

THE ROYAL AIR FORCE

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AIR POWER

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CONTRIBUTIONS TO THE ROYAL AIR FORCE AIR POWER REVIEW

The Royal Air Force *Air Power Review* is published quarterly under the auspices of the Director of Defence Studies (RAF) and has the sponsorship of the Assistant Chief of the Air Staff. It is intended to provide an open forum for study which stimulates discussion and thought on air power in its broadest context. This publication is also intended to support the British armed forces in general and the Royal Air Force in particular with respect to the development and application of air power.

Contributions from both Service and civilian authors are sought which will contribute to existing knowledge and understanding of the subject. Any topic will be considered by the Air Power Review Management Board and a payment of £200 will be made for each article published.

Articles should be original and preferably not previously published, although those of sufficient merit will not be precluded. Between 2,000 and 10,000 words in length, articles should list bibliographical references as end notes, and state a word count. Lengthy articles may be published in instalments. Contributions from serving military personnel should be in accordance with DCI GEN 313 dated 26 November 1999.

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FOREWORD

This Winter edition of Air Power Review opens with an analytical piece from Wg Cdr A J C Walters entitled 'Air Control: Past, Present, Future'. It begins with a brief historical overview of inter-war air control in British Somaliland, Mesopotamia (now Iraq), Transjordan, Palestine and Aden, goes on to identify those tenets of inter-war air control which had enduring relevance and suggests how these tenets could be best applied in future 'small wars'. Despite a popular perception that inter-war air control mainly consisted of the indiscriminate bombing of local tribal populations, the author points out that air-policing doctrine soon recognised that coercion for psychological effect, with the minimum necessary use of force, was more productive than wanton destruction. In his analysis of the current situation in Iraq, the author offers a persuasive argument that air power can be used for 'nation building from the skies'. Finally, looking to the future, he argues that improved technology, in the form of ISTAR-cued and highly-precise munitions, combined with accurate intelligence to ensure that the 'guilty' are targeted rather than the 'innocent', will allow far more effective air control over urban areas than has been possible in the past.

Originally destined for a volume on British air power thinking emerging from CAS's Air Power Workshop, Professor Philip Sabin's paper 'Perspectives from Within the Profession' outlines the methodology of, and feedback from, an 18-month study the author carried out to create a snapshot of where air power thinking in the RAF currently stands. In essence, he was seeking an answer to the key question: has the RAF truly become a 'thinking air force'? Within the paper, the author reveals how, through the use of literature review, targeted focus groups and extended interviews, he addressed the 3 key issues: what is the purpose of air power doctrine, what would encourage people to spend more time reading about air power and how might the air power doctrine process be improved? With the Fourth Edition of AP 3000 currently in the writing stage,

the feedback provided from the author's study is both timely and highly relevant. And in the conclusion to the paper, the author provides some useful suggestions as to how we might enhance the level of air power thought and understanding within the Service. New course structures, inspiring mentors, the fostering of individual talent and the encouragement of novel approaches to air power will all ensure that we do not slip into a 'culture of doctrinal apathy' in the years ahead.

In his paper 'The Command and Leadership Competence of Air Chief Marshal Sir Hugh Dowding' Sqn Ldr Simon Braun addresses the question why in November 1940, the then CinC Fighter Command, having led the 'Few' in the Battle of Britain, was unceremoniously removed from his post. In addressing this question, the author firstly examines why Dowding deserves to be at the centre of our attention; he then scrutinizes Dowding's command competence in his career before 1940 and during the Battle of Britain itself. The third part of the paper, an analysis of Dowding's leadership against 4 leadership models, is not included in this Edition for reasons of length. However, for readers wishing to peruse the paper in its entirety, it can be accessed on the RAF Leadership Centre website on the RAF Intranet. In his summary of Dowding's early career, the author looks at his service in the Royal Artillery and RFC, highlighting his differences with Trenchard and the development of his somewhat aloof approach as a commander. He goes on to stress the significance of Dowding's championing of research and development in the early 1930s and his efforts to prepare Fighter Command for war from the moment of its foundation in 1936. Dowding's personal appeal to the War Cabinet, in May 1940, to hold back fighter assets for the defence of the United Kingdom rather than committing them to the increasingly futile French campaign, is also covered in detail. Finally, the author focuses on Dowding's conduct within the Battle of Britain itself, offering a balanced examination of his refusal to intervene in the doctrinal and

personality struggle between Park and Leigh-Mallory.

Wg Cdr F Spence, in his paper 'Did Allied Air Interdiction Live up to Expectations in the Italian Campaign 1943-1944', looks at the impact of Air Interdiction (AI) in five sequential operations from the allied landings in Sicily in July 1943 to the fall of Rome in June 1944. Within his analysis, the author looks in general terms at the allied effort to cut German lines of communication and focuses in particular on the marshalling yard versus railway bridges targeting debate. As he states, the AI campaign got off to a faltering start when the Germans were allowed to evacuate 60 000 troops from Sicily to the Italian mainland relatively unscathed. In this instance, a lack of effective Joint planning appears to have hampered the AI effort more than any other factor. Greater success was achieved during the landings at Salerno and Anzio, where the arrival of enemy reinforcements were delayed by air attacks on road and rail networks, pre-empting any significant counter-attacks against the disembarked forces. In the push up the Italian mainland, hopes were high that AI would isolate the enemy forces and force them to withdraw from their strategic positions. Despite concerted efforts to target the road and rail networks, however, it became increasingly apparent that the enemy could not be shifted by air power alone. The recognition had dawned that AI could only achieve its full potential as part of a co-ordinated Joint effort.

Finally, Air Cdre Peter Gray, in an extended book review, looks at Professor David Reynolds' recently-published analysis of Churchill's six-volume memoirs of the Second World War. In particular, the reviewer focuses on the treatment of air power within the memoirs, pointing out that Churchill did not have an air specialist permanently assigned to the research team assisting in the compilation of his epic historical work. Many interesting revelations abound in Reynolds' book, not least that Churchill's famous

speech on the 'Few' in August 1940 actually referred to all British aircrew and not just Fighter Command pilots. The treatment, in the memoirs, of Dowding's dismissal and Harris's strategic bomber campaign are also worthy of mention, subject as they were to an element of judicious downplaying by the former Prime Minister.

One last point – I would like to thank those readers of Air Power Review who returned the feedback questionnaires contained in the Spring Edition. Whilst the respondents were relatively few in number, their views and suggestions have provided us with valuable food for thought as to how we should take the Review forward into 2006. And the Review will be changing significantly next year – although the precise details have yet to be finalised, it is likely that frequency, format and contents will all be addressed in an effort to ensure even greater relevance to readers interested in where air power is going, as well as where it has been.

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Air Control: Past, Present, Future?

By Wg Cdr A J C Walters

'It is less than 13 years since we triumphantly entered Baghdad. Since then we have expended much effort and money in an attempt to set up the state of Iraq . . . few will be so optimistic to say that our relations with Iraq have been a success . . . there need be few qualms in a drastic reduction of army units . . . our Air Force units should continue in the country'

Lieutenant Colonel Henderson, 1929

The invasion of Iraq in 2003 and its subsequent administration have been achieved at considerable and ongoing human and financial cost. Criticizing the United Kingdom's decision in 2004 to modernize the structure of the Armed Forces and field advanced technology at the expense of force size, the UK Conservative Party's Shadow Secretary of State for Defence, Nicholas Soames, said that 'What

matters at the end of the day is the boots on the ground'.¹ But is this an axiom, or just a political sound bite from a former officer of the 11th Hussars? His grandfather is unlikely to have agreed with him; under Winston Churchill's authority, Britain successfully policed Iraq between 1922 and 1932 at minimal cost using a technique known as 'air control', where responsibility for internal security was vested with the Royal Air Force (RAF) under an Air Officer Commanding (AOC) and aircraft were used as the predominant means of control.

Air power's utility in major, state-on-state warfare is well documented. However, what role can air power play following the cessation of major combat operations but before the disputes that led to armed conflict have been finally resolved (in other words, between 'conflict termination' and 'conflict resolution')? The end of state-on-state conflict in Iraq, signaled by President Bush from the deck of the USS Abraham Lincoln on 1 May 2003,² has merely revealed further layers of conflict. The vacuum left by the dissolution of Iraqi governance at all levels (including the police and armed forces) while there were insufficient Coalition troops to maintain civil control has led to continued conflict from several sources. These include the historical ethnic struggle between Sunnis, Shia and Kurds; foreign Islamic fundamentalists; former Ba'athists who have been denied hope of a future position in Iraqi society; Iraqi nationals fighting what they perceive to be foreign invaders; and criminal elements whose future prosperity is threatened by the imposition of law and order. Iraq illustrates that there is still a conceptual and practical discord between current military strategy and the fulfillment of political aims. In other words, does our current use of military power support our political aims as much as it could? There has been an understandable tendency to reduce the resolution of conflict into separate bite-size political, military, economic, humanitarian and other elements, rather than develop a holistic strategy, of which the military is just one element. One critic has gone as far as to state that the latest Iraq Conflict highlighted that *'the US remains politically resistant, and the US Army doctrinally resistant, to the complexities and commitments required for managing all parts of the security cycle'*.³

What is the best use of air power in these 'small wars', where the stronger side is constrained from applying the full weight of its combat power due to self-imposed constraints? This issue will be addressed by giving a brief historical description of inter-war air control, examining its tenets and lessons, analyzing the contemporary use of air policing and discussing future possibilities. This will reveal that many of the tenets of inter-war air control have enduring relevance; technology is evolving and can address some of the problems encountered during the inter-war years, allowing air control to fulfill its full potential. If applied appropriately, air power could have a significant role in bridging the gap between conflict termination and conflict resolution.

