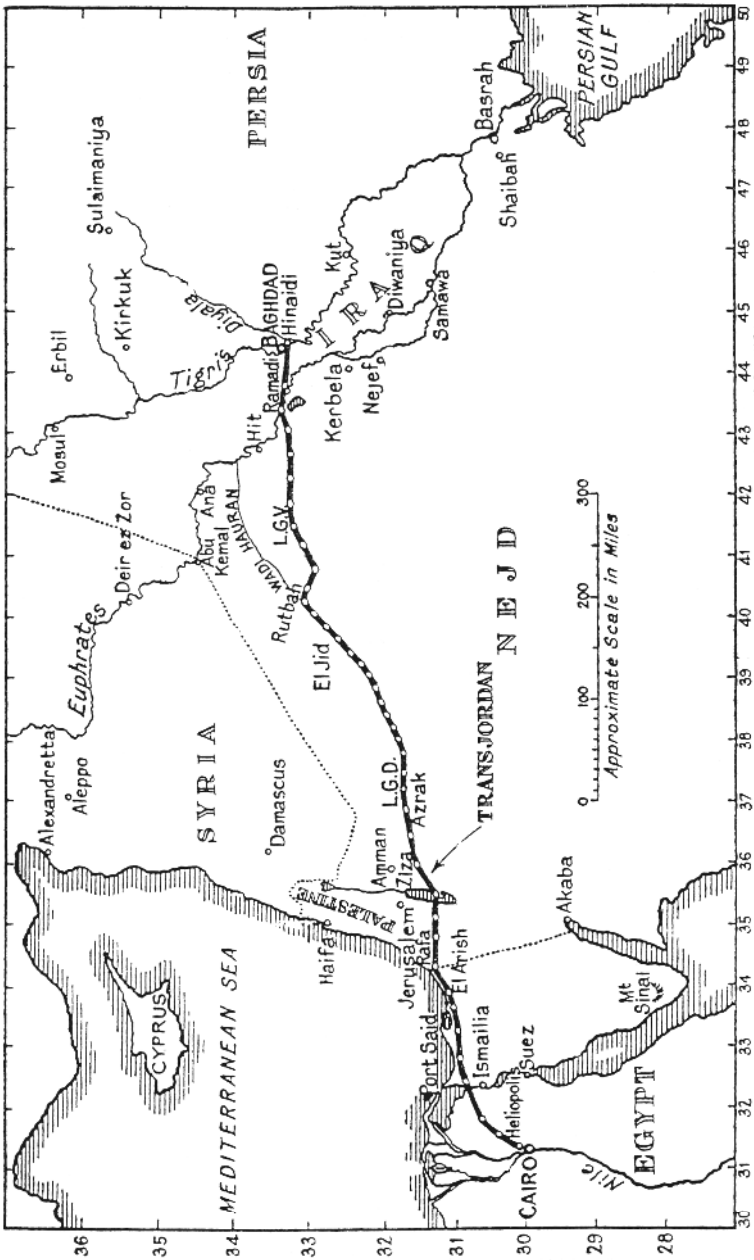
One of the DH 9As of No 30 Sqn which accompanied Maj Holt's Baghdad-based expedition in 1921.

mail, a letter in the pocket of the passenger – Sir Geoffrey Salmond himself.

The track was re-marked in 1922, this time using an agricultural plough towed by a Fordson tractor. Thereafter the wheels of the occasional patrolling armoured car generally sufficed to define the route until the mid-1930s when it was finally rendered redundant by an oil pipeline. Let us take a closer look at the route. While the run from Cairo to Jerusalem had been pretty straightforward, the next stage, to Amman, was quite difficult, as it involved clearing hills up to 3,000 feet high – not always easy in a heavily loaded aeroplane on a hot day. As a result, the route was soon changed (as shown on the accompanying map) to permit aircraft to fly across the Dead Sea to land at Ziza. Here, mail to or from Palestine and Transjordan was delivered or collected by armoured car or by one of No 14 Sqn's aeroplanes from Amman. Eastwards from Ziza, the terrain was relatively flat but at about 2,000 feet AMSL, so, in the summer, it was 'hot 'n' high' stuff all the way.

A reasonably level, firm and relatively boulder-free place to land had been prepared at intervals of between fifteen and thirty miles along the entire desert sector. Running east from Azrak, these Landing Grounds were identified by letters, A to R (omitting I and Q), while from Ramadi, heading west, they were numbered I to XI (ie using Roman numerals, except for 8). All of this information, and much more, was represented on a combined strip map and flight plan produced by Dr John Ball, The Egyptian Government's Director of Desert Surveys, who had accompanied Fellowes' 1921 expedition. This document was to become the desert pilot's 'bible' for the next fifteen years.

For the first year the link was maintained by a collection of DH 9As, DH 10s, Vimys and Handley Page O/400s. None of these types was ideal. The Ninak was too small and, being single-engined, was a bit of a hazard in itself; the DH 10s proved to be accident prone and the big Handley Pages were simply tired. Best of the bunch was the Vimy but, like the others, even this was ill-suited to the task. The problem, with all of these aeroplanes, was that, unless it was bomb-shaped, it was difficult to stow the payload – let alone passengers. This problem had been foreseen, however, and an order had already been placed for the Vernon, a military version of the Vimy Commercial, which was itself an adaptation of the Vimy bomber, the



Sketch map of the fully developed Air Mail Route, drawn by Wg Cdr Roderic Hill (OC 45 Sqn, 1924-27)to illustrate his book Baghdad Air Mail *(Arnold, 1929).*

original slim, square- section fuselage having been replaced by a capacious hull capable of accommodating a dozen passengers or a ton or so of freight. The first Vernons reached Egypt at the end of 1921 and by the following June Nos 45 and 70 Sqns were both stationed at Hinaidi, fully equipped with the new aeroplanes. Supported by No 216 Sqn, still flying Vimys from the Cairo end, the air mail service soon settled into a regular fortnightly run.

Providing the right tools for the job had certainly yielded a considerable increase in efficiency. In October 1921 it had taken twenty-three assorted aeroplanes to move 700 lbs of mail with no capacity for carrying any passengers - except at the expense of leaving one of the crew behind. During September 1922, just a year later, the mail run was flown by ten Vernons and a single Vimy. They moved 1,732 lbs of freight plus twenty-three passengers. Leaving aside the 'walking freight', this represented something like a 250% increase in output for only 50% of the previous effort.

The five-day round trip covered some 1,700 miles which, at a groundspeed of around 70 mph, required about 25 flying hours. It was theoretically possible to make the run in either direction in a day - that is, in daylight - the mail was *never* flown at night - but this provided insufficient time for mail transfer at Ziza, little crew rest and made no provision for contingencies - and contingencies were the rule rather than the exception. Besides which, the ultimate aim of the Desert Air Mail service was to demonstrate reliability. It was not a race - speed would come later. To ensure that the mail got through, the route was always flown by two aeroplanes, one carrying the mail, the other acting as reserve.

In the early days the mail carriers, predominantly DH 9As, were obliged to carry petrol cans slung beneath their wings to provide their own en route refuelling capability. This highly unsatisfactory practice was soon superseded by the provision of intermediate fuel dumps at LGs V and D. Once the route was established, its use was not confined to the mail run. All transiting RAF aircraft had access to the fuel dumps so the Vernon squadrons were kept very busy ferrying petrol to keep the tanks topped up.

Another routine task for the squadrons at Hinaidi was the recovery of aeroplanes that had been forced to land en route. Those of you who attended the Society's navigation seminar may recall my contention that *navigation* was actually one of the lesser problems that had to be

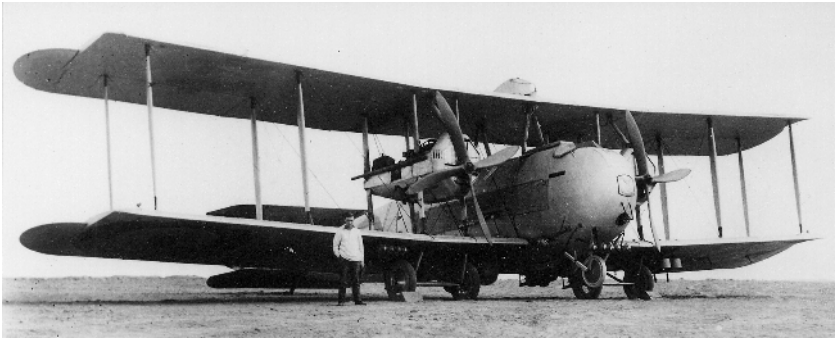
Period	Completed as planned	Completed late	Failed	Total Attempts	Failure Rate
Aug-Dec 21	36	21	13	70	19%
Jan-Jun 22	31	46	12	89	14%
Jul-Dec 22	12	33	5	50	10%
Jan-Jun 23	15	29	4	48	8%
Jul-Dec 23	12	51	3	66	4%
Jan-Jun 24	31	21	2	54	4%
Jul-Dec 24	39	31	0	70	0%
Totals	176	232	39	447	9%

The improvement in reliability over the first 3½ years of the Air Mail Service.

solved before regular long distance operations could become a reality. The biggest problem was reliability. The accompanying table illustrates the steady progress that was made over the first 3½ years of the air mail service. As you can see, in the beginning, in 1921, one out of every five flights was classed as a failure. By the last six months of 1924, although a substantial proportion of mail runs were still not getting through without touching the sides, as the right hand column shows, the actual failure rate had been reduced to zero. The RAF had almost completed its task. The route was a going concern; the most appropriate operating techniques had been devised and tested and the time was therefore fast approaching when the service could be handed over to a civilian operator. That actually happened at the beginning of 1927 when Imperial Airways assumed responsibility for operating the scheduled air mail (and now passenger) service, soon extending this down to Basrah and on, via the Persian Gulf, to Karachi and Delhi.

Since the two Vernon squadrons took turns with the air mail commitment on a six-month rota, one unit was always available for in-theatre tasking and there was much for it to do. Without the Vernons, a Bristol Fighter or a DH 9A, stranded up-country in need of an engine change, would have been grounded for at least a week. With them, it could be flying again in a day - no other aircraft available in Iraq could carry a spare aero-engine.

Whenever there was unrest, the Vernons were used to deploy troops to the area. This created a regular training commitment, as it was necessary to teach soldiers how to emplane without sticking their bayonets through the fuselage walls – remember that this was the



A fully armed Vernon II bomber-transport of No 45 Sqn.

1920s and even well-heeled citizens, let alone private soldiers, lacked the experience of air travel that we now take for granted. Although we are not going to deal with casualty evacuation today, I must just mention that this was another role that the portly Vernon took in its stride.

So much for air transport - but what of the bomber bit of the bomber-transport equation? This came about largely through the initiative of one man, Sqn Ldr Arthur Harris. Appointed to command No 45 Sqn late in 1922, Harris promptly reversed the reasoning which had produced the Vernon by arguing that, since it could carry a ton, it might as well be bomb-shaped. This rather appealed to the AOC, Sir John Salmond, and Harris was authorised to see what he could do. He had a High Altitude Drift Sight mounted in a hole cut in the nose of each aeroplane, the pilot being directed to turn left or right by a pointer mounted on a rail in front of the cockpit, this device being driven by a 'suitable system of linkages'. No 70 Sqn's Vernons were similarly modified and both of the transport units began to practice on the local range, much to the amusement of the 'proper' bomber squadrons. Harris wiped the smiles off their faces by organising a competition in which his Vernons swept the board, No 45 Sqn's average being a shade under 25 yards, *half* that of the best of the 'professional' bomber outfits – even the Snipes of No 1 Sqn, with their inherently accurate dive-bombing technique, could manage only 46 yards.

This was not just a stunt, however, and the Vernons subsequently took part in several actions, including the successful, if now contentious, bombing of Sulaimaniyah. No 45 Sqn, incidentally,

delivered no less than 43% of the 28 tons of bombs dropped on that occasion, including all fifteen of the big 520 pounders which only the Vernon could carry. The impact of Harris' Vernons was such that when roles were formally incorporated into unit designations in 1924 his 'trucking company' became No 45 (Bombing) Sqn. The dual-role concept had clearly not yet gained official recognition but it did in 1931 when Nos 70 and 216 Sqns were both restyled Bomber-Transport units and by this time there was also a Bomber-Transport Flight stationed in India.

Meanwhile, in its quest for greater reliability - and flexibility - the RAF had been angling for something bigger and better than the Vernon. This second-generation transport, the Victoria, began to join the squadrons in 1926. It could carry up to twenty-two troops and later production aircraft were of metal, rather than wooden construction, making them more robust while significantly reducing maintenance demands. The Victoria was some 30% heavier than the Vernon, loaded weight being increased to nearly 18,000 lbs. Since this increase was only partially offset by an additional 200 hp and an extra twenty feet of wingspan, however, the new aeroplane still tended to be underpowered. Nevertheless, it proved to be so reliable that the requirement to operate in pairs had been waived several months before the RAF handed over the air mail to Imperial Airways.

While a relatively stable situation had been established in Iraq by the late 1920s this was less true elsewhere and an outbreak of unrest in Afghanistan made it necessary to evacuate the staff and their dependants from the British Legation at Kabul – along with sundry citizens of other friendly nations who also wished to leave. Circumstances dictated that the operation had to be conducted in fits and starts, rather than continuously, but in two months, beginning in late December 1928, 586 souls were flown out to India by the Bomber-Transport Flight and a detachment of No 70 Sqn from Iraq. It had taken eighty-four sorties and it had *not* been easy. Kabul is 6,000 feet AMSL and to reach it meant flying over (or between) mountains having peaks up to 10,000 feet. Being winter, the temperature at Kabul occasionally fell as low as 0^{o}F, snow on the landing ground sometimes interrupting flying for several days at a time. Like the attempted relief of Kut in 1916, this enterprise is often claimed as a British 'first', although one could well cite a smaller, but far more intensive, operation which had taken place on 5th September 1922

when 67 people were airlifted from Sulaimaniyah to Kirkuk, mostly in notionally *two-seater* DH 9As.

With little call for them to exercise their bombing capability during the 1930s, the three bomber-transport units spent their time on tasks that would not be unfamiliar to a Hercules crew today – moving priority freight from A to B, showing the flag, and demonstrating the potential for air reinforcement, No 216 Sqn ranging as far as Aden, the Cape and West Africa, while No 70 Sqn flew to India and even as far as Singapore. Other chores included conveying spares to downed aeroplanes and disaster relief - in the aftermath of the Quetta earthquake of 1935, for instance. But all of this was day-to-day stuff; the real purpose of the transport squadrons was to deploy units of the strategic reserve to potential flashpoints and to resupply them when on active service. On occasion this was done for real, as, for instance, in Iraq throughout the 1920s, Transjordan in 1930, Cyprus in 1931, Iraq (again) in 1932, and Waziristan in 1937-38. When reality failed to provide an adequate excuse, the capability was exercised, a bomber squadron or an infantry battalion being moved from Egypt to Palestine or northern Iraq, sometimes even as far afield as India. Nor had the aeroplane's potential been overlooked in the context of routine troop movements and, having first resupplied the biennial Chitral Relief column by air in 1930, the RAF actually moved some of the troops in 1936. In 1940 the entire operation was carried out by air.

During the 1930s the Victorias had been gradually replaced by Valentias (some of which were remanufactured Victorias), the most significant difference being the introduction of air-cooled Bristol Pegasus engines, which were probably a better bet in tropical climates than the old Napier Lions which had tended to be plagued by coolant leaks. Although they were beginning to look quite dated, Valentias were camouflaged after the Munich crisis and the RAF still had sixty of them on charge when war finally broke out. The last of these stately giants was finally put out to grass in India in 1944 - but not before they had flown the odd bombing sortie in the Middle East.

The final iteration of the bomber-transport concept was the Bristol Bombay. A few were retained in the UK but, as the replacement for the Valentia, most went to the Middle East where the major operator was No 216 Sqn. They saw some early action in the night bomber role over Cyrenaica in 1940-41, but they spent most of their time on transport tasks. Bombays took part in the Greek campaign and the

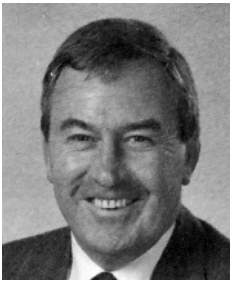
evacuation of Crete, carried out the first British parachute assault in the Middle East in November 1941, did sterling work supporting the Long Range Desert Group and resupplying tactical squadrons deployed forward in the Western Desert, and they routinely flew in and out of Tobruk, sometimes under fire, to bring out wounded soldiers. They also supported the trans-Africa delivery route, shuttling ferry crews back and forth between Cairo, Khartoum and Takoradi.

By 1943, increasing role specialisation and the availability of a variety of proper bombers and transports, particularly Dakotas, brought an end to the era of the dual-capable bomber-transport. Well – almost. In the early 1960s an enterprising staff officer appears to have taken a leaf out of Arthur Harris' book – if a transport aircraft could lift several tons, why not make it bomb-shaped? This picture shows a trial installation carried out on an Argosy at Bitteswell in 1963 and a number of late production aircraft did have this modification incorporated, although it was not readily apparent, because the fairings were not a permanent fit. The Argosy never saw action in the bomber role, but it was certainly considered in the early stages of the Confrontation with Indonesia and I clearly recall No 45 Sqn's Bombing Leader being despatched to Changi to provide No 215 Sqn with a primer on ballistic theory and a briefing on the use of the T3 bomb sight - and I suspect that 'not lot of people know that.'

A latter-day bomber-transport – the trials Argosy (XN814) at Bitteswell in 1963. (Air Britain)

FERIO FERENDO - THE ARRIVAL OF TRANSPORTCOMMAND

Group Captain Tony Stephens



Gp Capt Tony Stephens graduated from Cranwell as a navigator in 1962 and had a varied RAF career on Hastings and Andovers with Nos 48, 84 and 46 Sqns, mostly in the Far and Middle East. Between flying tours he completed joint-service appointments in the MOD and at HQ AFCENT, specialising in exercise planning, co-ordination and operational analysis. His last full tour in the RAF was as Senior Air Directing Staff in the Defence Services Staff College in Bangladesh. He retired in 1992 and subsequently joined the Air Historical Branch, becoming Deputy Head in 1996.

INTRODUCTION

***Ferio Ferendo* (I strike by carrying).** When RAF Transport Command was created on 25th March 1943 it did not signal the start of a new role for the Royal Air Force. It actually acknowledged, somewhat belatedly, the existence of the world-wide transport, ferry and reinforcement operation which had already been built up over the previous three and a half years. It is clear that up until this time, the RAF had not recognised the need for transport operations to have their own separate organisation and the reason was that, although the role had grown, there were very few dedicated transport aircraft. In his history of Transport Command, *Forged in War*, Humphrey Wynn likens the various elements which were drawn together to form Transport Command to pieces of a jigsaw which was completed in April 1943, only to be broken up again three years later. Initially, the major pieces of the jigsaw were: No 44 Gp in the UK; RAF Ferry Command; No 216 Gp at Heliopolis (Cairo), and No 179 Ferry Wing at Karachi, but by the end of the war the new Transport Command comprised eight groups, two of which, Nos 38 and 46, together with the 9th US Army Air Force Troop Carrying Command, had provided the airlift for the invasion of Europe.

These organisations formed the backbone of the new command and

Typical of the motley collection of transport types available to the RAF on the outbreak of war was this impressed HP 42, one of three that were given a coat of warpaint and issued to No 271 Sqn. (MAP)

during the next few minutes I will talk firstly about the build up to its formation; then I will look at those operations in which the new Transport Command forces were involved between 1943 and 1945, including the massive trooping operations mainly to and from the Far East; I will round off with the post war reorganisation of the command. My main aim is to try to bridge the considerable gap between the inter-war years and the Berlin Airlift which saw Transport Command firmly established. In so doing I will also touch on the substantial civilian air transport organisation which was established during the war and the key role played by the Air Transport Auxiliary (ATA).

START OF THE SECOND WORLD WAR

As we have already heard from Wg Cdr Jefford, at the start of the Second World War the RAF had very little UK-based air transport, just two units, both equipped with a number of diverse aircraft – No 24 (Communications) Sqn at Hendon and No 1680 Flt based at Doncaster, which in March 1940, in recognition of its growing status and breadth of operations, became No 271 Sqn. Both were controlled by Fighter Command, although No 24 Sqn, whose main role was the transport of VIPs and the carriage of mail, had two other bosses, the Air Despatch Letter Service (ADLS) and the Director of Staff Duties in the Air Ministry. No 271 Sqn's main commitment was to assist in the movement of fighter squadrons, mainly between Scotland and the

North of England and the more active sectors in the south, a task which was to be critically important during the Battle of Britain, and in which civilian operators also played a part; you have only to examine the Operations Record Books for some of the fighter squadrons during 1940 to realise just how much they moved around.

Overseas, as we have heard, the RAF had been very active in the Middle East during the inter-war years, its two Bomber-Transport squadrons, Nos 70 and 216, both establishing fine records. No 70 Sqn subsequently specialised in the bomber role but when No 216 Transport Group was formed in Cairo in 1942 No 216 Sqn joined it, along with four others which, between them, operated Bombays, Lodestars, Hudsons, DC2s and Dakotas.

REINFORCEMENT ROUTES

Of the various pieces of the 'jigsaw' which went to make up Transport Command on its formation, surely none can have been more significant than Ferry Command (and its predecessor, ATFERO - the Atlantic Ferry Organisation), which became No 45 Gp in April 1943 and which had established the reinforcement routes across the North and South Atlantic – run by Nos 112 and 113 Wgs, respectively.

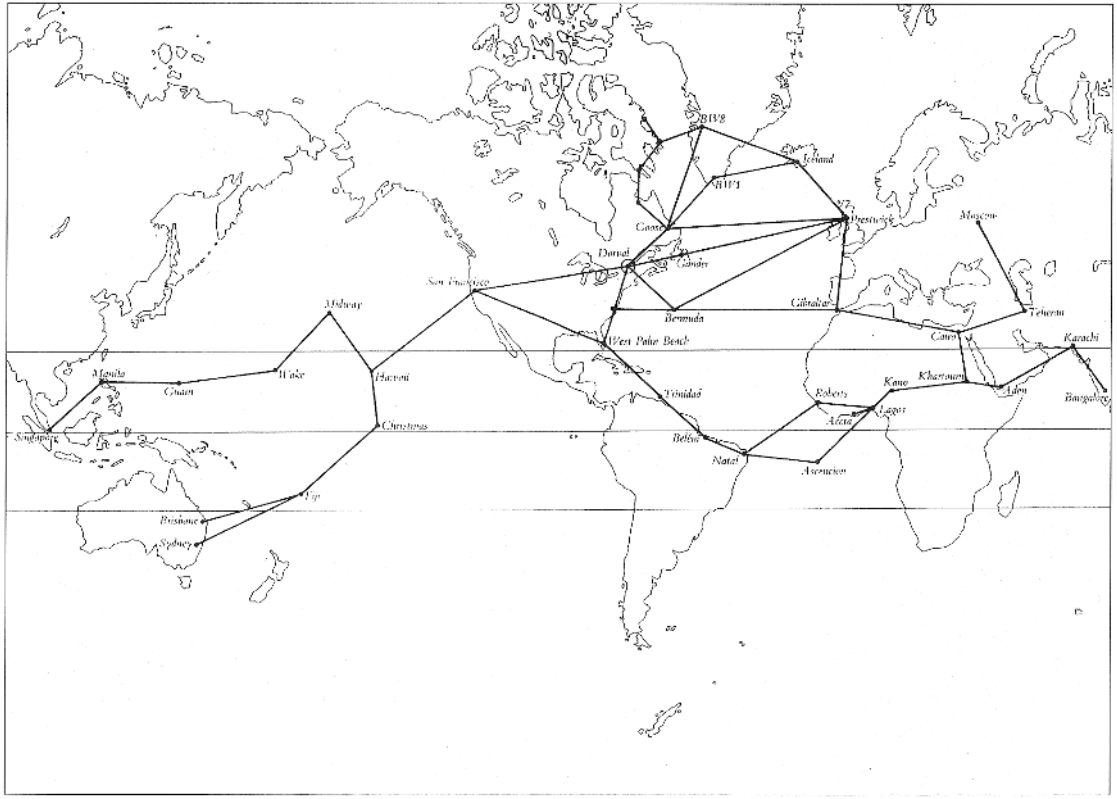
45 Group. Until the late 1930s, flying across the Atlantic had been a matter for headlines in the papers — it was a pioneering adventure which nations on both sides of the 'Pond' followed closely and competitively. As the outbreak of war drew close it was becoming less of an adventure and it was only a matter of time before the three prerequisites for routine commercial Atlantic crossing would be met: suitable aircraft; comprehensive weather knowledge; and a steady record of flight safety. The war was to accelerate this process, but although weather forecasting was to improve, partly because of the many in-flight reports, it still presented formidable problems, especially over the North Atlantic in winter.

From the outset of the Second World War there was an urgent need for aircraft to be delivered in large numbers from factories in North America to theatres of war in Europe and the Middle East. On 11th November 1940, seven Hudsons arrived at Aldergrove, in Northern Ireland, from Gander, in Newfoundland, on an historic flight which had lasted 10½ hours. These were to be the first of many thousands of aircraft to be delivered over the next four years. They were led by

Captain Don Bennett, later to become AOC No 8 (Pathfinder) Gp within Bomber Command. Before these flights, all aircraft had been sent by sea, but not only were these potential protectors of shipping themselves taking up shipping space, and indeed in some cases being lost at sea, but something like three months was elapsing between the test flight in the USA and the arrival of the aircraft at their operational destination in Britain. By flying the aircraft across the Atlantic, shipping space could be saved and the three months could be reduced to something like ten days.

ATFERO, established early in 1940 to control these ferry flights of military aircraft to Britain, was set up by a Mr Woods Humphery, a former managing director of Imperial Airways, on the initiative of Lord Beaverbrook, the Minister for Aircraft Production. The Canadian Pacific Railway Company, whose Headquarters was in Montreal, became the operating agency and it built a base at Dorval for the use of ferry crews. In the beginning, these crews were a motley collection of civilian aircrew from all walks of life and it was necessary to establish a training organisation alongside the operational one. Eventually, increases in the number of aircraft being ferried led to a shortage of crews and it was decided to relieve the congestion by using RAF and other personnel graduating from the Canadian-run British Commonwealth Air Training Plan to help make up crews to ferry the aircraft. To give you some idea of the extent of the ferry commitment, between November 1940 and November 1944, RAF deliveries of aircraft from North America totalled 4,321 - Hudsons, Liberators, Mitchells, Catalinas (which operated out of Bermuda), Dakotas, B-17s and Canadian-built Mosquitos and Lancasters. United States Army Air Force deliveries, mostly to meet the demands of 1944 and OVERLORD were double this number.

44 Group. In the early days of the North Atlantic route, there was an organisation at the eastern end called the Overseas Air Movements Control Unit (OAMCU) which in August 1941 was up-rated to become No 44 Gp, thus becoming the second piece of the Transport Command jigsaw. With its Headquarters at Barnwood, in Gloucester, No 44 Gp organised the receipt of all aircraft arriving from across the Atlantic, as well as the despatch of those going out to the Mediterranean and the Far East; it also co-ordinated the massive influx of USAAF aircraft and crews under Operation BOLERO - the build up of US forces in Europe during 1943. Aircraft delivered to the



Routes established 1940-42 by CP Air Services, ATFERO and Ferry Command.

A batch of Hurricanes, complete with long-range tanks, taxies out at Takoradi to begin the long trans-Africa ferry flight to the Middle East. Note the temporary flight identification number and the high visibility markings applied to the upper decking for the duration, similar markings being worn by the mother ship – usually, as in this case, a Blenheim. (MAP)

UK by Ferry Command, usually through Prestwick, went initially to Maintenance Units, being flown from there to their operational destinations by ATA pilots, many of whom were women.

Build-up in the Middle East and Far East. When the focus of the air war moved to the Mediterranean in 1942, the most pressing need in North Africa was for bombers - Marylands, Baltimores, Bostons and later Mitchells, all from the United States. Many fighter aircraft had already been sent out from Britain to the Middle East using what was known as the West African Reinforcement Route, which had its origins in a route explored in the 1920s and 30s by both civilians and the RAF. In June 1940, the Air Ministry designated Takoradi to Cairo, via Kano and Khartoum, as the major reinforcement route to the Middle East, aircraft being flown to local Maintenance Units by Aircraft Delivery Unit (ADU) pilots. This ferry system became increasingly complex and so busy that, in 1942, it was decided to place it under the jurisdiction of No 216 Gp which was initially commanded by Air Cdre Whitney Straight. No 216 Gp provided the third piece of the Transport Command jigsaw.

