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SELECTED ABBREVIATIONS

AEO Air Electronics Officer
AGS Air Gunners School
AMO Air Ministry Order

B&GS Bombing and Gunnery School

DDTNav Deputy Director(ate) of Training (Navigation)

DME Distance Measuring Equipment
DSNav Directing Staff Navigation

FIC French Indo China

FIDO Fog Investigation and Dispersal Operation

HCU Heavy Conversion Unit IASC Indian Army Service Corps

IJAAF Imperial Japanese Army Air Force

ITW Initial Training Wing KMT Kuo Min Tang

LFS Lancaster Finishing School
MCP Malayan Communist Party
MEW Ministry of Economic Warfare
MPAJA Malay Peoples' Anti-Japanese Army

MSS Malaya Security Service
OCU Operational Conversion Unit

ORBAT Order of Battle

ORS(PS) Operational Research Section (Psywar)

OTU Operational Training Unit PSP Perforated Steel Plate

RAE Royal Aircraft Establishment

ROC Royal Observer Corps
SEAC Southeast Asia Command
SEP Surrendered Enemy Personnel

SHAEF Supreme Headquarters Allied Expeditionary Force

SNavO Station Navigation Officer
SOA Senior Officer Administration
SofTT School of Technical Training
Spec N Specialist Navigation (or Navigator)

SPSO Senior Personnel Staff Officer
TACAN TACtical Air Navigation
TNA The National Archives

VA Voice Aircraft

VOR VHF Omnidirectional Radio Range

WSO Weapons System Officer

Our Guest Speaker at the RAF Club, following the Society's AGM on 17 June 2009, was the Head of the Air Historical Branch

Mr Sebastian Cox BA MA

whose topic was

'SIR ARTHUR HARRIS AND SOME MYTHS AND CONTROVERSIES OF THE BOMBER OFFENSIVE'

Air marshals, ladies and gentlemen, good evening. It is a great pleasure to have been asked to talk here tonight. The title of this address is 'some myths and controversies of the bomber offensive'. It is a subject on which I could drone on at inordinate length to the extent that many of you would miss your trains home. I am, however, constrained by time to concentrating on just a few of the myths and controversies of the offensive and in particular some areas where our old friend Sir Arthur Harris has been criticised by historians for his handling of Bomber Command. Indeed perhaps the sub-title of this paper should be, if you will excuse the pun, 'Sir Arthur Harris – a loose cannon who should have been fired'.

When Harris took over the command in February 1942 the war was into its thirtieth month. Bomber Command itself had suffered numerous setbacks. It had learnt early on that it could not operate over Germany by day, and in August 1941, with the Butt Report, came the deeply uncomfortable realisation that operating by night with its present level of expertise it was largely incapable of finding and hitting its targets in a consistent and effective manner. The Butt Report revealed that on any given night only one in five crews was capable of putting its bombload within five miles of the target. 1 It was therefore very far from being the force which Churchill had envisaged just a year earlier when he wrote in terms of the bomber alone providing the means of victory and of the need to 'develop the power to carry an ever increasing volume of explosive to Germany so as to pulverise the entire industry and scientific structure on which the war effort ... of the enemy depends.'2 The Prime Minister's confidence had been shaken by Butt and by the autumn of 1941 he was warning the CAS of the day, Sir Charles Portal, against 'placing unbounded confidence in this means of attack.'3 It was precisely because of the doubts being expressed about the effectiveness of the bomber



Air Chief Marshal Sir Arthur Harris, AOCinC Bomber Command 22 Feb 1942-15 Sept 1945

offensive by the Prime Minister and others that Harris was appointed as CinC Bomber Command.

He was known to be a single-minded and forceful leader with an acute brain, and after the man Prime Minister's heart in being wholeheartedly committed to taking the war to the Germans. He was to enjoy, in the middle vears of the war at least, a fruitful relationship of mutual respect and admiration with Churchill that he was to use to good effect. In February of 1942 it was clear that he would need all his formidable qualities of character to effect

a change in the fortunes of his command, because the inability of his crews to find their targets was far from the whole story. At the beginning of March 1942 Bomber Command contained forty-four squadrons, but only fourteen of these were heavy bombers – Stirlings, Halifaxes, Manchesters and two squadrons only of Lancasters, neither of them yet operational. Of the heavy bombers all but the Lancaster had problems of varying degrees of seriousness – the Manchester was so underpowered it was taken out of frontline service in June, the Halifax airframe required such extensive modification that Harris was unwilling to use it operationally before changes were made, and the Stirling squadrons were seldom able to achieve even fifty per cent serviceability, causing Harris to complain in December 1942 that the aircraft had 'made no worthwhile contribution to the bomber effort for some time'.4 In this situation the command relied on the stalwart Wellington, and the obsolescent Whitleys and Hampdens. All in all the command was not in good shape, and was certainly far behind its planned expansion.

The causes of this dismal picture were many and varied, but they

come back in the end to two factors, namely the allocation of scarce resources and the impact of other theatres. The failure of the Ministry of Aircraft Production to hit its forecast production schedule for bomber aircraft and the entry of the USA into the war, undermined the Air Staff's assumptions about the numbers of aircraft and weight of attack which could be thrown at Germany. Thus the original wildly optimistic plan, to produce a force of 4,000 heavy and medium bombers by December 1943, was reduced in June 1942 to a target of 2,500 by the same date.⁵ But there were additional factors, notably a critical manpower shortage in the UK. Last, but by no means least, was a factor which Harris felt he could and should attempt to influence, and which was to bring him into conflict with the Air Staff and the other Services from an early stage. This was the constant and debilitating drain on Bomber Command's crews and aircraft in support of other campaigns. Bomber Command became, in effect, the 'milch cow' which was drained to support others. There are exact parallels here with Fighter Command's position during the Battle of France which led to Dowding's famous letters of protest and his appearance before the War Cabinet. In essence the pre-war expansion plans for the RAF had concentrated almost exclusively on Bomber and Fighter Commands. The assumptions behind this planning had been undermined even before the war started by the change in government policy in March 1939 which committed Britain to providing a much larger army for deployment into Europe than originally envisaged. The fighter protection for such a deployment could only come initially from Fighter Command, and when the strategic situation became critical during the German offensive in the West of May 1940 the only source of reinforcement was, again, Fighter Command, which led to Dowding's famous protests. An exactly similar situation pertained for Bomber Command in the difficult period 1941-42 when Britain's grand strategic position often looked critical. The only source of ready reinforcement of non-fighter aircraft types for Coastal Command, Army Co-operation Command or the Middle East was Bomber Command.

Yet, whilst Dowding is generally lauded for the position he took on fighters for France in 1940 – despite the fact that in grand strategic terms it could be argued that his view was too parochial in regarding with equanimity the defeat of Britain's principal continental ally –

there has been a tendency amongst historians, sometimes the same ones, to criticise Harris for his similar blunt refusal to recognise that any other command's claim on resources might be better than his own.⁶ There is, as there usually is, another side to the story. Thus, whilst shortfalls against planned production programmes produced a deficit of 200 Stirlings, 110 Lancasters and 65 Halifaxes by August 1942, or a grand total of 375 aircraft, in the period 1 January to 1 September alone:

'Diversions of aircraft from the strength or potential strength of Bomber Command ... in effect amounted to some 510 aircraft and represented a loss to the command of approximately 28 squadrons ... the majority of these diversions were to Coastal Command and the Middle East Not only did they represent a loss of aircraft but, in many instances, of crews as well and carried [with them] a further commitment to supply replacement crews and aircraft at regular intervals.'

Few CinCs would be prepared to countenance such a constant drain on their command without protesting, and Harris, like Dowding before him, was no exception. The problem was perhaps not so much the protests, as the manner and tone of them.

Hence, in June 1942 Harris addressed a memorandum to the Prime Minister in which he argued that air power had to be concentrated against Germany and not used in 'vastly protracted and avoidable land and sea campaigns'. Not content with that he opined that the diversion of aircraft to Coastal Command meant that the latter was in effect 'merely an obstacle to victory'.⁸

He did not explain how the population, including his aircrews, were to be fed, or his aircraft fuelled, if the U-boat war was lost. Harris in this instance, as in many others, would have done better to eschew hyperbole, and limit himself to a considered exposition of the impact on his command of such diversions, but that very single-mindedness which was to prove such an asset in pulling his command together and focusing it on its task also did not permit him to develop the broadness of vision to see the other side of the coin.

We should also add here that Harris well understood that Bomber Command's relative ineffectiveness in the period before he became CinC posed a direct threat to its continued existence. As the official historians have pointed out:

'If in 1942, Bomber Command, with its limited, and indeed, diminishing resources, could win some notable victories then, and only then, might it be afforded the opportunity of fulfilling its destiny.'9

Harris knew full well that he had to demonstrate that the command was capable of achieving worthwhile results, but equally he knew that if it had failed to do so thus far, it was unlikely to do so if its frontline strength not only did not grow, but shrank further. This explains at least some of his frustration with the Navy, which was the most consistent source both of criticism and demands for his resources, and was pressing such views, which were gaining ground in political circles. These interrelated inter-Service and resource factors, together with the recognition that the previous operational technique of sending aircraft to find and bomb targets individually had failed, led Harris and the Air Staff to conclude that a policy of concentrated area bombardment of German cities was the only possible way forward. It is important to understand that area bombardment had been approved by the War Cabinet in the autumn of 1941, and that the formal directive which made German morale the primary target was issued on 14 February 1942, a week *before* Harris arrived at Bomber Command.

Both Harris and the Air Staff understood that the devastation of a city by area bombing required large numbers of aircraft concentrated in time and space to overwhelm the active and passive defences. The highest monthly average of medium and heavy bomber aircraft and crews available for operations in Bomber Command during the whole of 1942 was 373, and Harris knew that it would be difficult to achieve 'notable victories' to still the voices of his critics with such a force. ¹⁰

Yet he contrived to achieve just such victories by mounting, in the early summer of 1942, the three 'Thousand Bomber' raids, starting with Cologne at the end of May. He did so by scraping up every available aircraft and crew from the frontline and elsewhere. He could not do this regularly, nor even, as he had originally hoped, once a month. Nevertheless, these three raids, although not meeting with unalloyed success, did, in conjunction with other successful attacks on Lübeck and Rostock, demonstrate the potential of a larger force to still the critics, and gained considerable favourable Press comment. Most

importantly, perhaps, it re-engaged prime ministerial enthusiasm. Harris used the opportunity to point out to Churchill that his command had only thirty operational squadrons; that in the first half of the year it had lost nineteen squadrons to Coastal. Army Co-operation and Middle East Commands; and that only three of the latter had returned to his command. His expressed desire, nevertheless, to mount raids of between six hundred and a thousand aircraft three to five times per month proved hopelessly optimistic. Not until 1944 did Bomber Command again put one thousand aircraft over one target.¹¹ But Harris had nevertheless achieved victory of a sort against his domestic foes, if not the Germans, and in September 1942 Churchill acted to try to restore some of Bomber Command's primacy in the claim for resources. He instructed the Air Ministry that the effective strength of Bomber Command was to be raised to fifty squadrons of heavy and medium bombers by the end of December, and suggested that two squadrons come from Coastal Command and one from the Airborne Division. 12 Although not all that Harris had urged on the Prime Minister, it was a first step towards reversing the flow of aircraft out of the command.

Harris has also been strongly criticised by many authorities over the question of the target finding or pathfinder force. This was pressed on the CinC by the then Group Captain Sydney Bufton, the Deputy Director of Bomber Operations on the Air Staff and a former Squadron Commander. Bufton wanted a force composed entirely of picked crews concentrated in one area under a single commander. He put this to Harris, who consulted his Group Commanders but remained fundamentally opposed on the grounds of squadron morale and leadership if the best crews were removed, and administrative difficulties. Bufton then circulated a number of his own contacts in the operational bomber squadrons, and reproduced their views as a further paper which endorsed his PFF proposal. Having again consulted his senior commanders Harris remained non-committal. The impasse was only broken when the Vice-Chief of Air Staff, Sir Wilfrid Freeman, took the paper to the CAS, who overruled Harris. The latter was subsequently to maintain that his own preference for forming targetfinding squadrons within each group would have been just as effective, since it was successfully implemented at 5 Group. This ignores the fact that several squadrons had to be transferred from 8

Group, the PFF Group, to 5 Group before it worked. Nor were other main force groups to prove capable of producing marker forces, save perhaps 3 Group's late-war G-H effort.

This was not Harris at his best, but two other factors may well have come into play. First, from the trio of the Assistant Chief of Air Staff (Operations), AVM Norman Bottomley, who drafted many of the directives to Bomber Command, and the two most senior officers in the Directorate of Bomber Operations, Air Cdre John Baker and Sidney Bufton, not one would have been acceptable to Harris in Bomber Command. Harris had refused to accept Baker as one of his Group Commanders and referred to the trio as the 'three Bs'. According to Henry Probert's biography some of the other officers on the Air Staff sympathised with Harris.¹³ Furthermore, Bufton surely did not help his cause by going behind the CinC's back to elicit the views of the Squadron Commanders. No CinC would relish a group captain in Whitehall taking an action designed specifically to undermine his stated position within his own command. Whilst Bufton may have gained in the short term, in the longer term this goes some way to explain Harris's continuing hostility to a Directorate which might have helped him greatly. In the same period Harris also clashed with Lord Selborne of the Ministry of Economic Warfare, a body anxious to influence Bomber Command's targeting, and which gained increasing influence with the Directorate of Bomber Ops, if not with the CinC. Selborne complained that Harris had ignored the advice on priorities from MEW which favoured Stuttgart and Schweinfurt. Again, Harris pointed out that the theoretical desirability of targets did not guarantee their vulnerability at any given time, a response which Churchill described as 'careful and admirable'. 14

Which brings me to perhaps the most persistent of the controversies over Bomber Command and the one which in my view contains the most persistent myths. This is the vexed question of the direction and application of Bomber Command's by now considerable power over the autumn and winter of 1944-45 and in particular the relative weight of attack Harris directed towards area bombardment of German cities and attacks on oil or transportation targets.

The critics, and they are numerous, rest their arguments very largely on the thesis that Bomber Command proved itself capable of mounting precision attacks by night during the campaign against

French transportation targets immediately before and after the June 1944 Normandy invasion.

The standard proposition advanced is that, once he was released from Supreme Headquarters Allied Expeditionary Force control and direction in September 1944, Harris obsessively devoted the great weight of Bomber Command attacks to a pointless renewal of his area bombing campaign against German urban areas. It is also argued that the Air Staff's attempts to secure a greater proportion of the available effort for precision targets, such as transportation and most especially oil, were pursued with insufficient vigour, with the Chief of the Air Staff, Sir Charles Portal, cravenly failing to dismiss Harris, and the CinC himself dishonestly and culpably magnifying the difficulties his command faced in mounting precision attacks, and deliberately disobeying 'orders' to attack oil.

Nearly all these criticisms have their roots directly or indirectly in the discussion in Sir Charles Webster and Dr Noble Frankland's official history – *The Strategic Air Offensive Against Germany*, published in 1961. ¹⁵ This history was the first to reveal the extent of the disagreement regarding targeting priorities in the autumn and winter of 1944-45 between Harris, on the one hand, and Portal and the Air Staff on the other. However, the scrupulous attempts of the official historians to maintain a proper balance between the opposing arguments have not always been followed quite so sedulously by subsequent non-official historians, some of whom have some fairly conspicuous axes to grind.

Nevertheless, the official historians were critical of Sir Arthur Harris's conduct of the offensive during the period concerned. Thus, whilst accepting that 'the operational arguments in favour of area bombing were by no means exhausted' [which is an interesting statement in itself and one largely ignored by most critics] and that 'the last year of the war produced certain new strategic arguments in favour of an all-out attack on German morale' they concluded that 'neither of these reasons, however, fully explains the gigantic effort devoted to general area bombing by Bomber Command in the final offensive, nor did Sir Charles Portal regard this as either inevitable or desirable'. 16

Let us then consider a selection of some of the more critical writings of a range of historians on the subject. Here is an American

Professor, Stephen Garnett, who, amongst other fierce criticisms of Harris, charges that during this period 'Harris was carrying out [original emphasis] a different strategy [ie area bombing] despite his superiors' specific [sic] instructions to the contrary. One fact ... conveys the essence of Harris's triumph: of 181,000 tons of bombs dropped on Germany by Bomber Command in the last four months of the war, cities continued to represent the largest single category'. 17 Such statistical comparisons form the fundamental basis of nearly all the criticism of Harris, as will become obvious as we progress – though I should perhaps note in passing that the use and abuse of statistics was a skill at which Harris himself was particularly adept. The latest to follow this route is the moral philosopher Professor A C Grayling. Grayling's understanding of the art of the possible in 1944 is so flawed that he appears to believe that all of Bomber Command's attacks could have been precision attacks had the RAF only sought to make it so. 18 However, it is not simply the moralists who have taken this road, but indeed the majority of Harris's critics. Thus, John Ellis, in his 1990 study of the Allies' approach to war fighting, Brute Force, produced an impressive statistical table purporting to show that approximately 68% of Bomber Command's effort in October and November 1944 was devoted to area attacks, 15% to oil, and 17% to other targets. 19

Ellis makes further claims for the ability of Bomber Command in the field of precision attack. He writes 'by the middle of 1944, the potential for precision bombing, even at night, had increased enormously thanks to improvements in both technology and technique. The accuracy of Oboe for example, was greatly improved when it began to operate on centimetric rather than decimetric wavelengths, whilst improvements in technique meant that H2S operators became much more adept at finding their proper target and the Pathfinder Force much better at illuminating it, using low level marking runs and effective target indicator bombs.' Well, Oboe was indeed a reasonably accurate blind bombing aid, but its range was constrained by the curvature of the earth, the number of aircraft which could use it was severely limited, and even with ground stations set up in liberated territories on the borders of the Reich in 1945 it was still restricted to targets in western Germany.²¹

Ellis's strictures on the effectiveness of low-level marking

techniques do not reinforce his argument any more than his notion that Oboe was a 'panacea' for bombing accuracy, as he, Professor Grayling and other critics plainly believe they do. Low level marking techniques were developed by No 5 Group (not, incidentally, strictly speaking part of the Pathfinder Force) but two points need to be made. First, low-level marking could <u>only</u> be used in good weather, and the absence of significant cloud in the autumn and winter months tends to be the exception rather than the rule in northern Europe. And secondly, although relatively speaking very accurate, they were still in some ways more effective as a method of marking for area attacks, classically of course in the fearsome and horrifyingly effective attack on Dresden.

Other historians are equally as critical of Harris as Ellis is, sometimes justifiably, sometimes not. Amongst the fiercest and earliest critiques is Anthony Verrier's The Bomber Offensive, produced in 1968 and periodically re-printed and widely read by students of the offensive ever since. Some of Verrier's criticism is certainly not unreasonable, but at times he appears to have a flawed understanding of the workings of the high command structure, a fault he shares with a number of others. He thus criticises Portal for not exercising sufficient control over Harris during the summer of 1944. Verrier wrote 'if Portal wished to reassert his authority, which meant in effect giving orders to Harris, it meant that he had to do so by instructing the Commander-in-Chief, Bomber Command, to turn a marginal effort into a major one'. 22 Unfortunately, it is an incontrovertible fact that, at the period of which Verrier was writing, Portal was not responsible for exercising strategic control or direction over Harris, in any form, whether by general directive or specific order. At the time that control was being exercised by SHAEF, largely through the person of Sir Arthur Tedder. Portal could not, therefore, have done what Verrier suggests he should have done even had he wished to do so. It was in large part Portal's concern over exactly how the strategic bomber force should be deployed in the autumn, following the success of the OVERLORD landings and the subsequent break-out by the allied armies which were now driving hard for the German borders, which led him to suggest that these forces should now revert to control by the Air Staff. Before this could happen, however, it had to be agreed by the Joint Chiefs of Staff themselves, and it was to that end that Portal successfully applied himself in the early part of September 1944.

In regard to the period immediately after Bomber Command was again placed under Portal's direction, that is to say after mid-September 1944, Verrier is even more critical, stating that 'Harris ... was determined to ignore suggestions, flout directives, and disobey orders if need be ...'²³ Harsh and condemnatory judgements, which, if accepted would lead fairly quickly and ineluctably to the conclusion that Harris should have been removed, unless, of course, his supposed disobedience had led to more rapid German collapse and ultimate victory. But the suggestion, of course, is rather the opposite – that his actions, and particularly a failure to prosecute the attacks on oil with sufficient vigour, weakened the effect of the offensive and led to a prolongation of the European war.

Very similar conclusions were reached by Max Hastings in his widely read study of Bomber Command. I quote, 'in the last quarter of 1944, 14 per cent of Harris's effort fell on oil targets against 53 per cent on cities, 15 per cent on transportation, 13 per cent on army support operations, 5 per cent on naval targets such as U-boat and Eboat pens. Between January and May 1945, 26 per cent of Harris's effort was directed towards oil, 37 per cent against cities. The cost of his stubborness to the allied war effort at this last stage was almost certainly grievous. The oil plan will be remembered by history as one of the Allies' great missed opportunities.'24 Again you will note the great weight attached to percentage effort, and the unequivocal conclusion that missed opportunities led to a prolongation of the war. Hastings also wrote that '... in October, 6 per cent of Harris's effort was diverted against oil targets, less than in June. Between July and September 1944, 11 per cent of Bomber Command's sorties were despatched to oil plants, and 20 per cent to cities. Between October and December, 14 per cent went to oil, 58 per cent to the cities. It was impossible to believe that Harris was applying himself to the September directive. '25

Hastings does concede that tactical and weather problems, the claims of the allied armies for direct support, the claims of the Admiralty and others, all made demands and impositions on Bomber Command. But his conclusion was still that 'having made allowances [not specified] for all these elements, there were still many mornings

when Harris sat at his desk confronted with a weather forecast that – as usual throughout the war – made the CinC's decision a matter of the most open judgement. And again and again Harris came down in favour of attacking a city rather than oil plants ... the differences between the actual and potential effort Bomber Command concentrated on oil targets may have been only a matter of ten or twenty thousand sorties. But it is essential to reiterate what dramatic consequences might have stemmed from a real determination by Harris to put everything into oil... '26

Similar if more guarded criticisms appear in the official history of Intelligence. The sections on the strategic air offensive were largely the work of the late Edward Thomas. There are other similar critical works, including the recent volume by the German historian Jorg Friederich, but I have quoted from a selection of some of the best known and most widely read and quoted.

So why, in the face of such widely accepted and apparently well-informed criticisms do I have any doubts on the subject? Well first of all let me say that I do believe that Harris never had his heart in the oil offensive – after all, and with his usual candour, Harris admitted as much at the time in the course of his extended correspondence with Portal. He did, however, clearly resent Portal's suggestion that 'if you allow your obvious doubts in this direction to influence your conduct of operations I very much fear that the prize may yet slip through our fingers.'²⁷ Harris's own view was that he always prosecuted decisions, once made, with utmost vigour, whilst continuing to dispute their wisdom or feasibility. The basis for the greater part of the criticism of Harris's conduct of his command in this period, and of attacks on oil in particular, is that the statistics show how little percentage effort he was putting on precision targets as opposed to attacks on cities.

There are, however, in my view serious flaws in these criticisms, not least because they are apt to conflate two separate issues: namely that Harris did not devote enough effort to oil targets, and that he devoted too much effort to area bombing, thus assuming that a decrease in the former would have resulted in a concomitant increase in the latter. I believe the available evidence suggests otherwise. The British Chiefs of Staff produced a detailed post-war study of oil as a factor in the German war effort, which included a thorough study of the entire wartime bombing effort against oil targets and its

effectiveness. You will remember the great significance attached by the critics I have already quoted to the apparent smallness of the 14% figure for attacks on oil in the period October to December 1944. But the COS's study concluded that in those three months there were only seven nights and three days when weather conditions meant that oil targets could have been attacked but were not.²⁸ In this period Bomber Command operated on oil targets on twenty days and eighteen nights and against other target systems on thirty-five days and forty-six nights. An admittedly rough calculation therefore suggests that Bomber Command could only have raised its effort against oil by some 8.5% (ie a possible 10 operations out of the 119 actually flown) or roughly 7,000 tons. Bomber Command despatched some 26,839 sorties during those three months, and again a crude calculation suggests that 8.5% of that total equates to 2,281 sorties. There is one further piece of evidence which suggests that the figure of between 8.5% and 10% is a fair approximation, and that is that Bomber Command, as a result of the prolonged dispute between Portal and Harris, did raise its effort against oil in the remaining months of the war. During 1945 the percentage effort devoted to oil by the command rose to 25%, which is 11% more than in the last quarter of 1944.