AIR CONTROL BETWEEN THE WORLD WARS

A brief review of the history of inter-war air control sets the doctrine in context and highlights striking parallels with the present day. Britain emerged from World War I in an economic crisis and burdened with responsibilities for administering several ex-Ottoman regions. Although the RAF had recently been formed as an independent air service, both the Royal Navy and British Army were keen to disband it in order to increase their proportions of the shrinking defence budget. The continued existence of the RAF therefore depended on it finding an irreplaceable peacetime role.

The Early Days — air control's conception

In June 2004, Pakistan security forces, backed by jet fighters and helicopters, launched an offensive to clear the mountainous Waziristan border province of Afghan and Islamist insurgents. This is just the latest chapter in the history of the North West Frontier. The air control concept was conceived there 85 years ago, when the RAF supported the 'Waziristan Force' against Afghan-inspired local tribes. On Empire Day, 1919, the RAF undertook independent action when the world's largest aircraft, a Handley Page V.1500, flew over the Hindu Kush from Peshawar to bomb the Afghan capital, Kabul.⁴ This resulted in the evacuation of half the city's population and reinforced the view of the RAF Chief of Air Staff, Lord Trenchard, that *'operations against Afghanistan can be carried out by*

A de Havilland DH9a of No 30 Squadron over Iraq



Without air control, it is likely that the British would have withdrawn to Basra, the Turks would have filled the political void and the state of Iraq would not exist as we now know it

air power as the primary arm'.⁵ However, it was the use of air power in British Somaliland that proved pivotal to the future of air control. By 1920 four army expeditions had failed to decisively defeat the rebellious 'Mad Mullah' and the Colonial Office was reticent to fund further campaigns.⁶ The Secretary of State for Air and the Colonies, Winston Churchill, in consultation with Trenchard and T E Lawrence (of Arabia),⁷ deployed eight aircraft of 'Z Unit' to British Somaliland. Aircraft dropped a mixture of bombs and leaflet drops to winkle the Dervishes out of their fortresses and help chase them into the hinterland.⁸ The operation cost just £80,000,⁹ reinforcing the contemporary view that air power could control tribesmen more economically than land forces. Air control suited the purposes of both Churchill (who was keen to reduce the cost of policing the newly acquired mandated territories) and Trenchard (who was enthusiastic to find a peacetime role for the young RAF). As a result, in 1922 air control was imposed almost simultaneously in Mesopotamia, Transjordan and Palestine.

Mesopotamia

Following World War I, a British garrison of 102,000 imperial troops was stationed in Mesopotamia at an untenable annual cost of £30 million.¹⁰ The situation showed many parallels with present day Iraq, although we seem to have forgotten many of the hard-won lessons . . . During a general uprising in 1920 (which was led by former Ottoman civil servants and military officers who had been made redundant by the British . . .), six towns, including Kufa¹¹ and Samawa, along with the entire Mosul 'Vilayet', were cut off.¹² Their extraction required large numbers of relief troops from India and cost many lives.¹³ The British press were hostile to the continued occupation of Iraq; despite fears of a Turkish invasion, plans were drawn up to withdraw to Basra, leaving a single division to protect the southern Iraqi oilfields, at an annual cost of £8 million.¹⁴ As an alternative, air control was imposed in October 1922, when eight squadrons of aircraft, four battalions of imperial

troops, four armoured car companies and 15,000 local irregulars replaced the British garrison at an annual cost of £3-4 million.¹⁵ In 1923, the Kurdish Sheikh Mahmud encouraged Turkish troops to bolster an anti-British uprising.¹⁶ Aircraft bombed Mahmud's headquarters, causing him to flee to Persia. The Turks withdrew without fighting.¹⁷ The British High Commissioner noted that '*air control has been . . . magnificently successful*'.¹⁸ Although air control officially ended when Britain's mandate expired in 1932,¹⁹ the RAF maintained airfields at Shaibah and Habbiniyah until 1956.²⁰ Without air control, it is likely that the British would have withdrawn to Basra, the Turks would have filled the political void and the state of Iraq would not exist, as we now know it.

Transjordan

Following World War I, the League of Nations ceded Transjordan to Britain as part of the Palestine mandate.²¹ From the imposition of air control in 1922, a combination of aircraft and armoured cars successfully subdued both inter-tribal lawlessness and Wahhabi raiders from Saudi Arabia.²² In 1928 it was assessed that Transjordan's government would fall within a fortnight without air control, despite the creation of a local army, the Arab Legion.²³ From 1930 onwards, Transjordan was sufficiently stable for control to be gradually passed to the increasingly effective Arab Legion.²⁴

Palestine

Palestine demonstrated the limitations of air control. After World War I, Britain maintained a garrison of 7,670 imperial troops at an annual cost of £3.5 million.²⁵ When air control was imposed in 1922, the garrison reduced to one squadron of aircraft, one armoured car company and a local police force. Expenditure dropped by more than 50%.²⁶ It is a common misperception that Trenchard was keen to impose Air Control wherever he could. However, it appears that the main proponent of air control was Churchill, whereas Trenchard was more circumspect about its blanket imposition. Although Churchill's Colonial Office was '*very much in favour of the air taking control*' in Palestine,²⁷ the Air Staff opined that '*air action was not suitable to the particular problems of public security in a more-or-less civilized*

country like Palestine where the principal centres of trouble are the towns'.²⁸ Trenchard noted that aerial bombing '*lacked sufficient accuracy to clear crowds in built-up areas without causing indiscriminate casualties*'.²⁹ In the summer of 1929, it proved necessary to deploy three infantry battalions to subdue an Arab uprising against Jewish settlers.³⁰ Another major anti-Jewish uprising occurred in 1936. Plans to bomb urban areas, including the Arab headquarters at Nablus, were vetoed by the Cabinet.³¹ Instead, thousands of troops were deployed and air control was revoked.³² Nevertheless, the RAF supported the army in monitoring Jewish settlements, attacking looters and patrolling the frontiers³³ until the end of Britain's mandate in 1948.³⁴

Aden

In January 1928, air control was chosen as the tool for suppressing the troublesome tribes in the north of the British Protectorate of Aden in preference to a £6 to 10 million alternative plan to deploy a division of troops. One squadron of aircraft, three armoured cars and a few hundred local irregular soldiers gradually replaced the existing 2-battalion garrison.³⁵ Following a series of raids and hostage takings by the Imam of Yemen in April 1928, the RAF undertook offensive action. Trade in the Imam's capital, Sana, came to a standstill and two-thirds of the population fled.³⁶ The Imam withdrew and sued for peace.³⁷ One of the last uses of offensive air power under air control occurred in 1961 against a rebellious local sultan. However, when a similar situation occurred with another tribe in 1964, air action was vetoed over concerns about evoking the United Nation's (UN's) disapproval over bombing '*innocent tribesmen*'. Instead, a land operation was mounted, according to the Ground Commander, '*at great cost in blood . . . You could hear Trenchard's voice booming round the crags 'I told you so, I told you so!'*'.³⁸

INTER-WAR PRACTICE AND DOCTRINE

The doctrine of air control evolved rapidly in the very early 1920s. Following the imposition of air control in Mesopotamia, Transjordan and Palestine in 1922, the doctrine became based on pragmatic experience. There was a gradual trend

from purely punitive strikes to more refined psychological coercion using minimum force. Thus in 1921, Wing Commander Chamier wrote that air power should administer punishment *'with all its might. The attack with bombs and machine guns must be relentless and unrelenting and carried on continuously by day and night, on houses, inhabitants, crops and cattle'*,³⁹ but by 1926, a political officer in Southern Iraq wrote that *'the infliction of human casualties [which tends] to embitter the people against Government, is not only unnecessary but undesirable'*.⁴⁰

The height of refinement of inter-war air control was articulated by Aden's AOC, Portal, in 1937.⁴¹ He differentiated between two categories of policing. The first was *'fully administered territory where communal or other trouble has got beyond control of the civil power'*. In this situation, air power should support the army, because the guilty and innocent live in close proximity, often in urban areas, and cannot be easily differentiated from the air. The second category was *'unadministered or loosely administered territory where the agents of civil control . . . are too few to cope with any but isolated acts of lawlessness'*. Here, air control was more effective and economical, although it was most successful where the weather was reliable and the people had economic ties to the land.⁴²

Portal described how an 'inverted blockade' was used to coerce transgressing tribes.⁴³ The guilty party would be identified beyond doubt and the leader summoned to a landing ground in nearby neutral territory, preferably the day after the offending event. A political officer would fly in and deliver the Government's final, irrevocable, but reasonable demands in clear terms. The ultimatum would warn the tribesmen that, if they did not comply within 10 days, they must leave their village, taking all their possessions and animals with them, and should not return or touch any unexploded bombs. Leaflet drops would ensure all members of the tribe understood the ultimatum. If the ultimatum expired, bombing would commence, concentrating on the leader's house. Propaganda would be aimed at the displaced villagers, who generally started off defiant. However, over time, they would begin to squabble amongst themselves, and finally slip into

a state of boredom and helplessness. Once they conceded, the political officer would fly in, urging the tribe to resume its peaceful coexistence with the Government. Subsequently, medical parties would fly in and unexploded ordnance would be defused. Portal described a two-month inverted blockade in Aden, which incurred no friendly casualties; only three tribesmen, who had tried to dismantle an unexploded bomb, were killed.