South Atlantic Bridge. At the same time, it was decided that the best way of ferrying aircraft, destined for the African desert, from the USA was via the South Atlantic, and so, in December 1942, what became known as the South Atlantic Bridge was initiated by the United States

over territory which was partly British, partly American and partly Brazilian. Aircraft movements were to be controlled by Ferry Command in Montreal, the route running from West Palm Beach in Florida, via Belem, Natal and Ascension Island to Accra, in West Africa, where the aircraft would be delivered to No 216 Gp.

Similarly, the expansion of the air forces in India, and the consequent growth in the ferrying of reinforcement aircraft to the Far East, had outstripped the capacity of No 226 MU and in October 1942 this was formally recognised by the establishment of No 179 Wg in Karachi. No 179 Wg was to be the last piece of the Transport Command jigsaw, being elevated to group status, as No 229 Gp, in December 1943.

As I have already indicated, No 44 Gp also controlled a route to the Middle East via Gibraltar and during 1942 this was involved in two significant operations. First, the air support of Malta and, secondly, Operation TORCH, the Anglo-American landings in Algeria and Morocco on 8th November 1942. The Malta 'shuttles' from Gibraltar were a lifeline to supplement resupply by sea while the island was besieged and, for a time, the RAF's efforts were supplemented by civilian-operated Whitley bombers which had been seconded to British Overseas Airways, but which proved quite unsuited to the task and were later replaced by Hudsons.

CIVILIAN AIR TRANSPORT OPERATIONS

Mention of BOAC allows me to digress for a moment to say a few words about civilian air transport. As I have already indicated, civilian aircraft and/or crews were involved in No 45 Gp's operations, ferried crews during the Battle of Britain and maintained the Malta shuttle service. Earlier, at the outbreak of war, they had been involved in deploying crews and equipment to bases in France, and had assisted in their subsequent evacuation. The smoothness of the integration of civilian aircraft/crews with those of the RAF owed much to the establishment of an organisation called National Air Communications (NAC) in 1938. NAC was intended to co-ordinate all British civil aviation activities within a common framework, so that resources could be best directed towards the war effort but, unfortunately, this organisation folded under the pressure of war. Nevertheless, civilian air transport did play a vital role throughout the war - and the dangers faced by *unarmed* civilian crews were often quite as great as those

faced by their RAF counterparts. Running the gauntlet across the Bay of Biscay to Gibraltar was one example, but perhaps the most hazardous route they flew was the schedule to Sweden which the British maintained for much of the war, and the existence of which was kept quiet for a long time. The main justification for this service was to maintain a supply of that most essential product - high quality Swedish ball bearings. In 1941 BOAC was asked to restart a regular link between Scotland and Stockholm - and I do not need to spell out the inherent dangers of operating an unarmed aircraft over the Skaggerak, well within German radar cover and within range of enemy fighters. The aircraft, first Hudsons, then Whitleys and finally Mosquitos, flew as high and as fast as they were able. The Mosquitos had no room for passengers in the cockpit, so when it was essential to carry a VIP to Stockholm he was strapped down in the felt-lined bomb bay, given a flask of coffee and told to hope for the best.

THE FORMATION OF TRANSPORT COMMAND

By the end of 1942 the, already substantial, flow of reinforcement aircraft from the United Kingdom and the United States was still increasing, and it made sense to recognise the size of the airlift that was now taking place by establishing a Transport Command to co-ordinate all RAF air transport activities. But, as the Secretary of State said, when he announced its formation in the House of Commons on 11th March 1943: “To create such a command sooner would have been to put the cart before the horse. It is not commanders and staff that we have been short of, but aircraft.” Because it had been anticipated that some ninety Yorks (a transport derivative of the Lancaster) would be available by early 1943 (such numbers would not actually materialise until much later), on 25th March all of the pieces of the jigsaw, No 44 Gp, Ferry Command, No 216 Group and No 179 Wg, were brought together under the umbrella of Transport Command. The AOCinC, previously with Ferry Command, was Air Chf Mshl Sir Frederick Bowhill - he of the piercing eyes and the bushy eyebrows. The stated function of the new formation was “to undertake the responsibility for the organisation and operation of all Service Air Lines, Service Air Movements of freight and personnel, and overseas and inter-continental delivery of aircraft by operational and ferry air routes”. This definition appears to place little emphasis on transport support operations, that is to say, those conducted in

direct support of the battle, such as air-land and air-drop resupply operations and casualty evacuation. Nevertheless, between its formation and the end of the war, as the tide turned on the continent, Transport Command was to provide air transport support in five major operations: HUSKY, ACCOLADE and MICROBE, OVERLORD, MARKET GARDEN (the air element of which was MARKET) and VARSITY.

TRANSPORT COMMAND OPERATIONS 1943-45

Mediterranean Operations 1943. Operation HUSKY, the invasion of Sicily in July 1943, included the first use by the Allies of airborne forces, but it was mounted by No 38 Wg of the Airborne Division of Army Co-operation Command which, later in the year, would become No 38 Gp. Transport Command's involvement was mainly a logistic one, ferrying personnel and stores to the air and ground forces in Sicily and evacuating casualties - Dakotas, fitted with newly modified stretcher racks, playing an important part in the latter role. While functional control was exercised by No 216 Gp's Forward HQ, under the personal command of Air Cdre Straight, HUSKY did give the command HQ a foretaste of the range of transport operations that would be required over the next two years. Two months later, in September 1943, Dakotas of No 216 Sqn played a prominent part in Operations ACCOLADE and MICROBE in an abortive attempt to gain control of the Dodecanese Islands in the Aegean; these operations were a disaster, many transport aircraft and crews being lost.

Operation OVERLORD. For the invasion of Europe, Nos 38 and 46 Gps provided, not only the airlift for the spearhead British ground forces, but also, more importantly, the follow-up resupply effort. One of the tasks given to Leigh-Mallory's Allied Expeditionary Force on D-Day was to (and I quote) "take to their destination the parachute and glider borne forces." No 46 Gp had been formed on the 4th February 1944 as the European Transport Support Group. Intended to cater specifically for the invasion of Europe, it was equipped with 150 Dakotas. No 38 Gp had been created by redesignating No 38 Wg on the disbandment of Army Co-operation Command in 1943. The 6th Airborne Division was lifted, for the most part in Horsa and Hamilcar gliders, towed by No 38 Gp's Albemarles, Stirlings and Halifaxes, and by five Dakota squadrons of No 46 Gp. The problems faced were

A Halifax V glider-tug of No 644 Sqn in late 1944-early 1945. This aeroplane has ten 'Pegasus' mission symbols beneath the cockpit sill.

roughly the same in both American and British drop zones: first, there were navigational errors, although (perhaps) not so much from the RAF's point of view; secondly, there were complications arising from using different types of aircraft and aircraft/glider combinations flying at different speeds, these problems being compounded by high winds; but above all it was the German *Flak* which caused the pilots to jink, often at the last minute, just as paratroops were being dropped or gliders released. All of these factors led to troops being scattered across the Normandy countryside. The two groups employed some 460 aircraft and 120 gliders to deliver 4,310 troops, together with their weapons and vehicles.

Operation MARKET (GARDEN). The second major airborne assault in which the two groups were involved was Operation MARKET, the 1st Airborne Division's landing at Arnhem in mid-September 1944. This operation was a disaster which we do not have time to examine today, although the reasons for its failure have been well documented elsewhere. However, one of the few successful aspects of MARKET GARDEN was the achievement of the RAF's air transport crews in very difficult circumstances. They delivered the airborne troops accurately, often in the face of intense anti-aircraft fire and continued to supply them in an almost impossible situation. As you have already heard, Flt Lt David Lord's posthumous VC was earned in just one of the many courageous acts of aircrew determined to carry out their tasks.

Operation VARSITY. It is heartening to note that many of the lessons of Arnhem were absorbed. As a result, command and control arrangements were changed for the next, and final, airborne operation of the war, Operation VARSITY, the crossing of the Rhine on 24th March 1945. In contrast to Arnhem, a single HQ, that of 2nd TAF, was given the responsibility for planning and co-ordinating all air operations, which included ensuring that the airborne divisions and their rear headquarters were equipped with adequate communications. On the day, the air transport force delivered all of the troops in a single lift, dropping them close to their objectives. The operation was deemed to have been a total success.

END OF THE WAR

Sustainability Operations in Europe. VARSITY was to be the last, and the largest, of the airborne operations conducted by Transport Command during WW II. In accounts of the command's wartime activities there is a tendency to dwell on the more spectacular launch phases of these enterprises when, arguably, it was the 'sustainability' operations carried out by Nos 38 and 46 Gps *after* the initial assaults which were of much greater importance. This was especially so in the case of OVERLORD when, for some time after D-Day, the only available port was a shattered Cherbourg while poor weather hampered cross-Channel shipping. Apart from personnel, resupply missions delivered weapons, ammunition and a vast assortment of other critical items (not least personal mail) to sustain the troops in the field. Return flights brought back casualties as soon as landing strips became available. By June 1944, 253 tons of freight had been flown into France and some 3,200 casualties evacuated. As the Allies moved eastward, staging posts were established and the workload increased. Altogether, between D-Day and the German surrender, aircraft of Nos 38 and 46 Gps evacuated some 77,000 casualties from the Continent. On several occasions the advancing armies outran their ground supply lines and transport aircraft were employed to provide them with what they needed most urgently to keep up the chase. In September 1944, when such an emergency developed in Belgium, more than 1,500 tons were flown into Brussels in a week, its blitzed airfield reputedly handling up to 700 aircraft per day.

Trooping Operations. When Sir Ralph Cochrane became AOCinC of

the RAF's newest command in February 1945 the shift of the Allies' focus from Europe to the Far East involved a vast air trooping programme. This became the command's main commitment, to which was added the task of repatriating tens of thousands of prisoners of war from Europe, for which it borrowed aircraft, such as Stirlings, from Bomber Command. While Nos 38 and 46 Gps were active in Europe, the command had been expanding its world-wide services and to meet these tasks it had five more groups, including the new No 47 Gp - the Trunk Route Group - nineteen wings forty-seven stations, thirty-six squadrons and some 160 staging posts, all but three of the latter being overseas. Shortly after the end of the war in Europe, to provide additional long range capacity, the command acquired No 4 Gp from Bomber Command, along with its twelve stations and fourteen squadrons, plus three squadrons of Liberators from Coastal Command. This was Transport Command at its peak. On 16th September 1945, CAS, Lord Portal, noted that "the air trooping programme will make a real contribution to the economic revival of the country". This programme - a two-way traffic in reinforcement and repatriation - continued into 1946 and in September of that year Sir Ralph Cochrane paid tribute to the air transport forces which, he said, had flown more passenger miles in the past twenty-one months than British civil aviation had flown in twenty-one years. I am not sure how true that was, but Sir Ralph said that the command had carried half-a-million troops and some 200,000 tons of freight during that period.

REORGANISATION

Although the future of Transport Command was not in doubt after the war, its tasks clearly needed to be redefined and its organisation reduced to meet the needs of peacetime operations. Accordingly Nos 44 and 45 Gps were disbanded and one of the main organisational changes introduced was the decision to give overseas commands autonomy in matters of air transport. In effect, HQ Transport Command was to be responsible only for home-based air transport forces and for the control and operation of all trunk services; this remained the case until the 1970s. In addition, as the RAF contracted and the jigsaw broke up, steps were taken to replace its American transport aircraft, such as the Dakota and the Liberator, with new British designs such as the Hastings and the Valetta. Transport aircraft

now began to be designed to meet joint army/air force specifications. In 1947 the command's tasks for a future war were set down as 'transport support and route operations', but it would not be long before Transport Command was obliged to mobilise its forces again.

CONCLUSION

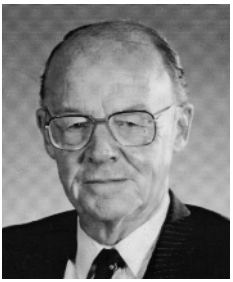
I am not going to attempt to summarise all the ground that I have covered, but, in conclusion, I would like to underline again the fact that that the establishment of Transport Command recognised that, like Topsy, the need for air transport had growed and growed. From insignificant beginnings in 1940, by March 1943, air transport operations had reached the stage at which they required a measure of central co-ordination and the role needed to be formally acknowledged, not least due to the introduction of specialised aircraft types. During the last three years of WW II Transport Command came of age under the strong and powerful guidance and influence of those two experienced commanders, Sir Frederick Bowhill and Sir Ralph Cochrane, who did so much to foster the high professional standards for which RAF transport crews are still well known. In the last two years of the war the command had more than fulfilled the commitments inherent in its motto 'Ferio Ferendo': what is more the 'truckie' had been born.

Sources:

Carl A Christie, *Ocean Bridge* (Midland Publishing, 1995).
Hilary StG Saunders, *The Royal Air Force 1939-1945, Vol 3* (HMSO, 1954).
Atlantic Bridge (HMSO, 1945).
John Terraine, *The Right of the Line* (Hodder & Stoughton, 1985).
Humphrey Wynn, *Forged in War* (HMSO, 1996).
Miscellaneous RAF Forms 540 and documents held by the AHB of MOD (RAF).

AIR TRANSPORT AND SUPPLY IN THE BURMA WAR

Air Commodore Henry Probert



A Cambridge history graduate, Henry Probert joined the RAF Education Branch in 1948. During the 1960s he served in Singapore and on the Staff College Directing Staff before becoming, in 1976, Director of RAF Education. After retirement in 1978 he spent the next eleven years as Head of the Air Historical Branch. He is the author of High Commanders of the RAF *(1991) and* The Forgotten Air Force *(1995) and is currently working on a definitive biography of Sir Arthur Harris.*

When I wrote my book about the RAF in the Far Eastern war one of my aims was to bring out the lessons that that campaign had taught in the employment of air power and, in my conclusion, I made the following comment: 'Air supply, one of the most valuable applications of air power in the post-war era, finds its genesis more in South-East Asia than in any other theatre of the Second World War'. So, when we were planning today's seminar I urged that it would be incomplete without at least some discussion of the importance of air transport and supply in the Burma campaign. My point was taken and in accordance with the time-honoured principle 'never volunteer for anything' here I am today.

First let me issue a brief reminder of the scenario. Early in 1942 we had lost Malaya and Singapore, together with the Dutch East Indies, and from then on most of our modest military efforts in SE Asia were devoted to preventing the Japanese advancing west as far as the sub-continent of India and to trying to keep open a supply route to China, which had to be by air once the Burma Road was cut. The key, both for the Japanese and for us, was Burma, a British-controlled country through which passed the few very difficult land routes leading to the Indian plains, and for 3½ years this was the main scene of conflict between ourselves and Japan. There were essentially four phases:

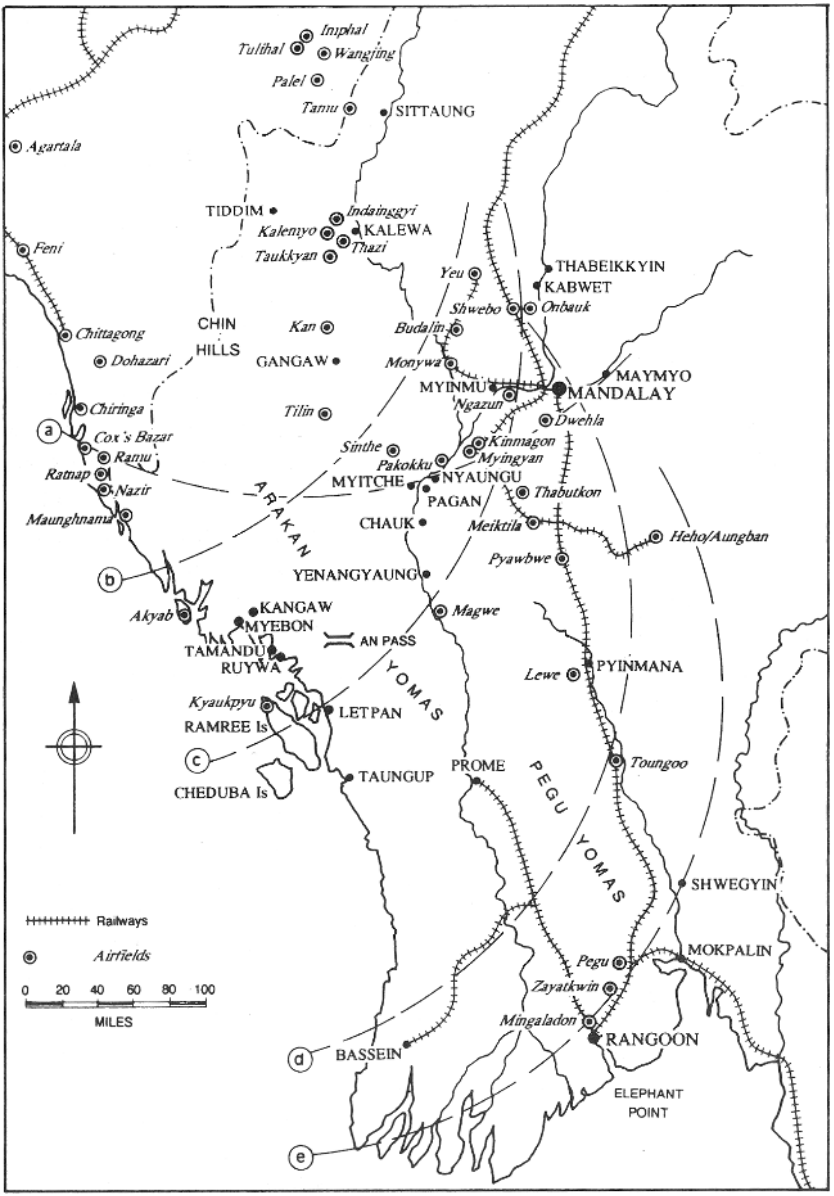
1. The withdrawal into India in 1942.
2. A year of preparation and learning from experience in 1943.
3. A year of bitter conflict in 1944, with both sides striving for the advantage.

4. Finally, in 1945, the great advances of the 14th Army leading to the reconquest of the country.

Throughout - though to begin with on a very small scale - the soldiers could not have coped without their supporting aircraft. They needed air superiority; they needed aerial reconnaissance; they needed air attack on enemy communications, supply dumps, etc, etc; they needed close support in the ground fighting. But, perhaps most important of all, they needed the supplies which often only transport aircraft could deliver, the mobility which in many circumstances only these aircraft could provide, and the ability to evacuate their many casualties (sick as well as wounded) - a critical factor in maintaining morale. We today are really concerned only with the transport and supply roles - which I must stress were carried out jointly by RAF and USAAF squadrons - but we must bear in mind that most of the time they were able to operate without serious interference from the limited Japanese air forces, which were largely contained by the fighters and by attack on their airfields. Had the Japanese appreciated the critical importance of the transport aircraft they would surely have targeted them far more than they did, but they simply never believed that ground troops could possibly be supplied and moved on a scale sufficient to be militarily significant. So the only really serious military opposition the transport aircraft faced was from the ground; air opposition was usually negligible, thanks to the air cover provided, in the main, by the RAF.

So the most dangerous enemy they faced was not so much the Japanese but the flying conditions. The aircraft - Dakotas for the RAF - could operate with full loads over distances up to 250 miles from base. The routes usually took them over the jungle-clad mountains that separate Burma from India These were often covered by massive clouds with the inevitable consequences of poor visibility and appalling turbulence, and for some four/five months each year the monsoon made flying almost impossible. There were usually few, if any, navigational aids. Moreover in the earlier days there was no great body of practical experience to draw upon and the squadrons had to work out their methods for themselves.

Let me now describe briefly the actual contributions of the air transport force. To start with, in 1942, a mere handful of No 31 Sqn's Dakotas based in NE India flew supplies in to Myitkyina, in North Burma, and brought out troops who were being evacuated, many of



Airlift in Burma, 1945. The arcs indicate a 250 mile radius of action based on (a) Tulihal, (b) Agartala, (c) Chittagong, (d) Akyab and (e) Kyaukpyu.

them casualties. When such operations became impossible they switched to supply dropping to military parties trying to escape through the mountains. Kirby, the official historian, calls this the greatest lesson of the first campaign in Burma: the possibility of air supply for an Army cut off from all other means of support.

The one significant campaign of 1943 - Brigadier Wingate's first Chindit operation - built on this lesson. Its object was to deliver and supply a specially organised and trained brigade to operate deep behind enemy lines so as to disrupt enemy communications and provide detailed air intelligence. Air transport, Wingate realised, could enable ground troops, though surrounded, to fight where they were, and during the early months of the year his 3,000 men were supplied by the aircraft of Nos 31 and 194 Sqns, at that time the only two Dakota squadrons in the theatre. Each of the seven columns of his force had its own RAF party to provide communications and control the drops. To quote Louis Allen, the leading historian of the Burma war, 'the RAF officers who marched with the columns and shared all their hardships put into practice an effective way of taking the British Army off the roads and into the air. The hard fact was that Wingate had changed the nature of jungle campaigning for good'.

By contrast with 1943, the operations of 1944 were on a far larger scale, with the British and also the Americans having built up the necessary infrastructure in India, and with the Japanese having also decided to take the offensive. The air transport force, though still smaller than we might expect it to have been for its immense range of tasks - just four RAF and seven USAAF squadrons - now had a complete joint-Service support structure to plan and direct its activities, and of course to meet its huge physical requirements at the forward bases.

The main fighting lasted some six months. The Allied aims were essentially to try to clear the Arakan and capture Akyab and its airfields; to advance towards central Burma and to try to reopen the land route to China in the north. The Japanese aims were to destroy the British forces in the Arakan and then to capture Imphal and Kohima so as to open the way into India. In the head-on conflict that ensued there were three major overlapping battles, in all of which the air transport forces played critical roles for the armies on the ground.

In the first of these, in the Arakan, the initial British advance was countered when the Japanese cut off 7 Division and in a fourteen-day

battle threw everything at it in the attempt to destroy it. That the surrounded division survived was essentially thanks to the 700 supply-dropping sorties carried out at low level by Nos 31 and 194 Sqns in the face of constant heavy AA fire - and for the loss of only one aircraft. Both Slim and Mountbatten later described the Battle of the Box, as it came to be known, as the turning point in the Burma war; the latter said 'it was mainly the fact that we were able to supply the troops by air, as they had been promised, which gave them the certainty that they would eventually be reinforced and that the tide would turn in their favour'. In effect the transport aircraft had become a weapon of war.

Shortly afterwards came Wingate's second, and much larger, operation, for which the transport force - half of it this time American - was used not only for supply-dropping but also to fly in and - where possible - evacuate the troops themselves. The strips, well behind the Japanese front lines, were prepared by glider-borne parties and in use by Dakotas within 24 hours, and the comment by AVM Baldwin, the air commander, is worth quoting. 'Nobody has seen a transport operation until he has watched Dakotas coming in and taking off in opposite directions on a single strip all night long at the rate of one landing or one take-off every three minutes'. The military strongholds centred on these airstrips, from which the Chindits caused much damage to the enemy's communications, were held and supplied by air for two months before most of the survivors were lifted out.

The third battle had in fact started just before the fly-in of the Chindits, and thanks to the Japanese achieving an element of surprise there was very soon a crisis. The enemy quickly threatened to cut off the British forces around Imphal and Kohima (including RAF units on the airfields), and, since reinforcements were urgently required to strengthen the defences, it was decided to fly in a division from the Arakan. So, for the first time in history, an entire division was moved by air from action on one front to action on another hundreds of miles away; the job was done in 758 sorties flown by No 194 Sqn and twenty American C-46s. The challenge to the transport force as a whole was now unprecedented, given the support needed on three fighting fronts and in many other ways (not to mention the 'Hump' route to China, which required much of the American effort) and urgent reinforcements were sought from other theatres - at a moment when D-Day was barely two months away. The main challenge was to

help the Army in its battle to defend Imphal and Kohima, now cut off, and over the next three months some 120,000 British and Empire troops were entirely supplied by air, while 50,000 administrative personnel and 10,000 sick and wounded were evacuated. In addition, where air landing of supplies was impossible, particularly at Kohima, they had to be air-dropped, usually in the face of intense groundfire. There is, of course, much more to the story of these battles, but here General Giffard's tribute to the air forces must suffice:

> 'No one who watched them is likely to forget the courage, determination and skill of the pilots and crews who have flown through some of the worst weather in the world over appalling country, either to attack the enemy in front of the Army and his communications - or to deliver reinforcements, supplies, ammunition etc to the troops isolated in the Arakan, Imphal and Central Burma'.

Finally we come to the climax of the Burma war in 1945, when the air transport force faced an entirely new challenge, ie to support an army on the move. We are now talking of up to 300 RAF and RCAF aircraft, plus a similar number of American, being available for all purposes, and whereas to begin with the base airfields in NE India would be within economic range, the advance south from Mandalay would be a different matter. So high priority was given in the Army's plans to the capture of Akyab and other sites for transport bases on the Arakan coast. As a result, from March onwards four squadrons were able to operate from Akyab - just in time.

So, from late 1944, when the Army began to advance in the Arakan and towards the Chindwin and Central Burma, the transport force was continually engaged in supply dropping and, whenever possible, the air-landing of supplies and reinforcements, plus casualty evacuation. To summarise the achievement in the peak period, January to May 1945, during which time Slim's men fought their way south for 500 miles to Rangoon, 210,000 tons of supplies were delivered (four fifths of the total required by the Army) and 13,000 casualties were brought out. And, perhaps not all that surprisingly, the authorities back in London had little real idea of what was going on. It took Air Chf Mshl Courtney's visit as AMSO, in February to reveal to CAS the simple truth that the 14th Army was being maintained almost entirely by the air transport force.

Examples of their operations abound; here one must suffice, the

defence of Meiktila, cut off, and therefore dependent on air supply, for a whole month in March 1945. The airfield was crucial. Brian Stanbridge remembers the strip being taken over each night by the Japanese and recaptured each morning. There was constant mortar fire, turn-rounds were the quickest ever, and, since they could never be sure who was in control on the ground, his crew would check during the landing run whether the troops had slant eyes and act accordingly.

To conclude, I offer a few brief quotations: General Leese, Slim's boss, writing in June 1945 to his friend Sir Arthur Harris to congratulate him on his GCB, praised the tremendous part being played by the RAF and USAAF in the Burma campaign: 'As you know, we are tremendously dependent on air supply; indeed I do not know how we could fight this campaign without the Air'. AVM Hardman, the transport force commander, wrote in his Despatch: 'The whole campaign has been a striking illustration of a fact new in warfare - namely that air power can be used to transport, supply and support ground troops entirely independently of ground channels. This has been South-East Asia's contribution to the art of war'. Sir Keith Park commented in his Despatch: 'Air supply in Burma made history which outdistanced in merit and achievement the more publicised air supply operations of the war in Europe such as that of Arnhem or the food-dropping to the Dutch'. Finally Wg Cdr Russell, writing from personal experience with No 194 Sqn in 1944: 'A defenceless Dakota flying through storms and darkness to bring succour to our troops behind the enemy lines in Burma seemed, at any rate to me, to be one of the most daring and magnificent enterprises of the air war in any theatre'.

I rest my case.

MORNING DISCUSSION PERIOD

Air Mshl Sir Frederick Sowrey. Could I make a family comment on Jeff Jefford's Baghdad Air Mail presentation. I have my father's 1923 edition of the pilot's handbook here with me. It has a wonderful 'feel' to it. The maps at the back are tattered from having been read in an open cockpit. They have pencil annotations like 'halfway' or 'landed here, petrol tank leaking, 24th November 1923' and the same again on 2nd February, but the interesting thing about it is that this was only five years after the formation of the Royal Air Force, when one tends to think that it was a free and easy organisation of silk scarves and open cockpits, rather than one bound by the Air Staff Instructions and Flying Order Books of more recent years. Yet it was really an incredibly tight organisation - as the AOC says in his Preface, if you're going to fly aeroplanes across 500 miles of featureless desert, you have got to have an organisation which is as tight as a drum - which it was. The detail laid down in this book is fantastic, even down to listing the number of blankets per man to be carried in each aircraft in the summer, when you had two, and in winter when you had three - and even the dates when summer and winter started.

But I also wanted to ask Henry Probert a question. Why was it that the Japanese didn't realise and take action to disrupt the air transport effort which was enabling the Allies to win the Burma campaign? I assume that they must have had the air resources to interdict and to intercept, and even to strike at the airfields which were being used by the air transport force, so why didn't they do it?