There is one further important point to make regarding the use of the broad categorisations of bombing targets as a stick to beat Harris. Let us go back to those careful historians Webster and Frankland. I quote:

'There is <u>always</u> a difficulty making functional distinctions about the Bomber Command effort. Apart from the fact ... that so-called strategic bombing often became confused with so-called tactical bombing especially at this stage of the war, there was also great difficulty in distinguishing between the efforts devoted to various different target systems. For example, in area attacks upon towns in the Ruhr, which were recorded under the heading of industrial areas, substantial damage was sometimes done to benzol plants which, of course, belonged to the oil plan.'²⁹

In this regard we should note that the allied oil experts estimated that most of Germany's oil production in September came from benzol plants, which produced oil as a by-product of coke ovens and were therefore situated largely in – the Ruhr! – which, of course, was one of Bomber Command's primary target areas during the autumn, and they were, therefore, precisely the plants most affected by Bomber Command's area attacks. One more point regarding the autumn campaign against oil. According to the American official history, not by and large notable for its sympathetic view of Harris, by the end of November 1944 'all of the RAF's synthetic oil targets were suspended because they were no longer operating'! That statement alone seems to me to cast a great deal of doubt on some of the criticisms iterated above

Let us now turn our attention away from oil to transportation for a moment. Many of the criticisms directed at Harris over oil are reiterated, if in more muted or implied form, over transportation – the particular target system favoured by the planners at SHAEF under Sir Arthur Tedder. Let us return once more to our old friends Webster and Frankland and pick up the quote about the difficulties of distinguishing between the different types of bombing. The references to damage to benzol plants already quoted are followed by the following observations regarding transportation. I quote,

'Even more so [emphasis added] was this the case with the communications plan. It was impossible to make an effective area attack on any town area without doing damage to communications and very probably to railways. Similarly it was very difficult to attack a large railway centre without doing damage to a town. ... the forces carrying out the German communications campaign were generally given two aiming points when bombing railways. One was the railway centre and the other was the centre of the town centre. The devastation of the town contributed to the difficulty of repairing the railways. It was only when the target was relatively isolated ... that 'pure' communications bombing could be recognised. The same considerations apply to other target systems, but in no case more so than communications bombing. '31

The official historians concluded 'it would therefore be entirely misleading [note that entirely] to judge the bomber effort against communications by the statistics recorded under that heading.' Quite so, but we do have one piece of further evidence which amplifies the

point, and in my view seriously weakens the over-regimented approach of the statistically-minded critics. The War Room Monthly Summaries of Bomber Command's operations for the winter of 1944-45 recorded area attacks on towns and cities associated with railway facilities separately. If we combine the figures for these attacks with those for attacks identified as being directly on transportation targets we get the following results:

Month	Tonnage	Proportion
December 1944	30,123 tons	61.5% of the month's tonnage
January 1945	8,833 tons	28.8% of the month's tonnage
February 1945	19,553 tons	43.0% of the month's tonnage

The figure quoted for January does not include attacks on transportation targets in direct support of military operations – which, because of the Ardennes offensive, took a considerable proportion of Bomber Command's effort in that month. If we include these attacks the figure for January climbs to 15,087 tons or 45.8% of the total compared to only 5,246 tons or 16% on industrial towns *per se*.³²

The second piece of evidence comes in a note from the assistant Chief of Air Staff (Intelligence) commenting on the draft of Webster and Frankland's official history in 1959. He wrote:

'The difference between the Air Staff and the CinC was not as great as the amount of paper absorbed in the discussion would indicate. The CinC attacked many precise targets with astonishing skill and accuracy. Reasonably good weather was essential for such precision attacks. With the best will in the world his precision attacks could not have been increased indefinitely and the balance of effort would still, in bad weather, have gone on area targets. The argument was about increasing the precision bombing effort from say 12.5% to say 25%.'33

We may compare this with Max Hastings's view:

'The difference between the actual and potential effort Bomber Command concentrated on oil targets may have been only a matter of ten or twenty thousand sorties.'34

It is particularly interesting to note that the Assistant Chief of Air Staff (Intelligence) quoted above was Air-Vice Marshal S O Bufton – the very same Bufton who had been an important figure in the

Directorate of Bomber Operations during the war. Bufton had been one of Harris's particular *bête noires* in the Air Ministry and was almost continually at loggerheads with the CinC. Over the autumn and winter of 1944-45 within the Air Staff and in the councils of the Allies' Combined Strategic Targets Committee [the inter-Allied committee charged with considering in some detail target priorities and the effects of the offensive] Bufton consistently and persistently pushed the claims of oil. He also drafted much of Portal's end of the famous correspondence between the CAS and the CinC. That it should be he who wrote the comments I have just quoted is therefore especially significant.

I hope that I have convinced some of you at least that the evidence presented here today suggests that the picture with regard to Harris's targeting in this crucial period of the war is far less clear cut than most of his critics suggest. This is *not* to deny that had Harris deployed, say an extra ten per cent of his effort on oil, that the result might have been decisive. As Professor Tami Biddle has written 'if Harris had been willing earlier to change tactics only on the margin – an additional one or two raids against oil per month by the enormously powerful Lancasters – it might have made a discernable difference to the German war effort'. What we need to understand here is that so much that less careful and considered historians than Webster and Frankland paint in shades of black and white should instead be viewed in shades of grey.

Which brings me to the vexed question I posed at the start of this lecture. Should Harris have been fired? Did he, as the critics have suggested, disobey orders, or flout his directives? I think here too, his critics are guilty of gross exaggeration, indeed I think the bulk of them fail to understand the difference between a directive and an order. Why were the directives issued to Harris, usually couched in terms of priorities, not absolutes, if not because the Air Staff, including men such as Bufton, who had a hand in drafting many of them, understood that they were dealing in shades of grey, and not black and white? We have already seen that the arguments between Air Staff and CinC [not incidentally, simply Portal and the CinC] were about a relatively small percentage of effort, we have also seen:

a) that all Bomber Command's synthetic oil targets were 'out'

in November and

b) that he did respond to the Air Staff and increase the percentage of effort targeted on oil, probably in my view to pretty near the achievable maximum, in the first months of 1945.

Had they wished to the Air Staff could have issued a directive in the autumn of 1944 specifying only oil as the primary target: that would have been tantamount to an order to attack oil. They did not do it, and they did not do it because even the oil enthusiasts, such as Bufton, knew it would have been ridiculous. Nor did Harris, *pace* the many critics who say that he did, disobey any order to attack oil, because no such order was ever issued.

To have fired Harris, in an argument over ten per cent of his command's effort, effectively at a point where the argument was already won, would, in my view not only have been monstrously unjust, it would also have been pointless. Harris's critics have been seduced by the chimera of the purely statistical percentage-based approach to assessing Bomber Command, despite the admonitions from the very official historians from whom they draw their figures that such an approach would be misleading.

There is one other aspect to this question which I wish to touch on before I sit down and that is to compare Harris's efforts with those of Carl Spaatz, commanding the USAAF Strategic Air Forces in Europe. Such comparisons are frequently made, usually to Harris's disadvantage. The USAAF, and its own official historians, (and we have seen how important the official histories are in setting the terms of debate) – the USAAF deliberately chose, very deliberately chose, to categorise *all* their attacks as precision attacks. And, partly as a result, for many years the wider debate over bombing was often framed in terms of a contrast between American 'precision' and British 'saturation' – a distortion which many, such as Professor Grayling and the Canadian political scientist Randall Hansen, continue to perpetuate to this day. In fact, as recent scholarship in the US has demonstrated, for much of the later period of the war where criticism is levelled at Bomber Command and especially Harris, there was very little to choose between the two Air Forces. As Rich Davis says 'marshalling

yards' in USAAF terminology was a euphemism for area attacks on cities. He goes on to point out that the USAAF bombed cities as a matter of policy, and that, and I quote, 'under non-visual bombing conditions (night or heavy overcast) the points of attack and bomb loadings of the RAF and the AAF were virtually indistinguishable, as were their results'.³⁶

To illustrate just what that means in practice we need only reflect on two facts. First, that more than 70% of the bomb tonnage dropped by the US 8th Air Force between September 1944 and April 1945 was dropped *non*-visually, ie blind-bombing. In November, when Harris's critics are most vocal in their cries of foul, the non-visual percentage figure for the 8th was 90%! Furthermore, as the American historian Hays Parks has pointed out:

'8th Air Force tonnage delivered blind against industrial areas, heavy industry, marshalling yards, and oil chemical and rubber [in other words area attacks] between September and December 1944 constituted 52.9% of its tonnage for that period, a figure comparable to the 53 per cent dedicated by Bomber Command to its general area offensive.'37

Put another way, if you want to suggest that Harris should have been fired for his efforts in this period then logically you should also argue that Carl Spaatz should have been fired as well – I have yet to see any historian suggest that both commanders should have gone. I rest my case. Thank you very much.

Notes:

- ¹ The full text of the Butt Report is reproduced in Sir Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany*, 4 Vols, (HMSO, London, 1961), *Vol IV* pp205-213, hereinafter referred to as *SAOG* and volume number.
- ² Prime Ministerial memorandum WP(40) 352, quoted in TNA AIR 41/42, Air Historical Branch Narrative, *The RAF in the Bombing Offensive Against Germany, Vol IV*, p1.
- ³ Quoted in SAOG, Vol I, p184.
- ⁴ TNA AIR 41/42, p8.

⁵ *Ibid*, pp1-3.

- ⁶ See, for example, Terraine, John; *The Right of the Line: The Royal Air Force in the European War* (Hodder & Staughton, London, 1985), p426 and footnote 2 on p751.
- ⁷ TNA AIR 41/42, pp9-10.
- ⁸ Quoted in *SAOG*, Vol *I*, pp340-1.
- SAOG, Vol I, p339.
- ¹⁰ Calculated from statistics in, Sir Arthur Harris; *Despatch on War Operations 23rd February 1942 to 8th May 1945*, (Frank Cass, London, 1995), Table 2, p45.
- SAOG, Vol 1, pp416-417. Harris Minute to Churchill 18 July 1942
- ¹² *Ibid*, pp343-344 and TNA AIR 41/42, p12. PM's personal minute M378/2, 17 September 1942.
- Probert, Henry; *Bomber Harris, His Life and Times* (Greenhill, London, 2001) p136.
- ⁴ *Ibid*, p137.
- 15 SAOG see Note 1.
- ¹⁶ SAOG Vol III, p45.
- Garrett, Stephen A; *Ethics and Airpower in World War II* (St Martin's Press, New York, 1997) p56.
- ¹⁸ Grayling, A C; Among the Dead Cities-was the Allied Bombing of Civilians in World War II a Necessity or a Crime?, (Bloomsbury, London, 2006) pp266-7. Amongst a number of similar statements in this work is the following on p265, '...the effects claimed by the defenders of area bombing,...could have been gained...by efforts at precision-bombing [again erroneously implying, in passing, that such efforts were not made] and may indeed have been more successfully gained by it.'
- ¹⁹ Ellis, John; *Brute Force Allied Strategy and Tactics in the Second World War* (Andre Deutsch, London, 1990) p190.
- ²⁰ *Ibid*, p185.
- ²¹ On Oboe's capabilities and limitations see TNA AIR 10/5557, Air Historical Branch Monograph, *Royal Air Force Signals in the Second World War*, Vol III, *Aircraft Radio*, Chapters 8 & 9 passim,
- ²² Verrier, Anthony; *The Bomber Offensive* (MacMillan, London, 1968) pp274-5.
- ²³ *Ibid*, p277
- Hasting, Max, *Bomber Command* (Michael Joseph, London, 1979) p334.
- ²⁵ *Ibid*, p330.
- ²⁶ *Ibid*, p333.
- Letter Sir Charles Portal to Sir Arthur Harris, 22 December 1944, quoted in *SAOG Vol III*, p87.

- ²⁸ TNA CAB146/463, Oil as a Factor in the German War Economy.
- ²⁹ *SAOG*, Vol III, p189.
- Craven, W F and Cate, J L; *The Army Air Forces in World War II, Vol III, Europe: Argument to VE Day, January 1944 to May 1945* (University of Chicago, Chicago, 1951) p645.
- ³¹ *SAOG*, Vol III, pp189-190.
- Calculations based on figures in, *Air Ministry War Room, Monthly Summaries of Bomber Command Operations, October 1944 February 1945*, copies held by the Air Historical Branch.
- ³³ Air Historical Branch file II/80/52/31 Pt3/4, Minute ACAS(I) [AVM S O Bufton] to PS to PUS, 22 July 1959.
- Hastings, p402
- ³⁵ Biddle, Tami Davis; *Rhetoric and Reality in Air Warfare*, (Princeton University Press, Princeton & Oxford, 2002) p252.
- Davis, Richard G, Carl A Spaatz and the European Air War, (Center for Air Force History, Washington DC, 1993) pp570-1.
- Parks, W Hays "'Precision' and 'area' bombing: Who did which, and when?" Journal of Stategic Studies, Vol 18 No 1, p162.

OUESTIONS & ANSWERS

Wallace Dubabney: As an ex-LAC, I hesitate to speak in this exalted company, but I would offer the thought that, regardless of the accuracy, or inaccuracy, of bombing, what really mattered was that every bomb dropped diminished the German war effort. As one who lived through the *Blitz* before joining up in late 1941, I can assure that you that when we read reports of the RAF's raids it raised our morale – they were one of the few positive things we had to reflect on. It is, of course, very difficult to quantify these things, but I understand that German industrial output was just as great in 1945 as it had been earlier in the war – but how much greater would it have been had we not bombed Germany?

Sebastian Cox: I am sure that, if the Editor is content, today's proceedings will eventually appear in the Journal. But, on the topic of the bombing campaign in general, I would observe that the popular media tends to base its views on its effectiveness on the wellestablished mythology that I have just reviewed, and in which context the writings of Max Hastings and others, still exert considerable influence. But the media are largely ignorant of the fact that most of the serious academic work that has been done over the last fifteen to twenty years on the economic impact of the bomber offensive on Germany, and I am thinking here in particular of Professor Richard Overy and of Dr Adam Tooze, a Cambridge University historian, both of whom have concluded that Bomber Command's area attacks were significantly more effective than Webster and Frankland knew in 1961 when they wrote the original version of the official history. So – more recent scholarship has shown that area attacks were far more effective in the years up to 1944, but particularly in 1943, than we had previously believed.

Wg Cdr John Stubbington: Do you have a view on the political aspirations in the Whitehall circus in the last six months of the war which led, in effect, to Harris and Bomber Command being given no recognition.

Cox: I think that all of the senior politicians, Churchill, Attlee and most of the others, were well aware of what they had been approving in 1941 and they did not wish to be too closely associated with it come

1945 and '46. After all they were 'politicians' – in 1941 they would have recognised that area bombing was probably necessary; that it was probably the only way of winning the war. But, they didn't much like it so, like all politicians when they are obliged to do things that they don't much like, they will try, as far as possible, not to acknowledge the fact that they did it. And I think that it really is as simple as that.

AM Sir Fred Sowrey: Two questions. First, I gather that Harris was not privy to ULTRA. Do you think that that made any difference to his views on oil as a panacea target? Secondly, so far as I am aware, no one has ever made an assessment of the likely impact on Bomber Command if Portal had sacked Harris, or had accepted his offer to stand down in 1945. What do you think the effect might have been, on both the air and ground crews, of the Command that Harris had led for such a long time?

Cox: On the first point – there is some evidence to suggest that Harris did know about ULTRA, certainly by 1945. We know that there were definitely ULTRA-cleared people among the Intelligence Staff at Bomber Command, because they appear on the Distribution Lists for ULTRA material. What we don't know, however, is *when* they were added to the List. So it's not entirely clear. That said, my personal opinion is that I don't think that it would have made a great deal of difference. Fundamentally, Harris did not believe in the oil campaign. What I have been arguing in my paper, however, is that, just because Harris did not believe in it, that did not mean that he did not prosecute it fairly effectively. The picture has to be painted in shades of grey; it's not black and white – an extra 10% on oil just *might* have made a difference but, equally, it might not.

Consider the notorious area attack on Dresden, which, incidentally, was carried out at the specific behest of the Prime Minister, and which was followed the next night by a raid on Chemnitz. Both raids employed the same operational technique, a double strike, three hours apart. But very few people are even aware of the area attack on Chemnitz. Why? Because it failed. Why? Because the weather intervened, which meant that the low-level marking technique didn't work. All of which suggests an interesting question. If the weather had been the other way around and the attack on Dresden, 'the jewel on the Danube', had failed and the raid on Chemnitz, a relatively

undistinguished industrial city in Eastern Germany, had succeeded, would there have been the same outcry?

As to the impact if Harris had been dismissed, it is very difficult to assess the effect of a might-have-been. I think the best people to ask would be the veterans themselves – like the one sitting alongside you (Sir Michael Beetham – Ed). I hesitate to delve too deeply into this one, but I will say that I can't see how Harris' departure would have *improved* morale! It also poses another question. If you get rid of Harris, who do you put in his place? The most obvious candidate would have been Bottomley, whom I personally do not think would have been as effective, or, if you decided to promote a Group Commander, then Cochrane would probably have been the leading contender

AVM Nigel Baldwin: Perhaps I could redirect that question to our President. Sir Michael was a young Lancaster captain in 1945 and I would ask him to cast his mind back to that time and respond as the flight lieutenant that he then was, rather than as the Marshal of the Royal Air Force that he became. I'm not even sure how aware he would have been of Harris in those days, but I wonder what his reaction would have been if someone had come into the crew room and announced that, 'They've just sacked the CinC!'

MRAF Sir Michael Beetham. I think that Bomber Command aircrew would have been devastated. Harris really inspired us — he didn't do visits to stations, because he really didn't have the time to do that; he needed to concentrate on running the war from his headquarters. But he used to send messages that were read out at briefing and they really did make you puff out your chest. He had the ability to inspire you. The boys, all of us, loved him, although, oddly enough, we didn't really know him. But we knew that he wouldn't put us at risk unnecessarily and we knew what he was trying to do — and we were right behind him.

Michael Shrimpton: I should perhaps explain that I am not a spy, although I do teach spies and I do the odd bit of intelligence analysis and I do bail spies out of trouble from time to time. We now know that the Air Ministry was fairly heavily penetrated by German Intelligence during WW II, which explains some of its dafter decisions. For

example, we have Duncan Sandys who had back-channel routes to Germany through Lisbon, and probably through Dublin as well, and we know that, sadly, some bomber raids ran into intensive fighter opposition because the targets had been notified to Germany in advance – and we know that that intelligence was not coming out of High Wycombe; it was coming from the Air Ministry. In the light of that knowledge, one has to wonder about the Butt Report of 1941 – which was clearly intended to influence policy – and did. Has anyone done the sort of follow-up work on that report that has been done on, for instance, the assessment of the actual effects of Bomber Command's offensive? Has anyone ever gone back and looked at Butt's figures? I am not sure that they are right - the oft-quoted business of not getting bombs within five miles of the target - I suspect that the RAF may have been doing rather better than that in 1941. Which is another way of saying, 'Was Butt a German spy?'. I don't know. But I would put him on a short-list and have another look at him

Cox: Well you certainly appear to know a lot more than I do about German intelligence networks within the Air Ministry! It is, for instance, the first time that I have heard it suggested that the Prime Minister's son-in-law was a German agent! I have to say, that I have my doubts about this. Even if we accept your thesis that there were active channels between London and Germany via Lisbon and Dublin, it would have been very difficult to relay short-fused operational intelligence in time for it to be of any practical use to the Germans. Consider, for instance, the case of the well-known double-agent 'Garbo'. He was set up to tell the Germans that the Normandy landings were going to take place on 6 June and they were to be notified of this before the men hit the beach. This information was to be routed through Lisbon and the calculation was that the time taken – to decode the message in Lisbon and then re-encrypt it for transmission to Berlin, where it would have to be decoded and reencrypted again for retransmission to Oberkommandowest in Paris, where Von Runstedt would have had to react to direct Rommel to wake up his Army and man the defences – meant that the message would not, could not, arrive in time. The point was to establish the unimpeachable credibility of Germany's agent in the UK - 'Garbo' -

permitting us to use him to feed the Germans all sorts of false information. So, even if I were to accept your contention, that the Air Ministry was riddled with Germans spies, which I have to say I have some difficulty doing, I don't think that they would have been able to pass any worthwhile operational intelligence to Germany.

As to Butt, if his paper really was so wrong, I fancy that if any of the officers at Bomber Command had actually been able to dispute his findings, other than by bluster, which was what most of them fell back on, then they surely would have done. I just do not believe that the CinC at the time, Peirse, and his entire staff would simply have rolled over and accepted Butt's conclusions if the whole thing had been based on a false interpretation of the evidence.

Sir Mike Stear: Based on my experiences in a senior NATO appointment, I would like to make the point that there was another morale issue, quite apart from the one that is usually considered – the morale of the German population. My experience in Belgium, Holland and parts of France was that Bomber Command's efforts had a huge, and positive, impact on the morale of the people of occupied Europe. They drew strength from the fact that, night after night, they heard British bombers overhead flying towards Germany and the knowledge that someone was still doing something gave them hope.

Cox: I think that was particularly true of the Dutch and of the Belgians too – not so sure about the French . . . It has been said of the Belgians that they aren't very good at fighting, but they are very good at resistance networks, because centuries of experience has taught them that whenever the Germans and French decide to fight each other, they tend to do it in Belgium and they have learned that being a small country, there is little point in maintaining a large Army and attempting to resist at the time; better to let them come and then resist once they are there.

Gus Wells: You spoke of Harris being subordinated to SHAEF for a time. Is there any evidence to suggest that Harris was working politically, playing off SHAEF against the Air Ministry, with a view to his not having to prosecute those oil targets?

Cox: No. Bomber Command was under SHAEF from April to September 1944 and the first time that Harris went for an oil target

was actually during that period, in June, when he was told to bomb Gelsenkirchen, which he did, very effectively. The interesting thing about his time under SHAEF is that he is under the command of an American soldier and a British Deputy Commander who is an airman and one might have expected him to have preferred it the other way round. But he later writes, and I am paraphrasing here, rather than directly quoting, words to the effect that, with himself as mate, Eisenhower as the admiral and Tedder as the captain on the bridge, that was the period when he felt that the entire crew of the Bomber Command ship was pulling together and that the bomber campaign was receiving its best direction. Bear in mind that, for much of that period, Harris was actually bombing French railways and tactical targets in front of 21st Army Group, rather than German cities, which makes it a slightly puzzling conclusion for someone who was allegedly obsessed with area bombing. It is also interesting to note that during that period, SHAEF issued Harris with just one directive, whereas during the thirty-four months that he was under the Air Staff, he received more than fifty directive letters or signals a new directive, on average every two to three weeks! Indeed, they even tried to issue him with one when he was under SHAEF, so he wrote back to the Ministry, declining to accept it on the grounds that he wasn't actually working for them. So you can, perhaps, see why Harris could sometimes get a little frustrated with folk in Whitehall telling him how to run his business.

Air Cdre Andrew Lambert: I have three short observations. First, regardless of whether they were aiming by radar or visually, we know that the Americans dropped their bombs when the formation leader did, rather than individually. It follows that if the formation covered ten acres, you would get a ten-acre bomb plot, so the idea of each bomb going 'into the pickle barrel' is plainly nonsense.

Secondly, many writers have had a great deal to say about the effectiveness of Bomber Command and it was a popular practice during the 1980s and '90s to dismiss the findings of the USSBS – the United States Strategic Bombing Survey – which actually shows that by the beginning of 1945 German war production was virtually finished. Oil was down to about 10%; mineral production was down to about 10%. Although the German war economy had still been doing

reasonably well in the autumn of 1944, according to the USSBS data, there was a sudden steep decline over Christmas and by the end of January 1945 it was finished – had we done nothing more except wait, it would probably have ground to a halt all by itself.

My third point concerns the psychological impact of Bomber Command. Although Harris wasn't specifically attacking it, there is no doubt that German civilian morale was at rock bottom. But the odd thing is that this didn't provoke a movement for political change; there was neither rebellion nor revolution. What it did stimulate was the instinct for self preservation. Most German civilians understood that the war was virtually over and, as individuals, they were simply seeking ways of avoiding being killed before it actually ended. As a result, on the day after a raid, absentee rates were very high, as were sickness rates, and in order to overcome this, the authorities had to resort to feeding the labour force at its place of work in order to persuade people to turn up at all. But a sense of defeatism pervaded everything and, although the military was still fighting tenaciously in January 1945, and later, the civilians knew that it was all over and their lack of commitment was a major factor leading to Germany's final collapse.

Cox: I wouldn't take issue with any of that. Although I will offer one thought. A few years ago a German historian, Jorg Friedrich, wrote a book called *Der Brand*, which was an attack on the conduct of the bomber offensive. After it had been published in English, the BBC had him on the *Today* programme and, as spokesman for the defence, they fielded the young Winston Churchill. He was not a very good choice, as he appeared to know very little about the bombing campaign. As a result he could do little more than talk about concentration camps and resort to moral relativism, whereas Friedrich had far more specific and persuasive arguments to support his contention that the war was effectively over by January 1945 – and that it followed that any bombing after that was, therefore, unjustified.

Perhaps I could offer just one statistic that suggests that that was not actually the case. In February and March 1945, that is to say, *after* the Ardennes offensive, the British and American armies in north west Europe sustained 96,000 battle casualties – that does not include the losses sustained by the Russians on the Eastern Front, which were

even greater. So the war was demonstrably *not* over by January or February, or even March 1945.

Tony Page: In 1944-45 I was being trained to join the bomber offensive, from Italy as it turned out, and I'm glad to say that they stopped the war the day I got there! That aside, in the 1980s I was working for Shell on the plan that would have provided fuel for the RAF and USAF in this country in the event that the Cold War had turned hot. As a result I was very familiar with the characteristics of the UK system – and of its vulnerability. You can, of course, bomb refineries and synthetic plants, and you can go for storage depots, but there is a great deal of duplication, and thus redundancy, built into the system. The weakest link is the means of distribution and delivery to the consumer, whether by pipeline, ship, rail or, in the final resort, road – so those are the points to attack. I don't think that the Germans had any pipelines and shipping was under constant attack anyway. So that left railways and roads which reinforces the value of the campaign against communications.

A serving USAF officer has just completed a study of Cox: intelligence and the bomber offensive which is to be published as a book next year. One of the points that he makes is that there was a great deal of synergy, which was not understood at the time, between the attacks on the German railway network and the specific attacks on oil. The two target sets were mutually complementary. There were some attacks on storage depots and he concludes that more of these would have been very worthwhile. But so far as the tactical air forces were concerned, from Normandy onwards, they always - always attacked any petrol tankers that they saw and their attacks on road transport at or near the front were extremely effective in further reducing the diminishing quantities of oil available to the Germans. The Ardennes offensive is a classic case. The Wehrmacht had enough petrol to go so far and no further. The plan was wholly dependent upon on their being able to capture the fuel stocks held by the Allies. They failed to do that before the Panzers ran out of petrol and stopped, obliging their crews to abandon their tanks and start walking home.

SUMMARY OF THE MINUTES OF THE TWENTY-SECOND ANNUAL GENERAL MEETING HELD IN THE ROYAL AIR FORCE CLUB ON 17 JUNE 2009

Chairman's Report.

AVM Baldwin, Chairman, noted with great sadness the passing of Sqn Ldr Tony Richardson, a founder member of the society who had served as its editor for Journals 1-17 and had been a stalwart supporter thereafter. He was also secretary of the Oranges & Lemons Society giving strong support to St Clement Danes Church.

The Society had held two seminars during the year; the first in October at the RAF Museum, Hendon, had covered unguided weapons, while the second, also at Hendon, covered RAF Operations in the Northern Mediterranean 1943-45. Both attracted an audience of around 100. The latest Journal, No 44, had been published a few weeks ago and had covered the 2008 AGM address by Air Chf Mshl Sir Michael Graydon, the Two Air Forces Award paper, other articles of interest and the usual book reviews. The next seminar, to be held at Hendon on 21 October 2009 would look at the RAF's history in a broad sweep across the Middle East, covering selected events in Iraq, Arabia and on the North West Frontier of India as far back as WW I. The subject for the spring 2010 seminar, to be held on 7 April, had yet to be decided, but the autumn event, to be held at the BAWA, Bristol on 21 October, would examine the aeroplanes and engines produced by Bristols and their use by the RAF.

The finances of the Society remained stable and healthy, with nearly £35,000 in the accumulated fund at the year end. Generous donations had been received from BAe Systems, Cobham and Rolls-Royce in connection with the Canberra seminar. A legacy of £1,000 had also been received from the estate of the late Sqn Ldr Townend-Dyson. The committee aimed to underpin the costs of journals and seminar days while keeping membership fees as constant as possible: the latter would remain at £18 per annum next year. There was a continued slow decline in membership which seemed to have stabilised around 800. However, those still paying only £15 pa would not have received journals this year.

All Society publications up to Journal 36 (a total of forty-nine,

including hardbacks) were now on-line and could be downloaded from the RAF Museum's website. Journals were also being distributed to The National Archive and selected universities. The RAF Director of Defence Studies was developing, on the Society's behalf, the Henry Probert Bursary scheme, under which a suitable candidate would receive a grant of £2,500 towards the cost of post-graduate study of an aspect of air power history.