Apart from the inverted blockade, air power had other uses, such as enabling rapid personal contact between *'white officials and the natives'*,⁴⁴ which helped to avoid the spread of false information and misinterpretation of the political authority's intentions. For example, within 48 hours of the fall of the Mad Mullah's stronghold, the Governor of Somaliland had visited the local chiefs. Other uses included providing medical care and locating grazing areas for friendly tribes. Although the main use for troops under air control was guarding the airfields,⁴⁵ they could be employed in punitive expeditions if required. Air power would support them and the armoured cars in several ways, including: harassing the enemy and preventing them from preparing defensive positions while the column approached; flying route reconnaissance; providing offensive air support; and providing rapid communications.⁴⁶ Aircraft could also drop supplies and deal with snipers. During one expedition in Iraq in 1923, aircraft evacuated 200 dysentery and diarrhoea casualties, thereby avoiding a six-day donkey journey⁴⁷ that was, no doubt, a welcome reprieve for both soldier and donkey alike.

THE TENETS OF INTER-WAR AIR CONTROL

Having briefly set air control into its historical context, the question arises as to its tenets and lessons. Air control was considerably cheaper in economic terms than garrisoning troops, which is probably why Churchill was such a keen proponent. It also exposed far fewer personnel to enemy fire and offered healthier, safer conditions for the occupying force.⁴⁸ However, there were many more benefits from air control than cost and safety . . .

By the late 1930s, air control had matured into a refined and sophisticated doctrine. Even a

cursory examination of the documentation from that era dispels the oft-quoted statement that air control doctrine was based on bombing innocent villagers. In fact, air control was relatively humane. A 1926 presentation on air control noted that *'aircraft do not, as a rule, inflict very heavy casualties'*.⁴⁹ Only sufficient buildings were targeted within evacuated villages to prevent the population from returning, in contrast to the army's tactic of *'the burning of entire villages, wholesale destruction and confiscation of livestock'*.⁵⁰ Air control was based on coercion, not wanton destruction. Air power's psychological effect was *'largely due to the demoralization engendered in the tribesman by his feeling of helplessness and his inability to reply effectively to the attack'*.⁵¹ Portal wrote in 1937 that *'we want a change of heart, and we want to get it by the use of the minimum amount of force'*,⁵² while the RAF's official doctrine stated that *'once you have destroyed a village you have lost your power'*.⁵³ It was recognized that the innocent must never be harmed; *'bombing the wrong people, even once, would ruin the Government's reputation, and would take years to live down'*.⁵⁴ The key to employing a relatively small number of aircraft effectively while avoiding unnecessary, counter-productive casualties was intelligence. A highly sophisticated civil/military intelligence service evolved which formed *'the foundation on which successful air control is based'*.⁵⁵ An understanding of the country, the people, their resources, their methods of living and even their mental processes was vital to the successful application of air control.⁵⁶ Accurate maps were *'of the very first importance'* in ensuring that the correct village was targeted.⁵⁷ As the doctrine became more refined, the use of precision bombing increased to avoid unnecessary casualties.

Another tenet of air control was that the population must perceive that they were being treated justly and fairly. *'Control without occupation'*, as air control was often termed, avoided the obtrusive and sometimes antagonistic nature of foreign occupation.⁵⁸ Any British demands had to be unequivocally clear, reasonable and achievable. Following a transgression, an ultimatum had to be made quickly and any deadlines adhered to.⁵⁹ The required standards

of behaviour had to be made clear to the whole population, not just the leadership.⁶⁰ Cooperation with the British authorities was encouraged and good behaviour rewarded.⁶¹ The population was encouraged to consider airfields as points of contact with civilization, from where modern benefits such as medical care and information could be obtained.⁶² To quote the RAF's official doctrine, *'air action leaves no special legacy of hate, and causes no personal rancour or retaliation'*,⁶³ which allowed governance to be rapidly re-established after a dispute. Importantly, a display of magnanimity (such as the rapid provision of medical care and the defusing of unexploded ordnance immediately after a transgressing tribe acquiesced to British demands) was recognized as reaping significant long-term rewards. Generally, there was little ill will displayed by the population as a result of air control, because there was no sense of injustice.⁶⁴

It was acknowledged that an *'intimate'* relationship between the air commander and the political authority was vital to ensure the coordination of political and military aims.⁶⁵ However, in an interesting parallel with today's concerns about datalinks allowing politicians to meddle in operational matters (sometimes termed *'reach-down'*), the RAF's 1933 doctrine stated that the advent of the wireless had shifted responsibility back to the *'Home Government'*, hindering quick decision-making; a politician would *'put off the decision to use force as long as he can'*.⁶⁶ The doctrine emphasized that decisions had to be made at the lowest possible command level.

Propaganda (or *'Information Operations'* as it would now be termed) was recognized as a vital element of the doctrine. *'Tribesmen are very susceptible to propaganda from their own chiefs and holy men [who will] spread counter-propaganda misrepresenting the intentions of the Government'*.⁶⁷ To rebut this, a very robust counter-propaganda campaign was employed;⁶⁸ leaflet drops were used not just for communicating with offending tribes, but also to warn neighbouring villages not to harbour offending tribesmen, thereby engendering a sense of communal responsibility.⁶⁹

During the transition from 'military' occupation to air control, it was necessary to carefully manage the perceptions of the local population, as the disappearance of British troops on the ground could be interpreted as a withdrawal and lack of commitment. To avoid this misconception, '*sheikhs and headmen*' were educated that British protection was still being exercised '*by the more powerful and up-to-date means of the aeroplane and the armoured car*' and that punitive action would be exercised against aggressors.⁷⁰ Air power's reach, ubiquity and lack of dependence on lines of communication allowed it to fly the flag over vast areas within which, as Chamier wrote in 1921, '*the native, in his ignorance . . . thinks that he alone is being observed*'.⁷¹ This was a powerful deterrent: in 1926 it was proposed that '*90% of the effect of air power regarding small wars is that it prevents these wars*'.⁷²

Air control was not a panacea, as Palestine demonstrated. Air control was only effective if the region was free from organized rebellion, such as a general uprising and if there was no threat of an imminent external attack by another country.⁷³ Nor was it suited to urban regions due to the close proximity of the guilty and the innocent.⁷⁴ Similarly, in the case of religious fanatics, 'it may be impossible to obtain a decision by aircraft alone'.⁷⁵ Nicholas Soames would, no doubt, agree with the 1926 statement that 'against a determined and well disciplined enemy, the rifle and bayonet are, at present, the only decisive weapons'.⁷⁶ Geography was also acknowledged as a factor; mountainous or wooded regions were deemed unsuitable for air control because of the concealment they offered.⁷⁷

The present

Despite the demise of air control, there have been several contemporary uses of 'air policing' that are relevant to potential future operations. In Northern Ireland, aircraft have been used for terrorist surveillance, while their mere presence is thought to dissuade terrorist activity.⁷⁸ In the aftermath of the 1995 Bosnian conflict, low-level 'air presence' demonstrations by NATO fighter aircraft were used to intimidate non-compliant Bosnian Serb Army units and force compliance with NATO demands.⁷⁹

The Israelis have consistently employed air power in a coercive air-policing role to assassinate 'terrorist' leaders in the Palestinian-administrated Gaza Strip. In July 2002, a 1000-kilogram bomb was dropped by an F16 aircraft onto the apartment block of the Hamas military commander, killing him and 14 others, while injuring 140 Palestinians.⁸⁰ Following these casualties, Israel switched to helicopter and unmanned aircraft⁸¹ attacks using small missiles, assassinating a senior member of Hamas and his bodyguards in their car in August 2003⁸² and Hamas' leader in March 2004;⁸³ his successor was assassinated the next month in another helicopter missile attack in which 20 people were wounded.⁸⁴ Following these attacks, Hamas kept the identity of its next leader secret for some time. In October 2004, two Israeli air-launched rockets slammed into the car of Hamas' rocket mastermind, killing him and an aid as they left a mosque. The rocket maker had been on Israel's 'most wanted' list for 15 years and was known as 'the father of the Qassam rocket', a weapon that had been used to bombard Israel during the previous few months.⁸⁵ Another Israeli air raid a few days later targeted a group of Islamic Jihad militants gathering outside a house as they prepared to attack a nearby Jewish settlement, killing two of them, critically injuring a third, while wounding four civilians.⁸⁶ Nonetheless, there remains considerable debate as to whether these tactical successes are helping or hindering the Middle East peace process.

Other examples of air policing over unoccupied territory were the 'No-Fly Zones' (NFZs) imposed over Northern and Southern Iraq between the 1991 and 2003 Gulf Wars by the United States (US), Britain and, initially, France in response to the UN's call to provide humanitarian relief for Kurdish and Shia refugees being repressed by Saddam Hussein's regime.⁸⁷ For 12 years, these NFZs helped maintain the regional status quo and 'contained' Iraq, ensuring that Saddam was unable to project military might outside Iraq's borders. Britain's contribution to the international operation in 2002 was 18 fast jets, three tanker aircraft and about 1,000 airmen,⁸⁸ but without any army units.

British Army Challenger 2 tank in Iraq, 2003



The operation to occupy Iraq in 2003 required 113 British aircraft, including 66 fast jets, and 46,150 British personnel, including 8,100 airmen. Even following the cessation of major combat operations, the 160,000-man policing Coalition requires 9,000 British troops and 1,700 airmen

In stark contrast to policing the NFZs, the operation to occupy Iraq in 2003 required 113 British aircraft, including 66 fast jets⁸⁹, and 46,150 British personnel, including 8,100 airmen.⁹⁰ Even following the cessation of major combat operations, the 160,000-man policing Coalition requires 9,000 British troops⁹¹ and 1,700 airmen.⁹² Analysis of the human cost reveals more contrasts. Over the 12-year period of the NFZ, there were no Coalition combat losses.⁹³ However, as of the middle of November 2005, 2,086 Coalition personnel (including 97 British) have been killed in action, of which 1,946 (including 64 British) died following the suspension of major combat operations.⁹⁴ The British Foreign Office estimates that there have been up to 10,000 Iraqi fatalities

since the invasion of Iraq.⁹⁵ The economic cost to Britain of equipping and deploying the UK invasion force was about £700 million.⁹⁶ The ongoing costs of the operation for the financial year 2003/2004 were about £1,837 million.⁹⁷ Although the cost of enforcing the NFZs has not been published, some idea can be gleaned by a comparison of the relative sizes of the deployed forces before and during the invasion. The human, economic and political costs of invading Iraq make air control or 'aerial containment' attractive alternatives.