Air Cdre Henry Probert. I'm not sure whether that question has ever been answered. But Japanese long range offensive air capacity was actually very limited in the later stages of the war; their air forces were declining in strength and, of course, they faced a much greater threat in the Pacific which obliged them to devote more and more resources to the defence of the homeland - and to the war in China. Furthermore, the Burma campaign was being fought a very long way away from home and they had problems simply getting aircraft into that theatre – so I think that their relative inaction was partly due to a shortage of the kind of resources needed to take on the transport aircraft bases. Where I would criticise the Japanese was for failing to use their fighters to engage the transport aircraft themselves. They did mount a number of attack sorties against airfields, but by that time our fighter strength

was considerable. Yet, despite the fact that we had a much more efficient air defence system, the Japanese seem always to have preferred to engage our fighters. I also think that their intelligence assessments were very limited; they simply did not believe that transport aircraft were able to give the army the level of support that they were actually providing. It came as an immense shock to them when they found that the British Army was now prepared to stand and fight, and they never really came to terms with this.

Colin Cummings. May I make two points, rather than asking a question? First, it is not generally appreciated that more than a quarter of the fatal casualties at Arnhem involved RAF aircrew - and the army air despatchers who flew with them. Secondly, because the Glider Pilot Regiment suffered such massive losses at Arnhem, nearly half of the glider pilots who carried out the Rhine crossing (and who subsequently fought as infantry immediately after the landings) were actually RAF personnel.

Tony Furse. In his biography, Basil Embry has left us an account of travelling from Gibraltar to Cairo, via Malta, in an Australian Sunderland. They had to arrive at Malta in darkness, and leave before dawn, to avoid Italian and *Luftwaffe* fighters. At that time, 1941-42, the War Office, particularly Vice Chief Nye, was extremely critical of the RAF's support for the Army and not enough has been said, I think, about the problems that were being faced at that time and the difficulties involved in diverting aircraft from Bomber and Coastal Commands to provide some sort of transport service.

Gp Capt Tony Stephens. Perhaps I can respond to that. The problem is that, when you've only got twenty-odd minutes to speak one simply has to be selective. I would have liked to have devoted more time to a number of topics which I simply had to gloss over – and one of them was the provision of a Mediterranean air service, even one employing civilian aircraft. Similarly, I did not really deal with the problems of using unsuitable bomber aircraft for transport operations. Is that the point you were trying to make?

Furse. The point I was trying to make was that the Army considered that the RAF had a duty to ferry their soldiers about, on demand, whereas the RAF believed that it had more important things to do.

Stephens. I think you're absolutely right. Before the war, and indeed for the first few years of the war, I don't think that the importance of transport operations was fully recognised by the Air Ministry.

Probert. Can I just add just a brief observation? The point is fair, but you have to think of the situation that we faced in 1940-42. Where do the priorities go? Should our air resources be used to support the land and naval forces, or should they concentrate on carrying the offensive to the enemy? The RAF simply did not have the capacity to do *all* of these things. It was decided, and it was an essentially political decision, that we should go for taking the war to the enemy. It followed that the other roles of air power, important as they were, would have to take second place. *If* that decision was wrong, it was the politicians who directed the overall conduct of the war who made it. The problem they faced then was the allocation of priorities – and that same problem is still with us today. Where are the resources for all the tasks which HMG is currently loading onto the Services? Nothing is new.

Gp Capt Richard Bates. Might I offer a comment to bring this matter right up to date. I had a note only the other day from a former Quarter Master General, General Sir John Learmont. He commented on the excellent rapport which had existed between his Service and the RAF's air transport force, throughout his forty-year Army career and on the close co-operation he had always received. So, while recognising that the RAF could not possibly satisfy *every* Army demand with our limited resources, our more recent efforts have been warmly acknowledged at Army Board level.

Philip Saxon. May I just add to what Tony Stephens had to say about the role of No 216 Gp, I had about three years with them in the Middle East, the first half spent on the Takoradi run - and all the other routes that we flew. In that context, I'll just mention the problems involved in getting back home and pay tribute to BOAC and its C Class flying boats, and to SABENA and the other airlines which operated out there, and acknowledge the co-operation we had from the US Air Transport Command who were always happy to give us lifts. The second half of my time, after a course at Shawbury, was as a Wing Navigation Officer, and it's worth making the point that No 115 Wg, which was based at Khartoum, was later moved to Aden with the aim

of developing a Southern Arabian route from India to relieve the pressure on the Gulf route. This we did via Masirah Island, Sheikh Othman and so on, which did, I think, take some of the heat off the Gulf. No 216 Gp covered an enormous territory and did a pretty good job of work.

A Sutherland-Brown. I would like to ask Air Cdre Probert whether, in addition to the reasons he suggested for the failure of the Japanese to attack air transport in India, he would agree that another cause may have been a lack of strategic thinking because the Japanese Air Force was controlled by the Army?

Probert. Yes, I think that's a very fair point. The Japanese actually had two air forces, one Army and one Naval. There was no *independent* air force of the kind that we had and I think you're absolutely right; there is no doubt that the thinking behind the two air forces was essentially to do with land and sea warfare. Furthermore, there was little co-ordination or co-operation between them so, from our standpoint, that of an independent air force, they were missing out badly.

Desmond Goch. Could I ask Henry Probert to expand on something he said in his paper? He mentioned the involvement of the Royal Canadian Air Force in the Burma Campaign. I hadn't realised that they were involved.

Probert. I hesitate to mention that this is dealt with in my book! (Laughter) The RCAF actually became a very large air force – and it was not all bomber squadrons, the Canadians were involved in a lot of other activities and they had substantial numbers of transport aircraft in the later stages of the war. Two squadrons of RCAF Dakotas were deployed to India when the transport force was expanded in 1944, and they subsequently played a major part, operating within the RAF command structure.

AVM Larry Lamb. I was interested to hear Gp Capt Stephens mention the possibility of Empire Air Training Scheme aircrew being used to ferry aircraft across the Atlantic. Was this actually done? The reason I ask is that, when I finished training in Canada, I was told that I was going to fly an aircraft to the UK and I was duly sent on a staff

navigators course at Port Albert, Ontario. I was then posted directly back to the UK! I had the temerity to ask what had happened to the first plan, to be told that no one had realised that I had been trained on single-engined Harvards, whereas the people who were doing the ferries had been trained on Oxfords. I wonder if anybody here knows anyone who actually did it?

Stephens. Thank you for that. I must admit that I was surprised to find out about the ferries myself in the course of my research. I understand that there was a unit which took pilots, indeed crews, from the Empire Air Training Scheme and gave them a number of flying hours at Debert. They then ferried an aircraft to the UK, on a once only basis, before moving on to an OTU. I will try to confirm that, but I am sure that it did happen. If anyone here has any personal experience of this we would be glad to hear from them. (Members who wish to know more about the extensive employment of recent graduates of the EATS/BCATP on transatlantic ferries are referred to, particularly Chapter 8 of, *Ocean Bridge, The History of RAF Ferry Command* by Carl A Christie, Midland Publishing, 1995. CGJ)

Sutherland-Brown. I can confirm that most of the Beaufighters that went out to India, were flown there by crews that had just finished OTUs in the UK.

Bill Heritage. After my navigation, bombing and gunnery course in Canada, I went to No 31 OTU, at Debert, Nova Scotia, where word got around that we were going to ferry Hudsons, which was how we were to get back to the UK. It sounded like a very exciting prospect. We were all eagerly looking forward to it but it never happened. Rumour had it that we didn't go because funny things were happening to some of the aircraft coming out of Lockheed factories. I repeat, this is mere rumour, but there was talk of Hudsons failing to arrive on the other side of the Atlantic because of some kind of dirty work going on somewhere in a factory - and a Ventura flying over Dorval airport crashed after losing its outer wing panels, allegedly due to sabotage - so my prospects of returning to the UK in an aircraft faded and we came back by boat.

If I may briefly add another comment - we had an excellent account from Air Cdre Probert of the activities of the RAF in Burma supporting the Army in which Nos 31 and 194 Sqns were, quite

rightly, specifically mentioned. Now, in referring to the map of India which you displayed, you observed that there was a considerable amount of internal transport work going on. The gentleman on my right, Wg Cdr Lilly, was the CO of No 353 Sqn, the unit which took over domestic transport duties from No 194 Sqn and was subsequently responsible for moving us all around India. If anyone is interested, he has available an enormous amount of statistical information on these activities - number of passengers, tons of freight, miles flown, hours flown - and everything else to do with the internal air transport service.

Probert. Might I suggest that, if he were willing, Wg Cdr Lilly might write us a two or three page summary of all that activity which we might then be able to publish in a future edition of our journal. What about it?

Wg Cdr 'Peter' Lilly. Thank you very much. I would like to do that. I'm particularly proud of the squadron and I would appreciate the opportunity to pay tribute to their loyalty and the hard work they did.

Peter Montgomery. After completing a night fighter OTU in August 1943, we went to Lyneham where we collected new night fighter Beaufighters from Bristols. We did a fuel consumption check around this country for 5 hours, and then went to Portreath, where we had to wait for a tail wind. We then flew straight to Gibraltar. I landed with about 10 minute's fuel remaining. One of us had a prop stop on the runway, but everybody got there alright, and we then went on into North Africa.

Gp Capt Hans Neubroch. On the question of Canadian-trained crews bringing aircraft to the UK, I too am a graduate of 31 ANS at Port Albert. I also came back by ship. However, from memory, I am positive that RCAF graduates did fly themselves over here in Canadian-built Mosquitos, probably in 1944/45.

AVM Michael Robinson. You may not want to print this anecdote, but the scene is RAF Wittering - as Sir 'Bing' Cross was leaving Bomber Command to go to Transport Command. It was a farewell lunch. I was a Squadron Commander, sitting on his right. The small talk wasn't going terribly well, so I asked him if he was looking

forward to going to Upavon. 'No, its the first time in my RAF career that I won't have been in an operational job.' I must have been drunk, because I said that I didn't think that 'that would go down terribly well at Upavon, because, after all, Transport Command are operating all over the world every day.' We didn't talk much after that! (Laughter)

Roger Dickson. I had an uncle who served at Amman and, when he wasn't playing cricket, he was responsible for the paperwork and background administration for air transport heading east via Baghdad. I clearly remember him saying that there was always a lot more to go than could possibly be carried, and that he and the people in his office had to allocate priorities - as ever, it was not so much *what* you knew as *who* you knew that decided what actually went. Now, my question. We always seem to be short of capacity. Why aren't we going straight for the C-17 - or even bigger aircraft?

Bates. A great deal of work went into the prospect of acquiring C-17s and, as you may know, consideration was given to the RAF's leasing some, along with American crews, to operate within, what is now, No 38 Gp. It would have been very good from the point of view of airlift capability and capacity, but it would have been extremely expensive. Nevertheless, replacements are needed for the ageing Hercules fleet and we'll hear more about that later on. One thing is absolutely certain - that whatever we get, we will never have enough airlift to satisfy demand.

John Maynard. I wonder if I might ask a question of Air Cdre Probert. I remember seeing, I think, in 1944, some horrendous newsreel footage of Hadrian gliders in Burma, I think in support of one of Wingate's operations. It's always struck me that flying gliders in that particular theatre must have been an extremely 'exciting' prospect and I wondered if that was the one and only occasion on which they were used.

Probert. As far as I know, all the gliders that were used, particularly in connection with the Chindits, were American and towed by American aircraft. I don't think that RAF aircraft were involved. I'm not absolutely certain, but I think that the film will have shown American gliders.

THE BERLIN AIRLIFT

Air Marshal Sir John Curtiss

For a brief summary of Sir John's career, see AVM Baldwin's welcoming address. The editor notes that we could add here, that, after leaving the RAF, he spent five years with the SBAC. Since 'retiring' in 1989 he has served as the very active Chairman or President of numerous charitable and ex-servicemens' organisations. As a veteran of 265 round trips to Berlin in 1948-49, Sir John was particularly well-qualified to speak to the Society about the Airlift.

When the War in Europe ended in May 1945 I was a member of one of the many Halifax squadrons in Bomber Command. After some exhilarating days dumping unwanted bombs into the North Sea, and carrying out a good deal of unlawful low flying, we were told to take our aircraft to airfields in the West of England where they were to be broken up. A few days later we were re-equipped with the Short Stirling and told that we were now in Transport Command.

By way of an introduction to my talk on the Berlin Airlift, a few minutes about this facet of the early post-war Transport Command might be well spent. The Squadron had already been divided into two sets. Those pilots with more than 1,500 hours were to fly four-engined, long range aircraft and the rest went off to be converted onto Dakotas for service in India and the Far East.

It is somewhat bizarre to think that the Stirling was considered to be a suitable aircraft for troop carrying. It had been designed to carry bombs with a crew of seven and had been very unsuccessful. It had then been used to drop supplies and tow gliders. I can only suppose that no other aircraft were then available, as the almost as unsuitable but more efficient Liberators were also employed as troop carriers. The Stirling was a great lumbering aircraft with electrically operated flaps and undercarriage. The pilot sat 28 feet above the ground. On take off, because of its nose-up attitude, it could develop a most impressive and sometimes fatal swing. It was said that you could navigate to India by following the crashed Stirlings en route. In addition anyone who has had the pleasure of winding down the

A makeshift transport – the Stirling V. (MAP)

undercarriage by hand, some 750 turns, when trying to land at Shaibah in the Iraqi desert in mid-summer will understand one's lack of affection for this ugly duckling. Into this aircraft were crammed thirty troops and other passengers.

After a few weeks training we started the task of taking Indian troops back to India and bringing British troops back home. We were also employed to carry troops to Palestine to help in the emergency, often straight from the former battlefields of Europe. You can imagine how pleased these men were. To the relief of all concerned, it was not long before the Stirling was grounded and taken out of service. Believe it or not, it was urine that had brought it down! Designed for seven crew, on comparatively short trips, it was now carrying nearly forty people on 7-8 hour routes and, with only one pee tube situated at the back of the aircraft, a great deal of urine was being sprayed onto the elevator actuating rods. They did not like it and the aircraft was grounded - much to everyone's relief - particularly the passengers.

We received the Avro York instead, a remarkable and successful aircraft that everyone enjoyed flying and with a marvellous safety record. It was remarkable, because it was a transport clone of the Lancaster bomber. Same wings and engines, with a new fuselage, designed to take up to forty-eight passengers and 9,000 pounds of freight. A third fin was added, as its new fuselage shape gave it a tendency to roll. For the next 2½ years we flew to and from India and the Far East and to anywhere else that we were required to go. It was this experience that built up the professionalism that was one of the keys to the success of the Airlift.

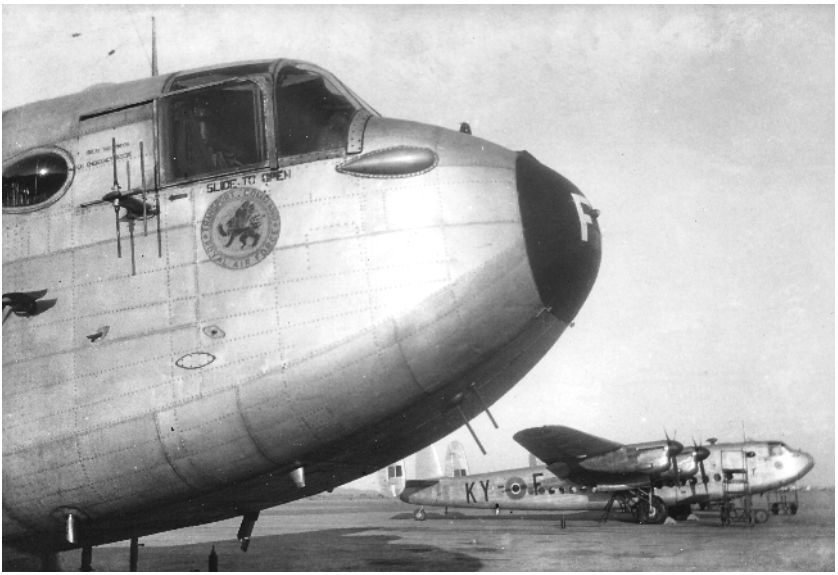
Our Commander-in-Chief was Sir Ralph Cochrane, a man who had already made his name in Bomber Command during the war. An

excellent commander and a man of high intelligence he realised that, in transport operations, standards and safety were paramount. So, a Categorisation System was introduced and all aircrew in the command had to undergo specialist exams and flight checks. Instrument ratings for pilots were also introduced and every crew was rated fit for either passenger, troop or freight carrying. I would rate transport crews amongst the most professional aircrew in the world in those days.

Whilst we were happily 'flogging the routes' to India, Singapore, Kenya, and even down to Southern Rhodesia (as it was then), relations with the Soviets in Europe were rapidly deteriorating. It is not my intention to dwell on the reasons for the Berlin Blockade. If you want an excellent, in-depth discussion of the events leading up to the Blockade and how it was ended, read John and Ann Tusa's excellent book that was reissued last year. For my purpose I will just remind you that the Allies had made the really stupid decision that the Russian Armies would be first into Berlin and that the American and British Armies would stop on the River Elbe. So, when the American, British and French sectors of Berlin were finally occupied, some months after the war, Berlin was 150 miles *inside* the Russian Zone of Germany - and no guarantees of Western access to Berlin had been obtained.

It soon became quite clear that Russian and Western policies towards a conquered Germany were totally opposed. The Russian aims were: completely to destroy German industry; to install a puppet Communist Government and to work towards the spread of communism throughout all of Germany and Western Europe. The Western Allies, on the other hand, had learnt the lessons of the 1919 Treaty of Versailles and their aims were: to restore the German economy; to create a new democratic Government and gradually to allow the Germans to run their own country.

To the chagrin of the Soviets, Berlin elected a democratic non-communist government, despite every kind of coercion. A crucial element of the Allies' plan to resuscitate the German economy was the introduction of a more stable currency. The Russians steadfastly refused to allow its introduction. The Allies went ahead with this important economic measure and, in response, the Russians gradually closed off road, rail and canal access to Berlin until, on the 24th June 1948, all ground access from the west was halted. As well as 50,000 troops the Allies were responsible for 2 million citizens of West



Yorks of No 242 Sqn staging through Mauripur, circa 1946-47.

Berlin. Normally some 12,000 tons of food and fuel were brought in by road, rail and barge each day. So how were the Allies to avoid starvation - or being forced to surrender the city?

General Clay, quite erroneously known as the 'Father of the Airlift', proposed running an armoured convoy to Berlin, on the grounds that the Russians did not want another war. It would, of course, have been quite ridiculously easy to stop, without the Russians even firing a shot, and no western government was prepared to countenance this idea. At that time, no one really believed that it could be done by air. Nothing of that size had ever been attempted before. Fortunately, one Royal Air Force officer, Air Cdre Waite, who was stationed in Berlin, had done his sums and believed it could be done. He persuaded General Robertson, the British Commander, who, in turn, persuaded Clay and together they put it to their political masters.

We were fortunate at that time in having Ernie Bevin as our Foreign Secretary. He detested Communism, mistrusted Stalin and was determined not to surrender Berlin to the Soviets. When briefed on the possibility of an Airlift, he simply said, "Do it", and persuaded the Americans to do likewise.

On 25th June the first Dakota flew into Berlin with a load of food.

It was quickly followed by others and a few days later the Yorks joined in. The long range aircraft of Transport Command were scattered all along the routes to Singapore and they took a little time to reposition. The majority of Dakotas were in India and the Middle East. The Americans, who already had a number of Dakotas in Germany, soon ordered in their four-engined C-54s, some from as far away as Alaska and Hawaii. The repositioning of all these aircraft was achieved very quickly, demonstrating, yet again, the inherent flexibility of Air Power.

I was with one of the four York squadrons at Abingdon, preparing for my routine monthly flight to Singapore with passengers and freight, when our orders were changed. A few hours later I found myself at Wunstorf airfield (to the north west of Hanover) which was occupied by two Vampire squadrons and an increasing number of transport aircraft. I had been told to take enough kit for ten days - it was more than a year before I was back at base permanently.

By pruning the freight to be carried into Berlin by air and by introducing food and fuel rationing and restricting the supply of electricity to only a few hours each day, the Allies hoped to sustain life in Berlin with only some 4,500 tons flown in each day. This, in itself, was no easy task to begin with and it was to take a month before this minimum level was attained. In the meantime, the shortfall was made up from the pitifully small stockpiles that the Allies had in Berlin at the start of the Blockade.

At the beginning, the organisation of the Airlift was pretty haphazard. When your aircraft was loaded, you flew it to Berlin, unloaded and flew straight back for another load. Although the weather in those early days was very wet, and the lack of sufficient hard standings caused great problems, the summer days were long. So we flew from dawn to dusk, sometimes flying as many as *five* sorties a day. Serviceability, accommodation and food were major problems. The aircraft had deployed ahead of their engineering back-up and spares were very scarce. But if we had four engines and a radio, we flew - the rest were ‘red ink entries’.

The Vampire squadrons took some time to move out and, with this vast influx of aircrew, sixty of us found ourselves crowded into the attic of a former *Luftwaffe* SNCO’s living quarters. Apart from buns and a cup of coffee, no food was obtainable down at the Flights where we spent the entire fifteen-hour day. All of this added to our tiredness

and made for an unhealthy lifestyle. Mind you, there was an element of self-inflicted injury. Our squadrons still consisted mainly of wartime bomber aircrew and, because of the demands of route flying, we had seen very little of each other over the past three years. Now, once darkness fell, the bar became full of one's 'old mates' and, with beer at a penny a pint and gin at twopence, it was a fairly lively scene. However, we were still young and, remarkably, we managed to survive a period of long hours and shortage of sleep.

With more and more aircraft arrived on the scene, however, the organisation of the Airlift needed to be more tightly honed if we were going to be able to carry, even the minimum, tonnage into the city. So it was not long before a number of measures were introduced by, what soon became, a Joint Airlift Headquarters, commanded by General Tunner, USAF, with Air Cdre Meyer of Transport Command's No 46 Gp as his Deputy.

The Airlift was now flown around the clock. The northern and southern corridors were exclusively for aircraft flying into Berlin and all returning aircraft used the central corridor. Aircraft of different types and speeds were separated by a wave system. Aircraft were landing every three minutes in good weather and, with an aircraft taking off in between, a movement occurred every 90 seconds. No aircraft was allowed a second attempt at landing. If you missed your approach you took your load back and joined the next wave for your type. In bad weather the interval was extended to five minutes. At the beginning, aircraft relied on their own approach aids in bad weather and we were fortunate to have BABS, a beam approach system controlled by the navigator which, in the hands of an experienced crew, was very accurate. But it was not long before the new Ground Controlled Approach System was introduced and the controllers did an excellent job throughout the Airlift.

The USAF moved out all of its C-47s, replacing them with their larger C-54s, and, because the American airfields were further from Berlin, a number of USAF squadrons were moved to Celle and Fassberg in the British Zone of Germany. To help augment the much smaller number of RAF aircraft, the Government gave contracts to a number of civilian airlines. In particular, all the liquid fuel flown into Berlin was carried in the Lancastrians of Flight Refuelling Ltd and in Tudors. At the peak, as many as thirty civilian aircraft took part in the Airlift, ranging from Halifaxes and Dakotas to Bristol Wayfarers.

The Hastings began its twenty-year career as the RAF's workhorse transport during the Berlin Airlift. This highly polished example, seen in 1960, is one of four VIP C Mk 4s. (J D R Rawlings)

There was, of course, a finite number of aircraft that Templehof and Gatow could handle, but a third airfield was being built at Tegel in the French Sector and this was very quickly brought into action by the end of November. It was constructed largely by thousands of German workers, men and women, using the rubble from the many destroyed buildings in Berlin. One obstacle remained - a tall radio mast, used by the Soviets, which was at the end of one of the runways. The Russians refused to grant the French permission to remove it - so the French blew it up anyway. "How on earth could you do such a thing?" a Soviet General said to the French General. "Quite easily," he replied, "French engineers and dynamite". This was the major French contribution to the Airlift, as they had been asked to stop flying their two ancient Ju 52s, as they were such a nuisance. The new RAF transport, the Hastings, was just coming into service at that time and they were assigned to Tegel.

Throughout the Airlift, servicing, spares and qualified aircrew remained a problem. Yorks were designed for 7-8 hour sorties; they were now doing 50 minute trips, each one involving two landings and two take offs. For a long time Transport Command insisted on having groundcrews on short detachments, which was highly inefficient, and even the maintenance facilities in the UK could not cope with the increased workload. So, some of the Second Line servicing was put out to contract. One such civil firm was Air Service Training at

Hamble. The airfield was grass and not very long; it operated mainly Tiger Moths and Ansons. Provided there was a south westerly of 15 knots, however, you could, and we did, fly Yorks in and out. This requirement for major servicing to be done in the UK had one great advantage for the aircrew. When we flew the aircraft back we got six day's leave at home and this was very popular.

Imagining, I suppose, that the Airlift was to be of short duration, all transport OCUs had ceased training at the start of the Blockade, but, before long, aircraft and crews had to be taken off the lift and training restarted. Bear in mind, that post-war demobilisation was still taking place at this time.

The previous two winters in northern Europe had been very severe and everyone was expecting a considerable reduction in tonnage and an increased requirement for fuel and food if this was repeated. However, the Allies' luck held and, despite some fog in November, which had some effect, the winter proved to be comparatively mild and the tonnage continued to build up. By the end of March there was great confidence that the Airlift would succeed in supplying the city with sufficient food and fuel and that this could be continued indefinitely. In April General Tunner decided to give a demonstration of what the Airlift could really achieve and, as an Easter gift to the city, and calling for a maximum effort from the RAF, USAF and civilian aircraft, over 12,000 tons was brought into Berlin in 24 hours. This was as much as the combined road, rail and barge traffic had managed before the Blockade. After that the daily tonnage never fell down to the previous level.

With the Airlift clearly succeeding, and the Allies determined not to give in, Stalin, ever a pragmatist, allowed secret talks to take place, designed to create conditions that would allow the Blockade to be lifted, but without the Soviets losing too much face. One factor that had assumed great importance was the reverse Blockade imposed by the Allies in July 1948 which was hurting the Soviets. East Germany had lost over 65% of its production capacity to Russian reparations and was heavily dependent upon the hard coal that came from the Rhur and on West German steel. In addition, the eastern approaches to Berlin had been heavily fought over during the last days of the war and refugees, fleeing before the Soviet armies, had depleted the population of Eastern Germany, resulting in agriculture being badly affected.

Although a major plank in the Soviet demands, the Allies were not prepared to slow down or cancel the moves to create a democratic Government and the passing of the Basic Law went ahead. The Allies were, however, willing to agree to the calling of a meeting of the Council of Foreign Ministers to discuss the major problems over the future of Germany. On this basis the Soviets agreed to end the blockade and at 0001 hrs on 12th May 1949 it was lifted and, for the first time in over ten months, vehicles were able to drive up the autobahn to Berlin.

It had been a triumph for air transport. Over 2,300,000 tons of food and fuel had been flown into Berlin to sustain a population of over two million for nearly a year. It had taken some 257 aircraft and 260,000 flights. In addition 120,000 people, mainly women and children, and the sick, had been carried out of Berlin and about 100,000 tons of exports carried to the West in order to sustain West Berlin's industries. But the Airlift was not over yet. It took some time to get surface transport back to normal and the Allies were determined to build up stocks of food and fuel in the city in case the Russians tried again. They never did, but it was not until August that the civilian aircraft ceased operating and the overall number of aircraft was reduced. The last RAF aircraft landed in Berlin at the end of October 1949.

This remarkable success was not won without loss. Some seventy-two British and American aircrew were killed in aircraft accidents and, in financial terms, it is estimated to have cost the participating nations some £250,000,000 - at 1949 prices. And here, I should like to pay tribute to the people of West Berlin, who, despite considerable privations, never gave up. They had experienced one form of dictatorship, had suffered the brutality of the Soviet armies and were not prepared to surrender to Soviet-style dictatorship.

The consequences of the victory were immense. Quite apart from saving West Berlin from a Soviet take over, it is widely believed that the loss of Berlin could have resulted in the spread of communism to all of Europe. The Marshall Plan, which did so much to rebuild Western Europe, would have collapsed and the NATO alliance, which united fourteen countries and ensured a continued American military presence in Europe, might never have come into being. During the course of the Airlift Anglo/German relationships underwent a fundamental change which resulted in the emergence of German

democratic government and eventually in their economic resurgence.

This year we have been celebrating the 50th anniversary of the Berlin Blockade and of the Airlift. The people of Berlin have never forgotten the debt they owe to the men who devised and flew the Airlift. Over the past twelve months they have brought over some 1,500 veterans and their families from Britain, America, Australia, South Africa and New Zealand to join in the celebrations, which were extensive. I suspect that few people know that, since the Airlift, the people of Berlin have looked after the widows of the men who died and have educated their children. Some of them came with us to Berlin this year.

As the cynics amongst you might suspect, it has been somewhat different in this country. You will not be surprised to know that, unlike the Americans, we did not get a medal, and, despite the support of two Prime Ministers, we are the only participating country not to issue a commemorative stamp. When I approached the City of London to hold a reception in the Guildhall I was told that they were "short of money"!! I wonder what it would have cost the City if Berlin had been lost and Europe had fallen under Soviet domination?