Concluding, the chairman thanked the committee for their continued hard work, and expressed his appreciation of the constant wise support and encouragement of the President, Sir Michael Beetham, and the Vice-President, Sir Frederick Sowrey.

Secretary's Report.

Gp Capt Dearman, Secretary, reported that since the last AGM, twenty-three new members had joined the Society, of whom four were serving in the RAF. However, nineteen had died and fifteen had resigned, leaving total membership at about 818. Journal sales had amounted to £197, but these had been expected to decline with the availability of back numbers on-line. Publication on the web, however, served to support the Society's aim of putting its proceedings into the wider public record.

Treasurer's Report.

Mr Boyes, Treasurer, noted that for financial year 2008, a surplus of £5,987 had been transferred to the accumulated fund. This had arisen mainly from donations and a legacy, however membership subscription income had declined slightly. Moreover, while investment income had been £1,550 in 2008, in the year to date it had fallen to £109. The deficit on seminars had been £2,355. The Society had made a grant of £1,000 to the Bomber Command Memorial appeal. The accumulated fund stood at £34,481. Proposed by Michael Shrimpton and seconded by Gp Capt Heron, a motion that the accounts be accepted and that J R G Auber Ltd be reappointed independent examiner was carried.

Appointment of Executive Committee.

The chairman noted that all the executive committee members had offered themselves for re-election. Wg Cdr Dixon, an exofficio member had been posted from JSCSC, and his successor was content to be join the Committee. A proposal by Sir Frederick Sowrey, seconded by Air Cdre Tyack, that all members be reelected was carried. The executive committee members so elected were:

AVM N B Baldwin CB CBE FRAeS

Gp Capt J D Heron OBE

Gp Capt K J Dearman FRAeS

Dr J Dunham PhD CPsychol AMRAeS

Mr J Boyes TD CA

Wg Cdr C G Jefford MBE BA

Air Cdre G R Pitchfork MBE MA FRAeS

Wg Cdr C J Cummings

Chairman

Vice-Chairman

Secretary

Membership Secretary

Treasurer

Editor & Pubs Manager

The ex-officio members of the committee were:

J S Cox BA MA

Dr M Fopp MA PhD FMA FIMgt

Gp Capt A J Byford MA MA RAF

Wg Cdr P K Kendall BSc ARCS MA RAF

JSCSC

Head of AHB

DG RAF Museum

DDefS(RAF)

Discussion.

Air Cdre Tyack explained the RAeS Heritage Plaque scheme and invited nominations. Plaques had been placed for Sir Arthur Marshall, the Shuttleworth Collection, the Short brothers and Muswell Manor. Future candidates might include Rolls-Royce Hucknall, Ferranti, Leuchars in celebration of 60 years of QRA, and Sir Robert Watson-Watt. There was, however, no funding.

Steven Mason suggested an annual award, in the form of a prize, might be made to the Guild of Aviation Artists.

The President, Sir Michael Beetham, presented the Two Air Forces Award to Wg Cdr Bryan Hunt.

In 1996 the Royal Air Force Historical Society established, in collaboration 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 2008. **Ed**

AIR POWER AND PSYCHOLOGICAL WARFARE OPERATIONS – MALAYA 1948-1960

By Wg Cdr Bryan J Hunt

In 1948 Communist insurgents launched a major terrorism campaign to topple British rule in Malaya and sought to establish a Peoples' Republic. The initial civil and military response was disjointed and largely ineffective until the development of a joint civil and military campaign plan that, *inter alia*, placed considerable importance on Psyops and intelligence operations alongside constabulary policing and social reforms. This paper considers the role of air power in support of psychological warfare operations during the campaign and compares its effectiveness alongside the bombing campaign.

'After the attack on our cultivation area we fled to another area where we saw many Government propaganda leaflets and safe conduct passes. I picked up some of the leaflets intending to use them when coming to surrender. A few days later we heard voices coming from an aeroplane calling on us all to surrender and offering good treatment. We all agreed to this suggestion.'

(Surrendered Enemy Person, quoted in Far East Air Force/Military Intelligence Summary, September 1954, Pt II – TNA AIR 24/2534.)

Introduction

The murder in Malaya of three European planters in June 1948 precipitated the declaration of a state of emergency by the British-led colonial government. The insurgency was the culmination of an increasingly brutal campaign sponsored by the Malayan Communist Party (MCP) that had its origins in the expansion of Soviet influence into South East Asia in the 1920s. Although the colonial authorities – most notably Police Special Branch – had penetrated the MCP during



Chin Peng, Secretary General of the Malayan Communist Party and leader of the insurgency that created the State of Emergency 1948-60.

the 1930s and was able to curb many of its activities, the Japanese occupation in early 1942 resulted in the MCP co-operating with Britain in a clandestine war against the Japanese, forming the self-styled Malay Peoples' Anti-Japanese Army (MPAJA).¹

After the sudden capitulation of the Japanese in August 1945, Supreme Allied Commander South East Asia, Lord Louis Mountbatten, authorised the

MPAJA to maintain order before colonial authority was reestablished. Britain remained determined to retain control of post-war Malaya as it was the single largest overseas source of US dollar earnings through the export of rubber and tin and provided a considerable boost to the beleaguered British economy. Although the Secretary-General of the MCP, Lai Tek, discouraged direct confrontation with the British authorities, there was increasing industrial unrest in Singapore and Malaya, as MCP activists gained prominence amongst the trades unions. After Lai Tek was unmasked as a long-time British agent in late 1947, the MCP, which was 90 per cent ethnic Chinese,² became galvanised to launch a direct challenge to the Malay Federation and the *de facto* British rule, and sought to establish a Socialist Democratic Republic.^{3, 4} The MCP challenge to colonial authority was spurred by a number of recent and concurrent events: the humiliation of European defeat at the hands of the Japanese, the emergence of a Communist China under Mao Zedong, a 'call to arms' at two Moscow-sponsored conferences held in Calcutta in February and March 1948, and lobbying by an Australian trade unionist and COMINTERN member, Lawrence Sharkey.

Outbreak of Insurgency

Intelligence

At the declaration of the Emergency, the colonial authorities were hampered by lack of actionable intelligence about the insurgents; indeed for several months it was thought that the violence was perpetrated by Chinese nationalists, the Kuo Min Tang (KMT), who were the arch-enemies of the Communists. The small and underresourced internal security organisation, the Malaya Security Service (MSS), had warned of Communist intentions but these were largely ignored by the High Commissioner, Sir Edward Gent, and his Commissioner of Police. After the declaration of a State of Emergency, the MSS was disbanded (to be reformed as Police Special Branch); Gent was recalled to London to face questioning about the debacle, and the Commissioner of Police was replaced by the mercurial Colonel W Nichol Gray, fresh from the British mandate in Palestine.⁶ The initial response by the police and military forces was disjointed (and indeed competitive), occasionally brutal and not particularly effective; however, it was understood by all that the insurgency could not be defeated by military action alone. The essence of success lay in winning the confidence and the loyalty of the bulk of the Chinese population and to stimulate amongst them a positive reaction against Communism; similarly exploitation of events and intelligence required a depth of knowledge of the landscape, the culture of the target audience and 'human factors' of those involved. Accordingly, Psychological Warfare Operations (Psyops), hitherto unknown in SE Asia, required a specialised form of intelligence not readily available through single military, police or political channels.

Organisation of Psychological Warfare Operations

At the start of the Emergency, information and directives to the public were disseminated through the Emergency Publicity Committee of the Department of Public Relations, however, in June 1950 this task, as well as that of propaganda, was taken over by the Emergency Information Services, which were part of the Federal Police HQ in Kuala Lumpur, with representatives at State, Settlement and District levels. In October 1952 the Emergency Information Service was separated from the joint civil/military Director of Operations Staff and placed under the Director-General of Information Services, only for the responsibility for the psychological offensive to pass back to the Psychological Warfare Section of the Operations Directorate some months later. Although General Sir Gerald Templer (High Commissioner and Director of Operations, 1952-54) had regarded intelligence operations and Psyops as his 'right and left hand gloves'

his Director of Intelligence, Jack Morton, considered that the outcome of intelligence operations was more predictable, and invested resources in delineating Army and police intelligence responsibilities and developing Special Branch operations at the expense of the Psychological Warfare Section.⁸

The main aims of the 'war of words' were to induce surrenders amongst the insurgents, by breaking their morale and causing disaffection within their ranks, and to win the battle for the minds and loyalties of the uncommitted population in the face of a propaganda offensive that was launched by the MCP. In a 2005 interview with a Chinese former senior Special Branch officer, Leong Che Woh described the role of the Federal authorities as converting the insurgents; the death of an insurgent was 'regarded as a failure'. This view was in stark contrast with the military approach of using kinetic means to defeat the insurgents – patrols, battery shoots and air attacks, – and this would remain a source of friction between the colonial police and the military and air authorities.

The main problem faced by the information staff was in promulgating the message to an elusive enemy whose primary tactic was to avoid contact with the security forces. The local Chinese were indoctrinated by the Government through the press, radio, films and itinerant information teams [often comprised of surrendered enemy personnel (SEPs)] and the local Masses Organisation or Min Yuen (who supported the communist insurgency) could be relied upon to relay some of the information to those insurgents taking refuge in the jungle. 10 However, as they withdrew deeper into the jungle, messages to the insurgents were spread primarily through leaflet drops and voice broadcasts from aircraft; indeed this was often the only means of making contact with them and without these means of disseminating information much of the effect of the psychological warfare campaign would have been nullified. 11 Once again, air power demonstrated ubiquity - largely unconstrained by terrain or enemy presence. Communist propaganda was limited to political indoctrination and hectoring, and the promulgation of Marxist publications; indeed the MCP leadership regarded printing presses as their strongest weapon and the colonial authorities went to enormous lengths to stop the production and distribution of communist propaganda newspapers and leaflets.

During the first two years of the Emergency – until mid 1950 – access to day-to-day intelligence suitable for exploitation was lacking, as competition for new material was fierce. Firstly, after the disbandment of the MSS in August 1948 the security forces lost most of their reliable Chinese sources of human intelligence (Humint), as there had been over-reliance on Lai Tek as a single source of intelligence on communist intentions. Secondly, the newly reconstituted Police Special Branch was grossly under-resourced and contained few officers who had experience of Malaya or who could speak the dialects of the Chinese amongst whom the communist insurgents operated.

Military units initially ran their own network of agents and informers, often in competition with Special Branch operations. The police usually gained the first news of exploitable events, such as surrenders or major defections and although such events could be exploited by the Psychological Warfare Section to create a 'snowball' effect, Special Branch tended to conceal such events in order not to jeopardise other covert operations. Such was the parochialism that the Psywar Section took the view that secrecy and security were often imposed for no better reason that to gain credit for the police, and Special Branch in particular, leading to bitter arguments resulting in the Psywar Section deliberately exploiting intelligence material that Special Branch had embargoed. Interestingly, the Psywar Section ensured that the material in sponsored publications (leaflets, newspapers and magazines) and films was factually accurate; there is little evidence of the use of 'Black' propaganda during the campaign.

Information staff had few emergency guidelines: Psychological Warfare was a new art and experience was largely limited to the European theatre of World War II and the policies – such as the adoption of the rewards scheme – was largely the work of a future Director-General of the BBC, Hugh Greene, who was appointed as Director of the Emergency Information Service in 1950. 13 Furthermore, the Pysops campaign had to act within the civil penal code and could not urge, for example, that insurgents kill their leaders, even though this happened on an increasingly frequent basis as the financial rewards grew. It also took several years for the Government to realise that two thirds of the Min Yuen and a significant percentage of the insurgents were illiterate; accordingly



A Lincoln of No 1 Sqn, RAAF, the 'big stick', throughout most of Operation FIREDOG.

leaflets and newspapers had to be understood by all. The Psyops campaign gained greater momentum and traction by the later appointment of an influential Chinese businessman, 'Harry' C C Too, with his encyclopaedic knowledge of Chinese society and intimate understanding of senior MCP figures. Conflated with an overall improvement of intelligence from the Police, in part due to the concerted recruitment of Chinese detectives into Special Branch, by late 1951 the initiative had passed to the Security forces, a point that the MCP acknowledged in an evaluation that was soon to fall into Government hands. This was in spite of 1951 being regarded as the darkest year of the Emergency by British settlers in Malaya, with spectacular successes scored by the insurgents such as the assassination of the High Commissioner, Sir Henry Gurney, in October 1951.

Psychological Warfare Operations – Techniques and Dissemination

Leaflets and broadcasts were prepared in simple vernacular languages for distribution to the scattered villages and estates where the majority of the sympathetic Chinese and Min Yuen lived. Leaflets were usually dispatched from a supply-dropping aircraft and occasionally by bombers of the offensive support force at the conclusion of an air strike. Valettas, Dakotas, offensive aircraft – such as Royal Australian Air Force (RAAF) Lincoln bombers at the completion of bombing missions – and in later years of the

Emergency, the fearsome Bristol Freighter of the Royal New Zealand Air Force (RNZAF), carried loads of up to 800,000 leaflets at a time. Experience showed that a good distribution was achieved in an area of 1,000 yards square by dispatching 50,000 leaflets at a time at the end of a static line. ¹⁵ If accurate drops of a limited quantity of leaflets into small pinpoint targets were required, usually when the need to exploit rapidly a success achieved by the security forces, Austers of 656 Squadron RAF (later, Army Air Corps (AAC)) and occasionally Harvards of the Malayan Auxiliary Air Force (MAAF) were employed.

Throughout the campaign leaflets remained the chief medium for disseminating information and propaganda to the insurgents in the jungle and to the Min Yuen. Although the maximum number of leaflet sorties was in 1951, the peak of leaflet delivery was achieved in 1955, when psychological warfare operations were achieving greater successes than direct military operations. Initially leaflets were of a strategic nature, advising populations of emergency regulations and extolling the virtues of surrender, although there is little evidence of this being a successful method. As the campaign progressed, tactical leaflet dropping was used to exploit successes of police and military operations and to publicise the rewards scheme, whereby the authorities would pay substantial bounties for insurgents to surrender or to 'bring in' weapons and MCP leaders.¹⁶

The air power commitment in 1955 – the peak of psychological operations – saw 141 million leaflets dropped on 365 leaflet-dropping sorties and 906 hours of voice broadcast over 922 sorties. In September 1955, the Federal Government announced an amnesty prior to the peace talks in Baling, when 21 million leaflets were dropped in seven days.

The broadcasting of recorded messages from aircraft was not introduced into the Malayan campaign until October 1952 when General Templer arranged the loan of a US Air Force C-47 from Korea for experimental purposes, through his personal friendship with General Mark Clark, the commander of US forces in Korea from May 1952.¹⁷ The Dakotas had proved to be of little use in Korea due to a sophisticated air defence system in the North, whereas air power had supremacy in Malaya.¹⁸ As a result of experiments conducted by the Far East Army Operational Research Section (Psywar), two RAF

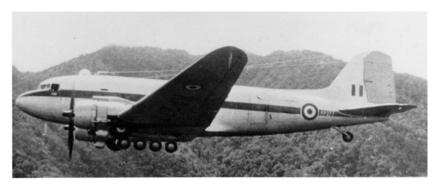


The array of skyshouting speakers on a Valetta.

Valettas of Headquarters Far East Air Force (HQ FEAF) were fitted with voice broadcasting equipment and began operations in early 1953. Excessive engine noise – rebroadcast over the loud speakers – resulted in the Valettas being replaced by two ex-Malayan Airlines Dakotas (which were, in turn, ex-RAF) in December 1953 and March 1954. The Dakota, although obsolete in the RAF by that time, was more suited to the voice-broadcasting role as the engine noise was less and the lower cruising and loiter speeds enabled longer broadcasts to be made. In January 1954 an Auster was equipped with loud hailing equipment for use over small targets on the fringe of the jungle or adjacent to roads, where accuracy was important and when the employment of larger aircraft was uneconomical.

On the Dakotas, the Voice Aircraft (VA) broadcasting equipment consisted of a diesel generator and four modified 'Tannoy' underwing mounted speakers, offset to port. Broadcasts were normally made at 2,500 or 3,000 feet at about 75 knots and in good weather conditions the broadcast could be heard 2,500 yards left of track. The equipment could be jettisoned in an emergency, unlike the original US fit, where banks of speakers were mounted in the main doorway.

Typically VA flew a 2,000-yard offset box pattern to ensure adequate ground coverage. The Austers, fitted with only one speaker,



One of the Dakotas operated by No 267 Sqn as Voice Aircraft. (MAP)

could be heard some 1,000-1,500 yards left of track when flying at 40-45 knots at between 800 and 1,500 feet, but aircraft performance was hampered by the equipment weight and the need to carry a 'voice operator'. An endless loop tape system was introduced in April 1954 which obviated the requirement for the extra crew member; however the work load on the single pilot was immense. The pilot operated the equipment by hand, using his feet and knees to manage the flying controls, whilst flying at low level in mountainous tropical terrain. Any turbulence, aided by a draughty cabin, would result in the 20 feet of recorded tape breaking loose and winding itself around the pilot and his controls. Changing the endless loop cassettes was a very difficult task and it is to their credit that they achieved the many successes which reports from the ground gave them. 19 By 1955 the 'Voice' Flight of 267 Squadron RAF had three Dakotas and two Austers; sadly the one remaining Valetta crashed in February 1954 in NW Johore with loss of seven crew.²⁰

Typically, voice broadcasts did not exceed 28 seconds; indeed many were shorter, and a considerable amount of scripting was required to compress a meaningful message into the allocated timeframe. There were also instances where live broadcasts were given from the aircraft, although the usual speaker was the principal woman announcer from Radio Malaya, 'Mrs Tan', who could speak English, Malay and the four principal Chinese dialects.²¹ She carried out her own translations and made her own recordings between regular Radio Malaya broadcasts. On several occasions, General Templer gave broadcasts in heavily-practised Chinese and Derry, in



No 267 Sqn also operated the Auster AOP 6 in the 'skyshouting' role. (via BARG)

his unpublished account of Psyops in Malaya, noted that these broadcasts had a major effect on the insurgents. The greatest challenge was in preparing recordings to be broadcast to the indigenous Orang Asli people – the so-called 'aboriginals' – who lived in the deep jungle and were exploited by the insurgents as an intelligence screen. The broadcasts were heard by the Orang Asli but were regarded as 'wind in the head', ie a mental aberration, because of the dense jungle the aircraft were rarely visible and thus the source of the voices could not be determined

Tasking

Requests for loud hailing or leaflet dropping sorties emanated through police channels (typically Special Branch, or State-level 'Voice Area Committees') and were passed to the Joint Operations Centre (JOC) in Kuala Lumpur, where the mission was prioritised and deconflicted with air strikes and supply drops. By 1954, the average time between a request for a voice mission and take-off time was about four hours; technical advances in tape production meant that by 1957 the request-to-launch time was reduced to two hours. Although

mission co-ordination could result in differing voice missions being carried out during the one sortie, it was typical to saturate an area in voice broadcasts for several days, effectively tying up one – possibly two – VA in order to achieve the maximum psychological effect. Although not a regular practice, VA did sometimes operate in conjunction with bombing and artillery engagements, although the Psywar Section believed that the insurgents were not particularly receptive to messages after such bombardments, since they were thought to be paralysed by fear and thus unable to make the rational decision to surrender.²² This is in contrast with techniques later used in Vietnam and in Iraq in 1991, where leaflet dropping followed intense 'softening up' by B-52s.

Operational Tempo

From 1956 onwards the number of contacts with the insurgents reduced as their numbers decreased and it was hoped that psychological operations would play an increasing role in defeating the insurgency. As well as the tactical leaflet and voice broadcast role, strategic leaflets were used to publicise both Merdeka (Malayan independence from Britain in August 1957) and the intention of the Federal Government to prosecute a long term war against the insurgents. Although the increase in the number of insurgent 'eliminations' had a cumulative effect, they were not immediately publicised to avoid prejudicing ongoing Special Branch operations in Northern Jahore and Southern Perak. This had the net effect of reducing the number of leaflet drops and VA sorties. Additionally, the Dakotas were rapidly ageing in the tropical conditions and, coupled with additional positioning time as the insurgency was confined to the border with Thailand, the average number of broadcasts made over an area was reduced from five to three in order to conserve remaining airframe hours.²³ Furthermore, political constraints of operating near, and sometimes over, Thai territory meant that there were delays in obtaining over-flight clearance. By the end of the Emergency in 1960, Commonwealth air forces had delivered nearly 500 million leaflets on more that 2,500 sorties and conducted nearly 4,000 hours of voice broadcast during 4,500 sorties.

Impact of the Air Contribution to the Psychological Warfare Campaign

In 1949, when the psychological warfare campaign was in its infancy and the insurgents had the upper hand militarily, forty-eight of the 207 insurgents who surrendered between September and December did so after reading leaflets outlining the surrender terms. The first measured impact of the leaflet campaign was apparent in Penang in 1951 – arguably the darkest year of the Emergency when the greatest numbers of insurgent killings took place, including the High Commissioner – when leaflets advertising cash rewards for information on the whereabouts of insurgents resulted in a five-fold increase of actionable intelligence received by Special Branch. After 1952 SEPs also stated on many occasions that voice broadcasts influenced their decision to surrender; additionally by 1955, 70% of those who surrendered used safe conduct passes that were routinely attached to information leaflets.

Although the official RAF history is vague about the effectiveness of the psywar campaign, the Operational Research Section (Psywar) [ORS(PS)] conducted a detailed analysis of the motivation of



surrendered insurgents in 1956, noting inter alia, that of those who heard the VA broadcasts clearly, 91% considered them to be 'highly effective in destroying [Communist Terrorist] morale. convincing the terrorists of the futility of continuing the armed struggle and [thereby] inducing surrender.' A further 73% of SEPs also listed voice broadcasts as a factor precipitating their own surrender.²⁶ The ORS(PS) collated numerous statements from

Forty-eight terrorists are reported to have surrendered with this leaflet, No 256, entitled 'Now Is The Time To Save Yourself' SEPs illustrating the propaganda effectiveness of VA, eg 'Voice aircraft should be more used. The pamphlets [leaflets] are forbidden to be read whilst broadcasts from Voice Aircraft can be heard by all'. The MCP Secretary-General, Chin Peng, issued an order that any MCP member found in possession of a leaflet would be summarily executed; however, there was no means to block out voice broadcasts that were frequently addressed to individuals within known groups of insurgents. The personalising of broadcasts was likely to be a key factor in success: hearing messages telling who you are, where you are, and what you should do next would be a powerful inducement to surrender.

Later in the campaign, weaknesses of the MCP position were ruthlessly exploited by the Emergency Information Service. The failure of the September 1955 peace talks in Baling were portrayed as a lost opportunity for the MCP – Merdeka was proceeding and the Federal Government had made it clear that the MCP would not be legitimised and therefore would not have a role in the new government. Chin Peng had previously announced that the MCP would disarm if Merdeka took place; and although independence was granted on 31 August 1957, the Communist struggle continued, but with considerably less resolve.²⁹ Mass surrenders took place in 1957-58 and although these cannot be ascribed solely to the psychological warfare campaign, the leaflets and broadcasts supported the firm line that the Federal Government had taken - such as resettlement of the Chinese squatter population (thereby removing the Min Yuen support), continued food denial programmes in 'black' areas (areas with active insurgency) and successful penetration of the highest levels of the MCP by Special Branch.³⁰ In 1960, in a captured document, the MCP - now based in a relatively benign southern Thailand, with the connivance of the Thai Government – offered the opportunity for MCP members to leave guerrilla operations if 'they had lost faith in the present struggle, were sick or old, or they wanted to marry'.31

Conclusions

Much has been written about the offensive actions of the air forces during the Malayan Emergency but few comparisons with the nonlethal effect of the air power contribution to the Psyops campaign have



A patrol of British troops, in this case of the RAF Regiment, wading through a mangrove swamp.

been made. Kinetic targets were invariably in dense jungle, thus attacking them was problematic and bomb damage assessment was a speculative pastime. At the commencement of the Emergency the lack of adequate charts, maps and photographic coverage limited the accuracy, and therefore the effectiveness, of the bombing and strafing campaign. Tim Hatton, a Special Branch officer throughout much of the Emergency, who rose to be Deputy Director of Special Branch in the mid-1960s, reported on the catastrophic impact that collateral damage had on the 'Hearts and Minds' campaign; such loss of support and actionable intelligence from otherwise neutral populations needed to be weighed against the resources expended on ordnance.³²

During the campaign some 35,000 short tons of bombs were dropped during 4,067 air strikes, with expenditure on ammunition and explosives alone exceeding £1.5 million per annum by 1951. There were, however, few means of measuring the effectiveness of the air campaign. During the first eighteen months, from June 1948 to December 1949, intelligence reports of questionable reliability reported ninety-eight insurgents killed and a further twenty-two wounded during air strikes; in contrast, during the same period security forces killed approximately 1,000 insurgents in ground contacts. Other reports, quoted in the official account of the air campaign, reported that 126 insurgents were killed by air strikes with a further 141 injured. In a 1963 symposium on the role of air power in

Malaya, sponsored by the US Air Force, it was reported that the heavy bombing campaign conducted by the Royal Australian Air Force (eight Lincolns dropping roughly half the total ordnance – 17,500 short tons) had eliminated only sixteen insurgents and between twenty and thirty camps were destroyed.³³ Overall, Postgate, in the official RAF history of Operation FIREDOG, assessed that the air campaign contributed less than 10% of the total casualty count. This is in stark contrast to the empirical evidence obtained from insurgents who 'self renewed'³⁴ as a result of the relatively economical Psyops campaign. Perhaps if the RAF had focused on a non-kinetic campaign of Psyops support, air re-supply and helicopter operations, even greater successes would have been achieved. Such a strategy would have to have been weighed against the need to provide close air support to security forces.

Nonetheless, air strikes clearly had a deleterious effect on morale. Chin Peng reported the effect of an intense bombardment of his headquarters in March 1953. Although the RAAF Lincolns missed the well-camouflaged camp, a number of insurgents – including two of Chin Peng's bodyguards – were killed in the raid and his headquarters was rapidly vacated and command and control effectively neutralised because of the fear of follow-on security force attacks.³⁵

The importance of the contribution made by the propaganda and information services to the successful outcome of the campaign cannot be underestimated. By the middle of 1951 it was clear that the cumulative effect of Security Force measures had increased public confidence in them, with a resultant improvement in co-operation and an increase in the flow of information concerning insurgent whereabouts.³⁶ It was soon identified that the preliminary to the final collapse of insurgency in a particular area was the realisation that the insurgents had lost public support (in many cases support that was built on fear of brutal reprisals) and it was at this point that psychological warfare techniques were most liable to be effective. Largely as a result of the offensive mounted by the Psychological Warfare Department, 254 terrorists surrendered during 1952, increasing to a maximum of 372 in the following year.³⁷ In 1954 and 1955 over 200 defections a year were recorded; thereafter the number declined as the Psychological Warfare Department was faced with a smaller and more obstinate group of insurgents who were largely immune to their appeals. Although propaganda appeals needed to be backed up by the threat of forces to be credible, it was a positive campaign based on rewards and appealing to the individual insurgent.