Unlike the 1991 Gulf War, air power played the role of supporting the land forces during the 2003 Gulf War. Nonetheless, air power has made a significant contribution to post-war Iraq.

RAF and US aircraft are currently policing Iraq's borders against smugglers, escorting convoys, patrolling electrical power stations, power lines and oil pipelines to deter sabotage. Collecting intelligence has been made easier by the lack of threat to aircraft operating at medium level. Relatively low performance platforms can be employed; the fielding of the Nimrod MR2's new Westcam electro-optical capability, for example, has been 'particularly successful'.⁹⁸ These roles, and the use of low performance aircraft, would be familiar to many inter-war aircrews. This 'nation building from the skies' has resulted in a 'significant drop in sabotage attempts',⁹⁹ thereby increasing the availability of public utilities to the Iraqi population. Air refuelling over Iraq is now an every day event, increasing the endurance of fighter patrols to many hours, despite most of them being based outside Iraq. In resonance with inter-war air control, air power has been used to great effect on 'innumerable occasions'¹⁰⁰ when Coalition troops have been in contact with anti-Iraqi forces; 'shows of force' (low-level, high speed fly-pasts) by fighter aircraft reinforce the perception of omniscient, omnipotent combat power and have normally diffused the situation. In June 2004, 26 insurgents involved in a fire fight with Coalition troops surrendered 'as soon as they heard fixed-wing noise overhead . . . When the bad guys heard the F16s overhead they just gave up'.¹⁰¹ Similarly, in November 2004, a hostile crowd of over 1000 disaffected Iraqis, who were about to overwhelm a Coalition ground patrol, dispersed when Coalition fast jets made high-speed, low-level runs over them. This avoided a potentially bloody situation, all without a shot being fired or suffering a single casualty on either side.¹⁰² These examples demonstrate that the tenet identified by Chamier back in 1921, concerning the psychological effect of air power, is an enduring one. On the relatively rare occasions when 'shows of force' have proven insufficient to tip the initiative in the Coalition's favour, aircraft have 'upped the ante' and delivered precision-guided weapons or completed strafe runs under the control of air or ground-based Forward Air Controllers or 'Joint Terminal Attack Controllers'.¹⁰³

Air power was also helped to re-impose law and order in Iraqi cities that have been taken over by anti-government forces, be they disaffected, unemployed Iraqis, ex-members of Saddam's armed forces denied hope for the future by the dissolution of the Iraqi military, criminal cartels, or foreign Islamist Mujahadeen. In the run-up to Operation Phantom Fury (the ground offensive to re-take Fallujah in November 2004) aircraft dropped leaflets and carried out precision air strikes against 'safe houses' and weapon caches of insurgent groups such as Abu Musab al-Zaqawi's Tawid and Jihad group. One result of this campaign was that Fallujah's population dropped from 300,000 to an estimated 50,000,¹⁰⁴ thereby greatly reducing the civilian casualties when the ground offensive to re-take the city began. To quote a refugee from Fallujah, '[we] had to run away when the . . . raids on the city intensified. We took off as soon as the government asked us to leave'.¹⁰⁵ Again, there are distinct, if superficial, parallels between this situation and the 'inverted blockade'; while inter-war air control attempted to directly target the morale of the local population in a coercive manner, air power was used in the pre-Phantom Fury 'shaping' operation to physically eliminate terrorists, while the depopulation was a secondary, if welcome, effect.

Legality . . .

Given the costs of occupying a foreign country, does air control offer a workable alternative for the future? Air control was abandoned in the 1960s because of the fear of attracting the UN's disapproval. The pervasiveness of the Western media is a compelling reason for Western nations to comply with international law. 'Protocol 1 Additional' to the Geneva Conventions states that 'civilian objects shall not be the object of attack'¹⁰⁶ and prohibits attempts to 'attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs . . . crops, livestock . . . whether in order to starve out civilians, to cause them to move away, or for any other motive'.¹⁰⁷ Therefore, although the use of 'minimum force' became a tenet of inter-war air control, the inverted blockade, per se, would seem to be illegal. Nonetheless, there are other tenets of air control doctrine that are relevant to the enforcement of internal security, as described later.

PROBLEMS WITH BOOTS . . .

Before addressing how air power may now be able to overcome some of the inter-war problems associated with air control, it is important to understand some of the issues associated with Nicholas Soames' 'boots on the ground' approach. History is littered with cases where 'liberating' troops have quickly come to be viewed as occupiers by the local population. The rhetoric associated with an 'occupying power' is strong; the presence of foreign troops gives insurgents a ready source of resentment to tap, and the battle for public support can be a difficult one. Indeed, a survey by Iraq's Coalition Provisional Authority found that the population's confidence in Coalition forces dwindled markedly over the Summer of 2004; 80% said they had no confidence in the Coalition forces, 55% said they would feel safer if they left Iraq immediately, while only 1% said the Coalition force provided a sense of security.¹⁰⁸ Replacing the majority of 'foreign' troops as soon as possible with locally raised police and military forces, which would be perceived as having greater legitimacy, would reduce the population's sense of resentment. An indigenous police force that enjoys the support of, and is accountable to, the local population may be an essential precondition of conflict resolution. Iraq's interim President, Ghazi al-Yawar, said in December 2004 that 'in hindsight, it was a mistake to disband the Iraqi military'.¹⁰⁹ When asked how quickly American troops could be withdrawn, he replied 'Well, months . . . I don't know, six or eight months or a year. But I don't think it will take years. Definitely not'.¹¹⁰ Whether this optimistic forecast was meant to reassure his countrymen or the American public, it is clear that he wished foreign troops to be withdrawn as soon as they could be replaced by Iraqi forces. It is foreseeable that, as the Iraq police force reconstitutes itself and develops its sense of internal loyalty and esprit de corps (while the tribal loyalties of its members correspondingly decreases), Coalition ground troops could gradually be withdrawn.

Overcoming the Problems . . .

Can modern technology overcome some of the problems concerning inter-war air control? It is

still asking too much of air power to maintain law and order during a general, popular uprising. Similarly, ground troops continue to form a vital element in defending a country against external invasion. As described earlier, inter-war air control, and the Waziristan campaign in particular, demonstrated that mountainous terrain offers cover from which insurgents can hide from aircraft. However, history shows that in such terrain, ground troops are highly vulnerable to ambush, be it the British retreat through the Khyber Pass in 1842 (when 4,550 fighting men and 12,000 followers perished),¹¹¹ or the Soviet Union's more recent experience in Afghanistan. Coalition aircraft are currently being used in Afghanistan to protect ground convoys through the mountainous passes.¹¹² Therefore, mountainous terrain is difficult to police, no matter which method is employed.

The inter-war tenet that air control cannot contain religious fanatics needs to be examined closer. Religious fanatics are unlikely to be deterred by air power. However, as seen in the current Iraq conflict, these extremists rely on the local population being sympathetic towards them, or at least maintaining a 'benevolent neutrality', as they swim in a sea of tacit popular support or resentful acquiescence. To operate effectively, the local population has to provide the fanatics with shelter and protection, be it directly or indirectly, while allowing the extremists to camouflage themselves within the general mêlée. The removal of what may be perceived to be an intrusive, antagonistic 'occupation' force and its replacement by locally-raised troops and police backed by the occupying power's air power may also help the local population develop a sense of self-determination and hope for their future, while the regular presence of aircraft overhead would reassure the masses that powerful military force can quickly be brought to bear against insurgents. Both these factors should make the population less eager to harbour fanatical terrorists, especially if the insurgents are using fear or intimidation against them and disrupting their day-to-day life. Aircraft were used to patrol over polling stations during both the 2004 Afghan Presidential elections and the 2005 Iraqi elections to simultaneously reassure

A Boeing B-52H of the Air Force Flight Test Center, Edwards AFB, releasing a Joint Direct Attack Munition (JDAM) during trials



The increasing precision of modern weapons allows smaller warheads to be employed, reducing collateral damage and increasing the opportunities to project air-delivered lethal effects into urban areas

voters and dissuade insurgents from disrupting the election process.¹¹³ In Iraq, the presence of aircraft was deemed to 'reassure the Iraqi National Guard troops and encourage them to protect the polling stations',¹¹⁴ while in Afghanistan, the overt presence of aircraft over the cities and villages reportedly brought a feeling of safety.¹¹⁵ US ground observers that the 'freedom of movement for locals to carry out their daily activities without the threat of attack was a great burden lifted from their shoulders'.¹¹⁶