But the veterans of the British Berlin Airlift Association have risen to the challenge. Thanks to support from the RAeS, the SBAC and industry we held a seminar and reception in London which was attended by the Speaker of the Berlin Parliament and a senior representative of the Berlin City Council. We also held a Service of Commemoration at St Clement Danes. Although there is a fine memorial in Berlin to the men who were killed on the Airlift there is none in this country. So, we had a Book of Remembrance dedicated during this service and we shall be planting a tree for each man who died in the National Memorial Arboretum later this year.

TACTICAL AIRLIFT: BATTLEFIELD AND HUMANITARIAN OPERATIONS

Wing Commander Willie Dobson

Wg Cdr Dobson joined the RAF on a cadetship in 1978 whilst studying Agriculture at Aberdeen University. After graduation and flying training, he was posted to the Hercules, in 1981. He flew with No 30 Sqn until 1988 when he became RAF Liaison Officer at the RMA Sandhurst. In 1991 he returned to Lyneham for a Flight Commander tour with No 47 Sqn before spending two years at HQ 38 Gp. He attended the last single-service Advanced Staff Course at Bracknell in 1996, followed by a short OR tour with MOD, before taking command of No 30 Sqn in 1998. Through his service with the Hercules he has been involved in many operations, including the Falklands in 1982, Ethiopia in 1984, the Gulf in 1991, Sarajevo in 1992 and, most recently, the Balkan conflicts.

TACTICAL TRANSPORT AIRCRAFT OF THE 1960s

Along with changes in the higher organisation of the RAF during the 1950s and 1960s, its transport force began a significant expansion in response to strategic needs beginning in March 1956. Until that time, strategic and tactical transport functions had both been carried out by the Handley Page Hastings, a long-range transport capable of lifting fifty troops that had first appeared on No 47 Sqn at Dishforth in late 1948.[1]

The box-like Blackburn Beverley first appeared on an operational flight line with No 47 Sqn at Abingdon on 12th March 1956.[2] Though possessing a cruising speed of only 173 mph at 8,000 feet and a radius of action limited to 230 miles with a full load, the Beverley proved to be a very useful tactical transport. It could take a payload of almost 22 tons in its capacious cargo bay, lift 94 troops, 82 casualties on stretchers, or drop heavy loads by removing the rear doors.[3] Even more valuable was the aircraft's short-field performance: it could take off in 447 yards and land in 303,[4] which proved to be invaluable in operations such as those in the jungles of Borneo and the Aden desert

during the early 1960s. Forty-seven[5] Beverleys were ordered by the Royal Air Force, the type remaining in service until late 1967.[6]

When the de Havilland Comet entered service, the Hastings were switched to the tactical role alongside the Beverleys, clearly dividing the transport fleet into two types, tactical and strategic. At the end of 1960, the tactical air transport force consisted of 16 Beverleys and 28 Hastings.[7]

There were two other tactical transports used by the RAF during the 1960s, the Hawker Siddeley Argosy, to take over from the Hastings, and the Lockheed Hercules, to take over from the Beverley, Andover and Argosy. Before these aircraft could fully enter service, or replace their predecessors, the Indonesian Confrontation erupted in late 1962. This conflict began just as the first Argosies were entering service, with the result that the Hastings had to soldier on while the Argosy squadrons became fully operational. Consequently, the Hastings was still operating in the transport role as late as 1967.[8]

Following in the footsteps of its predecessors, the Argosy started as a civil design and it proved to be a valuable machine in service. Its rear doors, opening onto a wide fuselage, combined with a high twin-boom tail, allowed easy loading and unloading. The Army's full inventory of equipment could be transported over short and medium distances. As an alternative load, the Argosy could carry 60 fully-equipped troops, 54 paratroopers or 48 casualties,[9] and the aircraft's abilities included a good rough and short-field performance. The Argosy served in front-line squadrons until withdrawn, due to budgetary constraints, during the early 1970s.

The other new tactical transport, the Hercules, was a purely military design and this machine entered service with the RAF in July 1967 with No 36 Sqn at Lyneham. Nos 24, 30, 47, 48 & 70 Sqns were formed during the period 1967-1970.[10] Altogether, sixty-six of the type were taken on charge, with one of these airframes being converted to the weather research role.[11] Today the Hercules is predominantly used in the strategic role by Nos 24 and 30 Sqns and in the tactical role by Nos 47 and 70 Sqns, all at RAF Lyneham.

THE INDONESIAN CONFRONTATION

After eight years of peace, following the Korean War, a crisis broke out in Brunei at the end of 1962. On 8th December HQ Far East Air Force (FEAF) put into motion Plan ALE, which involved the

No 34 Sqn's Beverleys were heavily committed to operations in Borneo, 1962-66. (MAP)

airlift of one infantry company from Singapore to reinforce the local police. The success of this plan depended on the speed with which the RAF could fly troops into the country. Fortunately, FEAF had a sizeable transport force on hand and ready for operations. Twelve Hastings, four Beverleys and a number of smaller aircraft began the lift of Gurkhas to Brunei. A transient Britannia was also impressed to haul troops into the larger airfield at Labuan, while the rest of the transports flew to the civil airfield at Brunei. The first Beverley had received information from Labuan that the runway had been blocked, but after a brief flight over the field it was discovered that the runway had been cleared by the Controller of Civil Aviation and the local fire brigade. The aircraft all landed safely, the Gurkhas quickly securing the airfield. This first day's operations consisted of Beverleys flying in full loads of troops, vehicles and ordnance which the Beverleys and Hastings had flown into Labuan from Changi. The first day's ground operations did not meet their objectives and the rest of the country suffered heavily at the hands of the rebels.[12]

While the situation on the ground was ominous, it would have been far worse had it not been for the swift response of FEAF's transport aircraft and their ability to insert troops into Brunei within hours of the first incidents. During the first two days, twenty-eight sorties were flown into the area, limited only by the speed with which the aircraft could offload their cargo. By 21st December 3,209 personnel, 113 vehicles and heavy equipment amounting to over 310 tons had been

flown into Brunei by the air fleet, which included a RNZAF Bristol Freighter, a RAAF Hercules, a Valetta, Shackletons and the lonely Transport Command Britannia. While heavier loads arriving towards the end of this period helped to stabilise the situation, the immediate insertion of troops by air into the area shortly after trouble started prevented the rebels from consolidating their position, permitting the ground forces to clear out rebel centres of control very rapidly.[13]

COMBRITBOR (Commander, British Forces, Borneo) made the relief of Seria and the capture of the airstrip at Anduki his first priorities and he planned to seize both objectives simultaneously using air-landed troops. On December 10th, after rehearsing rapid exit procedures and removing the doors on the aircraft, five Twin Pioneers carrying a total of sixty men took off from Labuan for Seria, while a Beverley with 110 men headed for the strip at Anduki. The small Pioneers landed in a grassy area near the oilfields and the troops quickly exited the aircraft and seized the police station. The Beverley's pilot used terrain and trees to conceal him from the airfield's defenders until the last possible moment, then put the huge aircraft's short field capability to good use by stopping it in a quarter of the runway's length, disgorging his troops and then getting airborne again - landing to take off took less than two minutes. The troops exited fully equipped for battle and quickly secured the airstrip and its facilities. Again, swift insertion of troops by air carried the day, reinforcements flown in, during hazardous weather, on the following day securing the area.[14]

For the rest of December and the first weeks of January 1963 operations were plagued by heavy rains and flooding, the Beverleys parachuting food into areas isolated by the floods in a successful effort to win the hearts and minds of the local population. These operations bore fruit during the campaign against Indonesian-supplied and trained guerrillas, who depended on the local population for support and sustenance. But in September 1963, when the new state of Malaysia was formed, Indonesia sent guerrilla bands across the ill-defined border that runs through the island of Borneo and what became known as the Confrontation began.[15]

In August of 1963, a squadron of Armstrong Whitworth Argosies reinforced FEAF's transport fleet. And on 19th September three of these aircraft and a Hastings evacuated 400 people from Djakarta to Singapore under a guarantee of non-interference by the Indonesian

A Changi-based Argosy of No 215 Sqn.(MAP)

government.[16]

This new crisis mirrored that of the Malayan Emergency of the 1950s, except that more capable aircraft were available, especially in the air transport role. There was the lumbering but capacious Beverley, with its remarkable short landing and take-off capabilities. The Hastings and Valettas, that had served so well in Malaya only a few years before, were again committed. But there were also the new Argosies which had entered service in the spring of 1962 and which now equipped No 215 Sqn. For the whole of the next four years this fleet of transport aircraft would be fully occupied in ferrying troops to and from the operational zones, in casualty evacuation and in the general support of all the ground forces deployed in, often very remote and inhospitable parts of, Borneo. Bulk supplies were brought in by sea, but urgent supplies were airlifted to Labuan or to Kuching from Singapore in Hastings, Beverleys or Argosies. These loads were then lifted into the many small forward airstrips by helicopters and, sometimes, even by Beverleys or Valettas.[17]

Activity at the Changi satellite field of Labuan included the strategic airlift fleet, as well as helicopters and air defence fighters, and it was heavily engaged in short-range transport duties. By mid-1965 it was holding up to thirty aircraft of nine different types at any one time. Some 2,500 movements were being recorded each month with well over 500 tons of supplies being dropped to the ground forces by aircraft operating from, what had been, a very small and unimportant staging post. As would be the case in later tactical support operations, the station suffered from a lack of facilities to

repack the parachutes used for supply dropping and these had to be sent back to Singapore for this vital servicing. Just as in Malaya from 1948 to 1960, the Royal Air Force made its major contribution to the success of the campaign in the ferrying of troops, dropping of supplies and lifting material to the forward fighting zone.[18]

THE MIDDLE EAST

In June of 1961, the Government of Iraq renewed a long-standing claim to the territory of Kuwait and began to move troops towards their mutual border. Britain was committed to defending Kuwaiti independence by a treaty signed in 1899. A contingency plan was put into force when the emirate asked for support on 30th June.[19] Operation VANTAGE carried the assumption that four day's notice would be given and that this interval would allow all of the transport aircraft to lift the ground forces into Kuwait from Cyprus and Kenya.[20]

Unfortunately, when the contingency plan was activated on 1st July two serious complications arose. First, the assumed four day's notice was not given. Secondly, Turkey and the Sudan refused to give clearance for overflights. The planned parachute battalion insertion could not be made and the Operation VANTAGE air plan looked to be irrecoverable. But, by 4th July, the maximum number of RAF transport aircraft had been positioned to move the ground forces rapidly by air. Long-range Comets and Britannias from the UK, Beverleys from Aden, the Far East, UK and Nairobi, as well as Hastings from the UK and Far East, all converged on the region.[21]

Transport Command's first task was to move a parachute battalion from Cyprus to Bahrain and three brigades from Aden to Kuwait, as well as supporting units and stores from the UK. British forces were moved into Kuwait from the UK, Cyprus and Bahrain while Hunters and Canberras arrived. This entire force was supported logistically by transport aircraft from the UK, Kenya, Aden and the Far East. A Beverley from Aden was the first aircraft to arrive, carrying ground crew for the Hunters, which arrived ten minutes later, closely followed by another Beverley.[22] Within six days the positioning operation was complete, a day ahead of schedule. From this point, airlift kept the deployed forces supplied. By 9th July, over 5,600 personnel and 850 tons of freight had been airlifted into Kuwait.[23]

Not a shot had been fired and, by the middle of the month, the crisis had subsided. However, two strong facts became apparent to the

Mainstay of the RAF's long-range transport fleet, 1960-75, the Britannia. This one was photographed at Tengah. (MAP)

British Government. First, that strategic airlift of troops and supplies was an effective means of projecting power. Secondly, barriers to overflights of the Middle East were likely to continue to hamper RAF operations beyond the Mediterranean and future plans would have to address the possibility of this obstacle. New requirements identified from the operation included the need for more and larger transport aircraft, as well as lighter and newer air-transportable equipment. The Beverley was perfectly suited for the short-range transport of troops to the forward area, but it couldn't carry bulkier ground equipment, which would need to arrive by air.[24] Plus, the RAF had no long-range transport capable of carrying large and heavy items. Indeed, it was the problems encountered during this operation that persuaded the British government that the RAF's air transport capability was overtaxed to the extent that orders were placed for the VC10, Belfast and Hercules.

OPERATION KHANA CASCADE (NEPAL)

The first major humanitarian success of the Lockheed Hercules in RAF service was Operation KHANA CASCADE in Nepal during 1973. Torrential rain and hail in 1971, followed by a drought in 1972 had wiped out this Himalayan kingdom's harvest. The World Food Program, Canada and the United States pledged grain to supply the kingdom's short-term needs, but Katmandu could only deliver this grain on the backs of its citizens. For one and a half million Nepalese, living in the remote mountain valleys, this method would be too slow and too late. The best part of 4,000,000 pounds of grain would need to

be delivered by air, over a country the size of England and Wales, with a single 3,100-foot natural surface airstrip. But this country also contained six of the world's highest peaks - and helicopters did not have the performance to allow them to carry a useful load over the high ridges and into the valleys.[25]

Nepal turned to the United Kingdom for help with its delivery problem, the RAF responding with four Hercules and 220 personnel[26] to pack, load and deliver the *khana* (food) to where it was needed. To complicate the task further, the monsoon season was approaching and the RAF estimated it would take eight weeks to complete the task.

In the end it took five weeks and 187 sorties to deliver 1,850 tons of grain and foodstuffs to the starving Nepalese, well in advance of the monsoons.[27] While some sorties were able to land at Serkhet and offload cargo on the ground, others required the use of air-drops to supply the remote villages. As seen in Brunei, once the supplies had been air-dropped, parachutes and containers had to be recovered to prepare more loads. However, in the mountains of Nepal, it was all but impossible to return this equipment to the riggers. A technique developed here, which would serve the RAF, and other Hercules users, well in future humanitarian operations, was the free-fall drop of supplies. This involved securing up to 24 sacks of grain on a flat board, several of which could be carried. In the air, the only requirement was that the aircraft should be flown at slow speed, close to the ground, while the air dispatchers pushed the load out. Though unsophisticated, it did not require specialised air-drop materials, such as parachutes or air-drop pallets; loads could be easily prepared, quickly dropped and the aircraft rapidly turned around for another sortie.[28]

OPERATION AGILA (RHODESIA)

The Lancaster House Agreement set midnight of 28th December 1979 as the start of a cease-fire lasting seven days, during which forces of the Patriotic Front were to demobilise at sixteen assembly points. These soldiers consisted of anyone able to handle a modern weapon, usually the AK47. As a result, women with rifles on one shoulder and a baby on the other were a common sight. This guerrilla force normally marched with only what they could carry on their backs, mainly weapons and ammunition, and depended on local villages to supply them with food and shelter. The Commonwealth

Monitoring Force (CMF) - composed of the United Kingdom, New Zealand, Australia, Fiji and Kenya – were to ensure safe passage of the troops to the camps. These camps were spread throughout Rhodesia, with some being a considerable distance from the main airport at Salisbury, with poor, and sometimes mined, roads. The camps were little more than a two-kilometre square surrounded by a 500 metre *cordon sanitaire*. In order for the guerrillas to remain in the camps until properly demobilised, they needed to be provided with food, water and tents by the CMF.

The RAF was initially tasked to deploy CMF teams throughout the country between the signing of the agreement and the start of the cease-fire. Five aircraft flew 41 sorties and carried over 500,000 pounds of freight. Contractors tasked to drive supplies to the camps began refusing to drive on the roads, which were still under threat of ambush and mines, until the cease-fire was firmly in place. The RAF detachment was increased to seven aircraft and began supplying tents and camp stores to each of the camps on 29th December. By the end of the cease-fire, 20,000 guerrillas had come into the assembly points and Hercules aircraft had air-dropped tents, cooking equipment and blankets into all of the camps. During these five days, the detachment flew 44 sorties to deliver 400,000 pounds of supplies by parachute and free-fall.

The CMF teams, who had been living on tinned rations in the camps during this week, now required fresh food. At this point, the contractors still did not have enough faith in the cease-fire to hazard their vehicles on the roads. The Hercules flew for the next seventeen days, air-landing, if a suitable runway existed, or air-dropping food and other supplies. This effort required 78 sorties and delivered 830,000 pounds of freight, which included 250,000 pounds delivered by air-drop.

When the contractors finally saw that the cease-fire was going to hold, they assumed the supply task by road and the Hercules flew its last air-drop sortie on 21st January 1980. In the end, 163 sorties had lifted 1,700 passengers and 2,000,000 pounds of freight, of which 700,000 pounds had been air-dropped.[29]

SUMMARY

Because of tactical airlift's flexibility in being able to land in remote, hostile and austere locations, it has been used to provide a

succouring and stabilising service to the United Kingdom's trouble spots throughout much of this century. Lessons learned during the 1960s and 1970s were put to good use during military operations such as CORPORATE, in the Falklands, and GRANBY, in the Gulf. Humanitarian operations, such as BUSHEL, in Ethiopia, and CHESHIRE, in the Former Republic of Yugoslavia, also benefited from the refinement of delivery techniques and the logistic organisation that the RAF transport force enjoys. In areas where aircraft were unable to land, other means were available. This has meant that men, equipment and supplies have been delivered where they have been most needed - and appreciated. With only seconds required to deliver an air-dropped load, aircraft can be quickly returned and reloaded for further sorties, further speeding up deployment, resupply and relief operations.

Notes:

1 *Blackburn Beverley*, by Bill Overton, p17 (Midland Counties, 1990).
2 *ibid*.
3 *ibid*, p154.
4 *ibid*.
5 *ibid*, p13.
6 *ibid*, p50.
7 *The Royal Air Force: An Illustrated History*, by Michael Armitage, p241 (Brockhampton, 1995).
8 *ibid*, p242
9 *The History of the RAF From 1939 to the Present*, by Christopher Chant, p117 (Regency House, 1993).
10 *Mighty Hercules: The First Four Decades*, by Lindsay Peacock, p54 (RAFBF Enterprises, 1994).
11 *ibid*, p56.
12 *Eastward: A History of the Royal Air Force in the Far East 1945-1972*, by Air Chf Mshl Sir David Lee, pp196-197 (HMSO, 1984).
13 *ibid*, pp198-199.
14 *ibid*, pp200-201.
15 *ibid*, pp201-203.
16 *ibid*, p205.
17 *ibid*, p208.
18 *ibid*, pp208-218.
19 *Blackburn Beverley*, p37.
20 *Wings in the Sun: A History of the Royal Air Force in the Mediterranean 1945-1986*, by Air Chf Mshl Sir David Lee, pp185-186 (HMSO, 1989).
21 *ibid*, p186.
22 *Blackburn Beverley*, p74.
23 *The Royal Air Force: An Illustrated History*, pp233-234.

[24] *Wings in the Sun*, pp186-187.
[25] *Mighty Hercules*, pp21-22.
[26] *Herk: Hero of the Skies*, by Joseph E. Dabney, p54 (Larlin, 1986).
[27] *Mighty Hercules*, p22.
[28] *ibid*, p22.
[29] Unpublished History of No 47 Sqn, RAF Lyneham.

BIBLIOGRAPHY

Armitage, Sir Michael. *The Royal Air Force: An Illustrated History* (Brockhampton, 1995).
Bailey, Rob. *Support, Save, Supply, Hercules Operations in the Gulf War* (Airlife, 1992).
Burden, Rodney A, *et al*. *Falklands: The Air War* (British Aviation Research Group, 1986).
Chant, Christopher. *The History of the RAF from 1939 to the Present* (Regency House, 1993).
Dabney, Joseph E. *Herk: Hero of the Skies* (Larlin, 1986).
Lee, Sir David. *Eastward* (HMSO, 1984).
Lee, Sir David. *Wings in the Sun* (HMSO, 1989).
Overton, Bill. *Blackburn Beverley* (Midland Counties, 1990).
Peacock, Lindsay. *Mighty Hercules: The First Four Decades* (RAFBF Enterprises, 1994).

Unpublished Sources:

No 47 Squadron History, RAF Lyneham
Interview with MALM G A Hynes, No 47 Sqn, RAF Lyneham, 23 Sep 99.

VIP OPERATIONS

Group Captain Marcus Wills

On graduating from Cranwell in 1966, Gp Capt Wills flew Lightnings with No 111 Sqn, followed by a tour as ADC to AOCinC Air Support Command. He spent the next ten years with No 10 Sqn flying the VC 10 as co-pilot, VIP captain and Squadron Commander. Subsequent postings included staff duties at MOD and NATO, PS0 to CAS, and Station Commander & Deputy Captain of The Queen's Flight at Benson. His last appointment was as Deputy Senior Air Equerry to HM The Queen. On retiring from the Service in 1998, he took up his present position as Director Communications and Corporate Services for the Chartered Institute of Building.

It is a great honour to be invited to talk to such a distinguished audience about VIP operations. And, as I now have a completely different second career in the construction industry, it is also a great pleasure and a considerable relief to be asked, for a change, to talk on a subject I *may* know something about!

The problem is how to cover such a wide range of material in such a short time. The Royal Air Force is an authority on VIP operations and, in his presentation on the role of military airlift, Richard Bates mentioned just a few of the many units involved over the past 81 years. In fact, Royal flying even pre-dates the RAF: The Prince of Wales, later King Edward VIII, first flew over the Western Front on 17th July 1917.

Subsequent years saw the formation of The King's Flight and increasing Royal interest in this new form of transport, aided and abetted by another keen supporter - Winston Churchill. More recently, we have seen the considerable contribution made by Nos 216 and 10 Sqns, The Queen's Flight and No 32 Sqn - now renamed No 32 (The Royal) Sqn. As well as these better-known names, we should not forget the Communications Squadrons and the years when all CinCs had their own aircraft. Those, we might well say, were the days!

But let's get back to where it all began, with The Prince of Wales over the Western Front. He next flew in September 1918 in a Bristol

Fighter over the Italian front with a Captain Barker, who shortly after the war was almost responsible for bringing all Royal flying to a grinding halt! Barker, now a major and awarded the VC, was still recovering from wounds when he invited the Prince for a flight in a prototype Sopwith Dove. With one arm in plaster, he put on a very passable aerobatic show for his Royal passenger. "Prince of Wales stunts with one armed VC" was the headline in the *Daily Mirror* the next day. King George V was not amused, particularly as Winston Churchill had recently nearly been written off in a crash here at Hendon. He sent for The Prince of Wales and, in a one-sided conversation, told him never to fly again.

Fortunately the Prince appears to have suffered from selective hearing, and his interest in flying grew over the next twelve years. In 1929 he established his own personal flying unit at Northolt. His personal pilot was Flt Lt E H Fielden who, as AVM Sir Edward Fielden KCVO CB DFC AFC, was Captain of The King's, and later The Queen's, Flight until December 1961. Fielden's contribution to Royal flying was immense and deserves far more than such a brief mention here. In 1931 the unit moved to Hendon, privately funded by The King who, although he himself never flew, seems to have been convinced of the benefits. Incidentally it was around this time that Royal aircraft first acquired their distinctive red, white and blue livery,

Wearing the red/blue chevrons of No 24 Sqn on its fin, and specially adapted for use by the Prince of Wales, this Wapiti was kept at Northolt in 1929. (MAP)

originating from the red and blue colours of the Brigade of Guards.

The first flight by a British monarch was when the new King Edward VIII flew from Bircham Newton to Hendon in a Rapide on 21st January 1936 to attend his accession council. Six months later, The King's Flight was formed at Hendon, and the Air Ministry agreed to public funding for one aircraft, an Airspeed Envoy. Edward VIII abdicated in December, and so it was his brother George VI who was the first to use this aircraft.

When war broke out, the flight moved to Benson, where it remained for the next 56 years, disbanding temporarily in 1942 to form the nucleus of No 161 (Special Operations) Sqn. You may be amused by a little tale about SOE operations. In the 1960s all CinCs had their own aircraft. I spent a couple of years as ADC to AOCinC Air Support Command, Air Chf Mshl Sir Lewis Hodges, who had seen distinguished wartime service in the SOE. His personal pilot was Sqn Ldr John Reid, who had previously been the Adjutant on The King's Flight and was later personal pilot to Air Chf Mshls Sir Kenneth Cross and Sir Thomas Prickett. John, therefore, knew a bit about VIP flying and had a fund of stories about 'Bing' Cross causing terror up and down the country with his personal call-sign 'Hannibal'.

The CinC often used his Pembroke to fly back into the grass airfield at Upavon late at night after guest nights, guided by a single line of goose-neck flares which the Air Traffic warrant officer used to light at the opportune moment. Defining this 'opportune moment' called for a certain amount of judgement and a lot of luck on the part of the ADC. The flares took twenty minutes to light and burned for around thirty minutes, the 'doors time' from Brize Norton or Lyneham to Upavon being about twenty minutes. It didn't take rocket science to work out that the flares had to be lit just as the CinC left the Mess, and that any mistakes could result in Wiltshire getting dreadfully dark just as we wanted to land!

I recall a particular evening at Brize Norton. John Reid had sent several messages into dinner to report deteriorating weather - none of which had a great deal of effect. We left, as usual, after the speeches; I made the necessary phone call to light the flares and the CinC climbed into the right hand seat. "I don't know what you're so worried about, John" said Sir Lewis. "I used to do this sort of thing by torchlight during the war." "Yes, Sir," replied John, "but you didn't have your Commander-in-Chief sitting beside you at the time!"

In days of yore, AOCinCs were 'I' enough to rate a VIP aeroplane of their own. In 1969 this Pembroke wore the three-star plate of the AOCinC Air Support Command. (MAP)

It was around this time that I saw something of No 216 Sqn's operations. Many things impressed me, as a young ex-Lightning pilot, but high on the list was the tremendous responsibility placed on transport crews' shoulders, particularly those of the long range VIP captains operating very independently and often far from home. This remains very much a fact of air transport life, but in the 1960s the navigation and communication aids left much to be desired compared with what is available today. Some saw, and still see, VIP air transport as a luxurious, expensive and often unnecessary means of travel, very much a 'perk' for those fortunate enough to be involved. In reality it is often highly stressful, and a quick route to a newspaper headline if mistakes are made. It is a facilitator in high-speed modern diplomacy. I clearly remember Harold Wilson's departure from London Heathrow North in a Comet 4 of No 216 Sqn to attend the *Fearless* talks on the future of Rhodesia. In more recent years, there are many examples from No 10 Sqn's files, but the Comets of 216 were the first aircraft to give VIPs a truly global reach. From a personal point of view, there was always great pride in flying standards or national flags from the flight deck of a RAF aircraft, having arrived, precisely on time, at some far-flung destination.

In the early summer of 1979, not long after the general election which put Margaret Thatcher into Downing Street, 10 Sqn Ops

The Comet C.4s of No 216 Sqn were frequently employed on VIP duties. (MAP)

received a telephone call direct from the Prime Minister's office. Mrs Thatcher would be attending the G7 Summit in June and would like 'doors times' to Tokyo. The navigators spent the next couple of hours revising flight plans for our usual route via Anchorage in Alaska and passed the results to Downing Street. "The Prime Minister is most grateful," came the reply a short time later, "but isn't it quicker via Moscow?" The Prime Minister was, of course, perfectly correct, but we explained that we weren't in the habit of flying RAF aircraft into Soviet airspace, let alone positioning the necessary slip crew in Moscow! The 'Iron Lady', however, was not deterred, and on 26th June 1979 I flew the Prime Minister, Foreign Secretary Lord Carrington and Chancellor of the Exchequer Sir Geoffrey Howe from Heathrow to Moscow. There we handed over to another No 10 Sqn crew who had spent the previous night in a hotel overlooking Red Square!

Two gentlemen from Aeroflot came with us - one a navigator and the other a radio operator, or so we were told. The navigator took little part in the proceedings and sat in a normal passenger seat. The radio operator was delighted to be allocated the jump seat and an HF radio on which to talk to Moscow. The Prime Minister's party was late arriving at Heathrow, which meant that we would have about twenty minutes to catch up to make our arrival time of 2300 hrs in Moscow. "You will arrive at 2320" announced the radio operator, in a way which made it difficult to decide whether this was purely a mathematical deduction or an order. "No", I explained, "2300." This difference of opinion was aired several more times en route but, despite possible repercussions, we did our best to catch up time!