It is argued that the Emergency in Malaya was the first modern campaign where Psyops played a greater role in defeating the enemy than the use of force. Air power, because of its ubiquitous and timely nature, was pivotal in delivering the message to the individuals that made up the insurgency and without such means of delivery there would have been far fewer defections and surrenders and it was likely that the campaign of violence would have continued for many more years.

Notes:

- Special Branch is thought to have handled a number of high level sources within the MCP. Their most notable success was Lai Tek, who was placed in the MCP in 1931, routinely denouncing comrades and rose to become Secretary-General, 1938-1946, collaborating with the Japanese during the war (resulting in hundreds of summary executions) and returning be a British-run asset in late 1945. He was garrotted in Bangkok in early 1948 under the direct orders of his successor, Chin Peng (qv). Hunt, Bryan J; 'The Role of Intelligence in Countering Insurgency' (Unpublished MSS, University of Cambridge Centre of International Studies, 2005).
- In 1948 Chinese made up about 38% of the population of Malaya and comprised two groups. The peasant squatters, who were generally illegal immigrants that had fled from China since 1900, led a semi-subsistence life on the jungle fringe working as rubber tappers and tin miners. The other group consisted of well-educated and successful Chinese bourgeoisie (shop keepers and traders), who had settled on the Malay Peninsula and Singapore in the 18th and 19th Centuries.
- ³ Chin Peng; *My Side of History* (Media Masters, Singapore, 2003) p205. Malay Police Special Branch Basic Paper on the Malayan Communist Party, 1950, Vol 1, Part 2, p31.
- ⁴ Pye, Lucien W: Guerrilla Communism in Malaya: Its social and political meaning (Princeton University Press, 1956) p83, n1.
- ⁵ Conference on Youth and Students of South East Asia Fighting for Freedom and Independence, and the Second Congress of the Communist Party of India (CPI), which were attended by delegates from various Asian communist parties, though not the MCP. Lawrence (variously Lance) Sharkey briefed the MCP in Singapore on his return from these conferences.
- ⁶ Sir Edward Gent, a career Colonial Office administrator, had devised the short-lived Malayan Union plan designed to enfranchise the Chinese population and to diminish the influence of the Islamic Malay Rulers. He appeared to be paralysed by indecision on intelligence matters and several documents have emerged recently, most notably from Commissioner John Dalley of the Malaya Security Service, suggesting that Gent had strong Communist sympathies. Others (Hatton, Bryden) suggested that

he was simply naïve and incompetent. He was recalled to London in late June 1948, but died in a plane crash on arrival; Hunt, p95.

Postgate, Malcolm R; Operation Firedog: Air Support in the Malayan Emergency 1948-1960 (London, HMSO, 1992) pp 11-12.

⁸ Sutherland, Riley: 'Antiguerilla Intelligence in Malaya, 1948-1960', RAND Corporation Memorandum RM-4172-ISA, Santa Monica, September 1964, p32. Prior to his appointment as DOI, Morton was in charge of the joint MI5/MI6 bureau in Singapore, Security Intelligence Far East (SIFE); Hunt, p63.

Leong Che Woh, former Assistant Commissioner of Police (Counter-Terrorism)

Royal Malaysian Police; interview with author, Kuala Lumpur, May 2005.

The Min Yuen, or 'Masses Organisation', consisted of Chinese peasants, squatters and plantation workers who provided intelligence and sustenance to the insurgents, as well as providing personnel for specific operations, such as the 'Armed Work Force'. At the height of the Emergency, the Min Yuen numbered over 250,000 supporters.

¹¹ Postgate, pp114-115.

Derry, Archie; 'Emergency in Malaya: The Psychological Dimension', Joint Staff College, UK, 1982, p5.

Later Sir Hugh Greene, Director-General BBC, 1960-1969.

- ¹⁴ The MCP realised that it could not defeat the government forces and issued a Directive in October 1951 seeking to renew the struggle through subversion. This was separately analysed by the CIA, who ascribed the success to 'improved government intelligence, military operations and squatter resettlement'; Hunt, pp 61-62.
- TNA AIR 24/2534. Far East Air Force/Military Intelligence Summary, September 1954. Pt II.
- This was a less savoury aspect of the Emergency. Many insurgents were killed by their colleagues in order to claim the bounty; a head generally *sans* corpse was produced as evidence to support the claim. Such actions were contrary to the Malay Penal Code so Psywar material had to avoid recommending such action

AHB IIJ53/16/2; AOC Malaya, Fifth Report, Feb-Dec 1952, p6. Derry, Chap 6, p1.

Derry reported one occasion – reported by an agent from the Kugang Kesum insurgent camp in 1953 – where the insurgents attempted to engage a voice aircraft with a Bren Gun. As a result, the ORS(PS) recommended that the VA should operate at a slightly higher altitude. Derry, Annex D-3.

Derry, Chap 6, p2.

- ²⁰ No 267 Sqn was renumbered as No 209 Sqn in November 1958; at that time the Austers were withdrawn from broadcasting duties. In November 1959 the Dakotas were transferred to No 52 Sqn.
- ²¹ Bill Bailey, former Special Branch (Research) Officer interview with author, May 2005.
- Derry, Annex C-3.
- ²³ Postgate, p117-120.
- ²⁴ Other reasons for surrender are not given, however lack of commitment, familial pressures and disillusionment with communism were typical reasons cited during the early years of the Emergency.

TNA AIR 24/2534. Far East Air Force/Military Intelligence Summary, November 1959, p24.

²⁶ These figures may have been distorted by the SEPs giving an answer that they expected the authorities wanted to hear.

FEORS/PW Memorandum 6/55 dated 8 August 1955, cited in Derry, Annex D.

Chin Peng claimed that he later refuted this order in his ghost-written memoirs published in 2003, citing that the safe conduct passes were a 'lifesaver'; Chin Peng, p404.

The conflict continued fitfully for another thirty years, characterised by violent disaffection and division within the MCP. Eventually the MCP survivors, led by Chin Peng, signed a peace agreement with the Malaysian Government in 1989. The few elderly survivors, including Chin Peng, now live in an 'international peace camp' on the Betong Salient in southern Thailand.

Sutherland, Riley: 'Winning the Hearts and Minds of the People of Malaya, 1948-1960', RAND Corporation Memorandum RM-4174-ISA, Santa Monica, September 1964. pp 47-48.

This captured document lacked a Special Branch evaluation, so may have been a means by which the MCP could eliminate falterers; nonetheless, it is suggestive of the communists' own view of the health of the Party at the time; Commander's Diary, 1/3 E Anglians, Jun 1-30, 1960 cited in Sutherland, p49.

Hatton, Tim; The Tock Tock Birds (The Book Guild, Sussex, 2004) and interview with author, May 2005.

Peterson, A H; Rheinhardt, G C and Conger, E E: 'Symposium on the role of Air power in Counterinsurgency and Unconventional Warfare: The Malayan Emergency', RAND Corporation Memorandum RM-3651-PR, Santa Monica, July 1963, pXX.

'Self renewal' was the term used by the Malayan authorities to describe voluntary surrender. It avoided a grievous sense of 'loss of face' and did not imply betrayal of colleagues of the Communist cause, although betrayal of fellow insurgents frequently - and very rapidly - followed 'self renewal'.

Chin Peng noted that the raid took place on 9 March 1953, five days after Josef Stalin died. Postgate, in the official RAF history, reports that the raid took place in November 1953. Chin Peng, p321; Postgate, p66.

Coincidentally, the MCP realised that it could not defeat the government forces and issued a Directive in October 1951 seeking to renew the struggle through subversion; in the same month the High Commissioner, Sir Henry Gurney, was killed

Colonial Office Malaya Annual Report for 1952, p 7 and 1953, p340.

THE GREMLIN TASK FORCE

by Air Chf Mshl Sir Walter Cheshire

Following the sudden Japanese surrender, and pending the arrival of adequate French forces, it fell to the British to re-establish a colonial presence in Indochina in 1945-46 via Operation MASTERDON. RAF participation was overseen by AOC French Indo-China, Air Cdre WG (later Air Chf Mshl Sir Walter) Cheshire. This account of his experiences was written in 1965. It has been submitted for publication here by Robin Woolven who, in the course of preparing Sir Walter's entry for the Oxford Dictionary of National Biography, acquired it from his son, Air Chf Mshl Sir John Cheshire.²

It is rash to embark on a new venture on a Friday the 13th according to many but, fortified by personal experience to the contrary, I take the opposite view.

When, therefore, I set off on Friday, September 13th 1945, for Saigon with the Allied Disarmament Mission, I looked forward to an interesting and unusual experience. Unusual it proved to be from the outset. When Air Command Headquarters at Kandy detailed me for this appointment, they were extremely vague about the duties and responsibilities involved, and this lack of positive instructions was further emphasised when the Staff invited me to write my own Directive

The Mission, an Inter-Service one, with the United States and French observers attached, had a two-fold task. Firstly it was to be the link between the Supreme Commander (Admiral Mountbatten) of the South East Asia Command and the surrendered Japanese opposite number (Field Marshal Terauchi) based in Saigon. Secondly, the Mission was to supervise the disarmament and repatriation of Japanese troops stationed in the south of French Indo China (now South Vietnam and Cambodia³).

For political reasons, which no doubt seemed good at the time, French Indo China (FIC) had been divided into two zones for the task of disarming the Japanese troops in that country. We were allocated the area south of the 16th parallel and the Chinese, then still under Chiang Kai Shek, the area north of the line. This division set an unfortunate precedent which has since been perpetuated in the intense

struggle between North and South Vietnam. My only, and unsought, previous contact with them had been in Moscow in 1943 where, because of the Soviet Protocol Office, I found myself embarrassingly alongside the Japanese Ambassador's staff at a social function.

When the tide of war eventually turned against the Japanese, they fought on with undiminished determination and displayed a fanatical opposition to personal surrender. Very few prisoners had been captured and I had seen none. A face to face encounter at the conference table provided a surprise and a disappointment. Their officers were unimpressive to look at, short, stocky, dressed in ill-fitting uniforms and nearly all wearing spectacles. They did not conform to my idea of dashing soldiers who had contrived to overrun so much of Asia and who had in the process, reached the frontiers of India. Their personal appearances notwithstanding, the Japanese proved to be competent negotiators, and suitable arrangements for our reception in Saigon were soon agreed.

The Japanese surrender had caught us by surprise, and when it took place the staffs at SEAC were in the throes of planning the recapture of Singapore (Operation ZIPPER), the agreed next phase in our war plans. The end of hostilities thus entailed much re-planning but it was decided to continue with ZIPPER, treating it as an unopposed landing. Additional plans to move contingents to other areas under Japanese occupation, including Siam, French Indo China and the Netherlands East Indies (now Indonesia), had to be hurriedly produced. These necessary moves were to stretch our air transport and shipping resources to the utmost, with resultant delays in the build up of our forces to their planned numbers. As will be seen, these delays proved to be a source of embarrassment to us in Indo China.

So much for the immediate background. The confused and delicate political situation then existing in FIC had its origins in 1941. Because Vichy France was susceptible to Axis pressures, the Japanese were able to secure an unopposed entry into French Indo China. In return for this accommodating attitude, the French were allowed to exercise local authority in FIC. This enforced partnership between Vichy and Tokyo continued, apparently undisturbed, until the end of 1944 or early 1945, at which stage the French in FIC began to appreciate that they had, willingly or unwillingly, backed the wrong horse.

Their attitude towards the Japanese then hardened, with the result

that they found themselves unseated and replaced by Vietnamese. At the time of their surrender the Japanese were still in overall control of FIC and retained this control until we could take over. A struggle immediately broke out over local control between the entrenched Vietnamese and the resurgent French.

As our aircraft took off from Rangoon, we speculated about the reaction of the Japanese forces to our arrival in Saigon, where for some time to come they would outnumber us by at least five to one. It was true that General Numata and his staff had behaved correctly, and without rancour, during our preliminary discussions in Rangoon, but extreme Japanese aversion to surrender had been well publicised during the war, and it seemed at least possible that a proportion of the officers might demonstrate their opposition in forcible fashion. In the event Japanese discipline and behaviour in French Indo China gave us no cause for anxiety and, as will become clear, we had cause to be duly grateful for this.

After an uneventful flight, with only a brief refuelling stop at Bangkok, we reached Saigon in the afternoon. The town lies a few miles up river from the rather dull countryside. It was attractively laid out, with broad tree-lined roads and many large houses in well-kept gardens. There was also something indefinably French about the whole place; Saigon had not been much ravaged by war and, compared with Rangoon, it presented a superficial air of prosperity.

At the airfield we were welcomed, among others, by Japanese staff officers ready to carry out our orders. Waiting also was an assembly of staff cars ordered for our use. It was of interest that not one of these cars was of Japanese make; all had been requisitioned in the early days of the occupation either locally or from as far afield as Singapore. At a later date various original owners appeared at our HQ to claim their cars.

The car allocated to me was driven by a Japanese soldier. He was a thrusting driver and firmly believed that his passenger's seniority entitled him to priority at crossroads. This was a perilous assumption, because there were several other Japanese drivers with similar ideas about the right of way and it needed many alarming near-misses to convince my driver that seniority, which could not be determined in time, conferred no precedence.

The members of the Mission were not the first Allied

representatives to reach Saigon following the Japanese surrender, as we had been preceded then by RAF Transport Command crews, some Army personnel and a few French representatives. Nevertheless, some people turned out to greet us, among them some friendly locals and a few other subdued French. I was surprised to see one of the banners of welcome inscribed in Russian. At that stage I had hardy heard of Ho Chi Minh, and certainly knew nothing of his political affiliations, but his influence and orientation soon became apparent.

The senior officers of the Mission were housed in a splendid mansion, formerly the residence of the Governor of the Province of Cochin China. In the turmoil following the surrender the building changed hands more than once and in the process, some of its furniture had disappeared with the departing occupants. To make up for the deficiencies so created, some of us had to make do with camp beds and their utilitarian appearance made a sharp and amusing contrast with the remaining interior opulence of the residence.

The building was rat infested, and these unwelcome inhabitants made their sorties noisily at night. When the civil war flared up in earnest and marauders were about, it was difficult to determine in the dark whether the intruders were rebels or rats.

On arrival we had been advised by a well-meaning Frenchman to engage a Chinese contractor to run our mess. An applicant for the post turned up and was soon installed. The food he produced was superb and would not have been scorned by Lucullus himself. We congratulated ourselves on our good fortune, but disillusionment set in with the first week's bill which amounted to the equivalent of £5 a day each. This was altogether too much; we were happy to eat in the style of Lucullus but were in no position to pay like Croesus. The Chinaman was packed off and succeeded by a fellow-countryman whose ideas on catering standards were more attuned to our means.

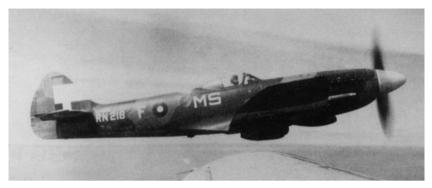
One of the irritating features of life in Saigon proved to be the recurrent failures of electricity supply. The municipal power station had received little attention in the years of the war, and was sadly in need of repairs. It was rumoured, perhaps unkindly, that the boilers were in such a dangerous state that only the Japanese would unflinchingly stay at work in their vicinity. Certainly when the Japanese eventually took over the power-house, the supply of electricity became much more reliable. Supply of fuel for the power

station provided a further problem. Coal stocks had been allowed to run down to nothing; the nearest source of supply was Hanoi, then in the uncooperative hands of the Chinese. The latter had consistently refused to allow any traffic between the two zones. In this instance, however, the authorities in our zone held a trump card. The rice producing areas were, almost without exception, on our side of the dividing line and, so long as all movement between the zones was obstructed, we would continue to accumulate a rice surplus while the Northern Zone would continue to starve. The force of this argument was apparent, even to the Chinese, so with some show of reluctance they agreed to barter coal for rice.

Local currency, which had been indiscriminately printed and broadcast by the Japanese, created some controversy between the French and ourselves. The flood of unsupported paper money circulating in the country was a source of embarrassment to the French and, in order to bolster up their tottering currency, they declared that notes of certain denominations were valueless with immediate effect and with no compensation. This sudden announcement caused us considerable concern, because numbers of such notes were legitimately held by our troops who would be out of pocket. This was a poor return for all the benefits the French were deriving from the presence of our troops. After prolonged and bitter arguments the French agreed to redeem all cancelled notes in the personal possession of Indian and British troops. As could have been forecast, this concession opened the floodgates to anybody with friends or acquaintances among Allied forces, once more illustrating the difficulty in enforcing ill-considered and hastily imposed currency restrictions

All these were minor difficulties when compared with the violent differences developing between the French and their former colonial subjects. It was proving more and more difficult to prevent an armed conflict. Eventually the Vietnamese appreciated that the French would, in due course, assume full and unfettered control and, in retaliation, the former proceeded to mass armed forces on the approach to Saigon.

For the reasons already explained the build-up of our forces had been delayed, and it was questionable whether, in their present reduced numbers, they were in a position successfully to resist the



The sharp end of the RAF's presence in Indo China was provided by the Spitfire XIVs of No 273 Sqn at Tan Son Nhut.

advancing rebels. One possible source of reinforcement existed in French Indo China itself. The Japanese still had a number of fully armed divisions awaiting repatriation. After some understandable hesitation, it was decided to summon them to assist in the maintenance of law and order. The situation then became somewhat Gilbertian since we were now seeking armed assistance from the very forces we had planned to disarm. The Japanese accepted these unexpected orders without demur and were immediately allocated a number of defensive tasks, including the protection of the vital road connecting Saigon with its airfield. The Japanese performed their duties with competence and, when necessary, fought with courage and determination. Had they been Indian or British troops they would, without doubt, have earned decorations.

The Royal Air Force in Indo China was also in difficulties but, unlike the Army, it was not short of men but of fuel. The squadrons had in reserve, only one hour's fuel or in other words they could complete only one sortie each. Here again the Japanese were in a position to provide very useful help. Most of their aircraft had been grounded since the surrender but many were still serviceable and could be flown. Backing these aircraft was a useful supply of fuel which, for technical reasons, could not be used in our own aircraft. After some discussion the decision was taken to make limited use of the Japanese Air Force. The limitation was imposed for political reasons, based on the curious idea that bullets fired from aircraft were politically more reprehensible than bullets, equally lethal, fired from

the ground.

The aircraft, flown and kept serviceable by their own crews, were to be employed on transport and unarmed reconnaissance duties only, The decision to use Japanese aircraft once taken, I sent for their Commander to tell him what I had in mind He made no difficulties and seemed pleased to take on the commitment because, possibly, his crews found their prolonged and enforced idleness irksome. The Japanese aircraft suitable for the tasks allotted to them ranged in types from a creditable Japanese copy of a Dakota, to a small passenger carrier capable of lifting four or five passengers. Some bomber types were also available, useless for passenger work but valuable for lifting cargo.⁴

The procedure adopted to control the operations of the Japanese aircraft was straightforward. Their Commander was to notify my staff daily of the number of his aircraft available, and we would allocate individual tasks to them. To facilitate the transmission of information and orders, I installed a squadron leader and an interpreter in a hut alongside the Japanese Commander. This simple and very economical arrangement worked extremely well, confirming previous experience that simple organisations are also frequently the best.

We were interested to discover, among other things, that the Japanese had eminently sensible ideas about the importance of adequate servicing of their aircraft. Influenced by the stories of numerous suicide (*Kamikaze*) attacks carried out by the Japanese towards the end of the war, I came to believe that they would fly aircraft in any state, provided that they could get them into the air. However, it soon became apparent that they were grounding individual aircraft for much the same reasons as we would. Taking into account the longstanding shortage of spare parts; brought about by the virtual impossibility of moving anything between Japan and the occupied territories, the state of serviceability achieved by them was creditable and bore comparison with our own results. Experience in operations showed that once their aircraft were offered a task, there were few technical failures.

The next stage in the creation of this special force was to obliterate Japanese markings on the aircraft and replace them by RAF roundels. Finally I decided to give this force a special designation, to distinguish them from the RAF and the French Air Force, both of which were also



Following Japan's capitulation, any Japanese aircraft permitted to be flown in the immediate aftermath were to have their national markings replaced by a green cross on a white background. Seen here at Ie Shima in the Ryukyus on 19 August 1945, this is one of a pair of overall white Mitsubishi G4Ms conveying a Japanese delegation to Manila to receive instructions regarding the formal surrender proceedings that were to take place in Tokyo Bay. It is possible that, until they acquired RAF roundels, some of the aircraft operated by the GTF may also have been marked with green crosses.

operating in the area. Inspired by the United States example in the Pacific, I selected the term TASK FORCE with the prefix GREMLIN because of its popularity in the RAF at the time. Thus the Gremlin Task Force – the GTF – was borne.

Mention of the United States recalls to mind the official attitude to the course of events in French Indo China. It was made clear that they did not approve of much that was happening which, to them smacked of colonialism. The US observer with the Mission, a much decorated and very gallant colonel, tended to keep aloof and elected to live in a house on the outskirts of the town, far removed from the Mission. When armed conflict broke out, the isolation of his house became a source of danger, but he stoutly maintained that his nationality would protect him. In the event he was proved wrong and he was ambushed by rebels near his house, shot dead and his body spirited away. In spite of the most diligent search and appeals to the rebels, his body had not been found by the time I left Saigon some three months later. He was the first, and to my knowledge the only, US casualty in that phase of the war in what is now called Vietnam.



The GTF's aeroplanes were flown by Japanese aircrew. This (pre-GTF) photograph is of a Japanese pilot striking, considering the circumstances, a remarkably nonchalant pose. Taken on 26 August 1945, he had just flown into Mingaladon in one of the pair of 'greencrossed' Ki 57s that had delivered Lt Gen Tokaza Numata's delegation to surrender formally to the British authorities in Rangoon.

Once the GTF was launched, it quickly got into its stride with the main effort directed to transport operations. The RAF Command's own air transport resources had been stretched to the utmost, and the contribution made in this field by the GTF was most welcome. They were employed principally in French Indo China, with

occasional flights into neighbouring Siam, carrying passengers, food and general stores; in other words, the normal routine of any air transport organisation.⁵

Apart from the routine tasks described above, the GTF were occasionally assigned to special duties, and some of these stand out in memory. The first arose soon after the GTF had been launched. We received an appeal from the French on behalf of their compatriots, marooned and starving on the Chinese side of the 16th parallel. The Chinese, still unfriendly, had refused to help. We rapidly assembled a force of assorted aircraft, loaded them with rations, and with two RAF officers to supervise, despatched the small armada to the north. Radio communications were poor throughout the area, and we soon lost touch with the aircraft on their relief mission. There was absolute silence for two days, then on the third a garbled message arrived and, after much difficulty, was deciphered to mean that, pending full resettlement with the refuelling bill, the Chinese had impounded the aircraft. Protracted negotiations conducted with great difficulty via an indifferent radio eventually secured the release of all but one aircraft.



This Mitsubishi Ki 57 Topsy of the GTF was photographed at Seletar, the poor quality of the image being offset by its rarity. On the nose can just be made out the aeroplane's name, F/Lt Barrel Foulynge, one of the cartoon characters (Gremlins) featured in wartime flight safety publications.

This one had developed a fault and had to be abandoned; the Chinese, pursuing a policy of near Soviet-pattern non-co-operation, had refused entry to another aircraft flying in with the necessary spare parts.

Because of the difficulty of keeping up reliable radio communications it was frequently quicker to send an aircraft from Saigon to Singapore, a distance of some 600 miles, and return with the answer rather than trust the vagaries of the ether. On one occasion a brigadier on the staff of the Mission needed to get a message to Singapore and, since no RAF aircraft was available, I decided to send him in a Dakota of the GTF. The brigadier had an uneventful flight to Singapore where the approaching aircraft was assumed to be a Dakota of the RAF. However, when the crew emerged they were recognised to be Japanese and narrowly escaped internment in the nearest POW camp. They were rescued from this fate by their passenger, who thus made sure there would be an aircraft to fly him back to Saigon.

Another memorable GTF incident, this time a personal one, was a truly trial flight in one of their aircraft. Among the various Japanese types we had found at Saigon was one designated *Dinah*, a high performance, long range reconnaissance aircraft of wooden construction, roughly corresponding to our Mosquito. Many of us had been interested in its performance and I ordered one to be produced

for inspection.

A Dinah duly appeared, and did a normal take-off and then climbed rapidly to 20,000 ft, as ordered. At this stage the pilot started a very steep dive for the ground, a manoeuvre not in the programme and therefore most unwelcome. As we hurtled downwards, the thought flashed through my mind that I had at last met a true Kamikaze pilot who was about to demonstrate this peculiarly Japanese technique to its fatal conclusion. Various other thoughts succeeded one another with great speed, the predominant one being that I was powerless to avert the crash on which the pilot seemed to be set. There were no controls in the rear cockpit where I was uncomfortably ensconced; the pilot and I had no common language, and I had no parachute to bale out in case of need. At this stage the pilot gradually levelled out and then completed the remainder of the schedule without further flourishes. As soon as we landed I indignantly sought an explanation through the interpreter. It transpired that the pilot, who was very young and proud of his aircraft, had been anxious to impress me with its diving prowess. In this, he had succeeded admirably, and in doing so had established his claim to the nickname 'Gremlin', which is defined in the dictionary as 'a mischievous spirit'.

Air operations intensified and I moved into a house near the airfield. This house, like the airfield itself, was in a disturbed area and the Japanese were told to provide a guard who were also to act as servants. The soldiers, as could have been expected, were strangers to the Western way of life nor did they understand any English. In spite of this double handicap, they soon learned what was expected of them and astonished me daily by their photographic memories and uncannily quick anticipation. As sentries, they were equally effective and no trouble maker ever made his way into the house.

While all this was going on, the French Air Force was attempting to achieve the impossible with the few aircraft at their disposal, which in any event were museum pieces. To improve their operational capability they tried to borrow aircraft from. the RAF but, for various reasons, none could be spared. As an alternative, I offered some Japanese fighters of good performance which the Japanese were not allowed to fly. After some hesitation the offer was accepted, but not very graciously. The fighters were moved to another, and less congested, airfield where the French pilots could learn to fly them.



A second operational RAF unit flying from Saigon was No 684 Sqn. When it was redeployed to Bangkok in January 1946, the movement relied heavily on the services provided by the GTF. This is one of No 684 Sqn's Mosquito PR 16s visiting Kallang at about this time.