In the urban areas that proved to be the demise of air control in Palestine, can modern technology address the problems associated with the close proximity of the guilty and innocent? Insurgents have long used safe houses

within urban areas to deter the authorities from targeting them by air due to the risk of harming innocent residents living nearby. However, as previously described, the Israelis seem to be able to accurately identify 'terrorists' in urban Palestinian territory, presumably fusing a mixture of Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) technology and human intelligence (HUMINT). Similarly, Iraqi insurgent safe houses were effectively targeted with precision-guided weapons during Operation Phantom Fury in Fallujah. Therefore, it would not seem impossible for a well-honed system to correctly identify the guilty in urban environments. However, accurate intelligence is critical; any miss-targeting or significant 'collateral damage' will alienate the local population and may

ultimately compromise an occupying coalition's will to continue, not to mention the human tragedy itself. During Operation Enduring Freedom in Afghanistan in 2001, there were several incidents of the US targeting innocent parties due to deliberate misinformation generated by inter-tribal rivalries. The Afghan President publicly requested the US not to rely solely on local informants.¹¹⁷ The next issue in urban areas is the avoidance of 'collateral damage'. Historically, one of air power's major attributes has been the ability to bring overwhelming firepower to bear. However, in small wars and counter-insurgency operations, where gaining the support of the local population is vital, the application of indiscriminate, overwhelming firepower is a disadvantage. The population's private property and dignity needs to be respected whenever possible. Therefore, kinetic targeting must become both focused and precise to avoid it being counterproductive. Rather than measuring air control's success by the number of air strikes required to maintain law and order, it should be measured by the lack of them. As previously described, the Israeli use of helicopter missile attacks has resulted in relatively few unintentional casualties. During the 2003 Iraq War, the US and Britain conducted close air support (CAS) missions in urban areas with considerable success. Attacks against buildings were managed so the bomb detonated in the basement, causing them to collapse in on themselves and minimizing damage to surrounding buildings. A post-conflict ground assessment noted that collateral damage was often significantly less than predicted.¹¹⁸ Some non-explosive bombs were also dropped, but these resulted in insufficient damage to the intended target and the possibility of collateral damage as they ricocheted into surrounding populated areas.¹¹⁹ The increasing precision of modern weapons allows smaller warheads to be employed, reducing collateral damage and increasing the opportunities to project air-delivered lethal effects into urban areas. The US Small Diameter Bomb is an affordable, satellite-guided weapon that contains only 50 lb of explosives,¹²⁰ compared with 192 lb in a Mk 82 500-lb bomb,¹²¹ and 945 lb in a Mk 84 2000-lb bomb.¹²² Its small size would allow a B2 bomber to carry up to 216 of them,¹²³ although the USAF currently has no funded plans

to do so.¹²⁴ Nonetheless, if so equipped, a single B2 could patrol a large area, although multiple aircraft would be needed to provide simultaneous effects. However, since one of the main benefits of air control is its low cost, less expensive and maintenance intensive airframes such as the B2 or the B52 are more appropriate; stealth would probably not be required, since there is unlikely to be an air-to-air or surface-to-air threat to aircraft operating at medium level. The affordable, yet focused precision of satellite and laser-guided weapons should suffice for most eventualities. These technologies have allowed air power to contribute a variety of effects to the policing of Iraq following the 2003 Gulf War. For example, ISTAR assets can support ground forces in arresting insurgents if the aim is to exploit the terrorists for subsequent interrogation. Conversely, ISTAR-cued kinetic air strikes can eliminate insurgents if the aim is to send a message to their colleagues and supporters that they are not immune to attack even when sheltering in urban safe houses.¹²⁵ Accurate maps are even more vital than in the inter-war years due to the reliance of modern satellite-guided weapons on accurate target coordinates, while the decreased vulnerability of stealthy aircraft may make the risk-averse West more willing to participate in operations.

Air control fell out of vogue in the early 1960s due to concern about attracting adverse publicity by bombing villages. However, the ability of the Western press to undermine a coalition's political will should not be overstated. With the advent of small, digital camcorders and the Internet, modern terrorists no longer rely on the Western press to broadcast their message. Terrorist web sites packed with video and propaganda abound. Western journalists are finding themselves to be the target of terrorism, having lost the utility that had previously put them on the terrorists' 'no hit' list. It was noticeable during the multitude of precision air strikes against terrorist safe houses in the run-up to Operation Phantom Fury in the summer of 2004 that Fallujah was denuded of Western journalists. Domestic television and newspapers were not flooded with uncorroborated images of bombed domestic housing and women and children being treated in hospital. For the

most part, Western news agencies had to rely on reporting by indigenous reporters, whose neutrality was questionable; there was very little public outcry in the West. It appears that, when the cause is interpreted as being just, the Western domestic population is willing to accept the small amount of collateral damage caused by the application of modern precision air power in urban areas.

However, a word of warning is necessary to avoid viewing air control through rose tinted glasses. In 1925, Salmond commented that air control was only suited to regions free from organized rebellion, such as general uprisings. This would appear to be an enduring tenet. Air power's limited footprint, which is so advantageous in avoiding a provocative, antagonistic and intrusive occupation by foreign troops, becomes a major disadvantage in these circumstances. Air power's lack of persistence denies it the ability to quell general uprisings. For air control to be effective, the general community must want law and order and, by and large, be willing to be policed. Air power could not be expected to be effective at quelling a civil war between Iraq's Sunnis, Shias and Kurds, for example. This remains, perhaps, one of the biggest practical obstacles to air control's re-imposition.

The future?

Future situations may well fall into the two categories defined by Portal in 1937, namely: 'fully administered territory', where a security force is required to control urban areas; and 'unadministered or loosely administered territory' where a large ground presence may be undesirable. This desire could be driven by a lack of public support at home, the disinclination to risk a potentially vulnerable (and expensive) ground force, or to avoid 'cultural contamination'. Possible examples of the latter situation could include Afghanistan or, perhaps, Somalia — 'one of the most dangerous places in the world'.¹²⁶

Failed states falling into Portal's 'unadministered' category are likely regions for UN peacemaking operations. However, the US has shown a disinclination towards committing ground

troops to UN operations due to a culture of 'casualty aversion', making air power a tempting alternative. Air control's tenet that it deterred 90% of small wars seems particularly germane in the future; intelligence could be collected by manned or unmanned airborne ISTAR aircraft and their data rapidly disseminated by networked datalinks, allowing fleeting targets to be engaged before they commit hostile acts. HUMINT would play a vital part in providing the quality of intelligence required for successful air control. HUMINT collection could be enhanced by face-to-face contact enabled by helicopters, which could also help to avoid any misinterpretations of intent. Such contact could be supported by combat air vehicles overtly loitering overhead in potentially volatile situations. Information Operations in the widest sense (be they leaflet drops, food drops or propaganda broadcasts, to name but a few) would be particularly useful in defusing volatile situations and avoiding conflict. Information operations should communicate the purpose of air presence missions to the various factions, such as: protecting the innocent; dissuading terrorist sympathizers and targeting the insurgents. Modern technology now permits greater exploitation of night and bad weather, which can be used to reduce the 'occupying' force's vulnerability, while the increased range of fixed wing aircraft since the inter-war years, augmented by aerial refuelling if necessary, allows air and ground personnel to live in a safe, healthy environment. The use of unmanned aircraft, possibly piloted from the homeland, would make a casualty-averse nation more willing to participate in these operations. Helicopters could allow any necessary ground troops to live in relatively secure in-country accommodation ready to be rapidly deployed when necessary. As with inter-war air control, it will be vital to avoid significant losses to friendly aircraft in order to induce a sense of helplessness in the indigenous population. Operating above the height of small arms fire and, if necessary, the use of stealthy aircraft will help achieve this. The proliferation of early generation shoulder-launched surface-to-air missiles and their availability on the grey and black markets means that aircraft forced to operate within their engagement envelopes must be fitted with effective countermeasures.

A Grumman F-14 Tomcat of the Naval Air Warfare Center releasing a laser-guided bomb



Despite the increased precision and more focused weapon effects enabled by modern technology, there will still be a threshold below which it is not acceptable to employ offensive air power

In 'fully administered territory', the inter-war issues concerning the proximity of the guilty and innocent, identifying the guilty, and avoiding harming the innocent seem to be at the very least partially mitigated by modern technology. Air power can now encroach into residential areas; urban CAS has been proven to be an effective tool; air power demonstrated its ability to surgically target insurgents in an urban environment in Fallujah in the late summer of 2004 as well as, later, supporting ground troops in re-taking the city. Although ground forces will always be needed to police urban areas at the lower end of the spectrum of civil unrest, friendly troops could be replaced by locally raised police or troops, akin to the inter-war locally raised 'levies'. Therefore, the argument that air control (in its purest sense) is unsuited to 'fully administered territory' appears less convincing than in the inter-war years.

Ongoing events in Iraq have shown that the Western public is concerned over the ever increasing body count despite the 'cessation of major combat operations', while it has not unduly criticized the use of modern, precision air power in

urban areas of Fallujah. It may be that the tide of perception has turned and that a modern version of air control is politically acceptable. With the exception of major operations to re-occupy cities such as Najaf, Samawah and Fallujah, the Coalition ground forces in Iraq have predominantly been used in a civil policing role to maintain law and order, filling the vacuum caused by the unfortunate disbandment of the Iraqi police force. In an echo of this article's opening quote from 1926, it is easy to conceive air assets remaining in theatre, working very closely with intelligence agencies and Special Forces to target a relatively small number of insurgents, while patrolling borders, pipelines, power stations and other essential infrastructure to remind the population of the Coalition's continued presence.

In sum . . .

Pulling the threads together, it can be seen that, despite the increased precision and more focused weapon effects enabled by modern technology, there will still be a threshold below which it is not acceptable to employ offensive air power. Trenchard did not consider air control to be an

appropriate tool for every occasion and this remains true today; it is improbable that the Northern Ireland peace process would be at its current stage if the Royal Air Force had targeted suspected terrorist houses with Laser-guided Bombs! The threshold for the imposition of air control may vary from nation to nation, depending on the dynamic balance of three factors: the country's commitment to the cause; its aversion to casualties and cost; and its sense of humanity, as shown in *figure 1*. Thus, concerns about the cost of deploying ground forces, tempered by the degree of commitment, may make air control or 'aerial containment' attractive despite potential, if unfounded, criticism about the use of air power.