A VIP arriving in one of the RAF's majestic VC10s in the 1970s, could hardly have failed to impress his (or her) host. (J M Webber)

It was a strange feeling to enter Soviet airspace over the south eastern Baltic in 1979. We changed to metric flight levels, passed all position reports through the radio operator who relayed them in Russian, and there was otherwise silence on the radio. The descent was difficult. Airspace was divided into sectors, just as in Europe, but the sectors were as strict vertically as they were horizontally. In other words, as soon as you passed from one sector into the next you were expected to be instantly at the new flight level, however different. These repeated manoeuvres called for hefty use of full airbrake, consequent severe rattling of the Prime Minister's papers, and considerable consternation on the jump seat because we were very seldom at our cleared level! The arrival at Vnkovo, Moscow's second airport and seemingly a cross between Northolt and Gatwick, was even stranger. The approach was a 10 km square - certainly not difficult to fly, but inflexible and frustrating when trying to catch up time. The published approach plates had made lighting look sparse, but in reality it turned out to be almost non-existent. There were just two rows of white lights marking the runway - which we knew to be a very wide one. I am sure, however experienced a pilot may be, he never quite masters those seconds of total unknown when the runway lights disappear up past his ears and he waits for rubber to meet concrete!

We landed in a fairly conventional fashion, but the excitement was not over. The runway lights went out and only the taxiway centre line remained. Worse still, if we increased speed, the lights ahead went out too! The dispersal area was flooded with lights, all pointing inwards so that we could not see beyond them. Nevertheless, we arrived on

time, and to see Prime Minister Kosygin standing at the foot of the steps to greet Margaret Thatcher set a seal of total unreality on this bizarre occasion, even as I look back on it over twenty years later.

It would be a serious omission in any review of VIP operations not to acknowledge the contribution of ground crews. A VIP flight calls for an enormous amount of engineering preparation, often on more than one aircraft. The preparation of a VC10 for The Queen would take a primary and reserve aircraft out of service for well over a month, and even the installation of smaller 'privacy fits' could take several days. Quite apart from the work often required on major components, one would see armies of fitters touching up tiny scratches in the paint during the final hours before departure. There was much discussion on whether, having prepared an airframe to such a high standard, it should then be left in a permanent VIP fit. Sadly, however, the constant call on reducing air transport assets never allowed this luxury, and discussion would continue on the merits either of keeping a small number of aircraft for VIP flights or rotating the tasks throughout the fleet to achieve higher standards overall. The result was always compromise, but it often seemed odd to fly an immaculate aircraft back to Brize Norton after a Royal flight, only to fly the same airframe in a full freight role a few days later!

In dedicated VIP units this is less of a problem. Nevertheless, the

A Wessex HCC 4 of No 32 (The Royal) Sqn wearing the red/blue scheme that dates back to the 1930s. (MAP)

One of No 32 Sqn's Twin Squirrels. (MAP)

quest for 100% excellence has a high price tag and eventually led to the demise of The Queen's Flight in 1995. In the early days after the war, The King's Flight had four Vikings: one for The King, one for The Queen, one for the ground crew and one for a workshop! Over the years, although numbers of dedicated aircraft have hardly changed, the intensity of tasking certainly has. In 1953, The Queen's Flight flew about 100 flights per year. This steadily increased throughout the Heron and Andover eras until, in the late 1980s when the BAe 146 arrived, the flight was flying around 1,500 Royal flights annually. This figure does not include any positioning flying, and was achieved with just three fixed-wing aircraft and two Wessex helicopters.

The load on the ground crew, the real heart of the flight, was tremendous. During some of the latter years of Andover, 146 and Wessex flying, not one single Royal flight was lost due to unserviceability. The annual despatch reliability rate was often in excess of 99.8%, a figure which potential operators of a civilian servicing contract calling at the flight during 1994 at first believed impossible. This performance was, of course, in part helped by full manning and nominated components, but the experience, skill and dedication of the ground crews played the major part. I do not recall any occasion when a spare aircraft was allocated. There were, quite simply, normally none to spare! I recall the question being asked at one stage of contract negotiations, "could we save money by reducing standards?" Quite apart from the difficulty of defining and subsequently validating a reduced standard, it was a sad reflection of

A BAe 146 of No 32 (The Royal) Sqn. (MAP)

the direction in which, in the constant search for economy, the Royal and VIP role was moving.

The disbandment of The Queen's Flight in March 1995 was a sad and emotional occasion. During the final few months, almost every member of the Royal Family visited the flight to say farewell. The majority of the ground crews were made redundant, although some joined the civilian contractor at Northolt. The three 146s and the two Wessex were all transferred to No 32 Sqn to join the 125s, Gazelles and, later, Twin Squirrels, thereby putting all dedicated VIP assets on one base and under one clear chain of command. Holding on to experience was particularly important on the Wessex, which needed much tender loving care. It was to the great credit of both old and new organisations that the move was accomplished relatively smoothly and without severe detriment to reliability. The two Wessex helicopters, however, did not last long. As part of a major review of Royal travel arrangements over the next two years, their Royal flying role came to an end after over thirty year's service. Royal helicopter requirements are now met, in the main, by one Sikorsky S76 and civilian, albeit ex-Queen's Flight, crews.

My final adventures before leaving the RAF were with No 32 Sqn, where demands on aircraft and crews continued in a new environment of users being fully accountable for their travel costs. This was an understandable but difficult step. Identifying operating costs was relatively easy; quantifying the value of tours for Save the Children, Sight Savers, the World Wide Fund for Nature and The Duke of

Edinburgh Award Scheme - to name but a few - was much harder. A slightly different example was the British Consultants Bureau, headed by The Duke of Gloucester, bringing in valuable contracts but not so newsworthy and not part of the same equation. The BCB visit to Vietnam, the Philippines and Indonesia in 1995 was just such a tour, where Presidents and Prime Ministers turned out to meet the Duke, travel on his aircraft, and sign up to British contracts worth millions of pounds. One can, of course, argue that none of this is MOD's concern, but it must nevertheless be relevant to the overall economic picture for UK plc.

The Prince of Wales' visit to Central Asia in November 1996 would have been totally impossible by any other means, and was one tour where we did take a spare aircraft. It carried, as well as the Press, food, water and a wide range of spares as we set off into the relatively unknown territory of Ukraine, the Crimea and the Marco Polo silk route to Almaty in Kazakhstan. The fun started when we were refused entry into Ukrainian airspace because we were using a different call-sign to that used on the recce flight - but that is another long story!

Many squadrons and crews have, over the years, given outstanding service to the Royal Family, to Government Ministers and to other VIPs of many nationalities. Lack of time has prevented mention of foreign Heads of State and the fact that it has been the RAF, through The Queen's Flight and, more recently, the Office of Her Majesty's Senior Air Equerry, which has overseen countless Royal flights in airline, charter and military aircraft world-wide. Time has prevented, too, mention of flights in RAF front-line aircraft - not least during the training of several Royal pilots. I hope, in the face of continued cost cutting, that the RAF will not underestimate the prestige and high visibility values of the VIP role. We have unique opportunities to demonstrate RAF professionalism to an air-minded Royal Family and to many other VIPs with an active part to play in the direction and employment of air power. Long may those opportunities continue.

HERCULES – THIRTY-THREE YEARS OF RAF SERVICE

Wing Commander Paul Oborn

Wg Cdr Oborn emigrated from New Zealand to join the RAF in 1979. He joined the Hercules force as a co-pilot in 1982, spending a good part of his first tour in the South Atlantic Theatre. In 1985 he gained his captaincy and was posted to No 70 Sqn, later serving as a Flight Commander on No 30 Sqn. He attended the Canadian Staff College in 1993, before becoming the C-130J Project Officer at HQ 38 Gp. He assumed command of No 24 Sqn in 1998 and is uniquely qualified to give our final presentation.

INTRODUCTION

Good afternoon ladies and gentleman. I am in the unenviable position of being the last on stage today. If that were not bad enough, I have to talk about an aircraft conceived while my parents were still at school, first flown before they were married and delivered to the RAF before I finished my third year at primary school. That said, I have been operating the mighty 'Fat Albert', a nickname borrowed from an American cartoon character, for some seventeen years, so I should be able to make it up as I go along. My presentation will start with how we came to get the Hercules, before going on to speak about the units that operate it and some modifications made to it over the years. I will then speak about some of the Labours of Hercules - her exploits through the years - before concluding. With only twenty minutes to speak it would be impossible to mention every event in this aircraft's star-studded history. The RAF fleet reached one million flying hours on 27th March 1990 and in 1992, RAF Lyneham celebrated the aircraft's Silver Jubilee. The aircraft has been used as a weapon of war and peace throughout the world and its future is secure into the 21st Century with the imminent arrival of the C-130J. However, first we must go back in time.

IN THE BEGINNING…

Could it have been the best decision Harold Wilson ever made?

Faced with an ageing and fatigue-limited fleet of Hastings and Beverleys, the Ministry of Defence were desperate to get their hands on an effective, robust and long range tactical transport aircraft to assist with British interests around the world during the Cold War. The Hawker Siddeley HS 681 Vertical/Short Take Off and Landing (V/STOL) transport was planned to replace the Hastings, Beverley and Argosy. The Labour Government in February 1965 cancelled this. In June of that year twenty-four Hercules were ordered for the RAF with a further twenty-four being ordered in October and a final batch of sixteen in March 1966 making a total of sixty-six aircraft.

The model selected was the C-130H. The Government insisted on a high degree of British industrial involvement and eventually argued for Rolls-Royce Tyne engines. Although this request was refused, British navigation aids, radios, autopilot and roller conveyers for palletised loads were fitted. Scottish Aviation at Prestwick manufactured the centre fuselage sections and Elliott Automation made the fuel gauges under licence from Honeywell. Another British contract was for the radome made by Marsten-Excelsior. All these components were shipped to Marietta where they were installed in the Hercules prior to delivery to the UK. Lockheed designated this variant the C-130K. The British Government announced that the Hercules would replace, not just the Hastings and the Beverly, but also the Argosy. The aircraft was to be used in both the tactical and strategic, or long-range, air transport roles.

So why were the MOD of the day so keen to get their hands on this new American aircraft? In reality, of course, it was not a *new* aircraft and it had not had as successful a beginning as you might think. The USAF requirement in early 1950 had been for a strategic airlifter that

'Fat Albert' in the 'desert' camouflage scheme that was in vogue for tactical transports in the 1960s. (S G Richards)

could carry 90 troops over 2,000 mile stages. The aircraft was to be able to slow down to 125 knots for paratroop dispatch and be able to land on natural surfaces or hastily prepared strips. The YC-130 Hercules prototype made its maiden flight on 23rd August 1954 at Burbank, California - so it had already been flying for over ten years when the British order was placed. It had an impressive take-off roll of just 855ft. The original USAF requirements were bettered by 20% in cruise speed, by 35% in service ceiling and rate of climb; take-off distance was 25% less than required and the landing distance 40% less. However, during the early years of its life it did suffer from some serious development problems. During flight testing it landed on its underbelly after its gear stuck up and there were difficulties in harmonising its, initially underpowed, engines with the Curtis-Wright electrically-operated three-bladed propeller. Lockheed improved the aircraft progressively from the A model through to the H. The T56A-1 engines were upgraded to T56A-15 and the propellers were replaced with a Hamilton Standard four-blade hydraulic unit. Improvements were also made to the electrics, fuel, hydraulics and air-conditioning. With these early problems eventually solved the Hercules encountered its first action in May 1958 when Vice-President Nixon was threatened by an unruly mob in Caracas, Venezuela. President Eisenhower ordered 600 troops to Puerto Rico for a rescue attempt. The crisis was averted and all returned home. Later in 1958 the Hercules saw action in Iraq and troop deployments were needed when tensions rose between China and Taiwan over the Formosa Straits. The utility, range and superior tactical capabilities of this new airlifter were plain to see for the Operational Requirements staff at the MOD of the time. They just *had* to have her.

RAF HERCULES UNITS AND ROLES

On 19th December 1966, resplendent in its original natural-metal factory finish, Wg Cdr Mel Bennett flew the first C-130K, Hercules C Mk 1, into Teversham Airfield, near Cambridge, following a transatlantic ferry flight that had not been without drama. During the crossing, the RAF's first Hercules, XV177, had experienced a near-total electrics failure, but made it to Marshall's engineering facility for its pre-delivery installation of the required British-made avionics and cargo bay floor. It was then painted in the two-tone brown and black colour scheme specified for all of the RAF's new transport aircraft.

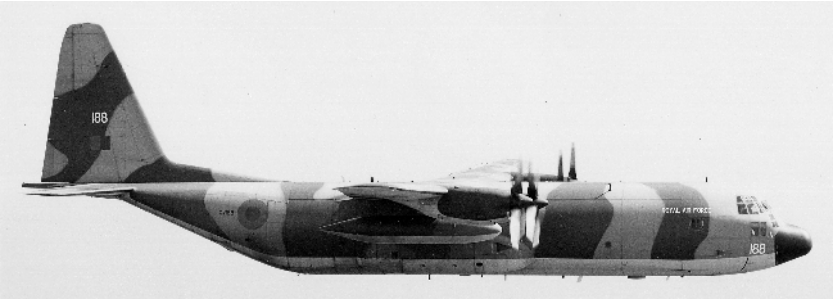
The first two aircraft were then delivered to the Aircraft and Armament Experimental Establishment at Boscombe Down for service acceptance trials in early 1967. With its well proven track record in a decade of service with other air forces the trials programme was completed swiftly and No 242 OCU at Thorney Island, soon started initial crew training with an establishment of six aircraft.

The first qualified crew emerged that summer and started RAF Lyneham's long association with the Hercules with the formation of No 36 Sqn. A short while later, the next unit to form was No 48 Sqn at Colerne, just down the road from Lyneham, but it was to move to its permanent home at Changi, Singapore, late in 1967. Early 1968 saw the formation of No 24 Sqn, the first of the surviving Hercules squadrons, which was based at RAF Lyneham, where it remains. With insufficient space at Lyneham Nos 47 and 30 Sqns formed later that year at Fairford to complete the RAF's initial re-equipment programme. Late in 1970, following a realignment of distribution, No 70 Sqn formed at Akrotiri. Nos 30, 47 and 48 Sqns were moved to Lyneham in 1971 where they were joined by No 70 Sqn and No 242 OCU in 1975.

Disbandments started with No 36 Sqn later that year and No 48 Sqn in 1976. The OCU changed it name to No 57(R) Sqn in the summer of 1992, to leave five squadrons at Lyneham under the command of Strike Command's No 38 Gp which, from April 2000, is to become No 2 Gp of Air Command. RAF Lyneham is now home to the entire Hercules Force – four squadrons plus the OCU, together with the support needed. This includes first- and second-line servicing, the training of the ground servicing personnel, radio and radar servicing support, role equipment support, together with all the supply and administration to operate the fleet.

The only operator that is not resident at Lyneham is the Meteorological Research Flight, based at RAF Farnborough. MRF uses the uniquely modified W Mk 2, known as 'Snoopy', for weather reconnaissance and research tasks.

Shortly after the RAF started to operate the Hercules they found that the freight bay would often 'bulk out' before reaching its Take-Off Weight limit. So a major modification of the original C-130 design occurred from 1979 to 1985 when Marshall Engineering 'stretched' thirty C.1s by 15 feet, turning them into C.3s.



One of the thirty stretched C Mk 3s – 'Thin Alberts'?

Following the Falklands war, air-to-air refuelling probes were fitted to some of the aircraft, making them C.1Ps; this is now a fleet-wide fit and the 'P' has been dropped. Six of these C.1Ps were further modified to become C.1K air-to-air refuelling tankers by adding a drogue, which emerged through a hole cut into the aft cargo door, a drum for the refuelling hose and extra internal fuel tanks.

In 1986 a detachment of Hercules tankers was based at Mount Pleasant as No 1312 Flt. Their job was to support the Phantom, and later Tornado, fighters which patrolled the South Atlantic skies. With the demise of the Hercules tanker mini-fleet, No 1312 Flt now comprises a VC10 tanker and a 'flat bed' Hercules, the main duties of which now include maritime reconnaissance and air-drop resupply of the Royal Marine detachment on the island of South Georgia.

Another minor modification involved the installation of Station Keeping Equipment, which enables Hercules to fly in battle formation in cloud. Electronic surveillance pods, infrared jammers and chaff and flare dispensers have been added to some aircraft to help improve survivability in hostile theatres. The fleet is currently undergoing an update of the weather radar, avionics and flight engineers instrumentation, following the transition from pounds to kilograms which brought the Hercules into line with the rest of No 38 Gp's air transport fleet.

THE LABOURS OF HERCULES – AN OPERATIONAL RECORD

The Hercules has been involved in one operation or another in virtually every one of the thirty-three years that it has been in RAF service. It would be impossible to mention all of these in the short

time allocated to me this afternoon so I thought I would just choose a few to highlight the utility and the multi-role capabilities of the mighty 'Herc'.

The RAF did not have to wait long after receiving its new Hercules before it was utilised in the withdrawal of British forces from the Aden Protectorate prior to independence. Terrorist activity in the region meant that 52 evacuation sorties had to be flown, moving troops from Aden to Muharraq for onward flights to the UK. This whole operation soon grew to be the largest British air transport operation since the Berlin Airlift.

The following year saw the aircraft in the Arctic resupplying the British Trans-Arctic expedition and in 1969 an airlift of troops and police to Anguilla helped to regain control there. Also in 1969 our involvement with Aldergrove began; our support of RAF and other forces stationed in Northern Island continues today. The addition of infrared counter Measures (IRCM) to the fleet was based largely on intelligence that suggested that the IRA had obtained man-portable anti-aircraft missile systems. Luckily for us they have been used only against rotary wing aircraft to date.

The Hercules has made a name for itself over the years for its ability to get into areas hit by natural disasters, quickly, and with plenty of space for relief aid, food, medicine and other equipment. Examples include East Pakistan in 1970/71, Nepal in 1973, where over 2,000 tons of vital food and medical supplies were air-dropped in that most hostile region, and mercy missions to Sudan and West Africa, also in 1973. Earthquakes, cyclones, famine and other natural or man-made humanitarian disasters punctuate the years. However, perhaps one of the Hercules' best remembered famine relief operations was Operation BUSHEL in drought stricken Ethiopia during 1983/84. The situation there had become critical after drought and civil war had caused widespread malnutrition. The British Government was amongst the first to offer aid and, more importantly, a means of distributing it in the form of two RAF Hercules. The detachment set up at Addis Ababa International airport, shared these facilities with twelve of Aeroflot's Antonov An-12s. Initially, aid, in the form of blankets, tents, grain and other supplies, was air-landed, as the air-drop method had not been politically approved. Typically, some 42,000lbs of grain per aircraft would be air-landed at Axum, Gondar, Mekele, Asmara or Alimata. The inland landing strips were at

high altitude, some at 7,500 ft, and usually had a gravel or sand surface. Axum, in particular, had a *sharp* gravel surface. Flt Lt Paul Spears had some bad luck when he burst a tyre on landing at this strip. As no spare was available, his crew removed the broken wheel and chained the supporting leg in the 'up' position. The aircraft was flown back to Addis on three main wheels earning the captain the nick-name Paul 'three wheels on my wagon' Spears.

By the end of January 1985 it became clear that the most efficient way to deliver the grain was to free-drop the bags from low level (around 50ft). Flt Lt Jim Norfolk was the first to attempt this on the 26th January. The drop zones were at very high level (around 9,000ft) but the superb performance and handling qualities of the aircraft meant that the aim was achieved. It was not all plain sailing though - large birds had a habit of attacking the aircraft and on one occasion succeeded in taking out an engine. The aircraft was still fully laden with grain and the captain, Flt Lt Bond, only managed to keep the aircraft in the air by diving off the high plain into a deep canyon. When the same weight and atmospheric parameters were put in the simulator back at Lyneham we found that no one could stop the aircraft from crashing. During this year-long operation, RAF Hercules delivered 32,000 tons of food and medical supplies, 14,000 tons of which had been air-dropped. RAF Lyneham was awarded the Wilkinson Sword of Peace for the outstanding contribution of the Hercules and its crews.

The ubiquitous Hercules is not afraid of a fight. After a busy time evacuating Service families from Akrotiri and Kingsfield in Cyprus during the Turkish invasion in 1994, it flew into Saigon in 1975 under mortar fire to evacuate British Embassy staff prior to the fall of that city. Later that year, and also in 1977, the aircraft carried troops into Belize to counter a seemingly imminent invasion from Guatemala. During a relief mission to Nicaragua in 1979 one aircraft was temporarily hijacked by armed troops. Thanks to the quick thinking of Flt Lt Kemp and his crew the troops were removed, the aircraft jumped its chocks and got airborne along a taxiway.

More recently, during the Gulf War of 1990/91, we have been reminded of the ability of aircraft and crews to project power. Indeed we still support the British forces deployed in this region, patrolling both the northern and southern no-fly zones over Iraq. And, of course, we have been helping in peace making/keeping operations in

A Hercules delivering relief supplies - Operation BUSHEL, Ethiopia, 1984. On occasion, when using this free-fall technique, "starving people tried to catch these 120 mph one-ton containers". (R Bates)

Yugoslavia since 1992. Operation ALLIED FORCE, earlier this year, showed, yet again, what the aircraft could do, flying troops and equipment right into the heart of the conflict. Special Forces crews, using Night Vision Goggles, were also in support and we should not forget their contribution over the years, albeit often behind the scenes,.

However, perhaps the most unusual example of how this wonderful aircraft can be adapted for almost any task was during Operation CORPORATE, the re-taking of the Falkland Islands in 1982. The first Hercules left Lyneham for Ascension Island less than 24 hours after the decision to send a Task Force had been taken. The Hercules helped with the build-up of troops and supplies on the island and made air-drops to the task force of urgent mail and supplies. But, as the task force moved further south, it became clear that extra range would be needed. At first two Andover ferry tanks were installed in the hold, followed several weeks later by two more. Each of these tanks contained 7,000lbs of fuel. But even this was not enough and an air-to-air refuelling capability was needed. On 15th April Marshalls were informed of the requirement. A modified aircraft, flight tested and ready to go was ready to proceed to the Falklands on 5th May! This

The view from the ramp of a Hercules C.1K as a Port Stanley-based Phantom of No 23 Sqn takes on fuel and immediately dumps it overboard.

modification allowed the aircraft to fly all the way to the Falkland Islands, drop supplies and return to Ascension Island in one 12-13 hour flight. Marshalls also succeeded in producing a tanker variant of the Hercules by installing the Hose Drum Unit from a Victor tanker on the ramp and cutting a hole for the hose to deploy. This variant, known as the C.1K, assisted with the airbridge task and later served as a tactical tanker for the fighter aircraft on patrol over the Falklands. The six aircraft converted to this standard remained in service right up until 1997.

I could go on - as indeed the Hercules does – to tell more of the exploits and achievements of this wonderful aircraft. My squadron was involved in the Turkish earthquake relief last month and are now assisting the UN force in East Timor. Wherever there is trouble, 'Fat Albert' will be there in the middle of it.

CONCLUSION

In summary, the Hercules has been, and still is, the mainstay of the RAF's tactical air transport force. It has helped the British Government project power around the world and it has been used to

great effect in all roles from delivering and projecting force in war, to humanitarian relief in time of devastation and human suffering. The aircraft has operated in every possible environment that nature and mankind have thrown at it.

Much of the success of the aircraft must be attributed to the excellence of the original design and its ability to accept major modifications to change roles when needed. The next generation of Hercules has managed to integrate the traditional airframe layout with the very latest state-of-the-art technologies to produce a potent Tactical Air Transport aircraft for the future.

The RAF has used its Hercules in every major operation and theatre that the British forces have been involved in since it arrived in 1967. Frequently the first in and last out of every trouble spot imaginable, the ubiquitous Hercules goes about its business in its quiet but effective way. Very much the unsung hero, we should not forget the crews who have flown and still fly her today. Without their professionalism, and almost religious devotion to their beloved 'Fat Albert', the Hercules would not have the reputation that it now enjoys. The RAF's involvement with the Hercules will outlive all of us with the arrival of the C-130J in November 1999. I am sure that this new chapter in the Hercules' history will be as exciting as the last.

Bibliography

Andy Muniandy, *Hercules - The RAF Workhorse*, (Muniandy, 1993).
Joseph Earl Dabney, *Herk: Hero of the Skies*, (Copple House, 1979).
Lindsay Peacock, *Mighty Hercules - The First Four Decades*, (RAFBF Enterprises, 1994).

AFTERNOON DISCUSSION PERIOD

Gp Capt Jock Heron. In 1975-76, as Richard Bates said in his introductory remarks, it was decided to dispense with the ten Belfasts and carry on with a smaller fleet of Hercules and VC10s, thus denying the RAF a wide-body freighter with which to fulfil its force projection role. Now, as I understand it, the Belfast was about the same height as a C-17 and only a few inches narrower. Is there anyone in the audience, who can speak from the MOD's perspective at the time and explain a policy change which has left the RAF short of a wide-bodied aircraft ever since?

Wg Cdr Paul Oborn. That's a very good question, and one which many of us at Lyneham were pondering while we were waiting to see whether the Government would go for the C-17. That is still not a dead duck, incidentally. We are still hoping that they will see sense and that next year, when the future air transport requirement is reviewed, the answer will involve the C-17. I recently spoke to CAS at a guest night. He was very robust in his support for the C-17 and reasonably confident that we will find a strategic airlift solution involving that aircraft. Why did we lose the ability to move outsize loads? I don't know; but I do know that HeavyLift has made a lot of money carrying the Army's heavy equipment around.

Air Cdre Graham Pitchfork. I listened with great interest, a lot of nostalgia and a certain degree of irony to Wg Cdr Dobson's excellent talk. He mentioned Kuwait in 1961 and Indonesia in 1964. That was at the height of the Cold War, at a time when we were still able to handle those sorts of global commitments. Today we have no in-theatre transport forces, a shrinking UK-based transport force, a much-reduced air freight capacity, and are increasingly obliged to rely on civil charter. My question to today's Squadron Commanders is, how close to the bone have we got and to what extent can civil charter actually fulfil our worldwide, and often tactical, demands?

Wg Cdr Willie Dobson. Paul has already alluded to, the STSA concept, the Short Term Strategic Aircraft, which emerged from the Strategic Defence Review - four C-17s, or their equivalent. Unfortunately, there wasn't much support at the MOD from the other two Services. When the various plans were being drawn up for

Kosovo, and the air campaign didn't appear to be going too well, a land offensive, involving as many as 50,000 troops, began to be considered. At every MOD meeting attended, the air force tried to push the acquisition of C-17s but our colleagues in different coloured uniforms still didn't seem too interested and took the view that 'we'll just go charter.' Eventually, someone at the MOD Air Department decided to 'Press to Test'. They wrote to HeavyLift, saying that they would like to charter some An-124s. The reply came in two parts, the top half in Ukrainian, the bottom half in English. It said, more or less, 'Not interested. We don't agree with what you're doing.' That came as a bit of a surprise to those at the MOD who thought they could just go out and charter aircraft as and when they wished! It is not quite as easy as people think. If you want to charter airliners you had better make sure that you avoid Bank Holiday Weekends, Easter, the summer holiday season and so on. But if you wanted to take lots of troops somewhere in November or February you would probably be well placed! The STSA, or, at least the original STSA competition, was cancelled by this government shortly before the recess, on the grounds of cost but, eventually, hopefully, we will get something.

AVM Nigel Baldwin. Perhaps I could ask Marcus Wills for his experience with civil charter in the context of Royal and VIP flying, because an increasing amount of it has been done that way over the last 10-20 years. You might be able to tell us how much is now being done by British Airways, or Richard Branson, as distinct from the Royal Air Force, in terms of Queen's tours of Australia or Prime Ministers going somewhere. Do you have any reflections on the effect of this practice, not least, its impact on RAF morale? - and how are these decisions made? Is there an inevitability about the transfer to civilian contracts, presumably on cost grounds?

Gp Capt Marcus Wills. I remember feeling very sad indeed when it first began to go that way. The VC10 in particular was, and still is, a wonderful aeroplane, especially for Royal and VIP flying; indeed it is still much favoured by the Prime Minister. But, unfortunately, two things happened. First, the RAF simply began to price itself out of the market. The argument raged for years over precisely *what* we should charge for - direct operating costs, full costs and so on. The second problem was that the VC10 became, relatively, noisy and impractical. Compared with modern civil aircraft, like the Boeing 757 or 767, the

VC10 needed a lot of refuelling and it wasn't welcome, from a noise point of view, in a lot of the places that it went. As a result, a lot more long range Royal flights started to be done by British Airways.

On the other hand, cost and environmental acceptability are not the only criteria. I remember being fortunate enough to go to Austria on a State visit with the Prince and Princess of Wales using Concorde. Concorde is a ridiculous aeroplane to use in Europe and we rattled the whole way across, first to Milan and then on to Vienna, at about 290 or 300 knots IAS - which was the 10 knot spread between low speed buffet and trailing a sonic boom right across Europe. But, to get back to the business of chartering aircraft, I have no idea what proportion is being done by civil operators today but, at about the time I left, in 1996, we had just been through some very difficult three-cornered negotiations between the Palace, MOD and Strike Command as to what to charge. Sadly, in its wisdom, MOD decided that it wanted to charge full costs. So, whenever a member of the Royal Family is carried by the RAF, even on an internal flight in a BAe 146, he would be paying for a part of the Northolt Station Commander's salary, the upkeep of the runway and everything else that goes into *full* costs. That, I believe, did the Royal Air Force no good whatsoever. Although, I am now far removed from such matters, I am pleased to hear on the grapevine that we have since gone back to something closer to direct operating costs, which makes the RAF a much more attractive proposition.