They were not then under my direct control and so passed out of my ken, although rumour did reach me that this particular experiment had proved a great success.⁷

When the French reinforcements, both ground and air, began to reach FIC there followed a reduction in calls on the GTF. This was just as well because, apart from the perennial shortage of spare parts, many of the aircraft were reaching the end of their useful lives. There was, however, one more special task to perform. One of the RAF squadrons at Saigon airfield was due to move to Bangkok to make way for the incoming French squadron, and, as there was insufficient RAF airlift available to transfer the squadron's ground personnel and ground equipment, the GTF were called in to take part in the move of 684 Squadron.

This was, virtually, the end of the GTF. In the short period of its existence it had successfully completed over 2,000 sorties. By the standard of later massive operations, such as the Berlin airlift, this was small beer, but it had usefully filled an unavoidable gap in our logistic organisation, and did so at little cost to the British Treasury. The RAF administrative tail supporting this effort consisted of two officers

only; certainly one of the least costly air operations undertaken since 1939.

At about this time Air Command HQ appreciated that the GTF had been carrying non-Japanese passengers which constituted a departure from regulations, and I earned a reproof for displaying too much initiative in not seeking proper authority. Since, however, the task of the GTF was completed and what they had done could be considered a success, I heard no more.

My connection with the GTF ended on a note of semi-comedy. There was a rule in the Command that Japanese officers were to surrender their swords to mark their defeated status. Admiral Mountbatten himself received Terauchi's sword at a special ceremony in Saigon. When the end of my stay in French Indo China was in sight, I told the Japanese airfield commander that I would take his sword. He replied courteously that this would be an honour and sought permission to make a speech during the ceremony. I agreed, providing the speech contained no reference to *Bushido*, the Japanese war spirit.

There was a set form of ceremony for these occasions and, on the appointed day, the colonel appeared more smartly turned out than usual and accompanied by an interpreter. As was the custom, he saluted the Union Jack and then embarked on his speech. I do not understand Japanese and paid little attention to what he was saying until, about halfway through, I heard him utter the words 'Air Commodore'. That alerted me, because I knew the Japanese for air commodore was quite different and did not sound remotely like it. Concentrating my scattered thoughts, it dawned on me that the colonel was speaking execrable English, extremely difficult to understand. Through inattention I had missed most of his speech but I was given a written version at the end of the ceremony, so honour was satisfied.

The Second World War, and the troubled era that followed, gave birth to many so-called 'sideshows' of which the GTF was one. Although not as unusual as some, I believe its existence and achievements to be worth recording. My sole memento, apart from the Colonel's sword, is a small notice board displaying an RAF roundel and the words GREMLIN TASK FORCE. This used to hang outside the hut occupied by my squadron leader⁸ next door to the Japanese airfield commander and it now decorates my study wall.

When, finally, I took off from Saigon for Rangoon I had time to



Air Cdre Cheshire accepting the sword of the senior local IJAAF officer, Col J Kuwatuka, Chief of Staff, 5th Air Force Division, at a formal ceremony at Tan Son Nhut. This sword is still in the possession of the Cheshire family.

reflect that my expectations of September 13th had been fully justified. I had found the behaviour and discipline of the Japanese Forces in defeat an interesting study, as also the unrelenting struggle between France and certain parts of Vietnam. I had not expected to command a sizeable component of the Japanese Air Force on operations, nor to fly several of their aircraft, and most certainly not to be guarded and protected by the very force we had set out to disarm!

Notes in amplification - added by the Editor

Indochina is (today) conventionally rendered as one word (and in French, always, as *Indochine*) but the RAF of 1945-46 divided it as Indo China, sometimes

hyphenated, sometimes not. Sir Walter's *sans* hyphen presentation has been retained in this paper.

- ² For relatively accessible contemporary accounts, see the F540 for RAF Saigon (TNA AIR28/679), *Flight* for 6 December 1945 and *The Aeroplane Spotter* for 21 February 1946 (which has some minuscule photographs of some GTF-operated aeroplanes).
- NB Sir Walter's 'now' was 1965.
- The F540 notes that the types available included examples of *Hickory* (Tachikawa Ki 54); Ida (Tachikawa Ki 55 or, less likely, Ki 36); Peggy (Mitsubishi Ki 67); Sally (Mitsubishi Ki 21); Tony (Kawasaki Ki 61); Dinah (Mitsubishi Ki 46); Topsy (Mitsubishi Ki 57) and the DC-2. The latter seems unlikely, however, as the Japanese built, under licence, only five pre-war DC-2s (plus one imported from the USA) before production switched to some 500 licensed adaptations of the DC-3 (as the Showa, or Nakajima, L2D) which the Allies identified as Tabby. Statistically, therefore, the aeroplane(s) at Tan Son Nhut are far more likely to have been of the latter type. That said, the contemporary GTF file (which is in the possession of the Cheshire family), contains, inter alia, an ORB-style record of activity which specifically notes flights on 21 November 1945 by 'the DC-2' and 'one of the DC-3s'. Furthermore a summary for December notes that, beyond the demands of routine maintenance, all twenty one GTF aircraft were serviceable apart from 'the DC-2, No 7, which is unserviceable because of the need of an engine change and a complete airframe overhaul' - so perhaps one of the Japanese DC-2s did survive beyond VJ-Day after all.

Nevertheless, there is some reason to doubt the aircraft recognition skills of the unit's scribe as he records that 'a *Dinah* carrying French troops burst a tyre on landing at Pakse and had to be written off' – the *Dinah* was a two-seater. It is also known that the GTF operated at least one *Lily* (Kawasaki Ki 48).

Most, if not all, of the GTF's aeroplanes were individually named, some for familiar cartoon characters representing various of the 'the Gremlins' used in wartime flight safety publications, others after Snow White's seven dwarfs.

- Ibid. Some idea of the substantial effort contributed by the GTF can be gleaned from the F540 for December 1945 which notes that thirty-seven transport, supply-dropping and reconnaissance sorties were flown by *Dinahs*, *Hickorys* and *Idas*; when the task involved reconnaissance the crew was accompanied by an RAF pilot, usually furnished by No 273 (Spitfire) Sqn. In January the GTF is recorded as having flown 810 hours in the course of mounting a total of 408 sorties which had involved the movement of 190,200 lbs of freight.
- ⁶ The Ki 46 *Dinah* was of all-metal, not wooden, construction with fabric-covered control surfaces.
- ⁷ Pending receipt of a consignment of ex-RAF Spitfires, GC I/7 and GC II/7 operated about a dozen *Oscars* (Nakajima Ki 43) from Phnom Penh.
- ⁸ It is not clear to whom Sir Walter is referring here; likely candidates are Sqn Ldr J Hope, the Senior Admin Officer, or Sqn Ldr H F McNabb who was OC GTF.

FLYING FOR THE ROYAL AIR FORCE IN SOUTH EAST ASIA COMMAND: LEGACIES AND REALITIES

by Prof Robin Higham

Flying in Southeast Asia Command (SEAC) could be very demanding and even hazardous during the May through October Monsoon season (50-100 inches of rain per month), but the Japanese Air Force had ceased to be a problem by the time flying operations became vital in late 1944 and early 1945. Before that there had been some intensive operations, such as the relief of Imphal and Kohima (March-April 1944) and the Chindit expeditions of February-June 1943 and December 1944.

The reason for the late build-up of air activity was that on the one hand SEAC was the forgotten theatre, and on the other not only was it at the end of a 14,000-mile logistic line, but also 222 airfields had to be built by untrained personnel at a time of great demands all over for materiel and personnel.

The air war was very different from that in the European theatre because there was relatively little grand-strategic bombardment, and comparatively limited attack and defensive operations – but extensive use was made of air transport. Indeed the defence of India and the subsequent campaign to retake Burma were both crucially dependent upon air transport.

But the air war in India and Burma involved far more than fighting the Japanese and coping with the jungle. It was also a major struggle against the Victorian attitudes of the government of India in New Delhi, against Army General Headquarters there, against the lack of airfields and the equipment to build them, against endemic medical problems from malaria and sewage, and against Commanding and Executive Officers who had grown up in open-cockpit biplanes and had no interest in health affairs.

Facing these enemies were young crews both on the ground and in the air, as well as engineering officers, medical officers (MOs), and hospital staffs, with little experience of India and later Burma. All these people faced immediately problems of acclimatisation; dreadful railway journeys without proper food; anti-malarial medications or nets; arrival at improperly prepared, uncompleted or abandoned airfields; and MOs without experience of malaria and without

microscopes with which to diagnose it. Experienced medical staffs that had been shut out of the planning process in peacetime, as well as engineering officers, had to deal with multiple levels of, not merely stubborn and unappreciative higher echelons, but also with the 'babu factor' (Indian clerks and bureaucrats), local contractors, merchant unions and what the medical history describes as incompetent labour.

There were many reasons for these human swamps. One of the foremost was that India and Burma had not been foreseen as theatres of war. In 1939 a little over 2,000 RAF personnel were stationed on some twelve airfields in India and Ceylon. Until December 1941, India was essentially a base area for the Middle East. Not only was war with Japan a rude shock, but the fall of Singapore and of Burma were even more jolting. Just as in Europe where, by the summer of 1940, the British had faced a worst-possible case far beyond their dreams, so the scenario was repeated in the Far East in 1942, with the additional horror that none of the infrastructure available at home was at hand. London simply did not understand time, space and travel distances. At home, the Battle of Britain had been fought with the factory and RAF infrastructure right outside the gates. The spares and supply situation could be remedied, put simply, 'with a phone call'. Not so in distant theatres such as the Middle East from mid-1940. onward or in India and beyond. Items requested from the United Kingdom might take a year to appear. And distant theatres never had the clout of those at home. Thus, building airfields was not a professional job with constantly expanding mechanical means handled by skilled contractors as in the United Kingdom. Constructing airfields in India was a nightmare. There were hardly any skilled surveyors, with the result that the sites picked were frequently swampy. Moreover, the locations were chosen without reference to the medical authorities, who then had to demand that the whole field be moved, for, as often as not, it butted against a native village, which was regarded as a sinkhole of disease. Not only was the hamlet unsanitary, but the people in it were up to 90 percent malarial or had a high rate of venereal disease.

Building an airfield started with arguments with contractors and moved on to the importation of large work forces and their families, which created health, social, and nutritional problems. And all of this was overlaid with concerns about the stability of the Indian population under the influence of Mahatma Gandhi. Gandhi and the Indian Nationalists had been agitating for independence for many years, but the split between Muslims and Hindus created tensions and riots, clashes and famine could disrupt the countryside and the cities. In early 1946 some of us on leave in Calcutta were confined to a rest house due to demonstrations by children led by youths. Memories of the 1857 Indian Mutiny and of the untrustworthiness of the Bengalis were still with us from school and with the authorities. Not until the formation of SEAC in late 1943 was the responsibility for internal law and order separated from that for fighting the Japanese.

Nevertheless, some 200-odd airfields were built in India, mainly in Assam and Bengal, before, in late 1944, General William Slim started his advance into Burma to retake Rangoon. Then temporary dirt airstrips covered with prefabricated bituminized resurfacing (jute cloth), familiarly called PBS, were laid in as little as a day, although sometimes it took a week to hack a centreline out of the ten-foot-high elephant grass. But once a bulldozer could get in, the work took but hours

Bulldozers were one of the better and more essential things that the Americans produced. In 1939, the building of airfields in England had not yet been revolutionised by mechanisation in earth-moving and concrete-laying. It began there in 1941-1942, but did not reach India until 1944 when Marston mat (perforated steel plate – PSP), another US import, enabled runways to be laid on lightly graded ground in a matter of hours for heavy fighter bombers and tactical transports. And yet another American product was a very irritating can-do and will-do attitude. Americans had no fear of the government of India, although the British did not lose that umbilical attitude until they got into Burma, which could be treated as enemy-held territory. In fact, the general rule of thumb was that it was a different world east of the Brahmaputra – it was a theatre of *war*.

Medical and engineering problems were compounded by finance, distances and weather. The Far East was, like Mesopotamia in the First World War, the responsibility of Indian finance, a bureau that had, with difficulty, become accustomed to the cost of colonial campaigns on the North West Frontier. Distances in India were large (Bombay to Calcutta was 1,040 miles as the crow flies); the railways



FS Robin Higham, Bangkok, 1945.

were overworked: there was internal airline system, and for a while sea transport was threatened by another sweep by the Japanese fleet, repeating the one of March-April 1942. As to distances in our theatre. from HO 232 Group at Comilla to Mingaladon, just north of Rangoon, was over 500 miles or six hours and twenty minutes in a laden Dakota. Chittagong to Mingaladon Hmawbi was three hours and fifteen minutes – and that was in good weather – when the skipper of our Dakota could sleep, the navigator could write to his parents, the wireless operator could snore off his

hangover, and the co-pilot could fly and navigate the aircraft while eating a dripping fried-egg sandwich.

Weather could be clear and fine with unlimited visibility. The first time I saw the Shwedegon Pagoda in Rangoon we were 125 miles out, but the sun was glinting off its gold leaf sheathing. In fine weather at our normal cruising altitude of 15,000 feet, we rarely used the navigator. In fact, in one crew with whom I flew, the navigator did not talk to the rest of the crew anyway. One day, about an hour out of Toungoo, he came up to the cockpit to see if Mingaladon was in sight; he had a fit when he found that we were steering 285° instead of 185° - but our orders were to go to Ramree before we went to Rangoon. On another occasion, we had to take a crew and some passengers from Chittagong to Akyab to pick up a kite that had been left there unserviceable. An hour out, the wireless operator asked for a position for his hourly report. Though my duty as co-pilot included visual navigation, I had not bothered to take a map along because we were just going down the coast apiece. And the navigator did not have any of his equipment because he rarely practised his trade. He had to go back amongst the passengers until he found a map and could take off the co-ordinates, which he then wrote onto the W/Op's table. We came back over the same spot an hour later, and no one was the wiser.



SEAC Dakotas. (AHB)

I am not sure that we were much better in bad weather. One day we were told by the Indian Met (meteorological) man that there would be a front between us and Rangoon, but not to worry as we could get through it. Using the forecast of the day before, we took off and climbed south on track for Rangoon. In less than an hour, however, we could see that we could not get over the solid overcast which was well above 15,000 feet. Instead of aborting, as the more experienced crews did, we decided that the Bay of Bengal was reasonably flat – and we did have a radio altimeter – so we headed west until we hoped we were well clear of the coast before letting down. We eventually saw the water rather close below us, then turned onto a heading that we hoped would bring us to Akyab, the plan being to head down south of Ramree under the front and then climb over the Arakan Hills and drop down into the Irrawaddy valley and on into Rangoon.

Standing in the astrodome I could see the wakes from our propellers as we skimmed along at twenty feet above the water on 'George', the autopilot. We were feeling pretty good until we almost clipped a lighthouse several miles from the shore – but who map reads or track crawls over the sea? Well, we made it to Mingaladon and managed to land without trampolining on the new PSP from which much of the supporting soil had been expelled as dust. The trip back was more interesting and, again, not exactly what experience would

have dictated. One reason that we wanted to get home was that we did not have a supply of Mepacrine with us, or any mosquito nets, so if we had to sleep in the aircraft on the ground we would have been very vulnerable to mosquitoes.

It was only in late-1944 that the Air Officer Commanding-in-Chief finally came to realise the enormous waste of manpower because of sickness, especially malaria and dengue fever – which I had had. The sickness rate had peaked at 1,580 per 1,000 in 1942, half malarial. Though by 1945 the malarial rate was down to 30 per 1,000, the RAF had suffered 423,756 hospitalisations for more than forty-eight hours and had invalided home more than 12,000 officers and men. Moreover, aircrews were the worst offenders both, because of attitude and, in the case of transport crews, because of necessity. Aircrews were careless and carefree, and Commanding Officers did not enforce health discipline – daily Mepacrine tablets, long-sleeved shirts, long trousers and mosquito boots from dusk till dawn, and the use of mosquito nets in the bashas.

But COs were eventually forced to pay attention because the inability of their squadrons to fly sorties could be traced, not merely to shortages of spares and tools, but also to aircrew and ground crew ineffectiveness. It was late 1944 and early 1945 before attention finally became focused at the operational level following the AOCinC's threat to discipline COs whose units had high sickness rates, and an order from the Supreme Commander, SEAC demanding compliance.

We also wanted to get back from Mingaladon to the relative safety of our own messes. Rations were never adequate in the Far East, and cooking was abysmal and insanitary if conducted by local labour. We sergeants paid extra, as did the officers, to have fresh chickens and vegetables cooked by our armourers. That local food was unsafe is apparent from the fact that 75% of the milk in Bombay was judged to be less safe than the effluent from London's sewage! When flying, we were allowed to help ourselves to the K-Ration store in the control tower. Of the three types of pre-packaged meals (and not being able to cook in the aircraft in flight), we preferred the blue and grey-boxed breakfasts because they had a can of cheese with bacon in them, which could be eaten without heating. We also carried Thermos containers of hot tea, which we could get refilled at stops en route.

Our base at Patenga (Chittagong) was one of the better airfields in the theatre because it had been rebuilt with a 2,000-yard concrete runway and was easily approached, as it was only three feet above sea level. On this particular occasion we took off to the west from Mingaladon and began climbing in order to get on top amongst the thunderheads, which by that time were probably at their customary afternoon height of 40,000 feet. Our cloud-flying technique was simple; we headed in the lightest direction. When it began to get dark and rain really beat against the windshield, we altered course for a brighter area. Obliged to use this crude procedure, because we had neither radar nor oxygen, we successfully broke out on top somewhere over the Irrawaddy, at Prome we guessed, and set our course for Chittagong. It was certainly pleasant at 19,500 feet indicated. We set up the cribbage board on the throttle quadrant and played while our regular navigator kibitzed and the W/Op slept – both because there was so much static that he could not hear anybody anyway and because there was a ninety-minute period over the Arakan Hills when we could not make contact with anyone except perhaps on good days with our old W/T monitors at HQ 38 Group back in the United Kingdom. Needless to say, we arrived safely home at Patenga and landed with the aid of a kerosene lamp flare path, tired but proud of our experience and able to shoot a line with the best for that day.

On another occasion we had a surprise when coming up from Akyab. In heavy rain we met another aircraft coming down from Calcutta as we both entered the circuit, just seeing each other in time to avoid a head-on accident. One of the important things to remember about flying in SEAC is that not only were 34% of the RAF out there under the age of twenty-five, and 24% between twenty-five and twenty-nine, but that even the COs were very young. Ours was only twenty-seven.

We never flew in formation, except to take pictures of another aircraft. We went our individual ways, confident in our aircraft. We NCOs lived and slept in the same bashas and messes with our senior NCO ground crew. That made for good relations. And the ground crew knew that our safety depended upon them in a country with few, if any, airfields. We, for our part, helped by turning over to them unused K-Rations, which they could cook in the oil-filter covers of

our engines or on other crude stoves. We also found out what clothing the men needed and became expert at extracting it from packages that we carried and at hiding it in the aircraft against occasional snoops and thieving native cleaners. We justified this offence on the grounds that we were not issued with suitable clothing, such as jungle-coloured T-shirts and proper boots in case we had to walk out from a crash – always a possibility when doing low-level drops in rough country.

In the RAF we handled aircraft differently in two ways. We tried not to flog them with overloads, as aircraft were precious. And we always did three-point landings, enabling us to get down in 220 yards with no wind. On No 48 Sqn we flew every third day and roughly seventy-five hours per month. However, a 'day', that might involve ten flying hours, started at 0300 hrs and ended at 2100 hrs, or perhaps even later.

The ground crew had a much tougher life than the aircrew. We may have shared the same bashas and messes, but at least every third day we got up into the cool air, and we got to see the world from Calcutta to Rangoon to Bangkok, Saigon and Singapore, not to mention a host of ex-Japanese and other airfields and remote places. We flew down the Arakan coast to south of Ramree Island and then went up a creek or a river and dropped fresh meat, rice and other supplies to the West Africa Division. The meat floated down on parachutes, and the rice was bagged inside a much looser sack so that when it hit the ground at the end of a free drop the inside bag burst, but the rice was contained in the outer sack. The dropping technique was to make a circuit at 300 feet, right-hand or left depending upon the terrain clearance and who was flying the aeroplane. Back in the fuselage, four to six sacks of rice were stacked in the doorway by the loaders or the navigator, the W/Op and/or the co-pilot, if Army loaders or airmen were not aboard for the ride. One man lay on his back with his feet against the stack and when the bell rang, everyone shoved. The drop zones were usually so short that only one stack could be pushed out at a time.

Meat was attached to the static line in the roof of the fuselage and strapped into a supply chute and delivered a carcass at a time – uncovered, as I recall, except perhaps in a muslin shroud. All in all a sweaty job. After dropping at one or two camps, we would head to the third where there was a grass strip next to the local village and



If you could get it in, the Dakota would deliver it. (AHB)

the West Africa Division HQ. We would land and have breakfast in their sergeants mess. It was a pleasant interlude, shortly after dawn, before the day became too hot and muggy. Take off, however, was always a bit scary since the strip was not long, undulated, and had trees all around. We did not usually use flaps to increase lift for take offs, but here we did.

Normally, at Chittagong, with its 2,000-yard concrete runway we taxied down to the southwest end and turned around to do our checks on the small parking area to port. There we would curse over the R/T some foolish, nervous skipper taxiing down in the dark with his landing lights on, as that destroyed our night vision. I never recall the tower telling us anything, so I believe by scheduling departures and use of common sense we never ended up with too many aircraft blocking the runway at one time. Normally we took off at 32,500 pounds, including 800 gallons of fuel and 5,500 pounds of cargo, passengers or miscellaneous items.

Before starting up in the maintenance area, the north half of the northwest-southeast runway, the co-pilot walked around the aircraft to check that the rudder and elevator control locks had been removed, ensure that the pitot head cover had been removed, inspect with a torch the undersides of the wings and fuselage for damage, kick the tvres (looking for cuts on black tyres in the night!), check that the oleo legs showed at least 41/2 inches on the inner struts and that the undercarriage lock pins were in place and the fuel tank drain cocks were closed and wired shut. On Dakotas, unless there was 825 to 875 pounds per square inch in the hydraulic system, the undercarriage would collapse when the engines were shut down. So, after starting engines, the captain would signal 'pins out' by pulling his right middle finger through a circle of his left thumb and forefinger. He or the ground crew, or both, might follow this with a one-fingered version of Winston Churchill's famous V-for-victory sign. Meanwhile, the copilot had walked back down to the door to get the pins and stow them aboard, both to ensure that they would not prevent undercarriage retraction upon take off and to ensure that the undercart would not collapse when the engines were shut down again at some remote spot such as Meiktila or Toungoo.

Fuel tanks always had to be drained enough to be sure that no water condensation had settled to the bottom and the test cock had to be wired shut so that it would not vibrate open in flight. In the meantime, the pilots did their pre-starting checks in the cockpit and saw, if the engines had been stopped for more than an hour, that they were turned over by hand to get oil out of the lower cylinders before starting with the aid of an exterior battery cart. Fuel was checked both for the tankage on board and that the main tanks were turned 'On'. The mixture was put to 'idle cut out', propeller pitch to 'fine', carburettor heat to 'cold', gills opened to cool the engines and master and individual engine ignition switches to 'On'. Then the co-pilot got 54 psi on the wobble pump, the energiser was turned 'On', the engine cranked, and — if we were lucky, after several turns, coughs and a cloud of blue smoke — she would start.

All piston engines had to be allowed to warm up until the oil pressure came up and the temperature reached 40°C. But, basically, all we wanted to know was, 'Is it in the green?' We checked the cockpit from left to right, testing the R/T and intercom, flap operation on both hydraulic pumps and watching the engine gauges, the RAF standard six-instrument blind flying panel, including the horizontal and directional gyros, and we bled the boost gauges and the gyro pilot ('George's') hydraulic lines. 'George' was a most important crew

member, especially for Dakota crews, as he could handle the aircraft for hours on end and save pilots from fatigue. But he had to be watched, as the gyro precessed a degree every four minutes, causing a subtle change of course.

Before taxiing, the engines were run up to 25 inches of boost and the 'mags' checked for less than a '300-400 rev' drop, pitch and mixture controls were exercised and then both engines run up to 30 inches, and pressures checked and then throttled back to be sure that they would run smoothly at 660-800 rpm for taxiing. (We needed 1,200 rpm to keep the gyros stabilised.)

Once at the take off end of the runway, vital actions were initiated to the mnemonic style first learned at Elementary Flying School – HTMPFFGG: hydraulics, trim, mixture, pitch, fuel, flaps, gills and gyros all set correctly. On the runway, and with a few yards run, the co-pilot locked the tailwheel, otherwise it would shimmy until the tail came up, and then the controls were checked for freedom of movement.

Take off was a shared experience, with the captain handling the controls and pushing the throttles forward and the co-pilot holding them in place with his right hand across his body to the quadrant between the pilots and his left hand down the side of his seat, either to pull the undercart up or to adjust flaps. We used 15°, or quarter flaps for heavy take offs.

With his feet firmly on the brakes at the top of the rudder pedals, the captain increased power to 35 inches of boost and allowed the engines to develop full rpm before dropping his feet until his heels were on the floor and his feet on the pedals. As the aircraft rolled forward, the Dakota's barn-door of a rudder soon took effect and the elevators allowed the tail to come up to normal flying position. Gentle back pressure on the stick or nose-up trim would allow the kite to get airborne at about 70 mph indicated. As critical flying speed was 110 and needed to be reached ASAP, we often climbed a few feet, touched the brakes, got the undercart up, and then the nose down and aimed for the end of the runway and a short zoom climb to start our 120-130 mph grumble up to altitude, slowly reducing boost and rpm to 30-27 inches and 1,850 rpm for economical cruise, or 30 inches and 2,250 rpm for fast. For maximum range, we cruised at 140 mph and reduced boost as fuel burned off.

Cruising along was fun with 'George' engaged. The crew looked out, read, slept or went back to visit the passengers – or on all-cargo flights went to improve our wardrobe or living conditions. While we normally cruised alone, sometimes by arrangement or happenstance we could formate on another squadron aircraft.

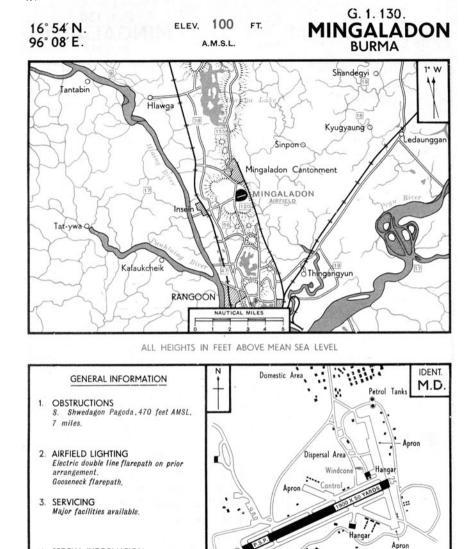
One day we did this on Oboe Fox Roger X-ray, flown by an exferry crew. The aircraft was on 'George' and they were all sound asleep. The sun was just coming up, so the tops of their wings were in shadow. We got some good shots, but could not understand why, just when we were in a nice position for a picture, our machine would suddenly start to lurch toward 'X-ray' and we would have to grab the controls and push the nose down to avoid a collision. Not until a couple of days later did we figure out that when our twenty-eight Sikh passengers could see the other aircraft they would all go to that side, throwing our plane into a list. Once 'X-ray' disappeared, fourteen of them would climb back over their kit stacked down the centre of the aircraft and sit down again on the inward-facing canvas seats along the side of the aircraft.