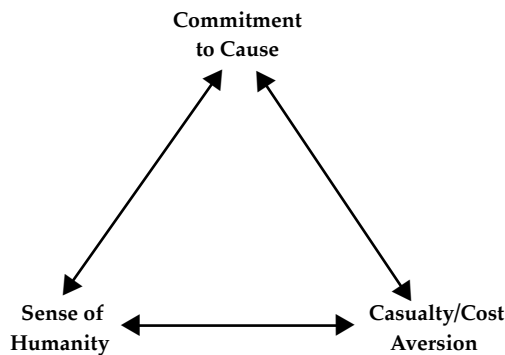


Figure 1.
Dynamic balance of factors in imposing air control

In sum, inter-war air control was supported by a highly refined doctrine. Contrary to folklore, the doctrine advocated minimizing casualties and was considered to be more humane than the use of punitive ground expeditions. Air power's reach allowed aircrew and groundcrew to live in relatively hygienic conditions and exposed fewer personnel to hostile fire, thereby minimizing friendly casualties. Additionally, air control was considerably less expensive than garrisoning a region with thousands of troops. Nonetheless, air control became unacceptable because the West's sense of humanity evolved faster than technology's ability to reduce collateral damage.

The Government's sensitivity over international accusations of inhumane treatment eventually outweighed the economic benefits. Nevertheless, many of air control's tenets are enduring and modern technology may enable it to reach its promised potential in certain circumstances. Inter-war air control proved to be an inappropriate tool in urban areas because of the inaccuracy of the weapons and the resulting collateral damage. However, technology is now on the brink of being able to accurately locate, identify and track culprits and then precisely target them, if necessary, with small, highly accurate weapons which cause very little collateral damage. As a result, a modern form of air control, taking advantage of the ongoing evolution of ISTAR sensors and precise, focussed precision weapons, may be effective in urban regions if supported by a reliable local police force with a general population that desires law and order and is willing to be policed. Air control remains unsuitable to quell large-scale uprisings, such as an Iraqi civil war between Sunnis, Shia and Kurds. However, at the lower end of military conflict, be it a small war or the aftermath of a medium-scale conflict, air power can offer more than it is currently being asked to deliver. A locally raised, indigenous security force, backed by expeditionary air power, could gradually replace occupying troops. The drawing down of occupying troops numbers would help to avoid the political quagmire of 'mission creep' and offer a graceful exit strategy. The indigenous population may welcome air power's relatively small cultural footprint in preference to being occupied by intrusive foreign 'storm troopers'. In other words, air control offers influence and reassurance without presence. Thus, air power could play a decisive role in bridging the gap between conflict termination and conflict resolution. Although air power is generally considered to be relatively expensive, it offers, potentially, a cost-effective alternative to garrisoning a region with large numbers of western troops, not just financially but also in terms of lives. However, the decision to impose a modern form of air control will depend on a dynamic balance between a nation's commitment to the cause, its casualty and cost aversion, and its sense of humanity.

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²³ Ibid, p. 24.

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²⁵ Omissi (1990), p. 44.

²⁶ Ibid, p. 44.

²⁷ Boyle (1962), p. 380.

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³⁰ Omissi (1990), p. 45.

³¹ Ibid, p. 46.

- ³² Ibid, p. 46.
- ³³ Canavan (1993), p. 20.
- ³⁴ Omissi (1990), p. 47.
- ³⁵ Ibid, p. 51.
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- ³⁷ Omissi (1990), pp. 51-52.
- ³⁸ Lunt (1981), p. 68.
- ³⁹ Chamier (1921), p. 210.
- ⁴⁰ Glubb (1926), p. 782.
- ⁴¹ Portal (1937), p. 344.
- ⁴² Ibid, p. 356.
- ⁴³ Ibid, pp. 351-355.
- ⁴⁴ Chamier (1921), p. 212.
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- ⁵⁵ ASM 46, p. 9.
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- ⁶⁴ Portal (1937), pp. 352-354.
- ⁶⁵ ASM 46, p. 5.
- ⁶⁶ ASM 52, p. 6.
- ⁶⁷ Ibid, p. 11.
- ⁶⁸ Ibid, p. 13.
- ⁶⁹ ASM 46, p. 12.
- ⁷⁰ Ibid, pp. 4-5.
- ⁷¹ Chamier (1921), p. 206.
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THE ROYAL AIR FORCE

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AIR POWER

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Review

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Perspectives from within the Profession

By Philip Sabin

It is now 14 years since the 1st edition of AP 3000, the RAF's first official statement of air power doctrine since AP 1300 in 1957.¹ It is nine years since the Chief of the Air Staff's Air Power Workshop published its first volume of theoretical and conceptual studies,² and it is seven years since the launch of the RAF Air Power Review which was 'intended to provide an open forum for study which stimulates discussion and thought on air power in its broadest context'.³ Air power education and training in the RAF have been revolutionised over this period, in particular through the shift from the old RAF Staff College at Bracknell to the joint service Defence Academy at Shrivenham with its integrated academic staff and degree accreditation. Further changes are in immediate prospect, as the single service phase of

the Advanced Command and Staff Course (ACSC) is discontinued from 2006, but as the Basic and Higher Air Warfare Courses (BAWC and HAWC) at Cranwell, open to the entire cohort of officers at the appropriate level of seniority, come on stream. Now seems a good time to take stock of the current state of air power thought and understanding across the RAF, and of how these might be developed still further as the second century of air power continues in earnest.

I have been involved myself in many of the changes discussed above, as a long-standing contributor to the Air Power Workshop, and as one of the academics who helped to shape the present pattern of air power education at the Defence Academy.⁴ However, in this chapter,

I am concerned primarily to reflect the views and ideas of others who have been kind enough to give of their time to help in creating this snapshot of where air power thinking in the RAF currently stands. I will first outline my research methodology in conducting the study over the past 18 months. I will then detail my principal findings regarding the levels of air power thought and understanding which currently exist within the profession. Finally, I will discuss what ideas emerge for the future from the meetings I have had.

Methodology

I was very clear from the outset of this study that I did not want to create a mere *précis* of the many expressions of air power thinking which have appeared in Britain over the past fifteen years. The UK, together with the USA and Australia, has been at the forefront of the recent revival of air power thought, prompted in large part by the twin spurs of rapid technological advance and the fast-changing strategic demands of the post-Cold War environment. There are so many sets of ideas in the publications discussed above and in other works by British authors like Tony Mason and Andy Vallance that it would be impossible to do them any justice whatsoever in the limited space available here.⁵ Instead, I wanted to broaden the focus beyond the intellectual 'leading edge' to examine the absorption of this revived intellectualism within Britain's air power profession as a whole. After all, it is of little use for self-selecting experts to pontificate to one another, unless their ideas have a positive impact on the wider community. Has the RAF truly become a 'thinking Air Force', or are the military and civilian intellectuals unrepresentative exceptions within the overall profession?

To answer this question, I decided to adopt a three pronged research methodology. The first element was obviously to review relevant literature. Although there are plenty of contributions on substantive issues relating to air power, there is (not surprisingly) precious little publicly available material on my precise area of focus. An ACSC Defence Research Paper written by Wg Cdr Cameron in 2002 does address some of the problems inherent in achieving wider

acceptance of doctrine within the RAF,⁶ and I was also fortunate to be given confidential access to an official Air Force study conducted that same year into training needs in the area of air power and air warfare. There are some useful snippets in other written sources, but overall it was clear that my main material would have to come from elsewhere.

This leads me to the second element of my research, which involved meeting in late 2003 with 'focus groups' of officers at varying levels of seniority. I used as a vehicle for this the various courses at the Joint Services Command and Staff College, and I met with sample syndicate groups of RAF officers undertaking the Junior Officers' Command Course (JOCC), the Intermediate Command and Staff Course (ICSC) and the ACSC, as well as with a group of British Army and Navy officers on the ACSC. Each group was around 12 strong, and I endeavoured as far as possible to arrange our meetings at a point early in the course when they had not had time to undertake serious air power studies on that course itself. The first part of each session involved each officer completing a standard questionnaire, which I have reproduced for reference as an Annex to this chapter (see page 32). In the second half of each meeting, I asked the officers to discuss a series of more open questions, such as what they saw as the purpose of air power doctrine and of specifically British air power doctrine, what would encourage them to spend more time reading about air power, and how they felt the air power doctrine process might be improved.

It is important at the outset to record some basic cohort data for these focus groups, to set my findings in their proper context. Of the 11 RAF officers on the ACSC, six were aircrew, and years of service ranged from 12 to 26, with an average of 18. Of the six Army and four Royal Navy officers on the ACSC, three (all RN) were aircrew, and years in service ranged from 10 to 14 (average 12) for the Army students and from 16 to 23 (average 19) for those from the RN. The 12 RAF officers on the ICSC (Air) included six aircrew, and had between 10 and 20 years of service, with an average of 15.5. Of the 12 RAF students on the JOCC, six were

aircrew, and years in service ranged from 7 to 20 (not all necessarily as an officer), averaging 14. Hence, although the officers varied significantly in seniority, all had spent considerable time in their service, and they offered a useful testing ground for the impact of the growth in air power thinking and education over that same period.