But there are many reasons for using different sorts of aircraft. Currently, as much fixed wing flying as possible is done by the RAF, certainly in-country, and on overseas tours where it is possible to use an aeroplane like the BAe 146. The HS125 is often just too small for Royal flying and I believe that virtually all long-range, State Visit-type flights, for the Queen in particular, are now done by British Airways.

As an afterthought, depending on how European legislation goes, I believe that, in theory at least, it is now possible for any European airline to bid for Royal travel. So we might yet see the Queen doing a State Visit courtesy of Lufthansa or SABENA because they submitted the lowest tender!

Cdre Toby Elliott. This has been a fascinating day for a sailor. As a major in the First World War, my grandfather commanded No 205 Sqn. Among his mementoes is a silver cigarette case with Albert and

Edward's signature engraved on it - and he also flew them, so it was interesting for me to hear a reference to them. But that is not really what I stood up to say.

Until I became the Director of Fleet Operations, right at the end of my naval career, I didn't think that the RAF actually did *anything* for the Royal Navy at all! I'd had the odd periscope flown out to America, and Olympus engines flown out to the Gulf during the Gulf War, but I thought that was about it. As Director of Fleet Operations, however, I finally came to realise just how important a part Transport Command plays in maintaining the logistic chain which allows the Commander in Chief to deploy his ships and submarines worldwide. I just wanted to place that on record this afternoon because it hasn't really been said and it needed to be.

Sir John Curtiss. Thank you. Perhaps I could ask a question. What will the C-130J do which our current Hercules won't?

Oborn. (*Wg Cdr Oborn responded to Sir John's question with the aid of a computer-generated diagram which is unsuitable for reproduction. Nevertheless, what follows contains the gist of what he had to say* - Ed).

For a start, the C-130J cruises at a higher altitude. Unfortunately, however, although the aircraft is more capable - more powerful - there are other constraints which place limits on its operations. For instance, the air traffic control authorities may not permit us to fly in the 28,000-30,000 foot height band, which the aeroplane is capable of, because it is still relatively slow and would get in the way of the Jumbo jets.

The J-model burns considerably less fuel, permitting us to dispense with the external tanks which are a more or less permanent fit on our present aircraft. So, we're a bit more streamlined too. We shall be able to go further than we used to - or cover similar distances using a lot less fuel and convert the weight saved into payload.

Another significant advantage, in terms both of cost and 'down time' will be a reduction in maintenance. As you can probably imagine, it is getting quite hard to keep our 33-year-old aeroplanes serviceable - not to mention expensive. It has yet to be proven, of course, but there can be little doubt that the J-model will be a lot cheaper to run and much easier to maintain.

The RAF will realise further substantial savings through a

reduction in flight deck crew. The C-130J will have only two pilots and an air loadmaster - no flight engineer or navigator. We still have to establish whether this will actually work, of course, particularly in the tactical environment at low level with all the electronic countermeasures that the aircraft are now equipped with. It can get very 'busy' down there and it remains to be seen whether we can manage with just two pilots. The J-model still has a flight engineer's seat, mounted on rails so that it can move between the traditional rear crew stations, so we could always put an extra man in there if we find that we need to. In the meantime, our navigators are being reduced in number and the training machine tap has been turned off.

We anticipate delivery of the first of the new aircraft to Lyneham on 23rd November - only a few weeks away – and only 2½ years late!

Curtiss. What proportion of Js will there be?

Oborn. We're replacing twenty-five - roughly half the fleet – and they are all going to Nos 24 and 30 Sqns.

Colin Cummings. I would like to know whether the MOD's plans make any provision for the private funding of civilian airliner construction. I know, for instance, that the Americans fund people like TWA to put reinforced cargo floors into Jumbo jets and that, in the event of a national emergency, those aeroplanes are earmarked for military operations. Do we do anything like that in the Royal Air Force?

Dobson. The answer to that one is, no, we don't. I think that the Americans have stopped doing it now, because it turned out to be very expensive. But it is *possible* that, when we come to replace our Tristar and VC10 tankers, the new aircraft will be operated on some sort of lease. We might have, for instance, a contract for a fleet of, say thirty-six aircraft, of which we might have twelve available on a daily basis, with the ability to call on more with an appropriate degree of notice, perhaps three months. When not required by the RAF, the surplus would be operated by civilian concerns as freighters or passenger aircraft.

Joe Owen-King. Might I offer a personal comment on the Berlin Airlift? I was demobbed in 1946, and by 1947 I was a civilian

working for the British Government in Berlin. I can only be very grateful to my late Service for keeping me alive at that time! I well remember the fuel shortage, which meant restrictions on electricity and power - and cutting down trees in the garden to keep a fire going in our kitchen so that we could cook. Nine month's diet of dehydrated food is *not* recommended - because that is what it all meant. One of the British wives had a baby early on and it had to be fed powdered milk for several months. There was great joy at the lifting of the blockade, because it meant that fresh milk would be available. The baby wouldn't touch it! (Laughter)

AVM John Price. I worked for Sir Jock Kennedy when we were looking at paying civil airlines, or aircraft constructors, to modify their aircraft for RAF service - this must have been in the early 1970s - and it was simply ruled out on grounds of cost. There were also problems over availability - we would have needed something like an Order in Council to have recovered the aeroplanes from civilian service. That would not have been *impossible*, but it was not attractive politically. Another option we considered was paying second level civilian operators to earmark some of their aircraft for the RAF if needed. Again, it simply proved to be too expensive.

A couple of interesting points on the 'Whistling Wheelbarrow'. The AOC Malta's aircraft was modified for his personal use - unfortunately it was fitted out by the shipbuilders of the Marine Craft Section in heavy teak, which meant that it couldn't get to Turkey with more than about three passengers on board!

My second observation concerns operations in Borneo where my helicopter squadron was supplied entirely by air - all of our fuel, our rations, special food for the Gurkhas, everything! The Beverleys did it superbly well - we were at Bario, in a valley, and the Beverley could turn inside it. They made several attempts to use the Argosy, but it just didn't have the necessary manoeuvrability, so they went back to using the Beverley.

Bates. Might I put in a word in defence of the 'Whistling Wheelbarrow'. It was always the butt of snide comments about its inability to 'carry a verbal message from Singapore to Changi' and so on. The problem, of course, is that, when the aeroplane was bought it was a civil freighter. The RAF needed a reinforced floor, which made it much heavier and reduced its performance. We must remember,

however, that this was not long after the Duncan Sandys Defence Review - there were a lot of fighter pilots and navigators looking for jobs and an aeroplane like the Argosy provided them. It was actually quite revolutionary in some ways. It had: relatively advanced systems; single side band HF radio; all sorts of electronic wizardry, like VIOLET PICTURE and VHF omni-range; and a whole host of other things which were quite unknown to Beverley and Hastings crews. It actually provided the transport force with significant airlift and a training 'bounce' - to the considerable advantage of hundreds of aircrew who later went on fly to other aeroplanes. So we really ought not to dismiss the Argosy *too* lightly.

CHAIRMAN'S CLOSING REMARKS

I'm not going, even to attempt, to sum up what has been a most fascinating, interesting and wide-ranging series of talks. Let me thank all the people who have participated, those doing the talks, of course, but also those who asked interesting questions or contributed views of their own. It has been a thoroughly fascinating day. What it has demonstrated, I think, is that air transport really is the mainstay of almost any military, or for that matter any peacekeeping, or indeed humanitarian, operation. Air transport, as has been said, will be the first in and the last out, so it is quite right that we have spent today discussing various aspects of transport operations. Thank you all very much for coming.

THE FAR EAST TRANSPORT WING IN THE EARLY 1950s

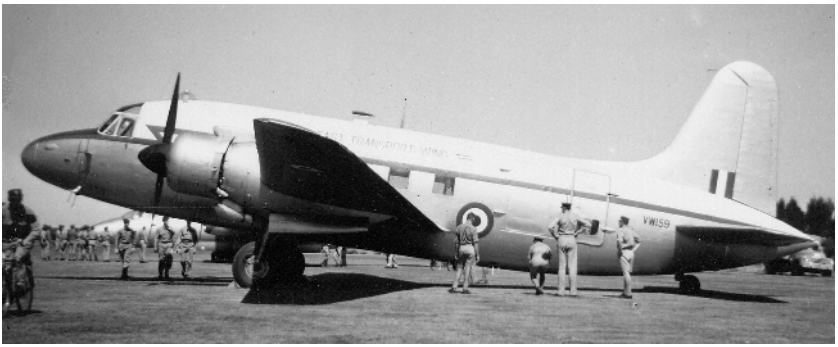
Flt Lt Maurice Rogers

Having listened to the presentations and the subsequent discussions at the Evolution of Air Transport seminar, Maurice Rogers offered the following recollections of his experiences while flying passengers and freight around the Far East during the early to mid-1950s. Maurice had, incidentally, previously addressed the Society on supply dropping during the Malayan Emergency.

The early 1950s saw considerable changes in aviation. The Dutch were still operating Catalina amphibians which took 24 hours to cross the Bay of Bengal and fly on down, via the Malacca Straits, to the East Indies, while the French were using Ju 52s to operate a service between Marseilles and Saigon. In stark contrast to this, BOAC inaugurated its Comet service to Singapore in 1954, this being followed shortly afterwards by the first local sightings of Canberras and Valiants.

The Changi-based medium range Valettas of the Far East Transport Wing (FETWg) flew long distances, some 95% of our routes being over the sea. Ceylon was about 2,000 miles to the west; Rangoon was 1,000 miles north, Hong Kong was 1,600 miles north east with Japan 1,400 miles beyond that. These distances dictated the need for a number of intermediate staging posts, often on remote islands with limited navigational aids. The Ceylon run was served by Car Nicobar, in the Andamans, while the route to Japan involved staging through Borneo, the Philippines and Okinawa. At the beginning of the 1950s it was possible to fly to Hong Kong via Tourane (now Da Nang) in Indo-China. Following the French withdrawal and the partitioning of Vietnam, however, we were no longer permitted to go that way, which obliged us to take a much more circuitous route via Labuan and the Philippines.

This was not without its problems, however, because some kind of diplomatic problem had led to the suspension of certain bilateral agreements which had the effect of preventing British civil aircraft from landing in the Philippines; Philippine airliners being similarly precluded from landing in British administered territories. The RAF outflanked this one by using the American military airfield at Clark Field on Luzon. But this dodge did not solve the problem entirely, as



A Valetta C.1 of FETWg. (E Taylor)

it was often difficult to meet our own diversion criteria on a flight to Kai Tak when adverse winds could give you a point of no return 30 miles short of Hong Kong, even after basing your recovery on the civilian (and therefore notionally unavailable) airfield at Laoag. Even in good weather, Kai Tak was not an easy airfield to get into. BOAC screened its pilots five times before they were allowed to make a solo flight into Kai Tak and we of FETWg did the same.

The present generation of air travellers arriving at Chek Lap Kok will miss the close proximity of high rise buildings and high ground that characterised the landward approach to Kai Tak's long south-easterly runway. But the original, undeveloped, Kai Tak of the 1950s was even more exciting. The runways were much closer to high ground and there were no precision approach aids. All instrument let downs were made out to sea. The easterly runway was short with no overshoot and it could be used only when the wind funnelled through a gap in the hills, generating heavy turbulence over high rise buildings on the approach. The NW runway had a small hill on the approach and in gusty conditions it was necessary to come in high or do an 'S' turn around it. The SE approach required a right-hand circuit with a high base leg towards Lion Rock and a subsequent high rate of descent to get down – virtually a minimum throttle approach, followed by a last minute burst of power to avoid flying *into* the threshold.

The most commonly used let down procedure was based on Waglan Island and involved the used of a Eureka beacon which gave us a break off altitude of around 1,000 feet at 2-4 miles range. At this point, the lighthouse on the island and the white cliffs on the mainland had to be clearly visible before proceeding on into the harbour to

make a visual approach. A more unorthodox let down was available under certain weather conditions – I used it only once. We had been monitoring the weather as we flew up from Clark Field and we knew that there was extensive low cloud blocking the entrances to the harbour. Air Traffic were reporting occasional breaks in the cloud, however, and on arrival we were directed to the KW beacon in the New Territories and from there the controller gave us a heading to steer for one of these breaks. As soon as it was spotted, it was a case of throttling back and spiralling down through the hole to get below the cloud base within the harbour itself.

By the mid-1950s contractors were tendering to reclaim land from the sea to build a new runway and demolish a substantial hill on the proposed approach.

THE MARCH RETREAT OF 1918
The last battle of the Royal Flying Corps.

Wing Commander P J Daybell MBE MA BA RAF

In 1996 the Royal Air Force Historical Society established, in collusion with its American sister organisation, the Air Force Historical Foundation, the Two Air Forces Award*, which was to be presented annually on each side of the Atlantic in recognition of outstanding academic work by a serving officer or airman. It is intended to reproduce some of these papers from time to time in the Journal. This one was the winning RAF submission in 1998. Ed*

Introduction

It is easy to forget that until the middle of 1918 either side was capable of winning the First World War, and that at the beginning of that year the balance of advantage clearly lay with Germany. 1917 had been a bad year for the Allies. The French army had mutinied in May and June, the British offensives at Passchendaele and Cambrai had failed, and on the Italian Front the Italians had suffered a catastrophic defeat that necessitated British and French reinforcements being rushed to Italy to shore up their ailing ally. Most importantly, a broken and beaten Russia was now out of the war, and although she had been replaced by the USA, it would be many months before effective US combat troops reached the European battlefield in numbers. Indeed, the British War Cabinet had already accepted that there was no possibility of an Allied victory before 1919.[1] There was thus a window of opportunity for the Central Powers and Germany was quick to seize it.

Thus it was that eighty years ago, on 21st March 1918, in the first of a series of offensives, Germany launched the *Kaiserschlacht,* or Emperor's Battle, a massive assault against the British in Picardy. Codenamed Operation MICHAEL, and mounted on a truly staggering scale, the battle was compressed into little more than a fortnight of intense fighting. Seventy-six German divisions were eventually engaged along a broad 40-mile front, and the twenty-six divisions that made up the British Third and Fifth Armies were driven back by up to 40 miles before the front was stabilised and the offensive ground to a halt on 5th April. Initially Operation MICHAEL was spectacularly

successful, and it was the battle that came closest to winning the war for Germany.

But one crucial aspect of the campaign that has not been given the attention it deserves is the important role played by the Royal Flying Corps in securing a strategic British victory. In 1930 Basil Liddell Hart wrote of the Allied air attacks during the battle, that they were 'an important factor in stemming the German onrush, and one that has been inadequately recognised by military historians.'[2] Almost seventy years on, little has changed, and even today the story of British Air Power in the March offensive is sadly neglected and worth telling in some detail. Set against the backdrop of a massive British retreat, this article will consider the contribution made by the British air arm and show that air power, even before the formation of the Royal Air Force, played a crucial role in stemming the German advance in Picardy and so made a decisive contribution to the eventual Allied victory.

Organisation of the RFC in France

By 1918 the RFC bore little resemblance to the tiny force that had deployed to France with four squadrons in August 1914. In the intervening years it had evolved into a large and sophisticated air force, backed by a complex logistics organisation. By March 1918 the RFC had sixty-three squadrons and 1,232 aircraft in France.[3] Each of the BEF's four Armies was directly supported by an RFC Brigade comprising a Corps, an Army and a Balloon Wing. The Corps Wing provided a dedicated squadron to each corps in the army, and these were equipped with the big two-seater radio-fitted reconnaissance aircraft, the RE8 'Harry Tates' and Armstrong Whitworth 'Big Acks'. Their tasks were artillery observation and photographic reconnaissance, but they also had a secondary bombing role. The Army Wings had rather more general responsibilities and comprised the scout and bomber squadrons. Kite balloon units directed the artillery and observed the enemy line. There was also a strategic bomber wing for special bombing of military targets in Germany, and various specialist squadrons directly controlled by HQ RFC.

Aircraft types in the Army Wings varied enormously, and several different types often operated from the same airfield. The RFC now had good machines that were equal to the German opposition and were to remain largely unchanged until the end of the war. These included the very successful single-seater Sopwith Camel and SE5a,

the two-seat Bristol Fighter and, for bombing, the two-seater DH 4 by day and the 'pusher' FE2b by night. The operational airfields were usually at least 15 miles behind the front, and beyond them lay the vital logistics infrastructure. This was based around a network of units, the largest of which were the three Aircraft Depots, with their workshops and repair facilities, and the three Aeroplane Supply Depots. In advance of these were six Aircraft Parks that supplied new machines directly to the squadrons.

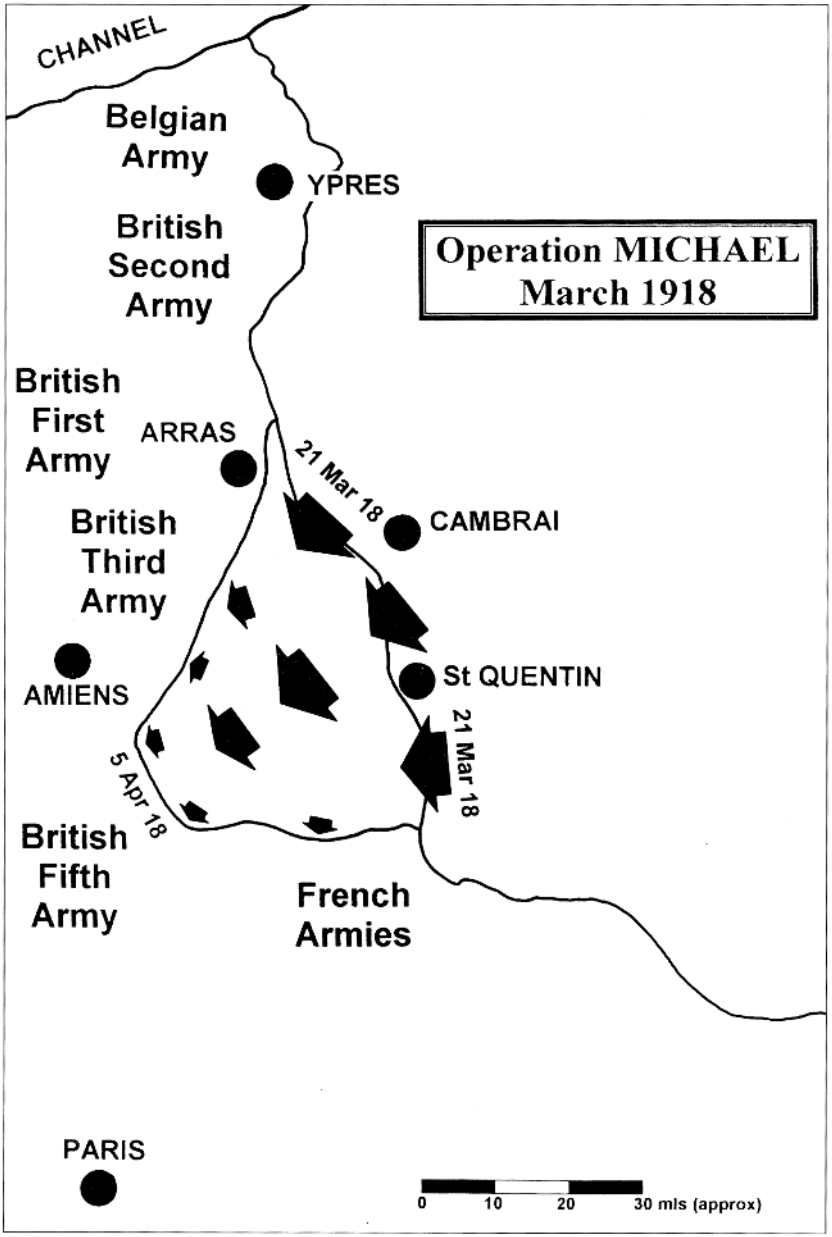
German Plan and British Counterplan

General Ludendorff and the German General Staff took considerable trouble over Operation MICHAEL, and a great deal of internal reorganisation was carried out in the divisions to be deployed, utilising troops redeployed from the Eastern Front. Units were brought up to strength, rested, and the aged and infirm stripped out of them. Storm troop units were created with the specific purpose of combat assault, and the emphasis in training was on speed, infiltration, local initiative, the reinforcement of success and the by-passing of centres of resistance. The objective was the destruction of the British Expeditionary Force. Regarding air organisation, much greater emphasis was now placed on close air support, and the specialist German ground attack units were increased in number and renamed *Schlachtstaffeln* or battle squadrons. These were intended to operate under local army control delivering close support as the infantry assault went in. The air build up was also covered by a careful deception plan for, although the Germans were to concentrate their air assets to achieve local air superiority, this was only done in the days immediately preceding the assault.

Of course, the British knew that they were coming, and in December 1917 the British Commander in Chief, Field Marshal Sir Douglas Haig, told his army commanders:

> 'We must be prepared to meet a strong and sustained enemy offensive. It is therefore of first importance that Army Commanders should give their immediate and personal attention to the organisation of the zones for defence and to the rest and training of their troops.'[4]

There followed a total and rapid reorganisation of the BEF on the ground, as an army that had for most of the war been on the offensive geared up for the expected German attack. German defence in depth


CHANNEL
Belgian Army
YPRES
British Second Army
Operation MICHAEL
March 1918
British First Army
ARRAS
21 Mar 18
CAMBRAI
British Third Army
AMIENS
St QUENTIN
21 Mar 18
5 Apr 18
British Fifth Army
French Armies
PARIS
0
10
20
30 mls (approx)

had frustrated the British during 1917, and so the British now attempted to replicate that successful formula. The old front line was to be turned into a lightly held 'Forward Zone' that was designed to slow down the enemy and cause maximum casualties, before the defenders withdrew to the main line of defences, the 'Battle Zone'. This would be two or three miles behind the 'Forward Zone', and would be a thick layer of defences with redoubts, machine-gun nests, and artillery pieces sited against tanks. It was here that it was planned for the main battle to take place. Behind this was to be a third line of defences, the 'Corps Line'. Each of these zones was not to be a single line of trenches, but rather a deep belt of interlocking and mutually supporting defensive positions. The plan was for an elastic defence, with enemy successes being matched by local counter-attacks. The reality though was rather different, and time and an acute shortage of labour, wire and timber had prevented the completion of the defences in the south, where the weak Fifth Army had taken over poor positions from the French, and had been afforded the least priority in resources. Here, the 'Battle Zone' was not properly completed, and the 'Corps Line' had hardly even been begun.[5]

Haig had assured the Prime Minister that he could withstand any German assault for at least eighteen days, by which time additional reinforcements could have crossed from England.[6] He had formulated his plans carefully, and deliberately chosen to make his strongest dispositions in the north. His reasons for this were that close behind his left wing lay the channel ports of Boulogne, Calais and Dunkirk, and in their hinterland much of the supporting infrastructure of the BEF. Thus any loss of ground would encroach on these strategically vital areas, and could prove decisive. In the south, however, there was room for greater flexibility, and the British had the space to withdraw without such serious consequences, and arrangements had in any case been made with the French to provide an immediate reinforcement of six divisions in the event of a serious attack.[7] Thus it was that in the extreme south, General Sir Hubert Gough, commanding the Fifth Army, had 42 miles of line to cover with only twelve infantry and three cavalry divisions;[8] it was the weakest concentration of forces in the BEF, and the target for Operation MICHAEL.

The RFC in Defence

Major-General Sir Hugh Trenchard, commanding the RFC in the field, prepared his own detailed plans for the RFC in defence. This was one

of his last tasks before handing over to Major-General Jack Salmond, and returning to London in mid-January to become the first Chief of the Air Staff upon the foundation of the Royal Air Force on 1st April. A short secret document published in January 1918 set out the likely stages of an enemy offensive, and detailed the activities of the RFC at every stage. It was to be the blueprint for the coming battle. It began:

> 'The first and most important of the duties of the Royal Flying Corps in connexion (*sic*) with defence is to watch for symptoms of attack, and to use the endeavours to obtain and transmit at once all information which may assist responsible commanders to determine beforehand when and where an attack is coming and by what force.'[9]

Particular attention was to be directed to enemy railways and sidings, roads, dumps, aerodromes, camps and gun positions, all of which were to be regularly photographed. Once it became clear that an offensive was imminent, then every effort was to be made to interfere with the preparations. Artillery co-operation work was to be increased, bombing attacks were to be intensified, and an extensive offensive waged against enemy air. When the German attack began, the first priority would be to direct artillery onto the advancing enemy, and thereafter aircraft were to make low level attacks against enemy rear areas and harass the advancing troops.

Throughout the document the importance of reconnaissance and intelligence gathering is stressed, and subsequent sections go on to cover support for counter attacks, and the need for detailed reinforcement plans to be drawn up so that air assets could be switched quickly to any threatened area. Finally, and typical of the aggressive Trenchard, there is a reminder of the fundamental nature of air power and the importance of the counter-air campaign that is worth quoting in full:

> 'The successful performance of the role of the Royal Flying Corps in defence, as outlined above, must primarily depend on its ability to gain and maintain ascendancy in the air. This can only be done by attacking and defeating the enemy's air forces. The action of the Royal Flying Corps must, therefore, always remain essentially offensive, even when the Army, during a period of preparation for offensive operations is standing on the defensive.'[10]

RFC ORBAT MARCH RETREAT 1918

III BRIGADE SUPPORTING THIRD ARMY

12th (Corps) Wing

No 12 Sqn	RE8
No 13 Sqn	RE8
No 15 Sqn	RE8
No 59 Sqn	RE8

Total: 78 aircraft

13th (Army) Wing

No 3 Sqn	Camel
No 11 Sqn	Bristol F2b
No 41 Sqn	SE5a
No 46 Sqn	Camel
No 49 Sqn	DH 4
No 56 Sqn	SE5a
No 64 Sqn	SE5a
No 70 Sqn	Camel
No 102 Sqn	FE2b

Total: 183 aircraft

V BRIGADE SUPPORTING FIFTH ARMY

15th (Corps) Wing

No 8 Sqn	FK8
No 35 Sqn	FK8
No 52 Sqn	RE8
No 53 Sqn	RE8
No 82 Sqn	FK8

Total: 102 aircraft

22nd (Army) Wing

No 6(N) Sqn	DH 4
No 23 Sqn	SPAD
No 24 Sqn	SE5a
No 48 Sqn	Bristol F2b
No 54 Sqn	Camel
No 84 Sqn	SE5a
No 101 Sqn	FE2b

Total: 141 aircraft

ADDITIONAL UNITS INVOLVED

9th (Day) Wing, moved up to support Fifth Army by 9 March.

No 25 Sqn	DH 4
No 27 Sqn	DH 4
No 62 Sqn	Bristol F2b
No 73 Sqn	Camel
No 79 Sqn	Dolphin
No 80 Sqn	Camel

Total: **114 aircraft**

10th (Army) Wing, positioned behind First Army, flew many missions south in support of Third Army.

No 2 Sqn AFC	SE5a
No 3(N) Sqn	Camel
No 4 Sqn AFC	SE5a
No 18 Sqn	DH 4
No 22 Sqn	Bristol F2b
No 40 Sqn	SE5a
No 43 Sqn	Camel

Total: **141 aircraft**

Various other British and French squadrons took part in air operations in support of the Third and Fifth Armies of the British Expeditionary Force during the March Retreat.

Build up to Battle

Of course it was not immediately clear where the German attack would fall, or indeed how many attacks there would be. On 19th February HQ RFC issued plans for the concentration of air assets against any two of the Four British armies; that is the Second and First in the north, the First and Third in the middle, or the Third and Fifth in the south. However, General Gough was already convinced that the German attack would fall on his section of the line, and his views were strongly influenced by the reports of air observers and, in particular, aerial photographs. General Sir Julian Byng, commanding the adjacent Third Army, believed that his line was also threatened. Indeed, opposite Third and Fifth Armies new German dumps, railway sidings and hospitals had been spotted, and, by the end of January, fourteen new airfields had been discovered facing the right of Fifth Army.[11] On 24th February Salmond told his Brigade Commanders that everything now pointed to a German attack against Third and Fifth Armies, and by 9th March he had executed his concentration plans, placing 9th (Day) Wing behind Fifth Army with three additional scout squadrons, a squadron of Bristol Fighters and two of day bombers.