Normally we used the R/T very little. The headsets were uncomfortable and we did not wear helmets because the English leather ones were too hot and the Dakotas not equipped with oxygen or mask microphones. Instead we had a hand-held microphone, which was a nuisance when the co-pilot had other work to do. Except in the United Kingdom, the RAF was not well equipped with R/T. While under training in Canada I made only a few flights in an aircraft equipped with R/T, a navigation exercise in an Anson carrying a W/Op and one or two to practise flying a Lorenz beam on a radio range. Even when flying Oxfords and Dakotas in the UK, many procedures, like using the SBA (Standard Beam Approach), were carried out in radio silence.

Thus, at most stops on our routes in Burma, my remembrance is that we only announced 'Oboe Fox Roger George, downwind' when already in the circuit. The tower might request information on load or purpose, and that was it. At some fields of tarred sacking there was not even anyone in the rickety bamboo tower. At Mingaladon every movement caused dust to fly out from under the PSP and by the time that we got there, the metal tracking was practically floating freely above its earthen base. The tower there was kept very busy seeing that

4. SPECIAL INFORMATION Briefing available. Met. briefing available.

206/A/JULY 1947.



A page from a (roughly) contemporary Route Book showing the layout of Mingaladon and its PSP runway. (RAF Museum)

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people landed safely and watching them taxi clear before permitting the next machine to land or taxi out of Nos 194 or 96 Sqn's hard stands or from the transit parking area.

There were rarely problems. Once the tower knew that a Dakota was ready for take off, the controller would judge how far out the aircraft on approach was and would, if possible, say 'Oboe Fox Roger George – cleared to take off,' relying on the fact that we would already have the throttles moving forward and be onto the runway as he finished. We would be airborne after the downhill roll, just as the next kite skimmed over the eastern threshold. One of the few occasions when I can recall we were held up was at Akyab when a squadron of Spitfires called in that they would land in five minutes. We should have been able to get off, but controllers were nervous about Spits and Mossies as they had liquid-cooled Merlins in comparison to our air-cooled Pratt & Whitneys. We could sit idling on the ground in tropical temperatures; Merlins could not – they boiled their glycol. So on take offs or landings, Merlin-engined aircraft got priority. Thus we sat so hot in the cockpit, even with the windows open, that we might open the escape hatch in the roof until it seemed time to go.

We carried all manner of items from troops and supplies – fresh and otherwise – to live geese and clay jars full of watered eggs, chickens, clothes, office furniture and all the equipment of a Beaufighter squadron, including spare engines. What was loaded at base, Chittagong, went aboard at night and a guard was put on the aircraft. When we arrived in a truck in the pre-dawn darkness the sentry properly challenged us, only to be met with ribald cries, poor chap. We always assumed, and hoped, that the Dakota had been properly loaded for both weight and balance, as the manifest stated.

En route, the pilot was the loadmaster, and as he had no slide rule he guessed the weight.

On a trip from Calcutta to Bangkok we probably had 6,000-plus pounds aboard; the aircraft certainly felt that way as it wallowed along for miles, very slowly gaining altitude. I did not trust the scales used at Alipore as the difference in my own case was 45 pounds, depending on whether or not I wore my Smith & Wesson ·38 – not reliable weighing!

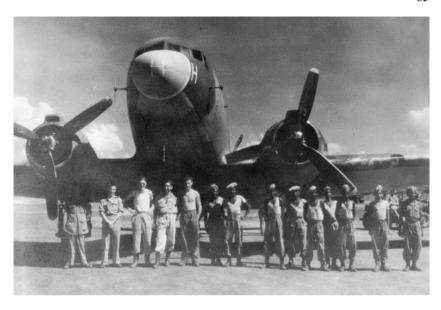
Landing procedures were straightforward, again a mnemonic, as

we never had checklists. Once on the downwind leg we slowed below 155 mph, almost fast cruise, dropped the undercarriage and checked for both wheels to indicate a green light, put the mixture to 'autorich', then oil-cooler shutters to 'full open', carburettor heat to 'cold', and increased pitch from our cruising rpm of 1,850-2,250 to 2,350-2,450 to be able to get maximum power in case of having to go around again. We also checked fuel-tank contents and pressures, being sure that cocks were onto the fullest two tanks. Lastly, at 125 mph we lowered quarter flaps then went to half at 90 mph as we did the turn onto final approach. We had usually left base in the dark before dawn, and if we had been to Toungoo and Mingaladon it was sometimes dark again by the time that we returned.

After landing, the flaps were pulled up, the gills opened from 'trail' to assure maximum engine cooling, the tailwheel 'unlocked' for taxiing, the pitch moved to fully fine, and the oil-cooler shutters checked for full 'open'. Once parked, we checked the magneto drop on each engine and wrote that down, as well as any other deficiencies needing to be fixed or checked by the fitter and rigger and other ground staff at the daily inspection. The engines then were allowed to idle for thirty to sixty seconds until the cylinder head temperature dropped below 205°. The mixture was then placed in 'idle cut-out', the throttles opened to 1,000-1,200 rpm, and the fuel shut off and engines allowed to die. Switches then were turned 'off', the undercarriage pins given to the ground crew to insert, and we checked around for old and new personal kit.

We never had to shut down an engine on ops, but there was a feathering procedure that we practised at the Transport Command Conversion Unit in the United Kingdom. This provided for turning the propeller blades edge-on to the slipstream to reduce drag and prevent further damage to the engine. After practising this we could unfeather in flight or we could land on one engine; we could even go around again on one, but not fully loaded. Take offs on one engine were forbidden, though should have been possible with an empty Dakota. The hardest part of feathering was holding asymmetric rudder until trim could be cranked in to do the job aerodynamically.

What the RAF and the USAF ran in Burma – the British to the south and the Yanks to the north – was an air transport resupply service which, by the time General Sir William Slim led the XIVth



A Dakota of No 48 Sqn, possibly at Toungoo in late 1945 with its crew and a party of IASC loaders.

Army down to Rangoon, could deliver enough daily tonnage to keep his forces moving ahead. New PSP runways were laid right behind the front lines and urgent supplies flown in.

The air war in Burma thus was a transport war, which required all-weather runways, well-maintained aircraft, healthy crews and an efficient supply service, both for the RAF and for passengers and cargo. For young men, it was tourism and manhood rites at their best.

THE FLIGHT ENGINEER IN WW II

by Wg Cdr 'Jeff' Jefford

The Origins of the Flight Engineer.

The first of Bomber Command's new generation of heavy bombers, the Stirling, began to enter service in August 1940 to be followed by the Halifax in November. Neither of these types would be committed to operations until early 1941 but their arrival provoked a major reappraisal of the way in which business was conducted on what was beginning to evolve into a flight deck, as distinct from the traditional cockpit. The most significant characteristic of the new aeroplanes was that they had four engines and it had long been anticipated that managing these, and the associated fuel system, would demand more time than the average squadron pilot could afford to devote to this task, not to mention a greater degree of technical expertise than many of them could be expected to possess.

Large, four-engined aeroplanes were not an entirely new phenomenon, of course, as the RAF had been operating Sunderland flying boats since 1938 and Short Singapores for several years before that. Coastal Command had been able to adapt to these aircraft relatively easily, however, as many of its gunners were qualified as fitters, rather than as wireless operators. Very prudently, when gunnery had become a full-time trade in 1939, Coastal Command had negotiated a concession which had permitted it to retain what had now become a unique category of dual-qualified fitter/gunners.

While Coastal Command had always made adequate provision for handling the technical complexity of four-engined aircraft, prior to the outbreak of war, Bomber Command had not given much serious consideration to the constitution of the crews that it would need to operate its forthcoming aeroplanes. This was a little surprising as it had had plenty of notice because, as early as 1936, the specification that had resulted in the Stirling had called for a six-man crew, including two air gunners 'the one at the amidships station to be a fitter and in charge of the engines instrument board.'

Things had moved on since 1936, of course; the Stirling project had been realised and Handley Page's contemporary twin-engined design had materialised as the Halifax, which, since it now had four engines, had also been provided with an engineer's station. This problem finally began to be addressed at an Air Ministry meeting convened in January 1940 to 'consider the number and composition of the crew of certain bomber aeroplanes.' The Chairman, Air Cdre Robert Saundby, stated that:²

'It was also desirable, with a view to obtaining the best possible performance from the engines, to have someone to watch the engine instruments which, in future multi-engined aircraft, would be situated away from the pilot's dashboard. No member of the present authorised crew would be able to undertake this work in addition to his normal duties. It was proposed, therefore, that this duty should be undertaken by an additional member of the crew who would receive special training in the running of engines. The necessary training might be obtained at an engine factory but it would be necessary to select fitters for the duty.'

The provision of a Fitter II/Air Gunner for the Stirling and Halifax was readily agreed, his designation being altered to Flight Engineer/Air Gunner a month later. On the other hand, 'as it was only a twin-engined aeroplane, a Flight Engineer to watch the engine instruments would not be required' for the Manchester, the third of the RAF's new 'heavies'.³

So much for the decision to provide flight engineers, which was clearly taken in good time, but little progress was made thereafter until July 1940 when the Air Ministry wrote to HQ Bomber Command to point out that the knowledge gained by Group Engineer Officers, who had all recently attended a course run by Rolls-Royce and Bristols, would be useful in arranging the training of flight engineers. High Wycombe's very prompt acknowledgement asked for a statement of policy regarding the recruiting and training of flight engineers while pointing out that Group Engineer Officers were far too busy to become involved themselves.⁴ This provoked a prolonged silence and, despite at least three hasteners from Bomber Command, it was mid-November before the Ministry began to react. The upshot was that TMech, Wg Cdr Rowland Costa, visited Nos 7 and 35 Sqns (the only units involved at this stage) and discussed the problem with a number of responsible officers at station and group level. He presented his findings in a four-page memorandum which represented the first

attempt to define what a flight engineer might be expected to do, who he should be, what his status should be and how he should be trained. Although some if its specific recommendations would not be implemented, this document effectively served as the blueprint for the new trade.⁵

Thus it was that, as the first of the new Stirling and Halifax squadrons were preparing to become operational, neither unit had any personnel who were formally recognised as being flight engineers. The fact that this trade did not even exist could not be allowed to interfere with the prosecution of the war, of course, so expediency became the order of the day. Pending the publication of a formal policy, therefore, Wg Cdr Costa was obliged to sanction the introduction of in-house training at squadron level. On 7 February 1941 No 35 Sqn's diarist noted:⁶

'It being necessary for an Engineer to be included in the air crew to fly with Halifax aircraft, the following airmen, of Fitter trade, were specially selected and trained in this squadron by Sgt S L C Watt (late Observer with the A&AEE and awarded the AFM on 24 December 1940) and passed out as Flight Engineers and were promoted to the rank of Sergeant on this date wef 1 February 1941:

568825, Cpl Aedy, R G (Fitter II) 569526, Cpl Ogden, G H F (Fitter II) 567891, Cpl Wheeler, H E (Fitter II 902598, AC1 Hill, F W (Fitter IIE) 922470, AC1 Willingham, N (Flight Mechanic E)

Thousands more would follow them, but these five men, and Watt, were the first to be publicly acknowledged as flight engineers and they flew No 35 Sqn's first Halifax sorties on 10 March as sergeants. It is possible that the status of their instant promotions may have been a little uncertain at first, but, pragmatic as ever, officialdom soon caught up and the new trade, and its associated rank, had been formally recognised before the end of the month (*see below*).

Meanwhile, much the same thing had been happening at Oakington where No 7 Sqn had noted on 23 January that: 'Records informed us that, as they were unable to provide Sergeant Engineers, we were to proceed with training of ACs for this duty, as tentatively arranged



Until mid-1943 flight engineers were dual-qualified as air gunners via a three-week course at a Bombing and Gunnery School. Typically, at least to begin with, this might involve 10-15 hours of airborne time in a Harrow. This one was flying with No 10 B&GS.

beforehand.' But when No 7 Sqn mounted its first operational Stirling sorties in February, its flight engineers were all still ranked as corporals and LACs. The first sergeant did not appear in the squadron's F541 until March and it was June before they were all wearing three stripes.⁷

It should be appreciated, incidentally, that the addition of a flight engineer had increased the notional⁸ crew of a heavy bomber from six men (two pilots, an observer, two WOp/AGs and a straight gunner) to seven – a 16% increase in the manpower bill.

With Bomber Command's four-engined 'heavies' having embarked on their operational careers, the Air Ministry was finally galvanised into action. In February 1941 a meeting of concerned staffs took Rowland Costa's initial conclusions and refined them to produce a formal scheme covering the provision of flight engineers which was published a month later. Recruited from the ranks of tradesmen already qualified in aero-engine technology, these men were to be given three weeks' training at a Bombing and Gunnery School (or No 1 Air Armament School at Manby) followed by a similar period of technical familiarisation with the appropriate airframe and/or engine manufacturer.

On completion of this sequence they were to be remustered as flight engineers, promoted to temporary sergeant *in their original trade* and designated as, for instance, a Fitter II(E) (Flight Engineer). It is important to understand that, at this stage, they were definitely *not* regarded as air crew. Indeed, arguing that the 'flight engineer is not a member of a crew but a tradesman performing the duties of his trade in the air', there were some, notably among those who had to fund these arrangements, who did not see the need for them to be automatically elevated to sergeant rank. Since they were still regarded as ground crew, flight engineers remained on the promotion roster for, and were paid (as sergeants) at the rate applicable to, their parent trade, plus one shilling per day crew pay and, because they were notionally qualified as gunners, sixpence qualification pay.

The initial debate over badges.

Following the pattern established in 1915, when the original observers badge had been introduced, it was entirely predictable that flight engineers would expect to wear an appropriate distinguishing emblem. Indeed, as early as December 1940 Costa's memorandum had recommended that, 'An aircrew badge should be struck for the Flight Engineer.' This had been among the matters considered at the meeting held in the following February when it had been concluded that, although a flight engineer would be qualified as an air gunner, it would be 'more appropriate if the letters "FE" were substituted for "AG"". 12 While this would appear to have been a reasonable and logical approach, it turned out to be a very contentious issue. It should be appreciated that in 1941 the air gunners badge was, like the flying 'O', unique and the Director of Personal Services (DPS) considered that it would be undesirable to 'deface or disfigure' its design by changing the letters.¹³ The immediate consequence was that the reference to the wearing of a badge was hastily deleted from the draft of the AMO that was to be published in March.

The debate rumbled on with one faction maintaining that, since flight engineers were regarded as being qualified as gunners, they ought to wear the 'AG' badge. The opposition, who were still pressing for a dedicated badge, considered this to be most unsatisfactory, arguing that, 'the duties of the Flight Engineer are more analogous to those of the Air Observer than the Air Gunner', and that, in any case,

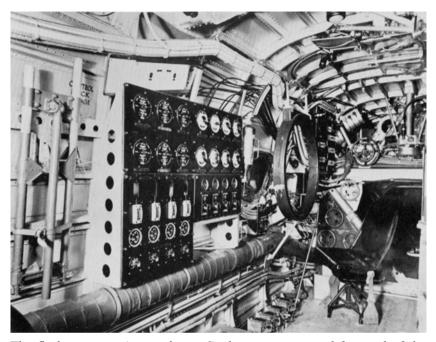
gunnery was, for him, little more than a 'sideline'. ¹⁴ Nevertheless, the 'gunners union' won the first round and on 1 May 1941 it was announced that flight engineers were to wear the air gunners badge. ¹⁵ There was another slight anomaly here because air gunners received their badges on completion of their instruction in gunnery, whereas flight engineers had to wait until they had finished their technical courses. ¹⁶ In several ways, therefore, the gunners badge fell somewhat short of meeting the essential criterion of being 'appropriate'. Nevertheless, the decision had been made and there the matter rested – for the time being, at least.

Flight Engineers are formally recognised as being air crew.

Associated with the introduction of AMT's (Air Mshl A G R Garrod) 'New Deal' approach to the training of aircrew was the adoption of a more realistic attitude towards flight engineers. ¹⁷ In December 1941, SASO Bomber Command, AVM Saundby, had written to the Air Ministry to point out that, 'It is becoming increasingly evident that the Flight Engineer's position as a member of an aircrew is just as important as any other member – and it is essential that he should cease to be considered by others, and above all by himself, as an 'extravagance' – or even as unnecessary.' A few months later, in March 1942, revised regulations governing the provision and terms of service of flight engineers were published.

The main change was that, 'while employed in the air they will be regarded as members of the aircrews for all purposes other than promotion' (author's italics). This had not gone quite far enough, however, as flight engineers remained on their Trade Group rosters and, if promoted beyond the rank of sergeant, they were to cease flying and resume their duties on the ground. As a result, although flight engineers effectively answered to their Flight Commanders on a daily basis, the various Engineering Officers on their squadrons retained a substantial element of responsibility for what were still regarded as being essentially ground crew personnel. Flight engineers, it would seem, were neither fish nor fowl – or perhaps they were both!

By this time flight engineers had become a familiar feature of the air crew community but, unfortunately, not familiar enough. By midsummer only a third of the 6,000 airmen required had volunteered themselves for flying duties and a substantial proportion of them had



The flight engineer's panel in a Stirling was mounted forward of the main spar on the starboard side of the fuselage, but well aft of the pilot's position.

failed to make the grade in training. The unavoidable conclusion was that ground personnel simply did not want to fly, at least, not in anything like the numbers required. Since skilled fitters were not volunteering in sufficient numbers, the recruiting field had already been widened to include Flight Mechanics (Engines).²⁰

In August 1942 the net was broadened further to include Fitter II (Airframes) and Flight Mechanics (Airframes) and at the same time the potential for divided loyalties was finally removed when it was announced that, 'flight engineers now form a separate air crew category.' That is to say that, rather than having their annotation tacked on in brackets behind their primary trade, flight engineers were now to be formally remustered in their own right. The severing of their remaining ties to the Technical Branch were underlined by the introduction of commissions within the GD Branch and the replacement of their previous entitlements to air gunner and crew pay



Since much the of instrumentation that he needed to monitor was located on a panel mounted on the starboard wall of the cockpit, the ergonomics of the flight engineer's station in a Lancaster clearly something to be desired, if he chose to take advantage of his foldaway seat.

by an inclusive air crew daily rate of (for a sergeant) eleven shillings.²¹

While this clearly indicated a major change in

policy, it took a surprisingly long time, in some quarters at least, for the system to cater for its implications. Witness J Norman Ashton's recollections of his arrival on No 103 Sqn as late as May 1943:²²

'On joining a new unit, it was customary for members of a crew to report to their respective leaders and to meet the other boys in the section. At that time, however, this did not apply to flight engineers. They had neither leader nor section and the only person to take the slightest technical interest in them was the Squadron Engineering Officer. Usually, he was too busy with the maintenance of the aircraft to devote much time to flight engineers and they were left very much to their own devices.'

Things did change slowly, however, and when Ashton joined No 156 Sqn in October 1944 he notes that it had a Flight Engineers Section, complete with a flight lieutenant Leader.

The numbers game.

In the meantime, large, mostly four-engined, aircraft were being operated in ever-increasing numbers and in a widening variety of roles, practically all of these aeroplanes requiring a flight engineer. Apart from the demands of Bomber Command's 'heavies', Coastal Command needed flight engineers for its Sunderlands, Fortresses,

Catalinas, Halifaxes and Liberators to which Transport Command would soon add Stirlings, Yorks and more Halifaxes.

Unfortunately, despite broadening the spectrum of trades from which flight engineers could be drawn, and adding air crew rates of pay to the prospect of wearing three stripes and a badge, serving personnel were still not prepared to volunteer for flying duties in sufficient numbers to satisfy the ever increasing demand. In the event this turned out to be less critical than had initially been feared, because experience had begun to show that the Service had probably been demanding an unnecessarily high level of technical competence of its flight engineers; indeed, it was even beginning to doubt that it was essential for them to be experienced ground tradesmen.

As early as December 1941, for instance, in his letter to the Air Ministry, to which reference has already been made, SASO Bomber Command had expressed the view that mental agility, alertness, intelligence and keenness were the most important qualities that a flight engineer needed to possess. While his responsibilities obviously required him to understand the systems that he was operating, since he was not expected to carry out any maintenance procedures more complicated than Daily Inspections, Saundby had argued that he did not need to be a highly skilled fitter.

At the time this suggestion was still a little too radical to gain the endorsement of the engineering staff. Nevertheless, by accepting airframe (in addition to engine) tradesmen, they did begin to lower the entry level during 1942 and the accumulation of further experience indicated that the recruiting of direct entrants for *ab initio* training as flight engineers might well be a practical proposition after all. While this provided a comforting rationale to justify such a major change in policy, there can be little doubt that expediency will have been a major factor, as there appeared to be no other means of solving the manning problem. Accordingly, therefore, in June 1943, the RAF introduced the direct recruiting of civilians.²³

This innovation was accompanied by a reduction in the pay of a sergeant flight engineer from twelve shillings to ten (allowing for war pay in both cases). Since the whole idea had been to attract additional volunteers, this may seem to have been a little perverse but it was actually entirely logical. The original rate of pay had been agreed on the assumption that a flight engineer would actually be a Fitter II(E),

or would have been brought up to an approximately equivalent standard of technical expertise. There was no way that a hastily trained direct entrant could be regarded as a Group I tradesman, hence the adjustment in the rate of pay, which brought flight engineers into line with the WOp/AG – although anyone already drawing the 1942 rate had preserved rights and any later internal recruits retained their current rates if these were more advantageous.

At much the same time, the commissioning quota, previously only 6%, was increased to match that of WOp/AGs, ie up to 10% on graduation and a further 10% on active service. 24 While the new rules did not preclude suitably qualified serving airmen from continuing to volunteer to fly, the proportion of civilian entrants was to rise steadily over the next two years until they far outnumbered those being drawn from the ranks.

The badge debate is resolved.

As previously noted, the initial attempt to introduce a distinguishing 'FE' emblem for flight engineers had been frustrated and they had been obliged to masquerade as air gunners. Prompted by the precedent set in May 1941, when the 'RO' badge had been introduced (thus establishing that, despite earlier reservations, it was, after all, perfectly acceptable to 'deface and disfigure' the 'AG' badge), the debate was re-opened in the following September. ²⁵ As before, the idea failed to provoke any significant reaction among the staffs until the matter was raised in public at an Air Ministry conference held in February 1942 when it appeared to gain the positive support of, *inter alia*, the delegates representing Coastal and Bomber Commands. Despite this endorsement, however, this still failed to produce the desired result, partly perhaps because the whole question of crewing policy, aircrew categories and badges was undergoing a major overhaul.

An AMO, revising the flight engineer's conditions of service, that was being drafted at the time is thought to have included a specific reference to an 'FE' badge but when it was eventually published in March this read 'the flight engineer's badge.' But was this the 'AG', which was the badge currently authorised for flight engineers, or was it an oblique reference to the possibility of a dedicated badge being introduced? Other references on file make it clear that this was meant



The flight engineer's badge that was introduced in September 1942.

to indicate the continued use of the air gunners badge but, in Bomber Command at least, people soon began to take matters into their own hands. By July - two months before a dedicated badge was officially approved individual flight engineers were reportedly being authorised locally unpick the 'AG' lettering on their gunners badges re-embroider with an 'FE' 27

Another possible source of 'FE' badges could have been the RCAF, which *may* have introduced a single-winged 'FE' for the benefit of Canadian flight engineers being trained in the UK. If this did happen, however, these badges were certainly unofficial. Before long some of the more enterprising haberdashers and military tailors had begun to manufacture and lay-in stocks of (approximately) RAF-pattern 'FE' badges. All of these emblems were illegal, of course, until a new range of air crew badges was finally announced in September.²⁸ Unfortunately, when that did happen, the officially sanctioned monogram for flight engineers turned out to be a simple 'E', rather than the anticipated 'FE'!

To begin with, Service channels were unable to provide the appropriate emblem so, eager to replace their inappropriate gunners badges, many flight engineers elected to obtain their own. Since commercially manufactured 'E's (and 'FE's?) were relatively easy to find, a variety of non-standard styles became commonplace until 1943 when the supply system finally caught up. By this time, of course, as with the recently superseded, and now obsolete, flying 'O', the illegal 'FE' had earned its battle honours and some of the men who had survived a tour of operations wearing one were reluctant to give them up. Examples of illicit engineer's emblems were still being worn, very proudly, into the 1950s.²⁹

Once a ready supply of 'E' badges did become available, however, it would seem that the air force may have failed to treat them with an appropriate degree of respect, which was a little disappointing for the men who were destined to wear them. Many years later one ex-flight engineer saw fit to comment on the marked informality associated with his passing out from St Athan in July 1943. As Frank Bryant recalls:³⁰

'Gone in a flash were our expectations of some high-ranking officer pinning our half-wings onto our manly breasts and saying, 'Well done,' as he shook us by the hand. We had all seen this happen to pilots who had recently got their wings when it was shown on the Gaumont British News; but for us things were a little different. We did not even have the dubious honour of marching past our own Commanding Officer. True, the CO did appear, but he only made a little speech after the Adjutant had called us to attention and told us how he was gratified to know that we had all passed our exams and were now all sergeants. He pointed out that, although we were aircrew sergeants — as opposed to 'proper' ones — we were still regarded as NCOs and would be expected to behave as such. He wished us, 'Good luck,' in the future and then he walked away. And that was that!

Our wings, or rather half-wings, were issued to us later in the day, together with our stripes, over the long wooden counter in the Station Stores. They were given, or perhaps I should say tossed, to us by a scruffy-looking LAC with lank greasy hair and a very bad case of halitosis, who bade us, 'Sign 'ere chum', while indicating a column in the Stores Ledger with a well-nibbled finger nail.

Somehow it all seemed a bit of an anticlimax.'

Flight Engineer training.

To summarise briefly, although the RAF had identified the need for flight engineers well in advance, it had done very little to provide itself with any until the spring of 1941 when the requirement had suddenly became urgent. As a result, the first few had been obtained on a somewhat *ad hoc* basis, in effect, by misemploying engine fitters. The flight engineer's function soon gained a degree of official



The interior of a Lancaster training rig.

recognition, however, and they began to be acknowledged as quasi-air crew on completion of a three-week stint at a B&GS and a short manufacturer's course.