The third and final element of my research involved extended interviews with a range of key individuals in late 2003 and early 2004. I met with 14 people in all, including very senior RAF officers (especially those involved in doctrine and education) and civilian air power experts closely associated with the Service. Some of my questions were tailored to the particular responsibilities of each individual, but there was a strong common core including such questions as how they kept themselves informed on air power issues, what they considered to be the most important books on air power, what they saw as the main challenges of air power education, what level of air power understanding was required at different stages in an officer's career, and where one should strike the balance between history and theory or between academic and military inputs. I also posed to the individuals some of the same questions used in the focus group discussions, such as the purpose of British air power doctrine and how the doctrine process could be improved.

Given the potential sensitivity of some of the issues raised, I felt it was important to assure both the focus groups and the individual interviewees that their remarks would not be attributed to them as individuals in the present chapter. The key thing was that they should feel comfortable in speaking openly about perceived problems, so that the issues may be properly aired. The RAF has a strong tradition (stemming in part from its flight safety procedures) of seeing criticism as more of an opportunity than a challenge, and I am deeply grateful both to the Service and to JSCSC, without whose help and cooperation this study could not have been carried out. One drawback of anonymity is that I cannot thank in person the many individuals who contributed their valuable time to this project, but I would also like to record my gratitude to them collectively at this point.

I would be the first to admit that my research has many shortcomings, and cannot be seen as offering more than a first cut at the various issues involved. My sample sizes were small, and my methodology deliberately rather loose and open ended compared to the longer questionnaires and more formal numerical responses of the RAF's own 2002 study. The pressure of other commitments precluded me from approaching a range of other groups and individuals whose views would, I am sure, have been very helpful in casting further light on the issues and dilemmas at stake. One should not, for example, neglect the perspective of airmen and NCOs, whose education was rightly a preoccupation of my interviewees alongside that of officers themselves. However, for all its limitations, I think my research does reveal some interesting patterns and ideas, and I present these here as a small contribution to the ongoing debate over where British air power thinking now stands and how we should proceed from this point onwards.

Existing patterns

A theme which emerged strongly from my individual interviews was that RAF officers were seen as less knowledgeable about overall doctrinal and professional matters than their Army colleagues. This was attributed primarily to the more highly technological nature of the Service, with a consequent risk of 'stove-piping' and over-specialisation. The skills needed to perform missions and other tasks at the tactical level were seen as more distinct from the demands of operational and strategic warfighting than was the case in the Army, and as requiring more intensive practice and training, thereby leaving less time for reflection on higher things. Some interviewees also highlighted the existence of a long-standing anti-intellectual culture among airmen, arguing that it was not 'cool' to admit reading. However, most felt that the situation was improving as a result of the many recent initiatives, and one cautioned against underestimating the ability of bright individuals to get scraps of information and pull them together into a coherent approach.

The responses to my questionnaires bear out this rather downbeat view of the degree to which the average RAF officer has taken on board the new



Not surprisingly, the RAF Air Power Review had attracted the widest readership

intellectualism in the air power field. Only one of the JOCC students, and only four of those on the ICSC and three of those on the ACSC, said they had read any articles in US publications such as the *Aerospace Power Journal* and *Air Power History*. The figures for the Air Power Workshop's four previous books were somewhat more encouraging, with seven of the RAF students on the ACSC, five of those on the ICSC, and two of those on the JOCC saying they had consulted at least one (often in connection with their current or previous Staff College courses). Not surprisingly, the RAF Air Power Review had attracted the widest readership, with only four JOCC, four ICSC and two ACSC students not having read it at all. The number of articles perused by the remainder was generally in single figures, but two officers on the ACSC, four on the ICSC and two on the JOCC claimed to have read significantly more. There is no evidence in the questionnaires that aircrew are any more or less well read than their ground branch colleagues.

The great majority of the officers had read or consulted at least one of the three successive

editions of AP 3000, though two JOCC and four ICSC students still claimed not to have done so at all. It is very clear from the responses that the main impetus to come to grips with the document has been provided by courses which the officers have been taking or about to undertake, usually at Cranwell or JSCSC. One respondent did re-read the doctrine prior to Operation TELIC in 2003, but another saw it as useful 'for aspects of Service courses, not for the fulfilment of my primary role'. The blanket distribution of the publication to all officers did in itself prompt a degree of browsing, though one officer still complained that he could not find a copy on his squadron prior to attending ACSC. Typical responses which give a flavour of the whole are: 'I read Edition two cover to cover as part of Initial Officer Training in 1997; dipped into Editions two and three in last five years to clarify points', and 'Briefly read the first edition in about 95-96. It was issued to all officers and I was vaguely interested. Read the third edition more thoroughly in preparation for this course'.

I explored in the discussion sessions what factors affected the officers' reading on air power issues in their normal jobs, and three messages came through very clearly. First, there are severe logistic constraints, with the pressure of everyday duties

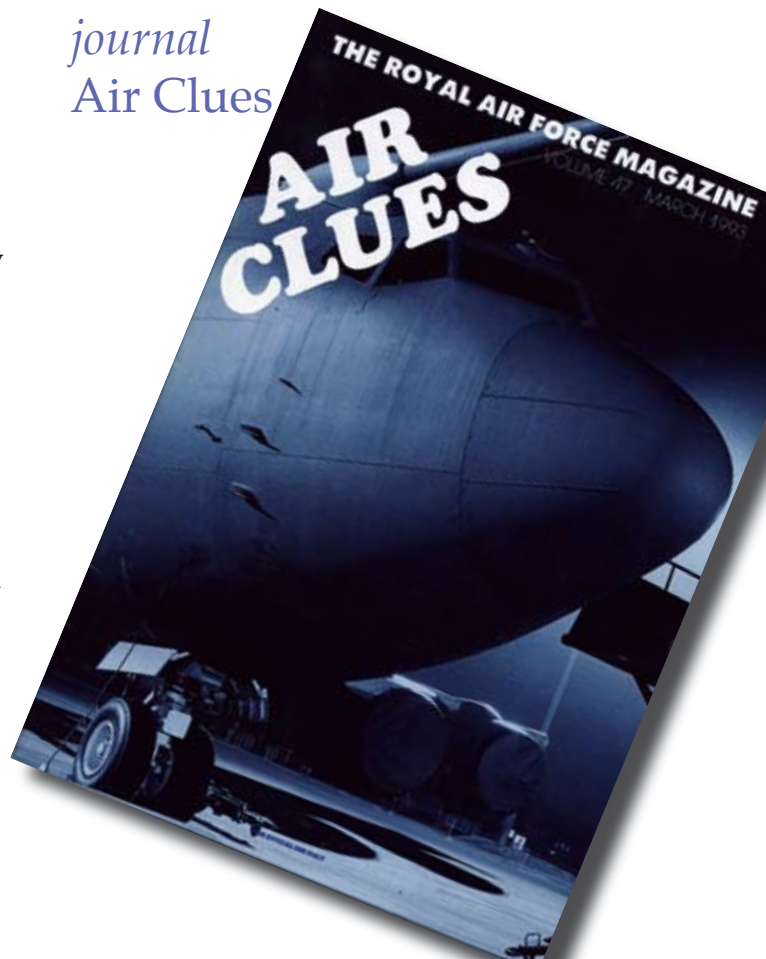
leaving little time for reading, and with most literature simply being unavailable in the crew room context. Second, any reading material must be perceived as interesting and accessible. AP 3000 in its current form was widely criticised as too long, complex and theoretical, and the officers preferred stories from recent air power history, presented in 'bite size chunks' as in the old journal *Air Clues*. Third, there was widespread agreement that high level doctrine and air power theory were of little immediate relevance to the successful performance of most officers' day to day duties, although some did concede that knowledge of these wider issues offered a better sense of the profession of which they were all part, and was useful for those aiming to progress to greater things.

Given this grass roots scepticism about the immediate utility of doctrine, I discussed with my more senior military interviewees why they tended to be so much in favour of spreading the air power gospel and ensuring that officers became 'warfighters first, specialists second'. The main rationale they offered was that this broader knowledge would become vital as the officers moved into more senior appointments, whether involving operational command and staff jobs or advocacy of air power interests in the joint environment. Two more immediate reasons were also put forward — that in an age of expeditionary operations, the moral component of fighting power required that personnel of all ranks be steeped in their Service ethos to help them endure the risks and discomfort involved, and that even junior officers needed to be able to inspire their own subordinates lest a culture of doctrinal apathy become ingrained.⁷ There was, though, a clear recognition that required levels of air power awareness rose with rank, and some of my interviewees explicitly eschewed 'force feeding' and suggested instead that those thinking 'beyond their level' be identified and helped to progress accordingly.

Besides revealing how widely the focus group members had read the main categories of official air power literature, I used the questionnaires to let them define for themselves what their

main sources of information were (aside from personal experience) and what air power conflicts they knew best. Responses on the first issue were complicated by the fact that some officers

AP 3000 in its current form was widely criticised as too long, complex and theoretical, and the officers preferred stories from recent air power history, presented in 'bite size chunks' as in the old journal Air Clues



identified specific books, lectures or the like, while others just listed generic categories such as 'films' and 'courses'. However, the answers are still very interesting. The JOCC students seem to have derived most of their air power understanding from professional training courses and from TV documentaries, followed closely by books, squadron lectures and discussions, Initial Officer Training (IOT), AP 3000, films and magazines. The ICSC students made most mention of Command and Staff Training, books, magazines, TV documentaries and media reports, with squadron discussions, doctrine publications, professional training courses and films also making a strong showing. RAF officers on the ACSC gave greatest prominence to Command and Staff Training, with professional training courses and doctrine publications like AP 3000 also often cited, and TV documentaries, films, magazines and exercise experience playing strong supporting roles. The samples are too small and the categories too vague to make overmuch of these findings, but what is most striking is the diversity of the sources identified, and the prominent role played by 'popular' material such as documentaries, books and films alongside the 'official' contributions made by the Service itself.