Intelligence of all sorts continued to flood in. Particularly noticeable were the daily extension of the network of light railways behind the enemy lines, an increasing concentration of German air units and an abnormal number of lights in the German back areas reported by night flying pilots. The RFC, while continuing to collect intelligence, moved into the next stage of Trenchard's blueprint, and began to harass the enemy. Bombing raids by both day and night had been routinely carried out against the enemy rear areas, but these were now stepped up. For example on 9th March V Brigade launched a co-ordinated series of attacks against three enemy airfields at Busigny, Bertry and Escaufort. This raid had been planned for some time and fifty-three aircraft of Nos 23, 24, 48 and 54 Sqns made their attacks in the early afternoon while the enemy were still on the ground before the afternoon patrols. Cover was provided by the SE5as of Sholto Douglas' No 84 Sqn, circling above, as the Bristol Fighters and Camels hit Busigny and Escaufort. Douglas later recalled:

> 'They had been practising for just such an attack, and I watched them as they scored direct hits on the hangars and other buildings,

all the time keeping a weather eye open for enemy fighters that might come on the scene.'[12]

Similar large scale attacks were mounted on 17th and 18th March, although on these occasions the object was to force the enemy into the air where they could be attacked by waiting fighters and, as a result, several large air engagements ensued. It was now clear that the offensive was imminent. Overall the British had thirty-one squadrons deployed in support of Third and Fifth Armies, totalling 579 aircraft, of which 261 were single-seat fighters. The German concentration was also complete giving them a numerical advantage, for ranged against the RFC were 730 German aircraft, of which 326 were fighters. This made a total of more than 1,300 aircraft in the battle area.[13]

The First Day

The German attack began suddenly at 4.40 am on 21st March, with a devastating artillery barrage that lasted for five hours, and it was the entire frontage of Gough's Fifth Army, and most of Byng's adjacent Third Army that was attacked. It was the greatest concentration of artillery ever gathered together, and 10,000 guns and mortars opened fire simultaneously along a 43-mile front, with long range guns penetrating to a depth of 20 miles. Altogether 1,160,000 shells were expended, a high proportion of which were gas. It was the most intense bombardment of the war. Divisional headquarters, telephone exchanges, railway stations and forward airfields, as well as defended locations, were among the carefully chosen targets. At 09.40 hrs the German infantry advanced in silence 'without hurrahs',[14] led by specially trained storm troopers and following behind a creeping barrage. The assault was extraordinarily successful, and was aided by dense fog that covered the battlefield in the first part of the morning and was particularly thick in the southern part of the line. Thus in many places the Germans loomed out of the mist and carried front line positions before the defenders really knew what had hit them. By mid-morning the assault troops had overwhelmed the British 'Forward Zone' and were moving on against the 'Battle Zone'. Very significantly, large numbers of British troops had found themselves cut off and were either fighting on in isolated pockets or had surrendered. Indeed a staggering forty-seven battalions were lost in those first few hours; a cruel blow to a defence already desperately short of infantry.[15]

Detailed plans had been drawn up for the use of the RFC, continually updated maps and instructions being displayed in the observers huts on each squadron. The Corps Squadrons were to continue to support the infantry through artillery observation and reconnaissance, but were to also engage in night bombing if time allowed. The Army Squadrons also had prioritised lists of responsibilities, with the Camels providing close escort to corps machines, the SE5as patrolling against hostile formations and the Bristol Fighters attacking enemy forces on the ground. In the event, all squadrons maximised their efforts and were in almost constant action and this brief narrative can only attempt to impart a flavour of the rapidly moving battle. In the north, despite the weather, corps aircraft were able to operate normally, with a succession of seven RE8s of No 59 Sqn keeping their section of line under close surveillance between 6.15 am and 7 pm. Initially watching the German bombardment they reported heavy damage to both the line and wire. By the afternoon they were also reporting that a 'deep bite' had been made by the enemy into the Third Army front. The RE8s repeatedly tried to call down counter battery fire, and direct British guns onto the enemy troop concentrations that they could clearly see pouring down the roads towards the front. There was no response, and this was one of the first instances of what was to be a major failing of the carefully planned defensive air campaign. The Official Historian offers the following explanation:

> 'The chief causes of failure were the severance of telephonic communication and the breakdown of the artillery wireless organisation; batteries were continually on the move; much telephone and wireless equipment was lost or damaged; and when batteries halted they did not always erect their wireless masts. The majority of zone calls sent down from the air during the first days of the battle were not answered whilst the air observers were waiting to observe the fire effect.'[16]

The 'zone call' permitted an air observer to direct all available guns to carry out an immediate shoot onto a particular map square. The failure of this artillery procedure was highly significant, as it denied the British their most potent weapon at this critical time.

In the south the fog severely hampered air operations, No 8 Sqn's Record Book noting 'thick ground mist all day', although they still managed 10 hrs 45 mins of flying by a total of eight pilots.[17]

Nevertheless, by the afternoon, the Corps Squadrons were delivering crucial reports of the extent of the German advance, and the scouts of Nos 23 (SPADs), 24 and 84 (both SE5as) Sqns were carrying out low level attacks on targets of opportunity with machine guns and 25lbs bombs. But German successes were causing other difficulties because the forward airfields were coming increasingly under artillery fire, and were increasingly threatened by the advancing enemy. The first to be forced out were the DH 4 day bombers of No 5 (Naval) Sqn[18] which were shelled out of their airfield at Mons-en-Chaussée in the morning and redeployed to Champien, burning the hangars and buildings before they went. Despite this, later that afternoon, they were able to deliver two raids against the bridges over the St Quentin Canal, and the German troops pouring across them.

Overall thirty-six squadrons of the RFC had engaged the enemy. But while the RFC had emerged from the first day of heavy fighting in reasonable shape, this was certainly not the case on the ground. The stark facts were that almost 100 square miles of territory had fallen to the Germans and the British had lost 7,512 dead, 10,000 wounded, and a staggering 21,000 prisoners. But the British had inflicted even greater damage on the enemy who had lost 10,851 dead, 28,778 wounded and 300 prisoners. It was the costliest day of the war, with a total of more than 78,000 casualties.[19]

Retreat

As if to underscore the seriousness of the situation, on 22nd March the RFC pulled back from its threatened airfields, destroying buildings and any equipment that could not be evacuated as it went. All seventeen squadrons in support of Fifth Army, and five of those in support of Third Army, retired to the west. Within hours German infantry was occupying the first of their abandoned airfields. These were only the first of a series of hurried moves that saw RFC units constantly on the move during the battle. As an Australian pilot recorded:

> 'So quickly did these evacuation orders come that many British pilots who flew out on a patrol in the morning would return a few hours later to find the whole of their squadron's personnel gone to some unknown destination - in some cases without their stores and equipment - and the aerodrome being shelled by the enemy.'[20]

On the ground, the British were being slowly pressed back as Fifth Army, which had borne the brunt of the attack, began to buckle, its units losing touch with their flanks and the promised French reinforcements failing to materialise. By 23rd March Ludendorff believed the British were beaten and moved his armies into the next phase of the battle to exploit the breakthrough, and breakout. On 21st March Haig had asked the French for three divisions; now on 23rd March he asked for twenty,[21] and on the following day, Palm Sunday, he issued a special order of the day to all ranks: 'We are again at a crisis in the war. The enemy has collected on this front every available division and is aiming at the destruction of the British Army…..'[22] The position was perilous.

On the 25th, as Gough fell back again, Byng began to pivot his army on Arras, swinging back to stay in touch with Fifth Army. It was a critical moment as the British line bulged, and briefly looked as if it would break, and, to compound the difficulties, further south a gap threatened to open between the British and French. The British feared a precipitate French withdrawal to protect Paris, which was already under long range artillery fire, and the French feared that the British would break contact and fall back on the Channel ports. So serious was the situation that the two major RFC depots in the south, No 2 Aeroplane and Supply Depot at Fienvillers and No 2 Aircraft Depot at Candas began to evacuate; more than 170 aircraft, as well as stores and other equipment, were moved back to safety. Then, in response to a severe threat to Third Army, Salmond sent detailed orders to HQ 9th Wg, concluding with the famous instructions:

> 'These squadrons will bomb and shoot up everything they can see on the enemy side of this line. Very low flying is essential. All risks to be taken. Urgent.'[23]

In addition aircraft from ten squadrons of I Brigade, operating further north, were diverted south to join the air offensive and a further two squadrons from the beleaguered V Brigade also flew north to support Third Army with low flying attacks. Altogether some 250 British aircraft from twenty-seven squadrons machine-gunned and bombed the advancing German columns in front of Third Army, with the loss of fifty of their aircraft.[24]

On 26th March at Doullens, with enemy artillery landing close by, the Allies convened an emergency meeting chaired by France's President Poincaré. The French were rattled, with their Commander in

Chief, General Pétain, telling Prime Minister Clemenceau, "The Germans will beat the British in the open country, and after that they'll beat us."[25] Haig wrote of Pétain that morning 'He had the appearance of a commander who was in a funk and had lost his nerve.'[26] But, despite the tension, common sense prevailed and Marshal Foch was appointed as the supreme Allied Commander, charged with co-ordinating the Allied armies on the Western Front. It was a decisive moment for, as the allies rallied, the German offensive was already running out of steam. When a fresh attack further north against Vimy Ridge failed on 28th March, the offensive ground to a halt. It was finally abandoned on 5th April. They had not split the British and the French; they had not rolled up the BEF and driven the British into the sea; and, despite a ferocious final effort, they had not even taken the key communications centre of Amiens. Ironically, just as the British managed to stabilise their front, on 28th March, General Gough was sacked at the insistence of Prime Minister Lloyd-George who wanted a scapegoat, consideration having briefly even been given to the removal of Haig.[27]

Analysing the Air Battle

Although the land battle had come perilously close to total disaster, the air campaign had been significantly more successful. The RFC had provided a continuous stream of high grade intelligence to the Army Commanders during the German build up and, once it was plain where the enemy attack would fall, had harassed their final preparations. The greatest failure within the defensive plan was the breakdown of communications between the Corps Squadrons and the artillery batteries that had denied the British their most valuable assault breaking weapon, air-directed gunfire. But the fault for this lay with the artillery on the ground, who, in the confusion of retreat, had failed to erect their aerials, rather than with the airmen. The carefully laid schemes for defence also largely went by the board for much of the battle, for, although the fighters patrolled and engaged enemy fighters up to 25th March, at that point the situation became so serious that the emphasis switched to low flying bomb and machine-gun attacks by all available aircraft against enemy troop concentrations. French aircraft too began to play their part at this stage of the battle.

On 22nd March, Haig described the German columns in his diary as 'marvellous targets'. Dryly, Sholto Douglas records 'There is

nothing marvellous about slaughter. For the first time we were presented with what it would be better to refer to as near perfect ground targets.'[28] Testimony as to the effectiveness of these low flying attacks is recorded in numerous German personal papers and regimental histories of the battle, one of the most graphic being this account from a bugler of the 8th Grenadiers:

> '….there suddenly appeared before us some twenty British aeroplanes which dived to a height of about 100 to 200 metres, and then, continuing to within 2-3 metres of the ground, attacked us with their machine-guns. At first we thought that they intended to land; but we speedily saw the danger and opened a vigorous fire upon them. Several Tommies flew so low that the wheels of their aeroplanes touched the ground. My Company Commander, Lieutenant Nocke, had to fling himself to the ground, but for all that he was struck on the back by a machine, thus being literally run over.'[29]

The Australian Official Historian recorded events from the other side, describing scenes on the Baupaume-Cambrai road, one of the major German arteries to supply the battlefield:

> 'Pilot after pilot recorded that his bombs burst in the middle of troops or transport, and so thick was the traffic that any block in it must have proved serious. The airmen blew craters in the road surface with their bombs, and then concentrated their attack on the traffic, which became bunched at such craters in their effort to make the narrow passage round them. With machine-gun fire the airmen ditched motor lorries, blocked the road with broken wagons and maimed horses, set field-gun teams into panic-gallops away from their route, and played all possible havoc with the German rear services.'[30]

Most British aircraft continued to operate at low level until 31st March which saw a return to more conventional tactics, with the fighters returning to the upper air. But by this time the offensive had really ground to a halt, with the utterly exhausted Germans incapable of pushing any further. The RFC had flown more hours in March 1918 than in any other month thus far in the war, and the total of 245 aircrew dead or missing was only exceeded by the 316 lost in 'Bloody April' 1917.[31]

The fact that the British were able to carry out their low level operations with such success was, to a great extent, due to the operational difficulties being experienced by the Germans. The German *Schlachtstaffeln*, although highly trained ground attack specialists, confined themselves to attacks against the front line. The German Air Service largely ignored the British rear areas with their congested and highly vulnerable lines of communication. The effects of this were twofold. First, it meant that the Germans had failed to capitalise on the major targets available to them. Secondly, it had meant that the RFC commanders had not had to divert aircraft from their own low level attacks to protect the rear areas. The Germans also suffered heavy casualties in the early stages of the campaign and, unlike the British, they had lacked the reserves of aircraft, crews and spares to rapidly replace them. In addition, the co-operation between the air elements and the infantry gradually began to break down as the infantry stormed forward, leaving the supporting airmen further and further behind. General von Hoeppner, commanding the German Air Service, summed it up as follows:

> '…their operations were not co-ordinated, either as to the time or the place, with the march of events on the ground. It therefore happened that the infantry were deprived at the decisive times and places, of the help of the fighting pilots. The fault of the higher command, in not issuing timely orders to the fighting formations, appeared to the troops as a failure on the part of the air service.'[32]

All of this was in marked contrast to the British, whose air organisation stood up remarkably well to the unprecedented strains of the retreat. In the autumn of 1917 a proportion of the vehicles supporting the operational squadrons had been withdrawn and pooled in Reserve Lorry Parks within each brigade. These were intended to support the movement of up to half the squadrons at any one time. In February, Major General Salmond arranged a 50% increase in their strength. Emergency arrangements were also introduced to permit the rapid survey and establishment of new airfields. OC No 6 Sqn, whose unit was being held in reserve, was tasked daily by HQ RFC to find aerodromes in particular areas for withdrawing squadrons. Arriving by fast car before dawn, he would review the area and report back by telephone, enabling new airfields to be cleared and marked and stores prepositioned. By the end of the two-week battle forty-five new RFC airfields had been constructed in this way. Again, in contrast to that of

the Germans, the British logistics organisation, masterminded by Brigadier-General Brooke-Popham, had responded well. Two flying columns of vehicles, one loaded with bombs and ammunition, the other with spares, were held at five minute's readiness to relieve acute shortages and supplement the regular deliveries. Remarkably, despite heavy losses, and the burning of many damaged aircraft as units pulled back, all RFC squadrons were kept well up to strength throughout the battle.[33]

Conclusion

This was a battle on an extraordinary scale and at the decisive point in the war. The initial successes of some one million German troops who took part in the offensive almost paralysed the Anglo-French alliance, sent shock waves through the governments in London and Paris, and came within a whisker of splitting the British and French Armies apart. British losses totalled some 177,000 of whom 72,000 were prisoners; the total French losses were a further 77,000. The Germans, with some 239,000 casualties, had also lost heavily and these were men that she could not replace. In the end the German Army was simply exhausted, Ludendorff noting in his memoirs that 'The enemy resistance was beyond our powers.'[34] Although the Germans were able to come again with further offensives in April, May and June 1918, these were less powerful, less successful and increasingly desperate, until, exhausted in both men and materiel, the fighting heart of the German Army was finally broken. Their faltering forces were driven back by the Allied counter-offensives of the last 100 days that were finally to win the war

The *Kaiserschlacht* was thus both the high water mark of German success, and the beginning of the end for Germany. Despite huge advances they had failed to achieve any of their strategic objectives, whereas the British had achieved their aim, for the expected German offensive had been held in the end. The Australian Official War Historian, F M Cutlack, succinctly summarised the situation as follows:

> '....while it was the heroic infantry of outnumbered British and French divisions which held up the enemy advance.…it was principally the untiring exertions of the airmen in delaying, damaging, and disheartening the enemy's reserves, and throwing

his whole transport system out of gear, which enabled the Allied infantry to succeed.'[35]

Trenchard's defensive plan was skilfully and flexibly executed by Salmond, despite the unprecedented difficulties of the retreat. In March 1918 it was the air war that made the difference between success and failure and won the battle for Britain. The squadrons of the RFC had concentrated to control the skies and prosecute a relentless anti-surface force campaign that played a decisive part in the battle, and clearly demonstrated that air power had come of age, even before the birth of the Royal Air Force.

Notes

1 David R Woodward, *Lloyd George and the Generals* (Newark: University of Delaware Press, 1983), p234.
2 B H Liddell Hart, *History of the First World* War (London: Book Club Associates,1973), p460.
3 H A Jones, *The War in the Air, vol 4* (Oxford: Clarendon Press, 1934), p451.
4 Martin Middlebrook, *The Kaiser's Battle* (Harmondsworth: Penguin Books, 1983), p65.
5 *ibid*, p80.
6 Woodward, *Generals*, p290
7 Middlebrook, *Battle*, p73.
8 The three cavalry divisions contained the same number of soldiers as a single infantry division.
9 Jones, *War, Appendix XIV.*
10 *ibid*
11 Jones, *War*, p264.
12 Lord Douglas of Kirtleside, *Years of Combat* (London: Collins, 1963), p261.
13 Jones, *War*, *Appendix XVI.*
14 E Edmonds, *Military Operations, France and Belgium 1918, Vol IX* (London:Macmillan, 1935) p162.
15 Middlebrook, *Battle*, p204.
16 Edmonds, *Operations*, p168.
17 PRO AIR 1/1669/204/109/8.
18 This was one of a number of RNAS squadrons brigaded with the RFC.
19 Middlebrook, *Battle*, p322.
20 M Cutlack, *Official History of Australia in the War of 1914-18, Vol VIII* (Sydney: Angus & Robertson Ltd, 1923), p233.
21 Woodward, *Generals*, p286.
22 Jones, *War*, p314.
23 *ibid*, p 320.
24 Randal Gray, *Kaiserslacht 1918* (London: Osprey, 1996), p. 63.
25 *ibid*, p64.

[26] Robert Blake, *The Private Papers of Sir Douglas Haig, 1914-1919* (London: Eyre and Spotiswoode, 1952), p298.
[27] Woodward, *Generals*, p292.
[28] Douglas, *Combat*, p279.
[29] Jones, *War*, p316.
[30] Cutlack, *Australia*, p236.
[31] Jones. *War*, *Appendix XXXVII*.
[32] *ibid*, p365.
[33] *ibid*, p358.
[34] Martin Gilbert, *The First World War* (London: Harper Collins.), p412.
[35] Cutlack, *Australia*, p237.

SELECT BIBLIOGRAPHY PRIMARY SOURCES

AIR1 files held in the Public Record Office Kew, notably:
2222/209 - 5 Brigade War Diary.
1669/204/109/8 – No 8 Sqn's Record Book.
1547/204/78/4 – 15th Wg Routine Orders.
719/35/7 - notes from an interview given by General Gough on the RFC in the March offensive.

SECONDARY SOURCES

Ralph Barker, *The Royal Flying Corps in France from Bloody April to Final Victory* (London: Constable, 1996).
F M Cutlack, *Official History of Australia in the War of 1914-18, Vol VIII* (Sydney: Angus & Robertson Ltd, 1923).
Robert Blake, *The Private Papers of Sir Douglas Haig, 1914-1919* (London: Eyre and Spotiswoode, 1952).
Lord Douglas of Kirtleside, *Years of Combat* (London: Collins, 1963).
J E Edmonds, *Military Operations, France and Belgium 1918, Vols IX & X* (London: Macmillan, 1935 and 1937).
B H Liddell Hart. *History of the First World War* (London: Book Club Associates, 1973).
Anthony Farrar-Hockley, *Goughie* (London: Hart-Davis, MacGibbon,1975).
General Sir Hubert Gough, *The Fifth Army* (London: Hodder and Stoughton, 1931).
General Sir Hubert Gough, *Soldiering On* (London: Arthur Barker, 1954).
Randal Gray, *Kaiserslacht 1918* (London: Osprey, 1996).
Martin Middlebrook., *The Kaiser's Battle* (Harmondsworth: Penguin Books, 1983).
Trevor Henshaw, *The Sky Their Battlefield* (London: Grub Street, 1995).
H A Jones, *The War in the Air, Vol 4* (Oxford: Clarendon Press, 1934).
David R Woodward, *Lloyd George and the Generals* (Newark: University of Delaware Press, 1983).

DOWDING AND HIS MANPOWER. THE CASE OF HURRICANE AND SPITFIRE PILOTS OF THE RAF AND ITS RESERVES IN 11 GROUP

Dr Tony Mansell

Tony Mansell is a Senior Visiting Research Fellow of King's College, London, having retired from his post in its School of Education in 1995. His interest in pilots of the Battle of Britain arose from a more general one in the social and educational backgrounds of professional élite groups. His publications include studies of the recruitment of RAF pilots in the inter-war years, of the histories of scientific and medical education in London and of the education of 19th century civil engineers.

Battle of Britain pilots were drawn from the RAF, its various Reserves, the FAA, Dominion air forces, such as the RCAF and RNZAF, and from foreign air forces which included Belgian, Czech, Free French and Polish airmen. They flew several types of aircraft but only Hurricanes and Spitfires were of crucial importance. This is not to overlook the contributions and sacrifices made by the others - but simply to acknowledge the reality. The force contained a vital core - the men of the RAF and its Reserves. Such men, and especially the Regulars, embodied the professionalism of the RAF whose quality, ethos and skills provided the cement which bound the whole exercise together. The Regular contingent was made up of short and medium service commission officers, Cranwell graduates, direct entry permanent commission men and airmen pilots. The latter included former Halton apprentices and also some who had entered the service through the short-lived direct entry airmen pilots scheme. The short service men were in the large majority. The Reserve included AAF, RAFVR, University Air Squadron and RAFO men, with the RAFVR making up the majority and the AAF representing the most experienced of the Reserve pilots. The initial phase of fighting took place between 10th July (Day 1 of the 114 days of the Battle) and 7th August (Day 29) and was succeeded by an escalation of German activity on 8th August (Day 30) - a date on which the Battle of Britain was once considered to have commenced and which I will take as the starting point for my analysis. That is concerned with the deployment - under Dowding's authority as AOCinC Fighter Command - of

Hurricane and Spitfire pilots of the RAF and its Reserves in 11 Group, including those who were present in Nos 302, 303 and 1(Canadian) Sqns.[1]

Such Hurricane and Spitfire pilots entered 11 Group via several routes. The main one was the posting-in of their squadrons but they also entered as individuals. Many of these had come directly from OTUs but some had volunteered for transfer from Battle and Lysander squadrons to Fighter Command and were finding their way into 11 Group from August onwards. Others were posted from squadrons elsewhere within Fighter Command or converted from the Blenheims already in 11 Group. Individual postings amounted to 77 Regular and 138 Reserve pilots up to 6th September (Day 59). Of the total, 43 were men who had already served in Fighter Command squadrons and their mode of posting was to become the principal route for individual pilots entering 11 Group after 7th September (Day 60). As the Battle progressed squadrons moved in and out of 11 Group, exhausted units being replaced with fresh ones, but a major switch-over occurred between 27th August (Day 49) and 9th September (Day 62). During this period four Spitfire and ten Hurricane squadrons left 11 Group whilst five of Spitfires and nine of Hurricanes moved in. These moves practically exhausted Dowding's stock of fresh squadrons but those entering 11 Group were of fine quality. They were rested and among them were several which had seen active service in France, over Dunkirk or in the heavy fighting of 15th August when *Luftflotte 5* had attacked the north. As it entered the crucial phase of the Battle, leading up to the London attacks and the climax of 15th September (Day 68), 11 Group was as strong as Dowding could make it in terms of his available squadrons. After 9th September, four Hurricane and two Spitfire squadrons left 11 Group whilst four of Hurricanes and one of Spitfires moved in. The majority of these moves took place during October and three of the incoming squadrons were returning to 11 Group after resting in the north.

Dowding also had to consider the needs of 10 and 12 Groups, which played important roles in the Battle as a whole and in the defence of London, but at a meeting held on 7th September (Day 60) he promised Park that he would maintain the strength of 11 Group, although he could not increase its allocation of squadrons.[2] He then introduced his Squadron Stabilisation Scheme which reinforced 11 Group by milking pilots from squadrons outside the Group. After Day

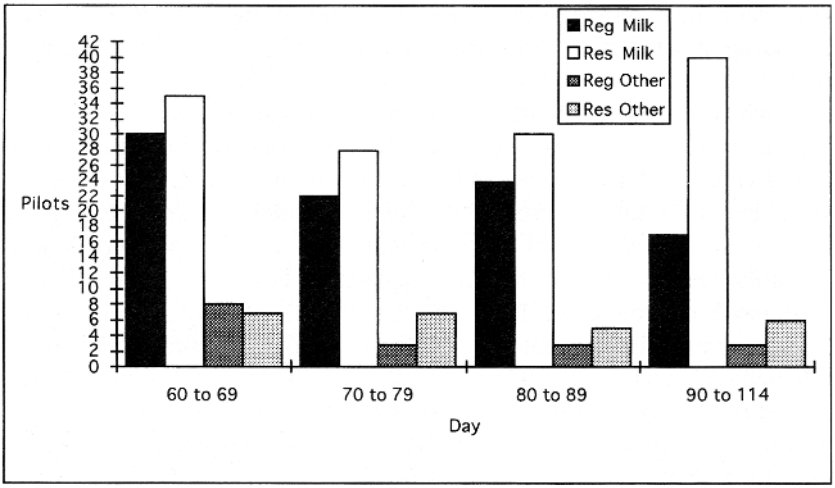


Figure 1. Individual pilots posted into No 11 Group after Day 60, showing the contribution of 'milkmen'.

60, as Figure 1 shows, milking became a prime source of pilots for 11 Group. Of the milked pilots, 47% were men returning to 11 Group after having previously served there. As a squadron normally consisted of about twenty pilots, the 220 milkmen who moved into 11 Group after Day 60 can be thought of as the numerical equivalent of ten squadrons. In this way Dowding honoured his promise in terms of his Regular and Reserve pilots.

Figure 2 gives the daily presence of Regular and Reserve pilots resulting from the postings detailed above, set against losses within the Group.[3] Dowding is reported to have exclaimed "Thank God for the RAFVR"[4] when confronting his needs for pilots. Figure 2 also shows the Regular:Reserve balance within 11 Group and how it shifted in favour of the latter after Day 70. This was true of Fighter Command as a whole and the position is revealed in Figure 3 - where the data excludes those Hurricane pilots of Nos 3, 232, 245 and 263 Sqns who spent the period of the Battle on its fringes in 13 Group. Some six hundred of the Figure 3 pilots were RAFVR men.[5] Perhaps an interesting feature of Figure 2 lies between 17th August (Day 39) and 26th August (Day 48), where the Reserves are in a significant majority. Moving in fresh squadrons boosted the Regular contingent sharply after 27th August (Day 49). This may be purely coincidental,

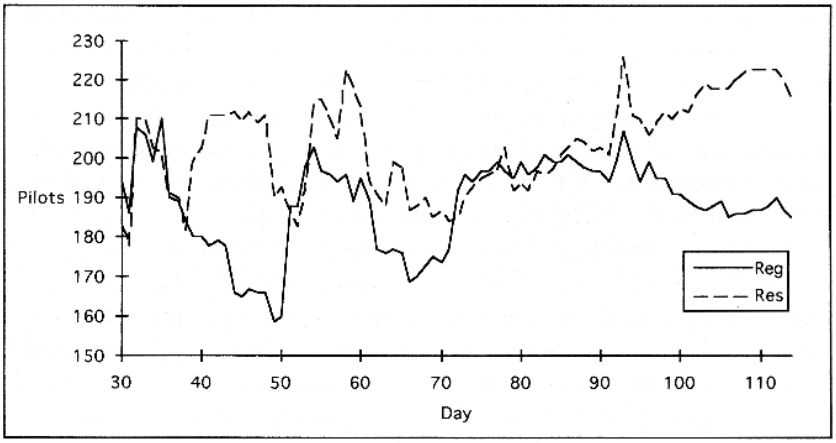


Figure 2. Regular and Reserve Hurricane and Spitfire pilots in No 11 Group.

of course, but Berlin was bombed on the 25th (Day 47) and Dowding certainly foresaw the likely consequence of that - an attack on London for which 11 Group must be ready. The deliberate use of London as a diversionary target by provoking Hitler is not proven, so far as I am aware, but it is the kind of strategic thinking which one would hope was taking place somewhere in the light of Fighter Command's

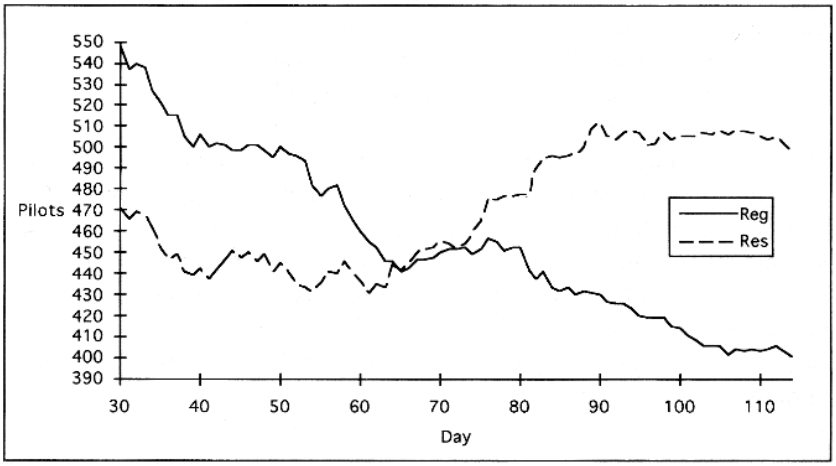


Figure 3. Regular and Reserve Hurricane and Spitfire pilots of Fighter Command.

growing predicament over the attacks on its airfields. In his book, *Twelve Legions of Angels*,[6] Dowding attributed victory in the Battle of Britain to Divine intervention. He did not give details but he was possibly referring to the switch of targets by the Luftwaffe on 7th September (Day 60). Without wishing to impugn Dowding's sincerely held religious beliefs, it is just conceivable that Portal, or possibly Churchill, may have wished to claim some of the credit for that providential switch!