A year later the training sequence had been more formally defined, a qualified fitter selected for flying duties spending five weeks at an Initial Training Wing

before embarking on similar manufacturer's and gunnery courses to those attended by his predecessors. The gunnery phase had evolved into a two-week course at Stormy Down's No 7 Air Gunners School (AGS) for Bomber Command's flight engineers or a four-week course at No 10 AGS at Castle Kennedy for those destined for Coastal Command; by mid-1942 this had been standardised as two weeks at No 7 AGS for everyone.

This sequence was more protracted for a Flight Mechanic (Engines) who had volunteered to fly, because, in order to permit him to be remustered as a Fitter II(E), he had first to be given the necessary additional technical training, and he was also required to pass the Junior NCO Course. By the late summer the technical training phase for Fitter II(E) entry-level candidates lasted six weeks, including a week's attachment to industry, and the courses had been individually tailored to reflect the peculiarities of the Stirling, Halifax, Lancaster, Sunderland, Liberator and Catalina.³¹

At much the same time, with the flight engineer having finally been recognised as a fully-fledged air crew category, it was decided, in a further attempt to obtain the numbers required, to broaden the intake to include airframe tradesmen. This involved their having to be given appropriate instruction on aero-engines at No 4 School of Technical Training (SofTT) at St Athan. This unit gradually began to assume responsibility for special-to-type instruction as well and attachments to industry eventually ceased during 1943.



Despite some effort being made to provide flight engineers with a little air experience, most completed their training without ever becoming airborne. Nevertheless, from 1943 onwards, they were able to accustom themselves to the layout of the type for which they had been earmarked via realistic synthetic training rigs created from redundant airframes. This picture shows the business end of four Lancasters, a Catalina, a Liberator, a Sunderland and a brace of Stirlings at St Athan

Since the numbers required were still not forthcoming, the RAF had eventually introduced direct recruiting and from then on the bulk of flight engineers were civilian entrants. After six weeks at No 21 ITW at Usworth (later Bridlington and later still at No 90 ITW at Cranage), these men went to St Athan where they were given seventeen weeks of primary and seven weeks of applied technical training. Direct recruiting did not preclude serving airmen from continuing to volunteer for flying duties, of course, and those who did followed much the same sequence as civilian intakes, except that the length of their primary technical course was adjusted to reflect their level of expertise on entry.

The content of the various primary courses on offer in early 1943 is

Preliminary Training (weeks)	Direct Entrant	Flight Mechanic (Airframes)	Flight Mechanic (Engines)	Fitter II(A)
Preliminary Airframes	1	-	1	I
Preliminary Engines	2	2	ı	1
Carburation	2	2		1
Ignition and electric systems	1	1	1	1
Radial engines	5	5	_	1
In-line engines			_	1
Propellers and engine controls	1	1	1	1
Hydraulic systems	1	_	1	-
Pneumatic systems	1	_	1	-
Aircraft handling	2	1	1	1
Revision	1	1	1	1
Total (weeks)	17	13	7	8

Fig 1. The duration of preliminary training of flight engineers at St Athan was tailored to match their level of expertise on entry. This table summarises the various courses as initially agreed in February 1943. Fitter II(E)s, the most highly qualified candidates, by-passed this phase altogether.

summarised at Figure 1 and of the applied phase at Figure 2, the latter reflecting the course previously (and still) attended by a fully qualified Fitter II(E) in order to convert him into a flight engineer.³² The sequence was rounded off by a two-week gunnery course at No 7 AGS, although to cope with the numbers some use was also made of No 1 AGS at Pembrey. On completion of this course an airman was awarded his air crew badge and promoted to temporary sergeant.

In May 1943 problems at the AGSs made it impossible to provide all flight engineers with a gunnery course so badges and sergeants tapes began to be issued at St Athan on a temporary basis. This procedure soon became permanent, however, gunnery training now being provided post-graduation and confined to those who actually needed it, essentially flight engineers assigned to Coastal Command.

Airframes	51/2	
Hydraulics/Electrics		
Blind flying and the autopilot		
Propellers		
Engine		
Attachment to Manufacturers Course		
Engine handling		
Revision		
Exams	3	
Total (days)	38	

Fig 2. The content (as at February 1943) of the seven-week applied course at No 4 SofTT which converted a Fitter II(E) into a flight engineer and which was attended by all other prospective flight engineers on completion of the appropriate preliminary training (at Fig 1).

It is worth pointing out that all flight engineer training was largely synthetic, involving rigs (some of which utilised redundant or salvaged airframes) and, until it was dropped altogether, much of their gunnery training had also been conducted on ground-based facilities. As a result, flight engineers were unique among wartime air crew categories in that, certainly from mid-1943 onwards, it was quite normal for them to qualify for their badges without their ever having flown in an aeroplane.

The Flight Engineer as Pilots Assistant.

When the composition of heavy bomber crews was revised in the spring of 1942, it had been decided to dispense with the second pilot, although it was still considered advisable to identify someone who could assist the remaining pilot and, should he be incapacitated, be capable of flying the aircraft back to base. It was initially assumed (by AMT at least³³) that this task would fall naturally to the flight engineer but, since the problem was largely to do with bombers, it was accepted that High Wycombe should have the last word. It took some time for the staffs to reach a decision but in June 1942 HQ Bomber Command eventually stated its preference to be for the new aircrew category of



As with his core technical course, until it was deleted in 1943, much of the flight engineer's instruction in gunnery was ground based. In a Lancaster, had he ever been required to man a turret, it would most probably have been the nose-mounted FN5, as seen here on a training stand at No 7 AGS's coastal range at Margam.

the air bomber.³⁴ The air bomber therefore became the designated pilots assistant in Stirlings and Halifaxes, but not in Manchesters and Lancasters, because the layout of the flight deck of these aircraft made it more appropriate to use the flight engineer.³⁵

With the passage of time it became apparent that the decision to nominate the air bomber as pilots assistant had been ill-judged. This was, in part, because some air bombers had turned out to be rather less capable than had been expected, but it was also felt that the air bomber had probably been given too many strings to his bow in any case, and that the amount of time he was obliged to devote to studying airmanship and practising in the Link Trainer would have been better spent on navigation and bomb-aiming. But the most telling argument was that there had been 'hardly any authenticated cases of an Air Bomber being able to bring an aircraft back after the Pilot has been incapacitated.' All of these points were raised in a formal Bomber Command submission of May 1944, recommending a change of

policy.³⁷

Having previously canvassed the opinions of its subordinate Group HQs, Bomber Command had concluded that, although it appeared most unlikely that he would ever have to take the controls 'in anger', it was still considered highly desirable, for morale purposes if nothing else, to have a second crew member capable of flying the aeroplane in an emergency. The consensus of opinion was that flight engineers were the most suitable choice. Since experience with the Lancaster (where the flight engineer had always acted as pilots assistant) had demonstrated that they could certainly do the job, Bomber Command recommended that all pilots assistants should be flight engineers, rather than air bombers. The Air Ministry agreed to this change in June ³⁸

In the light of this development, it is perhaps worth recording that the flight engineer of 1944 was held in much higher esteem than his predecessor of 1941 had been. As previously noted, the Service had been very slow to introduce them in the first place and, even when it had, it had been just as slow to accept that flight engineers really were air crew and that they needed to be recognised as such. It had taken all of three years for flight engineers to gain the degree of respect to which they should always have been entitled but their true value had finally been accepted by mid-1944. This was particularly true within No 8 Gp where, as one veteran, J Norman Ashton, recalls, his potential was being very fully exploited:³⁹

'The flight engineer was certainly regarded by the PFF as a very versatile member of the crew: he was expected to be a first-class engineer; have the ability to pilot the aircraft in an emergency; be capable of manning any of the gun turrets; act as bomb-aimer in certain crews; be able to identify stars and constellations; learn to use the sextant and be able to take reliable 'shots' with that instrument!'

The Employment of Pilots as Flight Engineers.

With the pilot-dominated air force having been so slow to acknowledge the need for, and then the importance of, the flight engineer, it was supremely ironic that it ended the war obliging pilots to do the job themselves. By the summer of 1944 confidence in a successful conclusion of the war against Germany was such that

serious consideration was being given to the prosecution of 'Phase II' against Japan. Planning for the deployment of a force of Lancasters envisaged that, in order to cope with the very long range sorties that would be required in the Pacific theatre, there would be some advantage in a crew's having two pilots, rather than a pilot and a flight engineer. To prepare for this it would be necessary to cross-train selected pilots as flight engineers and, pending the deployment of what would become Tiger Force, to employ them within Bomber Command. These men were to be drawn at weekly intervals, in batches of approximately sixty, from the substantial pool of recent EATS graduates currently held on the books of No 7 Personnel Reception Centre at Harrogate.⁴⁰

As originally conceived, the training was expected to comprise six weeks at No 4 SofTT followed by six at a Heavy Conversion Unit and two or three at a Lancaster Finishing School. It was made very clear that these men would retain their status and pay as pilots and that, on completion of their tour, they would be given appropriate refresher training prior to posting as a first pilot/captain, although not necessarily on bombers. It was appreciated that the prospect of being misemployed as a flight engineer might not appeal to some pilots and, in an attempt to sweeten the pill, it was pointed out that the likely alternative would be a prolonged wait for an appointment as a pilot and that the additional technical expertise could well prove to have considerable value in the long-term.

In the event, the duration of the early courses at No 4 SofTT turned out to be seventeen weeks, broadly reflecting the content of the preliminary phase designed for direct entrant flight engineers (*see Figure 1*). In order to accommodate the influx of pilots, there was a corresponding reduction in the throughput of flight engineers, although they were still required for Bomber Command's Halifaxes and for Transport and Coastal Commands. Adequate numbers remained within the pipeline to cope with this demand, however, and ex-ITW intakes into St Athan were suspended with effect from 6 September 1944 and not reinstated until 17 January 1945.⁴²

The first group of fifty-six pilots arrived at St Athan on 30 August 1944. Thereafter intakes, usually numbering about the planned sixty students (although the largest was 142), continued at roughly weekly intervals until at least the winter of 1945. As had been anticipated,

some of these pilots were disappointed at having been diverted into a secondary occupation as soon as they had gained their 'wings', but the only other option was to apply for voluntary withdrawal from the course. This was a very risky business, however, as prospective applicants were to be advised that 'there can be no guarantee that air crew personnel who withdraw under these circumstances will be retained for non-air crew duties in the Royal Air Force.' That was Air Ministry double-speak for: 'Anyone who chooses to withdraw, should be prepared to serve in the infantry or down the mines.'

From November 1944, RCAF pilots began to be included in the scheme and from January 1945 they were joined by others from the RAAF and a few from the RNZAF, at which point the RAF intake was suspended, albeit only briefly. The two-pilot crew policy for the projected Tiger Force (to which the RCAF, RAAF and RNZAF were all going to contribute) aside, the scheme had an additional attraction for the Commonwealth air forces. Because they did not train many of them themselves the, otherwise national, constitution of practically all of the crews in the Article XV heavy bomber squadrons was diluted by the presence of a British flight engineer. This was not 'a problem' per se, but the provision of dual-qualified pilots would permit this gap to be filled with airmen from the Dominions.

Since the first batch of pilot/flight engineers did not emerge from St Athan until 12 January 1945, and they would then have had to complete the HCU/LFS sequence, it would have been mid-March, at the earliest, before any of them could have reached a squadron. Since the European war ended on 8 May, very few of them can have flown on operations before that date. By that time the length of the course at St Athan had been reduced to about nine weeks but, even so, because they entered training much later, the same will have been true of most of the RAAF and RCAF men.

By the end of the European war, steady progress was being made with reconstituting the crews of the squadrons earmarked for Tiger Force by substituting a second pilot for the flight engineer and with replacing the RAF flight engineers serving in RAAF and RCAF squadrons with dual-qualified Australian and Canadian pilots. Within No 5 Gp, for instance, by mid-May some 130 crews had a second pilot/flight engineer. In the event the Japanese war ended before Tiger Force's air echelon began to deploy and by the end of the year

both of the RAAF and most of the RCAF heavy bomber squadrons had been disbanded. Nevertheless, the RAF persevered with the pilotas-flight-engineer concept for a while and they were still to be found on Lincoln squadrons well into 1947. This writer has failed to establish exactly how many pilot/flight engineers were trained, but it will probably have been of the order of 3,000. 45

The Balance Sheet and the Aftermath.

To satisfy the requirements of their own air forces, some flight engineers were trained in Canada, Australia and South Africa but not until 1944 and on a relatively small scale even then, the combined total amounting to just over 2,000 men. By contrast all 17,885 RAF flight engineers had been home grown at No 4 SofTT.⁴⁶ At its peak St Athan's population had exceeded 5,000 men, output sometimes running as high as 500 per week.

Although the need for the category of the flight engineer had been clearly established by 1945, the Service never really came to terms with the implications of this. As a result, the post-war relationship between the flight (from 1950 air) engineer and the RAF 'establishment' has always been an uncomfortable one. It is evident from the policy that it has repeatedly attempted to impose, that the RAF's preferred option was to cut corners and revert to 1941-42. That is to say, that it wished to provide itself with air engineers by misemploying ground tradesmen as aircrew on a temporary, typically five years, basis. As in 1941-42, however, there were never enough tradesmen prepared to volunteer to do that and the RAF was obliged, more than once over the next fifty years, to accept that air engineers really were full-time professional aviators who needed to be treated with the same respect as any other aircrew category and provided with a full-time career. All of this is a different story, however. Suffice to say that advances in technology are finally permitting the Service to dispense with the air engineer. The last 'E' badges were awarded in 2002 and the last air engineer to qualify for one of the new-fangled WSOp badges graduated three years later. Nevertheless, with their numbers in steady decline, the RAF belatedly allowed an air engineer to command a squadron, Wg Cdr John Reid being appointed as OC 70 Sqn on 22 July 2002. It had only taken sixty years.

Notes:

- ¹ TNA AIR2/2629. Specification B.12/36 published as 542743/36/RDA3 dated 15 July 1936.
- ² TNA AIR14/9. S.40289 dated 27 January 1940, minutes of a meeting held on 8 January under the chairmanship of DOR.
- ³ *Ibid.* Despite its size and the complexity of its 24-cylinder Rolls-Royce Vultures, the Manchester was bracketed with the Wellington and Whitley and, as such, it made do with two pilots. The Vulture proved to be a troublesome engine which eventually led to the Manchester's being redesigned to become the Lancaster. Since the Lancaster had four engines, policy dictated that its crew should have included provision for a flight engineer but it had inherited the Manchester's cockpit layout. As a result, some modifications were required and until these could be incorporated, despite a mid-1942 policy decision which dispensed with second pilots, many Lancasters continued to fly with two pilots until late in the year.
- ⁴ TNA AIR2/8348. Air Ministry letter A.54893/40/TMech dated 10 July 1940 from Wg Cdr R Costa (TMech) to HQ Bomber Command and Gp Capt K M St C G Leaske's response, BC/10271/Eng dated 16 July 1940.
- ⁵ *Ibid.* Memorandum A.54893/40/TMech dated 10 December 1940.
- ⁶ TNA AIR27/379. No 35 Sqn's ORB.
- ⁷ TNA AIR27/98. No 7 Sqn's ORB.
- ⁸ 'Notional' because it was not unusual for additional crewmen to be carried, eg an extra gunner to handle the nose turret, nominally the responsibility of the observer.
- ⁹ AMO A.190/1941 of 20 March.
- ¹⁰ Specifically, Fitter Is, Fitter IIs, Fitter II(E)s and Fitter (AE)s, although the most highly qualified of these, the elite Fitter Is, were no longer being trained. Fitter Is were, therefore, a dwindling resource and, in the opinion of some, these multi-skilled, and increasingly scarce, tradesmen were of far more value to the air force on the ground than they would be in the air.
- ¹ TNA AIR2/8348. Minute 65 on this file dated 26 April 1941 by F2b, Mr W Taylor
- ¹² *Ibid.* Minutes of a meeting held on 12 February 1941 to consider matters relating to the qualifications of tradesmen to be employed as flight engineers.
- 13 *Ibid.* Minute 51 on this file, dated 10 March 1941 by DPS, Air Cdre D Colyer.
- ¹⁴ *Ibid.* Minute 54 on this file, dated 12 March 1941 by TMech, Wg Cdr R Costa.
- ¹⁵ AMO A.300/1941 of 1 May.
- ¹⁶ There was an arcane logic to this sequence as it avoided the possibility of a prospective flight engineer failing to complete the technical phase of his training, leaving him as an already badged air gunner who would then have to be formally remustered to that air crew category which was not what the individual had volunteered to do and not what the air force wanted either, because, if he was unable use his engineering expertise in the air, his valuable skills as a ground tradesmen would be 'wasted' in a gun turret.
- By the end of 1941 the success of the Empire Air Training Scheme, in terms of its numerical output, made it possible to begin to consider reinstating some of the flying hours that had been deleted from the syllabus in 1940 in order to sustain quantity, at

the expense of quality – and an increased accident rate. AMT drew the Air Council's attention to this in his memorandum AC70(41) of 6 December 1941 which was formally endorsed three days later (TNA AIR6/61). The consequent extension of flying training in 1942, and a number of associated measures, including the revision of air crew categories and of crewing policy, became known as Air Mshl Garrod's 'New Deal'.

- ¹⁸ TNA AIR2/1822. BC/S.24611/Trg dated 7 December 1941.
- ¹⁹ AMO A.262/1942 of 19 March.
- 20 Ibid.
- ²¹ AMO A.978/1942 of 15 August.
- ²² Ashton, J Norman; Only Birds and Fools (Shrewsbury, UK, 2000).
- ²³ AMO A.538/1943 of 3 June.
- ²⁴ TNA AIR2/8348. The rationale behind the revision of commissioning quotas, and the revised rates of pay, are outlined in Air Ministry letter S.88449/F.2 dated 12 February 1943 to T Padmore of HM Treasury in which F.2, R C Richards, sought sanction for the financial implications of these changes.
- 25 Ibid. Minute 83 on this file dated 26 September 1941 from TMech, Wg Cdr R Costa.
- ²⁶ AMO A 262/1942 of 19 March
- ²⁷ For a more detailed account of the confusion surrounding the introduction of an appropriate badge for flight engineers (and much else concerning the evolution of the flight engineer), see Stringman, D C; *The History of the Air Engineer* (RAF Finningley, 1984), pp39-43.
- The functions of all aircrew specialisations were reviewed in the spring of 1942. The necessary changes, the most obvious of which was the replacement of the observer by the navigator and air bomber, were announced by AMO A.746/1942 of 23 July. The new categories required three new badges, the 'N', 'B' and 'E', which were sanctioned by King's Order 480, which was initialled by HM King George VI just four days later (AIR30/274), although they were not actually introduced until the publication of AMO A.1019/1942 of 17 September.
- 29 Stringman, op cit, p43.
- ³⁰ Bryant, Frank; *There's Always Bloody Something!* (Benalla, Victoria, Australia, 1991)
- ³¹ TNA AIR2/1822. Examples of these six-week syllabuses may be found on this file, eg that for the Halifax being published by Technical Training Command as TT/14747/Air Trg dated 30 September 1942.
- TNA AIR2/8348. The proposed range of courses was initially considered at an Air Ministry conference held on 10 October 1942. Substantially unchanged, the proposal was formally submitted under cover of Technical Training Command letter TT/S.2788/Air Trg dated 21January 1943 and effectively endorsed on 9 February 1943 by a note from TMech on file S.70262.
- ³³ TNA AIR6/62. Note AC27(42) dated 5 April 1942, submitted to the Air Council by AMT (Garrod), explains the changes in flying training policy consequent upon the decision to rationalise the composition of bomber crews.
- TNA AIR2/2662. HQ Bomber Command letter BC/S.20173 dated 24 June 1942.

³⁵ *Ibid.* An enclosure on this file, tabulating the composition of bomber crews as at 30 December 1942, includes notes reflecting which member of the crew was the designated pilots assistant on each aircraft type.

³⁶ TNA AIR14/10. An earlier trawl of the Group HQs (via BC/S.20173/Trg dated 18 March 1942) had established that up to that point there had been only seven recorded instances of a bomber being landed by the second pilot because the captain had been incapacitated, one in No 4 Gp, three in each of Nos 3 and 5 Gps and none in Nos 1 and 2 Gps.

There had, however, been some notable cases since then. One involved Sgt Stuart Sloan, an air bomber with No 431 Sqn, whose actions on the night of 23/24 May 1943 were recognised by the award of a CGM. Their Wellington having been engaged by *Flak* over the Ruhr, the pilot and air gunner had baled out, but Sloan found that the aircraft was still controllable and he flew it back to England where he made a successful landing at Cranwell.

Three months later, on 13 August, under the supervision of his seriously, and ultimately fatally, wounded captain, another air bomber, FSgt Allan Larden, flew a crippled Stirling of No 218 Sqn from Italy to North Africa where he carried out a belly landing from a third approach to the airfield at Bone. The pilot, FSgt Arthur Aaron, was decorated with a posthumous VC, Larden with the CGM.

- TNA AIR2/2662. Bomber Command letter BC/S20173/Trg dated 21 May 1944.
- ³⁸ *Ibid.* Air Ministry letter S.91149/TO1 dated 23 June 1944.
- Ashton, op cit.
- TNA AIR2/8239. Air Ministry letter S.79727/DTF dated 24 August 1944...
- 41 Ihid
- ⁴² *Ibid.* Despite, what had amounted to, a four-month moratorium on flight engineer training, Air Ministry memo A.540971/43/M.3 dated 13 January 1945, noted that there were at that time (ie in January 1945) 270 flight engineer cadets currently engaged on the preliminary course and a further 1,180 who, having completed it, were on hold awaiting the applied/type-training phase, plus a backlog of 834 ex-ITW cadets who were available to be called forward to St Athan.
- ⁴³ *Ibid.* Air Ministry letter S.102984/DTF dated 2 October 1944.
- ⁴⁴ TNA AIR14/895. Annex A to letter 5G/101/88/Air dated 16 May 1945 from AOC 5 Gp, AVM H A Constantine, advising Force Commander Tiger Force, AM Sir Hugh Lloyd, on crew composition.
- ⁴⁵ TNA AIR29/737. Beginning in August 1944, No 4 SofTT's ORB records the numbers of pilots embarking on each course. This practice is discontinued after March 1945 but by that time the total had already amounted to some 2,470 and, since it is known that intakes continued for several months, the final figure must have been significantly higher.
- ⁴⁶ In point of fact, St Athan had become so oversubscribed by early 1944 that it became necessary to farm out the first ten weeks of the seventeen-week basic course to No 5 SofTT at Locking, this arrangement probably being sustained until the end of the year.

ERRATA & AN AFTERTHOUGHT

Two problems have been pointed out in recent publications. Both were the Editor's fault. I extend the apologies that are due and the following corrections.

Journal 45. At the end of Roger Hayward's account of the evolution of maritime weapons, the caption to the photograph on page 136 refers to the Helmore Projector – this should have read (as in the narrative) Helmover Projector.

Journal 46. In my review of Sean Feast's *Master Bombers* I wrote, on page 179, that I had failed to trace two other books by the same author, both of which had been cited as sources. Had I searched more diligently, I might have found:

- a. Carried on the Wind, an account of the experiences of a Special Duties Operator who flew with No 101 Sqn; published by Woodfield in 2002, it is still available in softback at £9.95.
- b. Flying Through Fire (not to be confused with a book of the same name, an account of FIDO, by Geoffrey Williams) was published privately by the Feast family, circa 2000. It is thought unlikely to be readily accessible.



Following its successful employment during Operation FIREDOG (see pages 43-46) 'skyshouting' had a second lease of life in Borneo during the Confrontation with Indonesia of the 1960s. This Twin Pioneer of No 209 Sqn has its speakers encased in streamlined pods on the stub wings. (MAP)

BOOK REVIEWS

The Malayan Emergency & Indonesian Confrontation – The Commonwealth Wars 1948-1966 by Robert Jackson. Pen & Sword, 2009. £19.99

This 156-page book (with two maps and no photographs), first published in 1991, is very typical of Robert Jackson's work as an established military historian. He writes with great clarity, despite assembling large amounts of information, in this case on two near-consecutive campaigns which tested the mettle of British servicemen and their equipment. In that regard, it is instructive to compare his account of events with today's conflicts. The structure of the book and his systematic handling of the course of each campaign make for easy reading. In particular, his exposition of the political backdrop to both is impressive and adds considerably to the reader's understanding of the context of operations.

Inevitably, a reviewer for this Journal will dwell upon the detail and analysis of the air aspects of the two campaigns but Jackson offers a number of insights into the wider political and land force elements, some at least of which have a resonance with recent consideration of events in Iraq. For example, while the need for a co-ordinated civil and military plan to fight and defeat the communist terrorists in the Emergency was recognised, military success in 1949 proved to be only temporary in the face of inadequate civil administration to follow it up. The avoidance of 'collateral damage' was early recognised as being of great importance.

Where the air aspects of the Emergency are concerned, the limitations of equipment and the tactics employed to deliver huge quantities of high explosive into jungle areas are made evident, yet 'saturation bombing' was deemed a success, questionable though this assertion may be. Equally, the suggestion that 'new strides forward in co-operation between air and ground forces' were made only a few years after WW II is debatable. More likely, forgotten lessons were relearnt! The scale of effort from even a single bomber squadron was enormous: in the course of the campaign, No 1 Sqn RAAF dropped 17,500 tons of bombs in 3,000 sorties yet killed only sixteen terrorists and destroyed around thirty camps. Nonetheless, the author concludes, with some justification, that the psychological impact of the bombing

far exceeded material damage. That argument has a familiar ring!

Other air aspects of the Emergency are dealt with carefully but in slightly less detail. In particular, the advances made in air transport support and by the infantry support helicopter squadrons are well covered. The involvement of the air forces in Psychological Operations and the operations themselves are briefly but well described. All in all, Jackson's description of the Emergency is comprehensive, well structured and thoughtful.

Less than 20% of the book is devoted to the 1960s Confrontation of Malaysia by Indonesia but this, too, is handled in a workmanlike manner. The narrative makes clear the very different threats involved and also the advances in capability achieved by the Far East Air Force in less than a decade since the end of the Emergency. It may be argued that the potential and deterrent value of the Victor detachments at Tengah are over-egged but the contribution of FEAF to defeating Indonesian aggression is clear, not least in the less-sexy areas of air transport and helicopter support. Were I to include photographic reconnaissance in that encomium it might be regarded as special pleading!

Robert Jackson writes clearly and simply and it is inevitable that a book of this density may include errors to be pounced upon by critical readers. Our editor and my own navigator from Tengah days – himself a veteran of the Canberra involvement in the Emergency – have each pointed to a number of these and there are others. It is not my intention to list them, but simply to point out gently that those aggrieved may include a Field Marshal, a Lieutenant General, members of No 81 (PR) Squadron, officers and men of The Queen's Own Highlanders and those who served to maintain and operate the rudimentary control and reporting system in Borneo. To detect these and other minor inaccuracies, just open the book and enjoy it. I did!

AVM Sandy Hunter

Hitler's Gulf War by Barrie G James. Pen & Sword; 2009. £19.99.

Raschid Ali's Siege and the Battle of RAF Habbaniya and subsequent events in Iraq in 1941 are relatively little known. They deserve a comprehensive account to record the heroism involved and to analyse the significance of the action. Sadly, such a book has yet to be written, since this one does not fulfil the brief. There are no maps,

diagrams, tables or photographs.

The book's narrative style makes it very readable and the background it provides to the political events leading to the affair sets the scene very comprehensively. Unfortunately, when a book is so littered with inaccuracies that it sprouts a forest of 'Post-It' notes it becomes difficult to differentiate between fact and fiction. In the introduction to the Bibliography the author states that he drew on a wide selection of books, articles, official documents and academic papers and that he wished to focus on two issues. First, he wanted to go beyond the purely physical aspects of the conflict, to consider the participants and the decisions that they made. Secondly, with virtually everyone involved no longer being alive, he acknowledges that he was obliged to rely largely on published information, noting that among these writers there are 'those that reinterpret the information and those that confuse people, places and fact' – without realising that he has placed himself rather too firmly within that group!

The bibliography cites no fewer than 117 books, thirty-eight magazines and journals, an unspecified number of files at The National Archives, four PhD theses and thirteen internet websites. This would indicate a lifetime's work (a Herculean task just to read through them all!) which should have resulted in a comprehensive tome of unparalleled accuracy.

Sadly this was not the case, as indicated by this selection from the many 'Post-It' notes which accumulated as I read the book. Why call him AVM Harry Smart throughout the text when he was always known as 'Reggie'? (as he notes in the index, but not in the Appendix of Personae). No 31 Sqn's Valentia was not shot down at pumping station K4 (no such place – downstream from K3 they became H1 and T1 et seq). The village of Sin el Dhibban is 1 mile east of the cantonment, not 4 miles south. Ramadi is 17 miles away, not 'some 20 miles', and Fallujah only 12 – not 'some 15 miles'. On the first day of the offensive by No 4 SFTS he states that Dudgeon had to pull the stick back 'to miss the casuarina and pepper trees at the far end of the runway' – there were no trees there; it was actually the bund he had to lift over. As the dykes were always called bunds at Habbaniya why does he never use that term? There were no 'runways', just an expanse of airfield with some radiating oil-hardened taxiways. The Blenheims of No 203 Sqn definitely arrived on 3 May (not the 4th) as confirmed

by the ORB of No 1 Armoured Car Company (who, later that day, were issued with orders regarding aircraft recognition as the petrol tank of one Blenheim had been damaged by AA fire from a Lewis gun). The Wellingtons of Nos 37 and 70 Sqns would not have got off the ground with the stated 'useful bomb load of 4 and a half tons each' (actually 4,500lbs or 2 tons). Only two of the Valentias that flew Kings Own troops to the other side of Fallujah on 19 May belonged to the Habbaniya Communications Flight (the other two were provided by No 31 Sqn) but he is correct in stating they were ancient! A reference to 'the officers' mess' is somewhat vague, as there were eight officers messes at Habbaniya; in the context in question, James should have specified the occupants of the AHQ Officers Mess. AVM Smart could not possibly have 'sat pensively at his desk staring out at the plateau'; since his office faced in the opposite direction, it actually overlooked the Euphrates.

Do all these mistakes matter? Yes, they do. Because they reveal a lack of understanding of the geography of Habbaniya and of Iraq – did the author actually study any contemporary maps or plans? Secondly, they suggest a total reliance on secondary sources and an unquestioning acceptance of the information that they provide. Thirdly, the large number of errors that one is able to spot raises serious questions about the overall accuracy of the book. Finally, a great deal of information is presented within inverted commas but, since verbatim sources really must be minimal, just how valid is this? I should confess that the author did approach this reviewer for input to the book; with hindsight, perhaps I should have offered to check his facts. On the plus side, there are very few 'typos', although 'magnate' (for magnet) should have been spotted, as should 'curb stones'.

Why, when he 'wanted to explore, explain and put into context the factors driving the events' encompassing 'Germany, Italy, Iraq and the USA as well as Great Britain' did James call his book *Hitler's Gulf War?* The Germans may have been scheming through Grobba before WW II (and subsequently through other channels) but this was predominantly a war fought by the British and the Iraqis, instigated by Iraqi aspirations. The *Luftwaffe* only arrived in Iraq on 12 May (a week *after* the siege had been lifted) and by the 28th it had started to withdraw, the majority of its aircraft having been lost or become unserviceable. While technically correct, the title is not really

representative but was, I suspect, chosen to be eye catching. Likewise the painting on the dust jacket which depicts a Gladiator in combat with a Bf 110, illustrating Hitler's involvement.

With a review containing so much criticism can this book really be recommended? The answer, surprisingly, is – Yes. The author tells us a great deal about what was going on before, during and after the events and in many other countries, headquarters, bases and political centres. All of the diplomatic intrigue is presented in much greater depth than in previous accounts, together with detailed analyses of Iraqi and Axis aims – as well as the eventual outcomes. When the accounts of military action are added, the overall effect is that the book often reads like an adventure story. Despite my reservations, it is something of a page-turner and I have to admit that I did enjoy reading it.

Dr Christopher Morris, RAF Habbaniya Association

Category Five by Colin Cummings. Nimbus Publishing (October House, Yelvertoft, NN6 6LF); 2009. £22.

Colin Cummings continues to locate, collate and publish details of losses of RAF aircraft and at least two of his previous titles have been reviewed for this Society. He is currently working on a particular subset of wartime losses but, in the meantime, he has gone back to his first efforts and revised, refined and updated two of the books in his original five-volume series covering all post-war losses. Replacing, and combining, To Fly No More and Lost to Service, his new Category Five embraces all RAF aircraft that were lost between 1954 and 2009. In round figures, we are talking about 2,600 aeroplanes and 2,000 people. While produced as an A5 softback, when it is not actually in use, this volume will double as a very useful doorstop as it runs to no fewer than 816 pages (even bigger than Wisden!). As always, we are given: the date and location of each incident; the type of aircraft involved, identified by serial number and unit; and details (generally full name, rank, age and aircrew category) of fatalities, all of this being amplified by a brief narrative account of what happened. There are two very helpful indexes. One lists fatalities by surname, the other, aircraft types in date order, eg all Lincolns are grouped together and listed chronologically (with serials).

So, how does one appraise a work of this nature? It is, in a word,

impressive, and I cannot really improve on some of the observations that I have offered on earlier titles. In Journal 44 I opined that the commercial potential of books of this nature must be relatively limited, because they are somewhat esoteric and are thus likely to appeal to a niche market, rather than the general reader. But for the folk who inhabit that niche, they are simply indispensable. And in Journal 34 I wrote that, by collating and publishing this sort of information the author provides us with a useful, reliable and accessible research tool which will break the back of many routine inquiries and/or assist in unearthing details of incidents to support a unit history. The cherry on the cake is that Cummings donates the profits from the sale of his books to a variety of Service charities, including the RAF Museum and the RAF Benevolent Fund. All in all, a remarkable achievement wrapped up in a generous gesture.

CGJ

Cold War Shield by Roger Lindsay. Available from specialist aviation bookshops or direct from the author at 7 North Meadow, Hutton Rudby, TS15 0LD. 2010; £39.95 (plus p&P).

I have seen this 432-page A4 hardback, with its 800-plus photographs, described elsewhere as being reminiscent of an Air Britain publication. I concur – and that is a considerable endorsement, because books written by enthusiasts are, to labour a well-worn cliché, labours of love. They are the result of self-funded, painstaking research, conducted over many years by folk who become experts in their field, and who are often, as in this case, obliged to publish their work privately, either because it is not perceived to be a good business proposition or because the author wishes to retain editorial control.

Cold War Shield sets out to tell the story of the RAF's fighter squadrons, at home and abroad, throughout the 1950s, a remarkable decade bookended by the demise of the Spitfire and advent of the Lightning. This volume covers the Spitfire, Tempest, Hornet, Mosquito and Meteor. The next will address the Vampire, Venom, Sabre, Swift, Hunter and Javelin.

The bulk of the book is a blow-by-blow account of each squadron's activities but this is supported by selected ORBATs and brief essays on air defence radars, camouflage and markings, the

ROC, airfields, flying training and so on. Some of these ancillary aspects are a little less authoritative than the core content. The author does not, in my opinion, truly reflect the extent to which the RAF of the Korean War era was dependent upon reserves and conscripts. When discussing training, for instance, while the existence of the five short-lived Basic Flying Training Schools and two Basic Air Navigation Schools is noted, there is no reference to the fact that their raison d'être had been to train the huge influx of National Service aircrew. Similarly, the role of the Reserve Flying Schools was not 'elementary training', but to provide qualified aircrew with a reserve obligation, notably the many ex-National Servicemen, with the facilities necessary to complete their annual continuation training commitment. And again, the only Reserve ('Shadow') Squadron that I came across was an oblique reference to No 137 Sqn aka No 228 OCU in its Javelin days. What of the Meteor NF-equipped No 238 OCU, which would have become No 165 Sqn in an emergency, and other second-line Meteor units which could have become operational as Nos 124, 131 and 176 Sqns? There are one or two oddities associated with No 45 Sqn (in which I have to declare a personal interest) and, while Basil Embry was, as noted on p38, pivotal in having the Mosquito withdrawn from the RAuxAF, he had achieved this by exerting his influence as ACAS(Trg) in 1947, rather than as AOCinC Fighter Command in 1949.

But enough of my customary cavils. What of the book's central theme? Each unit is taken in turn, by aircraft type and/or mark, thus, for instance, all Meteor F4 squadrons are discussed in numerical order, followed by all Meteor F8 squadrons — many units will therefore appear more than once. There is a, typically three- or four-page narrative, supported in most cases by 'boxed' personal anecdotes contributed by those who were there. These add considerable contemporary 'atmosphere', some conveying a vivid impression of what it was like to be on a fighter squadron in the 1950s. That said, memory is notoriously unreliable so these tales do need to be read with some circumspection. As an example, in describing an incident that occurred on No 141 Sqn in 1954, the story-teller recalls that '... the CO, Sqn Ldr Bob Brown (the RAF's top-scoring night fighter pilot in WW 2 with 29 kills) turned up with the padre . . .' At the time, OC 141 Sqn was actually Maj Merle F Allen (USAF) and the wartime

ace was Bob Braham (not Brown), who had emigrated to Canada two years earlier; by 1954 he was an RCAF wing commander running the CF-100 OTU. Sadly, memory can, and often does, play us false.

But there, I've done it again. Back to the good stuff. For anyone who needs to know about individual aeroplanes, Lindsay has broken the back of the Meteor story by providing, for each squadron, the date on which each aeroplane was taken on charge and the date of its disposal, together with where it went. When an aeroplane was written off, there is a brief note indicating why and identifying fatalities where these occurred (drawing, and duly acknowledged, on the work done by Cummings – see previous review).

Cold War Shield is a remarkable achievement. It is also remarkable value for money. I know that some people take issue with a crude 'cost-per' evaluation, but the fact remains that this book comes in at just 5p per picture and 10p per page – and every page is glossy paper, so that the pictures are reproduced with the greatest possible fidelity and, I have to say it again – there are more than 800 of them, about 70 of which are in colour. The handsome package is rounded off with a selection of profile drawings of representative individual aircraft and the best full-colour renditions of the classic squadron 'bar' markings of the 1950s that has yet appeared in print – only a proportion of them, of course, because the rest were associated with types which will be covered in the second volume.

Not cheap, but worth every penny. Highly recommended. If I hadn't secured the review copy, I would have had to buy one.

CGJ

Dancing in the Sky – The Royal Flying Corps in Canada by C W Hunt. Dundurn Press, Toronto and Gazelle Book Services Ltd, Lancaster, LA1 4XS; 2009. £16.99.

'By its faithful and efficient work in the training of our cadres and enlisted personnel, the Royal Air Force has conferred great and practical benefit on the United States Air Service.'

Major General W L Kenly Chief of US Air Service 17 May 1918

Even before the inception of the Royal Air Force, an international dimension had been established between the British and American air services. But the above quotation does not appear in Hunt's 358-page

softback, for he writes it as a Canadian, largely for Canadians and uses almost entirely Canadian official and private sources. It is the story of the Royal Flying Corps (and its RAF successor) *in Canada*. All else is peripheral.

The achievements of RFC/RAF (Canada) from January 1917 to the end of the Great War were prodigious. A mere handful of young RFC officers was sent over by the War Office, to build and operate a flying training organization, virtually from scratch. When the Americans came into the war, the same team repeated the trick in Texas, so that Canadian, British, and American, flyers could continue to train during the winter months.

Hunt records all of this in great – sometimes too much – detail and rounds out the record by including chapters on aircraft production, the problems of recruiting and training air and ground personnel, as well as their sporting and social activities. He writes fairly of how friction between the allies was overcome by mutual goodwill and, where that failed, by the forceful actions of RFC (Canada)'s commander, Brig Gen C G Hoare. He explains the (to Canadians) anomalous position of Hoare, who answered to no one in Canada save the Governor General. And he is scrupulously fair to Hoare – indeed he cites his admiration for his achievements as one of the reasons for writing the book.

Given the odd tautology, the book is well written. If there are irritants – mainly to the British reader – they are probably due to a lack of familiarity with service expressions. 'CO of the . . . RCAF' sounds distinctly odd, and do we really have to be told what the initials CO and MO stand for? But the most serious issue is the indiscriminate use of the adjective 'Imperial' when denoting anything deriving from, or funded by, Whitehall. True, the Imperial Munitions Board was set up and funded in Canada by the British government, so the use of 'Imperial' here is legitimate. But not so when RFC (Canada) is constantly rendered as the 'IRFC' – even on recruiting posters; even, perhaps unwittingly, by Hoare himself. Equally irritating, though prevalent throughout North America to this day, is the misuse of the term 'English' for 'British'.

These minor blemishes apart, Hunt writes well, with humour, and is capable of holding the reader's attention, particularly when recounting some extraordinary flying adventures. Thus, in an early (1914) attempt to create a Canadian Air Corps, a motor mechanic with

no experience of flying, or aircraft construction, was appointed as its provisional commander. He went on to purchase a second-hand floatplane in the United States, which was to be delivered by the company pilot, with himself as second pilot. When, after a series of mishaps, they arrived near their Canadian destination, they were arrested as spies! Hunt calls this ludicrous episode 'Canada's first air farce'.

The chapter dealing with the post-war European high jinks of certain Canadian socialites, who just happened to have had wartime connections with RAF (Canada), tells an unnecessary tabloid-press-style tale that sits uncomfortably in a serious work of aviation history. Given his copious notes, references and appendices, it is a pity that the author could not have found space for a map showing the location of RAF (Canada)'s units. He might also have benefited from a visit to Fort Worth, Texas, where the memory of the Royal Flying Corps is kept alive at a bi-annual parade and fly-past at the RFC cemetery.

Nevertheless, a good buy for anyone interested in the development of aviation in North America and/or in flying training in WW I, and of some interest to those who experienced the British Commonwealth Air Training Plan of WW II, for which RFC (Canada) had provided an admirable template.

Gp Capt Hans Neubroch

Back Bearings by Group Captain Eric Cooper. Pen & Sword; 2010. £30.00.

The sub-title to Eric Cropper's 346-page hardback, *A Navigator's Tale 1942-1974*, says it all.

Trained, unusually for 1943, entirely in the UK, Cropper flew a tour on Lancasters with No 103 Sqn followed by the Staff Nav Course, a period of instructing at HCUs and an early post-war stint with No 7 Sqn. In 1948, after a navigation staff appointment at High Wycombe, where he was involved in the introduction of a Command categorisation scheme, he became, in turn, a 'Spec N', SNavO at Waddington and an early member of, what would later become, the Bomber Command 'standardisers' at Scampton before, in 1950, being posted to the RAE. At Farnborough he worked with the Radio Flight; matters of the contemporary moment included assessing the merits of TACAN versus VOR/DME and of the radio compasses then on offer

from GEC and Marconi. The inevitable Air Ministry tour, on the staff of DDTNav, was followed by two years with the USAF at Elmendorf AFB (Alaska) where, in RAF terms, his post equated broadly to that of a Command Navigation Officer. In 1958 he was back in the UK, at Cranwell, as Senior Navigation Instructor to the RAF College (which had finally begun admitting navigators in 1956, albeit in disproportionately small numbers) but he was soon promoted to wing commander to become the College Administrative Officer. Having spent 1961 as Station Commander at Gan he was rewarded with a series of appointments on Beverleys at Abingdon, commanding, in turn, No 53 Sqn, No 47 Sqn and Flying Wing. In 1965 he took up the appointment of DSNav at Manby where he presided over the remodelling of the Spec N Course to create the GD Aerosystems Course. Two years working for the Air Secretary at Adastral House earned him promotion to group captain and a short tour in Bahrain as SOA at HQ Air Forces Gulf before taking up his final appointment in 1971 as SPSO at HO Maintenance (later Support) Command at Andover. He took early retirement in 1974 but, that being the end of his 'navigator's tale', we are not told what he did next.

I make no apology for this rather lengthy summary of Cropper's career because it covers a period that is not often written about. It is, from a navigator's perspective, a particularly significant period, because it saw his trade begin to evolve from an art into a science, a process that would culminate in 2003 with the eventual demise of the 'navigator' in favour of the WSO. Several of Cropper's appointments, during which he always tried to keep in current practice, logging time in almost fifty different types, kept him in touch with these developments and he keeps his readers informed of these changes as they occurred. Some of these passages may be a little dense for pilots to assimilate, but navs should have no trouble.

The aviator aspects aside, Cropper's memoir is also valuable from a sociological point of view, because, running in parallel with his professional career, he keeps us intimately acquainted with his domestic arrangements. As a barrack rat myself, I well remember the recurrent problems involved in finding accommodation for a family that accompanied every posting until the boom in the provision of married quarters in the 1950s. Similarly, I recall the trials and tribulations associated with driving second hand, indeed until the

1950s, often unreliable, pre-war motor cars. Cropper's account provides a useful reminder of what daily life was like for a serviceman in the early post-war years.

Problems? Not really. Autobiographies tend to suffer from inaccuracies because the writers often neglect to check their facts because they are confident that they remember what happened. But memory is fallible. Thus, for instance, the observer and his 'O' badge was supplanted by the navigator and his 'N' in 1942, not 1943; Dickie Richardson's 'Alice in Wonderland' AP1234 first appeared in 1941 (the 1944 impression was the second edition); the RAF's Sabres were not 'presented by the people of Canada' – they were built by Canadair but paid for by the USA; the aircrew category of the AEO was not 'recently' introduced in 1968 – it dated from 1956.

I found the book a little heavy going in places, fifty fewer pages might have helped – but that is probably just me. That said, the syntax is immaculate and there are no typos. £30 is, I think, a little on the expensive side, but Cropper's book is a worthy addition to the annals of the RAF.

CGJ

Soviet Strategic Aviation In the Cold War by Yefim Gordon. Hikoki Publications, 2009. £34.95

This 272-page A4 hardback with its looks as if it were meant to adorn an anorak's coffee table – and has a price to match – but nothing could be farther from the truth. Nearly forty years ago, the NATO attaché community in Moscow was in a rare state of arousal over the sighting of an aircraft understandably but erroneously known as 'Blackburn's *Flogger*'. Had they but had a copy of Yefim Gordon's book, they would have been able to identify it accurately as a Tu-22M *Backfire* – and they would have had an immediate grasp of its performance, equipment, weapons' loads and handling characteristics. But that was in 1970, long before the relaxation that followed Glasnost and the disintegration of the Soviet empire and the Warsaw Pact – and nearly four decades before the publication of this book.

For someone accustomed to the near-paranoia of Soviet secrecy and to the central management of information in the USSR, this is an amazing book. Its density of fact and illustration is almost overwhelming, as it takes the reader from the early post-WW II development of a properly strategic capability, through to the final days of the Soviet Union and the retrenchment of the manned bomber capability that had been built up over nearly fifty years. The great range of technical and operational information contained in it is matched by comprehensive illustrations (well over 500 b&w and colour photographs and fifty-plus colour profiles), including many of Soviet nuclear weapons and systems. One doubts that similar images of US or British weaponry would be available for publication even today.

There is so much information contained in Gordon's book that it is hard to single out those parts of it which will raise most eyebrows. Certainly, it describes, in detail, levels of capability that could not have been matched in volume by the RAF, even allowing for the rather rudimentary nature of some of the early Soviet equipment and for less than optimal handling characteristics of the aircraft themselves. The telling of the story of the development of the so-called Long Range Aviation is made the more interesting by the inclusion of first hand accounts by crew members. Only some of these, often in the later stages, are marked by the signature 'Boys' Own Paper' style of *Krasnaya Zvesda*, the Armed Forces' newspaper. The result is authentic.

For someone accustomed to the dictates of our own security services, the publication of this book and so much detailed if sometimes dated technical information is remarkable. Reference to the 1988 display of the Tu-160 Blackjack at Kubinka to US Defense Secretary Carlucci brings to mind a visit in 1989 by the RAF Staff College to the same base. Then, just as in the previous year, a surprising amount was on show and it was only when attempting to set up a similar event for the following year's reciprocal visit that the real shift in Russian attitudes was apparent. It was hard to obtain agreement at the UK end to match the access allowed in Gorbachev's Russia! Even then, laying hands on a copy of this book would have been an intelligence coup of the greatest value.

Yefim Gordon's book will not appeal to everyone and it is undeniably expensive, but not when the richness of its content is taken into account. For many Cold Warriors it will be both an eye opener and a sobering read.

AVM Sandy Hunter

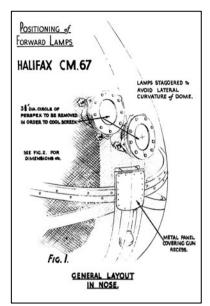
Halifax by K A Merrick. Classic, 2009. £35.00.

This is Ken Merrick's third bite at the Halifax cherry and, while I would have thought his previous efforts hard to beat, he has pulled it off. It was inevitable that a re-telling of the Halifax story would have to cover ground that has been covered before but this is no superficial 'revised edition'; it is a total re-write and it feels fresh.

While the Halifax did mature into an effective heavy bomber, there is no denying that its early Merlin-powered service was troubled and the progressive application of palliative 'fixes' resulted in a bewildering, and uniquely complex, matrix of sub-variants – all that BI Series II, BII Series I, BII Series I (Special), BII Series IA, etc stuff – before the emergence of the definitive Hercules-engined Mk III. This evolutionary process is analysed and explained in detail, supported by scores of photographs, many of them new to this reviewer, which are extensively captioned to draw out the salient points. The story of the aeroplane's technical development is told chronologically and dovetailed into an account of its operational career, illustrating the way in which changing tactics provoked modifications and the introduction of new equipment influenced tactics, all of this being enlivened by accounts of the Halifax's participation in specific raids and the exploits of individual crews.

One can always spot the occasional error and this book is no exception. One real oddity is that the author (twice) associates W1048, the Halifax salvaged from Norway, with the Imperial War Museum, whereas it was actually recovered by the RAF and is on display at the RAF Museum. A few others are worth mentioning. For instance, the Halifax was not withdrawn from Met Recce duties in 1952 because 'data was now available from satellites'; Sputnik did not fly until 1957 and it was 1964 before data from satellites eclipsed the Hastings in the role. The 'twin navigation lights' fitted in the nose of the aeroplane illustrated on p129 are really the infrared lamps associated with the 'Z' IFF equipment; an RSU was a Repair and Salvage Unit (not a 'Rear Servicing Unit') and propeller pitch is, of course, coarse, not 'course' (p184).

But I digress. While the Halifax may have had some early problems, these were offset by its flexibility and the type served with distinction in many other roles, notably glider towing, supply-dropping, electronic warfare, support of special forces and the



Bomber Command Modification 67 installed two (two for redundancy) infrared lamps in the nose transparency of the Halifax (and the Lancaster). Although not noted in the caption, there is a good photograph of this on pl40 of Merrick's book

aforementioned Met Recce. It also played a significant part in Coastal Command's anti-submarine campaign and provided the RAF's big stick in the Mediterranean theatre between 1942 and 1944. Apart from recounting the Halifax's operational career, the book provides informative chapters dedicated to

the way in which production was sub-contracted and managed, the salvage and repair organisation, the wartime training system and to the aeroplane's post-war service with other air forces and with civilian operators, including its participation in the Berlin Airlift. The Halifax may have had its detractors, leading to its playing second fiddle to the Lancaster in the popular perception, but it was not disliked by its crews and the fact that more than 6,000 of them were built is surely the ultimate seal of approval.

If you are 'into' reference works devoted to particular aeroplane types, do not assume that that you have ticked the Halifax box if you already have one of Merrick's earlier books. This one trumps both of them and it has been given the full Classic (an Ian Allan imprint) treatment, which means the highest of production values – 225 large format (marginally more than A4), glossy pages on which are reproduced well over 300 photographs and fourteen colour profiles. The only downside is that, in order to get as many words as possible into the space available, a very small point-size has been used, a bit like this, which might be a little uncomfortable for more aged aviators, but so long as you can find your reading glasses you will be fine. Recommended.

CGJ

ROYAL AIR FORCE HISTORICAL SOCIETY

The Royal Air Force has been in existence for almost ninety 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 £18 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)

THE TWO AIR FORCES AWARD

In 1996 the Royal Air Force Historical Society established, in collaboration 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. The RAF winners have been:

1996	Sqn Ldr P C Emmett PhD MSc BSc CEng MIEE
1997	Wg Cdr M P Brzezicki MPhil MIL
1998	Wg Cdr P J Daybell MBE MA BA
1999	Sqn Ldr S P Harpum MSc BSc MILT
2000	Sqn Ldr A W Riches MA
2001	Sqn Ldr C H Goss MA
2002	Sqn Ldr S I Richards BSc
2003	Wg Cdr T M Webster MB BS MRCGP MRAeS
2004	Sqn Ldr S Gardner MA MPhil
2005	Wg Cdr S D Ellard MSc BSc CEng MRAeS MBCS
2007	Wg Cdr H Smyth DFC RAF
2008	Wg Cdr B J Hunt MSc MBIFM MinstAM
2009	Gp Capt A J Byford MA MA

THE AIR LEAGUE GOLD MEDAL

On 11 February 1998 the Air League presented the Royal Air Force Historical Society with a Gold Medal in recognition of the Society's achievements in recording aspects of the evolution of British air power and thus realising one of the aims of the League. The Executive Committee decided that the medal should be awarded periodically to a nominal holder (it actually resides at the Royal Air Force Club, where it is on display) who was to be an individual who had made a particularly significant contribution to the conduct of the Society's affairs. Holders to date have been:

Air Marshal Sir Frederick Sowrey KCB CBE AFC Air Commodore H. A. Probert MBE MA

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