A final comment here about the experience of the pilots Dowding sent into 11 Group. At least 50% of them were men with less than one year of squadron service when they entered the Battle - and this was true of Fighter Command as a whole. However, in his Despatch on the Battle, Dowding noted that a man of thirty had reached an age at which he would have difficulty in supporting the strain of the kind of fighting involved and said that only in exceptional circumstances should a man over twenty-six years of age be given command of a fighter squadron.[7] Youth may imply short experience but to be young was no disadvantage in terms of rapid reaction times and stamina. Two other points are worth considering. Firstly, that a man with as little as two months' squadron service at the start of the Battle could have seen action in France or elsewhere and secondly, the importance of experience gained within the Battle period itself. For ninety-six milkmen such experience amounted to at least sixty days when they entered, or returned to, 11 Group. Generally it is true to say that Regular and Reserve reinforcement of 11 Group after Day 60 was by men who were fully operational as soon as they arrived on their squadrons. This was not always so with individual postings prior to Day 60, especially in the case of some pilots coming directly from OTUs. Polybius, the Greek historian of Rome, thought that only those who had taken part in warfare themselves were qualified to write about it - and I tend to agree with him. With some presumption, therefore, I suggest that perhaps what counted was not so much length of squadron service in itself but the quality and courage of the men concerned and the example and leadership which they found on their squadrons, from men whose longer experience of the professional ethos of the RAF and its Reserves paid off when it was most needed.

Notes:

[1] I am grateful to many for help in finding data for this article among whom I must include Air Cdre Henry Probert and his successors at AHB who opened important

doors for me. The late Gp Capt Tom Gleave and his successor Wg Cdr John Young of the BBFA were, and are, important sources of both data and sound advice. I am indebted to the published work of F K Mason but especially to that of K G Wynn, whose *Men of the Battle of Britain*, (Norwich; 1989 - since republished, London; 1999) has been invaluable. Primary sources used include: the Master List of Battle of Britain Aircrew maintained by the BBFA; squadron ORBs; the records of the University Air Squadrons, of RAF Halton and of Cranwell. All errors are my own.

[2] For a report of this meeting see Vincent Orange, *Sir Keith Park*, (London; 1984), pp104-105.

[3] Losses include those killed, wounded, taken prisoner or posted away from Fighter Command squadrons.

[4] *The Royal Air Force Volunteer Reserve Memories*, (RAF Innsworth; 1998), p12.

[5] The statistical data on which this paper is based can be no firmer than the precise identification of pilots and their locations in the Battle allows. Even today some problems remain for a small number of pilots and the Master List of the BBFA still sees the addition - and removal - of men as research continues. I would, however, consider that any errors in the data for Figures 2 and 3 are within 5%.

[6] Air Chf Mshl, Lord Dowding, *Twelve Legions of Angels*, (London; 1946), pp75-76.

[7] Air Chf Mshl Sir Hugh Dowding, 'The Battle of Britain', *The London Gazette*, 11th September 1946, item 2l9, p4558.

AIR OBSERVER TRAINING, 1939-40

Air Commodore J L Mitchell LVO DFC AFC AE

The proceedings of the Society's seminar, Training in Peace for War – the Offensive*, were reproduced in* Journal 20*. Rupert Parkhouse's opening address, in which he reflected on his early experiences as a Battle pilot, has prompted Air Cdre John Mitchell to submit a complementary piece recalling his training as an observer. Following the 'Spec N' Course, which ends this memoir, Air Cdre Mitchell became the senior navigator on No 24 Sqn's York Flight – the 'PM's Flight' – subsequently conveying Mr Churchill and other VIPs, including HM King George VI, to a variety of destinations. After the war his career focused on intelligence work, including a stint as Defence and Air Attaché in Moscow; his final appointment was as Air Commodore Intelligence.*

My earlier training had necessarily been different from Rupert's, for I had joined the RAFVR at the Birmingham Town Centre in April 1939 as a trainee observer, in the exalted rank of LAC. Had my eyesight not prevented my being accepted as a pilot, I would, of course, have been an 'instant' sergeant.

I was mobilised (*not* called up) on 1st September in Manchester, where my civvy job had taken me. I hung around the Manchester Town Centre on paid leave (receiving my first ever *white* five pound note!) until November when, without any sort of initial training course - or even a uniform - I was sent to No 1 AONS (Air Observers Navigation School) at Prestwick along with a gaggle of Mancunian VRs, some of whom had had a trip in an Anson; others, like myself, had had no air experience whatsoever.

At Prestwick, then a grass airfield operated by Scottish Aviation, we were comfortably billeted but marshalled in no uncertain fashion by two ex-Guardsmen martinets (Messrs 'Shirley' Temple and Dodds), dressed as pseudo-warrant officers in the uniforms of Scottish Aviation Commissionaires. Apart from Sqn Ldr Dobson, the CGI, and Wg Cdr McIntyre, the CO/CFI of the EFTS (both of them RAFO – Reserve of Air Force Officers), the only other uniformed member of the instructional staff was a Flt Lt Martin, who had written *Martin's Air Navigation* in the mid-1930s - largely cribbed, I discovered later, from an early version of AP1234.

We had several youngish ex-Master Mariners on the staff who taught us, very thoroughly, the rudiments of dead reckoning, met, magnetism and compasses, maps and charts, etc. There was also an elderly retired airman who taught us the Morse code.

In due course we were issued with our uniforms (not much choice of size) and marched about in the snow under the merciless eyes of our two phoney WOs – we were, at least, well-drilled. On the flying side our staff pilots included FSgt ("Mr, please") Palethorpe, Flt Lt Vetch, Flt Lt Cane (later BOAC) and Flt Lt Thomas (later with Airwork). All were RAFO and they flew us, in sickness and in health, over Galloway and Ayrshire in the company's Fokker F.XXII flying classrooms. We were eventually allowed a few trips in Ansons.

Christmas leave came and went and in March 1940 some of us were sent to a real operational flying station, RAF Aldergrove. Our ferry was escorted from Stranraer to Larne by No 502 Sqn (Ansons), the resident Coastal Command unit. At Aldergrove we reported to No 3 Bombing and Gunnery School (the rest of our intake had been sent to No 8 B&GS at Evanton). Now properly housed in barrack blocks, we patronised the NAAFI and consumed unrationed suppers of steak, eggs and chips at the Abercorn Hotel in Belfast. NB 'Keep away from the Falls Road in uniform.'

Our gunnery training was mainly on Battles, but I had three sorties in a Westland Wallace, complete with 1918-style Scarff ring, and one in a Swordfish, flown by an extremely young midshipman. Two students were carried per sortie in the latter, and we had to change cockpits, climbing over the partition without our securing dog chain. These open cockpit sorties were much more fun than the Battles – you could clearly see the drogue as you approached - but even so, one seldom hit it. On one Battle sortie my hands were so cold that I dropped a full drum of ammo overboard into Lough Neagh and was nearly court-martialled for allowing ammunition to fall into the hands of the IRA. As for bombing with the CSBS (Course Setting Bomb Sight), I took a long time to get the hang of the lead-in markers, much to the irritation of my pilot. Our armament instructors were old sweats, sergeants and flight sergeants, steeped in the operational lore of the NW Frontier, with a fund of gory tales of what would befall you if you fell into enemy hands. Many of these splendid NCOs subsequently became splendid Technical Branch officers as the service expanded.

Two of us were commissioned from the course (Basil Sayers and myself) following a Board presided over by the Station Master, Gp Capt 'King Dick' Richardson, so called because of his stature. With our seniority dated 29th April 1940, Sayers and I reported to No 12 Operational Training Unit (OTU) at Benson on 18th May. We arrived in our brand new uniforms, not knowing whether or not we should put up our brevets; we had never attended an ITW, indeed we had had no 'officer training' of any sort – apart from Mr Gieves handbook, which was provided *gratis*. We were truly rookies in every respect and duly sent off to fetch 'the Oxometer' on the first day of groundschool. The OTU had never seen a commissioned observer before (except for the odd RFC veteran) - many of the earliest NCO observers were converted WOp/AGs, who had done a short course at North Coates.

We joined a wonderful bunch of acting pilot officers, fresh off the boat from New Zealand, where they had done their flying training on ancient biplanes and were now feeling their oats on the high performance Battle, behind the mighty Merlin - which had an unfortunate habit of cutting-out on take off (not nice at night). Benson was one of the newish OTUs formed by carving up the non-effective squadrons within the various Group Pools – the Blenheim OTU at Bicester had been formed the same way. Benson was a splendid, modern station. Grass airfield, naturally. Near London. Splendid riverside pubs - and that hot summer prior to the climax of the Battle of Britain.

The Station Master was the, mutton-chop whiskered, Gp Capt Dunne - briefly Secretary of the RAF Club after the war, I think. Nebby Wheeler was a very experienced Flight Commander. 'Mouse' Fielden was around, as the Royal Hudson (technically on the books of No 24 Sqn at Hendon) was kept in the Royal Flight hangar at Benson, with its long-range delivery tanks still fitted in the cabin (to ferry, it was said, the two Princesses to Canada via Iceland, in the event of a German invasion). 'Mouse' later purloined this aircraft for RAF Tempsford, where he had become CO, when Bert Harris refused to release any aircraft, apart from clapped-out Whitleys, for the special duties squadron. The Royal Flight hangar also housed one of No 24 Sqn's Percival Q6s which was used by Ludlow-Hewitt, the new Inspector General.

With my course finished by the end of June, I was ready to go. The Battle of France was in full swing and a number of my contemporaries

had already gone. My posting notice required me to report to Hendon to be flown over to Nantes, to join No 98 Sqn, the reinforcement pool for Battle aircrew, I believe. I had my camp kit, a revolver and no less than 130 hours in my log book, three of them by night. Alas, France was collapsing and all postings of observers and WOp/AGs were cancelled. Only pilots were still wanted - to fly out anything vaguely serviceable. I felt distinctly cheated but, had I gone across and not been able to crew a returning Battle, I should probably have been among the large number of RAF personnel aboard the ill-fated *Lancastria*, which was dive-bombed and sunk off St Nazaire with heavy loss of life. One of our NZ pilots, APO Auliffe, was amongst the survivors and he earned high praise for his part in saving lives amongst this sad débâcle.

Within a week I was posted to No 10 OTU at Abingdon – Whitleys. Some of our number went to Harwell, then a Wellington OTU. I reported to E Flight, commanded by Sqn Ldr Bickford (ex-No 10 Sqn from Leeming) who had a large bull terrier. He told me to go away, as he didn't know what to do with me. I scrounged two short sorties in an Anson, low-level bombing at the nearby Otmore Range. Very soon I found myself sent to Jurby, another B&GS, where Abingdon and Harwell were both maintaining detachments. Ours was C Flight, commanded by Sqn Ldr J H Barrett. I started to sprinkle bombs around Ramsay Bay and fire the front turret guns of Tiger-engined Whitley Mk IIs and IIIs - much more fun than the open cockpit of a Battle. I returned to Abingdon twelve days later and rejoined E Flight where I was eventually taken on a night cross-country in a Whitley V. The two pilots navigated by pilotage and chattered about the poor black-out across northern England and I kept a rudimentary log from the Flight Plan which I had been detailed to make. In the course of this one flight on a brief glorious summer night, my night experience tripled. I now had nine night hours in my log book. Personalities at Abingdon included the CI, Wg Cdr 'Streaky' Cattell, Gp Capt Massey, the Station Commander, and AVM Foster, the AOC of No 6 Group - later to be Mayor of Oxford for many years in his retirement.

I left Abingdon on 27th July with no proper OTU course behind me, on posting to No 58 Sqn (Wg Cdr J J A Sutton) at Linton-on-Ouse. I was assigned to B Flight and did my first op to the Ruhr two days later - on the 29th. I then had a total of 158 hour's flying under

my belt, nine by night, having flown only once in a Mark V Whitley and having never seen the Automatic Bomb Sight (ABS) Mk II (Abingdon having had only Mk Is). I had had no crew training whatsoever, not to mention a lack of any familiarisation with the aircraft systems, emergency drills, etc. But we were desperately keen, it was still a great adventure and the fight for survival was on. The casualties - absent faces from the breakfast table - had yet to sink in. Each one of us believed we'd survive. Fortunately, we did not know then how utterly ineffective our efforts were - except to provide training for the future. At about this time, I recall seeing a Stirling - destined for No 7 Sqn at Oakington - and then the first Halifax for No 35 Sqn, then forming up under Wg Cdr 'Slug' Collings.

I survived my tour and was posted, quite unexpectedly, in March 1941, to do the Specialist Navigation Course at the RAF School of Air Navigation which was now in Canada – far from my Yorkshire world. This experience diverted my life into quite different avenues - but I will not witter on about my subsequent career. I was just plain lucky to survive.

BOOK REVIEWS

Air War Over Italy by Andrew Brookes. Ian Allen Publishing Ltd, 2000. Price £24.99.

The scale of the campaign in Italy is often underestimated, but for nearly a year it was the main theatre of operations against Germany for the Western Allies until overtaken by the dominating events in North West Europe from mid-1944. Yet it was in Italy that the concept of air/land co-operation, pioneered in the Middle East, was brought to a high level of efficiency, new weapons were introduced and co-ordination between the Allies developed. The campaign encompassed virtually all aspects of air power.

In this definitive account of the air war Andrew Brookes, an established author, writes with crisp authority. He is a former V-Force pilot and currently air analyst at the Institute for Strategic Studies. The book commences with the invasion of Sicily in July 1943 and covers, *inter alia*, the landings at Salerno and Anzio, the heavy bombing of Monte Cassino and the capture of Rome. Against a resourceful and well-led enemy it was a long hard slog up Italy; at one time the Allied armies were opposed by twenty-eight battle-hardened German divisions.

This well produced book is supported by an excellent selection of photographs, tables and maps. In summary, this is a timely, comprehensive study of a coalition air offensive of historic importance.

RW

The Air Battle for Malta by James Douglas-Hamilton. Airlife, 2000. Price £9.95.

First published in 1981, *The Air Battle for Malta* is now available in softback. While covering all of 1940-43, it concentrates on 1942 and, because it draws heavily on the diaries kept by the author's uncle, Lord David Douglas-Hamilton, it focuses on the activities of No 603 Sqn which he commanded. Since this book has appeared before, it is a shame that no one took the trouble this time to edit out a few annoying glitches. For instance, the sergeants of the Beaufort crew which captured a Cant Z.506 were decorated with DFMs, not DFCs (p.89), Dornier 219 should read 217 (p.96) and there was no 'Ministry of Defence' in 1942 (p.100). There are more serious errors too, on p.9, for example, Wg Cdr Warburton is said to have been flying low level

photographic reconnaissance sorties in a Beaufighter in August 1940. Adrian Warburton was a mere pilot officer at that time; he did not arrive in Malta until September and he did not acquire a Beaufighter until 1942. There are other such inaccuracies, not least in an appendix summarising the spectacular career of George 'Screwball' Beurling.

Clearly this book cannot be recommended as a definitive account of the battle it describes, or of the people involved. Nor can it be an entirely objective one, because it relies so heavily on contemporary accounts with their inevitable stereotypes, Germans tending to be seen as rather beastly chaps, given to shooting at people on parachutes or in dinghies. Yet, paradoxically, it is probably these very limitations that have given *Air Battle* the popular appeal which has justified this third impression. It is undeniably, a 'good read'; the recollections of combats are exciting and the many first-hand accounts convey an air of authenticity which evokes something of the backs-to-the-wall desperation of the times. This atmosphere is greatly amplified by almost 100 well-reproduced period photographs, mostly drawn from the IWM.

Treat this one with some caution – but do buy it.

CGJ

Aerial Refuelling at Farnborough by Brian Gardner. Air Britain, 1999. Price £14.00.

Over the years *Air Britain* has done British aviation a considerable service by unearthing, collating and publishing a great deal of information which would otherwise have remained obscure or, at best, substantially inaccessible. This book is in that tradition. It is a 72-page A4 softback in the standard *Air Britain* format. That is to say that it is well produced, well-illustrated and authoritative.

It may come as something of a surprise to learn that the RAE first conducted practical air-to-air refuelling (AAR) experiments as early as 1924, at least ten contacts being made to transfer water, rather than petrol, from one Bristol Fighter to another. Interest then lapsed until 1930 when work resumed to be sustained for the next seven years; every trial flight made during this period is recorded in an annex. A considerable variety of aeroplanes was used to test different methods of making contact, all of this activity being described in some detail. There are photographs of linked aircraft, close ups of fixtures and fittings and reproductions of contemporary sketches illustrating

concepts, several of the latter having been drawn by one Flt Lt Richard Atcherley who was intimately involved in these endeavours. Although this monograph is specifically concerned with the work carried out at Farnborough, mention is made of the efforts of Alan Cobham who was conducting his own experiments in parallel. In 1937 it was agreed that Cobham's Flight Refuelling Ltd should assume prime responsibility for further practical work and the RAE conducted no more flight tests, although it continued to support the programme with technical assistance and expertise.

The story is brought to a close with a brief reference to the regular flight refuelled trans-Atlantic flying-boat service which began in August 1939 only to be halted by the outbreak of war. Some space is also devoted to air staff thinking on the use of AAR in a military context. It is suspected that this slim volume is merely a curtain raiser and that Brian Gardner has a great deal more to tell us.
CGJ

Only Birds and Fools – Flight Engineer, Avro Lancaster, World War II by J Norman Ashton DFC. Airlife Publishing Ltd, 2000. Price £19.95.

When 28-year old Norman Ashton joined the RAF in 1940 as an engine fitter, the possibility of his ending the war as a decorated officer seemed remote. In 1942 he responded to calls for volunteers for aircrew duties as flight engineers when the four-engined heavy bombers were coming into service in increasing numbers.

Scarcely less remote was the prospect of survival when he and his crew joined No 103 Sqn at Elsham Wolds to commence their first tour in May 1943, in the middle of the 'Battle of the Rhur'. Twenty-nine operations later, the crews was 'screened' and, during the usual period as an instructor which followed, Ashton was commissioned. This was followed by a further twenty-five operations with No 156 Sqn at Upwood, again on Lancasters, culminating in the award of the Pathfinder badge and a DFC.

In July 1945 he was a crew member of a small flight of Lancasters which flew Sir Arthur Harris and his entourage on an extended goodwill tour to Brazil, Nassau, Washington and Montreal. This book was actually written soon after the war. Using his civilian skills as a master printer, Norman Ashton bound it himself and the book was then passed around among his wartime colleagues. Happily, thanks to

his son, who contributes a touching preface, these memoirs will now reach a wider audience.
RW

A Good Aggressive Fighter Pilot by Geoff Simpson. Privately published, 2000. Price £2.85.

Dealing with just one of the young fighter pilots who died during the Battle of Britain, and who are therefore virtually unknown, Geoff Simpson's nicely produced A5 monograph is offered as a tribute to all of them. It tells the story of Richard Hogg whose time at Cranwell was rudely interrupted by a war which resulted in the suspension of College activities, erstwhile cadets being transmuted into mere LACs overnight. Hurriedly completing his flying training, Hogg was commissioned in October 1939. He would survive for less than a year but, in that time, he would fly Blenheims with No 145 Sqn, Gladiators with No 263 Sqn (in Norway) and, ultimately Spitfires with No 152 Sqn. He was last seen chasing enemy aircraft out to sea on 25th August 1940. He is commemorated at Runnymede.

This booklet can be obtained from the author at 'Tamar', 26 Sandown Road, Hazel Grove, Stockport, SK7 4SH (Tel 0161 483 1790). £2.50 of the price (ie all of it, less p&p) goes to the Battle of Britain Memorial Trust which maintains the memorial to The Few at Capel-le-Ferne.
CGJ

Spitfire by Stewart Wilson. Airlife Publishing Ltd, 2000. Price £14.95.

The author's own Introduction begs the inevitable question – 'Do we really need another Spitfire book?' In this 150-page A4 softback, Stewart Wilson has attempted to provide all of the key facts about the Spitfire (and the Seafire) in a readily accessible format. His book: reviews the long and complex development story; explains the subtle differences between models; tabulates production figures, broken down by variant and sub-variant; summarises serial number allocations; identifies all RAF/FAA squadrons which operated the type, noting the marks flown and unit codes; provides potted accounts of use by foreign air forces and much more. There is a comprehensive series of general arrangement drawings plus no fewer than forty

profiles in colour of individual aeroplanes. It is worthy effort and the author has succeeded in his aim.

The down side is the reproduction of the many photographs (I made it 256, which, in a 150-page book, is more than generous) which tends to be very flat and dull. There are one or two instances of careless captioning too. For instance, Kuala Lumpur is said to be in Malaysia (rather than Malaya) in 1946 (p.88). On page 104 there is a picture of three Spitfires, said to be of No 253 Sqn, undergoing field maintenance in Italy towards the end of 1943. In fact, two of these aeroplanes belonged to No 32 Sqn, and, as for the date, the nearest airframe has the message 'guns unloaded 19/7/44' plainly chalked on the fuselage. Then again, a photograph of a line-up of Spitfires of No 417 Sqn, in what appears to be a very North African setting (p.130), is captioned as having been taken in Italy in early 1943. Since the Allies did not land in Italy until September, that clearly cannot be right.

These quibbles apart, 'Do we need this Spitfire book?' The answer is 'Yes', especially at less than £15 a copy.

CGJ

THE BATTLEFIELD TRUST AND THE BATTLE OF BRITAIN

Led by its Chairman, Air Mshl Sir John Curtiss, The Battlefield Trust will be holding a seminar at the RAF Museum at Hendon on 16th September 2000, to celebrate the Battle of Britain. The cost of attendance, including a buffet lunch with wine, will be £20 per head, 5th September being the cut off date for reservations. Any Society members who are interested in attending this event should contact Mike Raynor, Meadow Cottage, 33 High Green, Brooke, Norwich, NR15 1HR (Tel/Fax 01508 558145).

ROYAL AIR FORCE HISTORICAL SOCIETY PUBLICATIONS

The Society still holds stocks of certain of its earlier publications. Copies may be obtained from the Membership Secretary, Dr Jack Dunham, at Silverhill House, Coombe, Wotton-under Edge, Glos, GL12 7ND. The publications which are still available are:

Publication and Main Content	Price	sb or hb*
Journal 7. Proceedings of a seminar on The Origins and Development of British Nuclear Deterrent Forces 1945-1960.	£5	sb
Journal 8. The RAF and Air Control between the Wars.	£5	sb
Journal 9. Proceedings of a seminar on RAF and USAF Co-operation *and* the RAF and the Battle of Malta (Wg Cdr P B Lucas).	£5	sb
Journal 10. Proceedings of a seminar on Photographic Reconnaissance in World War 2.	£5	sb
Journal 12. World War I and the Royal Air Force (John Terraine) and The Other Side of the Royal Air Force 'Y' Service (Sidney Goldberg).	£5	sb
Journal 13. Proceedings of a seminar on Indonesian Confrontation.	£5	sb
Journal 14. Ethics, Deterrence and Strategic Bombing (Professor Sir Michael Howard).	£5	sb
Journal 15. Proceedings of a seminar on the Royal Air Force Regiment.	£5	sb
Journal 16. Proceedings of a seminar on Air Leadership in War.	£5	sb

Journal 17. Some Thoughts about and Experience of Official Military History (Dr Noble Frankland).	£5	sb
Journal 18. Proceedings of a seminar on South Arabia and the withdrawal from Aden.	£5	sb
Journal 20. Proceedings of a seminar on Training in Peace for War – the Offensive.	£5	sb
Seeing Off The Bear. A joint RAFHS/(US) Air Force Historical Foundation seminar dealing with Anglo-American Air Power Co-operation during the Cold War.	£5	sb
Bracknell Papers 1991. *Seek and Sink* - The Battle of the Atlantic.	£10	hb
Bracknell Papers 1992. *The End of the Beginning* - Land/Air Co-operation in the Mediterranean, 1940-1943.	£10	hb
Bracknell Papers 1994. *Operation OVERLORD*, 1944.	£10	hb
Bracknell Papers 1996. *Air Intelligence*.	£10	hb

*** Softback (sb) or casebound (hb).**

LETTERS HOME

CEYLON

July 1945.

Dear Mother,

I landed at Colombo yesterday and can't hope to describe all the different sights, or even convey what the place feels like. It is really wonderful to see all these strange trees and plants, not to mention the natives with their dark skins and curious long robes.

Unfortunately, the other chaps I have met seem rather queer. There is something so different about them that they scarcely appear to be Englishmen at all. If you can imagine a nut-brown creature with long hair, ridiculously short shorts, a curious pair of sandals and a big cowboy hat you will get some idea of what they look like. I wouldn't mind it so much if I could understand their manner. Someone in England said that most of them were crazy which is no small wonder when I see them petting mangy dogs, brooding on their beds and using strange phrases that mean nothing to me.

One delightful luxury is the servant who does all the work for me. I only pay him a meagre 1/6d per week which seems far too little for the work the poor chap has to do.

It is marvellous to lie back in the sun and enjoy, what will be for me, a continuous summer all the time I am out here. Just think, I can sun bathe every day and *never* feel cold. Can you imagine anything better?

I shall write soon,

love,

Bob

CEYLON

July 1947

Dear Mother,

I am on the boat tomorrow and can't hope to describe what it feels like. It is really wonderful to be leaving all these palms, not to mention the loose wallahs that prowl around all day and night.

Some of these chaps who have just arrived out here seem rather queer, not at all like the rest of us. If you can imagine a pale-faced creature with short hair, ridiculously long shorts, socks almost over his knees and a tunic yards too long, you will get some idea what they look like. I can't understand them at all. They are so interested in the most stupid things and yet they turn their noses up at our billet puppy just because it has a sore patch on its back. Most of them lie out in the sun to get brown - have you ever heard of anything so stupid? One pleasant relief is that I have got rid of the Room Boy who never did any work for me. He used to have the cheek to ask for a chip every week, which was more than twice as much as he was worth.

This climate is dreadful and I often wonder how I have managed to last as long as this. Just think, soon I shall be able to feel cool every day. Can you imagine anything better?

I shall be home soon,

love,

Bob

With due acknowledgement to the anonymous airman (probably of No 45 Sqn) who contributed this piece to RAF Negombo's station magazine in 1947.

ROYAL AIR FORCE HISTORICAL SOCIETY

The Royal Air Force has been in existence for over 80 years; the study of its history is deepening, and continues to be the subject of published works of consequence. Fresh attention is being given to the strategic assumptions under which military air power was first created and which largely determined policy and operations in both World Wars, the inter-war period, and in the era of Cold War tension. Material dealing with post-war history is now becoming available under the 30-year rule. These studies are important to academic historians and to the present and future members of the RAF.

The RAF Historical Society was formed in 1986 to provide a focus for interest in the history of the RAF. It does so by providing a setting for lectures and seminars in which those interested in the history of the Service have the opportunity to meet those who participated in the evolution and implementation of policy. The Society believes that these events make an important contribution to the permanent record.

The Society normally holds three lectures or seminars a year in London, with occasional events in other parts of the country. Transcripts of lectures and seminars are published in the Journal of the RAF Historical Society, which is distributed free of charge to members. Individual membership is open to all with an interest in RAF history, whether or not they were in the Service. Although the Society has the approval of the Air Force Board, it is entirely self-financing.

Membership of the Society costs £15 per annum and further details may be obtained from the Membership Secretary, Dr Jack Dunham, Silverhill House, Coombe, Wotton-under-Edge, Gloucestershire. GLI2 7ND. (Tel 01453-843362)

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