When one analyses the air power conflicts about which the respondents professed most knowledge, some equally interesting patterns emerge. The RAF officers on all three courses claimed by a significant margin to know most about one or more of the various air operations which have been conducted in the Balkans, the Middle East and Sierra Leone over the past decade, with many having participated personally in these operations. The most recent conflict in Iraq, 2003, was listed first by no fewer than eight of the JOCC students, seven of the ICSC students, and four of those on the ACSC. It is clear from these results that the average RAF officer knows considerably more about contemporary air battles than about those of the more distant past. That being said, some conflicts before the mid-1990s did make a fair showing, and eight respondents across the three groups put such a conflict at the top of their list. The first Gulf war was the most prominent, with three ACSC students having taken part in it

themselves, but World War Two also registered very significantly, and Vietnam and the Falklands were each mentioned somewhere on their list by nearly half the members of each group.

It is interesting to compare this pattern with the results of the equally open-ended question which I posed to all my individual interviewees, when I asked them to name up to five books which they considered to be the most important and useful works on air power (defined as they pleased). The most popular book, with six mentions, was John Terraine's *The Right of the Line* (a history of the RAF in World War Two).⁸ Next, with five mentions, was Phil Meilinger's *The Paths of Heaven* (an edited survey of the evolution of air power theory).⁹ Four people nominated John Warden's *The Air Campaign* (a theoretical study based on historical examples drawn mostly from World War Two).¹⁰ Attracting three mentions each were Richard Overy's *The Air War, 1939-1945*, Webster and Frankland's four volume official history of *The Strategic Air Offensive against Germany, 1939-1945*, and Mark Clodfelter's *The Limits of Airpower* (about the U.S. bombing of North Vietnam).¹¹ Finally, two people each mentioned Jack Slessor's *Air Power and Armies* (a broad ranging study based on his experience in World War One) and Tony Mason's *Air Power: A Centennial Appraisal* (an eclectic survey from the pre-World War One to post-Cold War eras).¹² Twenty-nine other works, ranging from Book 1 of Clausewitz's *On War* to AP 3000, and including evocative memoirs such as Richard Hillary's *The Last Enemy* as well as weightier academic studies, received just one mention each.¹³ What is striking about these results are the diversity of the books cited, and the dominance of historically-based material, especially that relating to the World Wars. There is no sense of the contemporary focus which emerges from the questionnaire responses, and it is noteworthy that only one of the works which received multiple mentions (Meilinger) was published within the last decade, for all of the intellectual effort which air power has attracted in recent years.

The same feeling of airmen as individualists, each with their own unique 'take' on the subject,



Whereas airmen seem to have been most influenced by films such as Battle of Britain and The Dambusters, no less than three of the Army and Navy students said their image was based more on the Hollywood fantasy Top Gun!

does, however, emerge from the questionnaire sections which probed how respondents would define air power and what they saw as the purpose of doctrine. Although these difficult issues are addressed directly and explicitly in AP 3000, there was no sense whatsoever of the respondents following this 'corporate line', even if they were aware of it. Instead, each officer seemed to be developing his or her own statement on the spur of the moment, producing a very refreshing sense of intellectual engagement. Their definitions of air power ranged from the simple ('the use of air assets to achieve an effect') to the involved ('the utility of aircraft, space or

missiles in the prosecution of military campaigns, whether in an offensive, defensive, surveillance or reconnaissance, transport or logistical role'), but all were to the point, and seemed to capture the essentials of the concept. Similarly, the officers' justifications of doctrine were diverse, thoughtful, and sometimes commendably pithy ('to illuminate current thinking and understanding, to be used as a basis or structure for planning purposes'). They even included a critical element — one ACSC student wrote that 'I am less content with doctrine since 9/11 as it seems to hinder rather than aid understanding of the global war on terrorism', while an ICSC student said 'It is what is "thought"

to be the agreed practice or procedure to follow. However, in reality, doctrine often does not solve the problem or point to an appropriate solution'. Some may be concerned at such diversity and independence of thought, but I found it very encouraging, and it would be a great shame to jeopardise it in order to achieve a more coherent overall view.

Although my focus is very clearly on air power thinking within the RAF itself, I did spend a small amount of time during the study exploring the perceptions of the other two Services on the subject. I got little sense from my individual RAF interviewees that 'outreach' in this area was a high priority, despite their concern that airmen be able to hold their own in the joint debate, and despite the fact that the official definition of air power covers far more than the assets of the Air Force itself. One senior officer did point out that a significant proportion of the print run of RAF doctrinal and other publications goes to the Army and Navy, but he also felt that there was virtually no understanding in practice among officers in those Services that works like AP 3000 also applied to them.

The questionnaire responses from the Army and Navy students on the ACSC do not suggest utter ignorance of air power issues. One of the Navy aviators had consulted an Air Power Workshop volume and the U.S. Aerospace Power Journal, and fully half of the officers as a whole had read at least one article in the RAF Air Power Review and had made at least some use of AP 3000. Their main source of information on air power was the courses they had taken (especially the 'Air Combat Power' week which they had just completed at ACSC itself). Like their RAF colleagues, they also cited books, documentaries and films as playing a significant role, but whereas airmen seem to have been most influenced by films such as *Battle of Britain* and *The Dambusters*, no less than three of the Army and Navy students said their image was based more on the Hollywood fantasy *Top Gun!* The air power conflicts they claimed to know best were almost identical to those of their RAF colleagues on the ACSC, though with more mention made of the Falklands war. Their

definitions of air power were also just as diverse and thoughtful as those of the airmen, though not surprisingly with a slightly greater prominence given to the context of the joint campaign.

In our subsequent discussion, very much the same messages emerged as from my RAF focus groups. Current air power literature was seen as too complex and hard to follow, instead of providing an accessible aide memoire for the hip pocket. Above all, the officers emphasised that the biggest problem was the perceived irrelevance of the material for the great majority of the tasks they were called upon to fulfil. One person remarked that there was no point getting interested in air power because the RAF so rarely supported them, either in war or in exercises. This might seem strange given the unprecedented integration of aerial firepower into recent surface operations in Afghanistan and Iraq, but one must distinguish between such high profile joint endeavours at the leading edge of 'network centric warfare' and the much more prosaic day-to-day activities of the average middle ranking British officer. Even those in the Air Force itself tend to see air power as a matter for course syllabuses and general interest rather than an issue of direct professional relevance. I will now explore what implications this might have for the further development of air power thinking and awareness in the RAF of the 21st century.

Ideas for the future

The best place to start is with how my senior military and civilian interviewees saw the future of British air power doctrine. Hardly anyone questioned the need for such a distinct doctrine, despite the proliferation of joint doctrinal publications in recent years (which one person thought had 'glutted the market'). Air power doctrine was seen as an essential building block for such joint doctrine, to avoid it becoming too Army-dominated, and several people argued that the articulation in the joint publications of a distinct 'British way in warfare' was itself a reason to have a peculiarly British perspective on air power. The UK was seen as having a distinctive approach which one person christened 'lawfare', in contrast to the less restrained and much larger

scale warfighting doctrine of the USA. Britain's expeditionary focus and flexible attitude to air power were seen as equally distinct from the more structured and subordinate approaches common in continental Europe. It was pointed out that not much good air power doctrine even existed outside the Anglo-Saxon world, and that British thinking itself had a major impact overseas.

As regards the content of the doctrine, there was a much greater range of opinion, revolving mostly around where to strike the balance between drawing enduring lessons from the past and keeping up with the fast-changing technological developments of the present and future. One very senior interviewee argued strongly that doctrine was not about academic theory and history but about getting bombs on target, and hence that there should be much more focus on leading edge experimentation and on linkage with the latest front line experience. Others were wary of mortgaging doctrine to the latest technological trends, and argued that the study of history was vital partly because it illustrated the problems often encountered with new technology. However, everyone accepted that a balance did need to be struck, and that both past and present experience had an essential role to play in air power doctrine – the former to help identify recurrent patterns and potential pitfalls, and the latter to keep pace with the transformation in the face of modern warfare.

There was a striking absence among my interviewees of the kind of air power 'zealotry' sometimes displayed by US air enthusiasts. Nobody felt that the best way to enliven doctrine was to imitate the often provocative visions offered in John Warden's works or in Phil Meilinger's 10 Propositions.¹⁴ Such visionary statements were seen as useful, but it was felt that formal doctrine had a duty to be more inclusive and consensual, or (as one person put it), 'at, but not forward of, the leading edge'. Some people admitted that British air power doctrine had been too focused hitherto on winning the bureaucratic battle with the other Services, and that a more integrated aim was needed, through a clearer articulation of the 'UK way in air warfare'. It was felt that the RAF had made something of the same mistake in the 1990s

as it had in the 1920s, becoming too focused on independent action, and neglecting the continued importance of close air support and land-air cooperation. In light of recent combat experience in the Balkans and the Middle East, it was argued that the RAF needed to integrate its thinking as much with the British Army as it had done with the USAF.

My interviewees had interesting ideas about how British air power doctrine should be produced. They recognised the conflicting perils of too much of a committee product on the one hand, and of too inflexible an individual viewpoint on the other. Most people felt that the Director of Defence Studies, as an established air power 'enthusiast', remained the best person to take the lead, though some did suggest that it was more important to strengthen that post's links with the Air Warfare Centre (AWC) at Cranwell than with JSCSC, and one went so far as to argue that the responsibility for writing about the latest trends should be transferred wholesale to AWC. That Centre's existing publications, in particular the (restricted) Air Operations Manual, were seen as very useful practical guides for officers of all Services, and it was suggested that one reason (besides their more tactical focus) why these documents seemed to have been more accepted by airmen is that they avoided the off-putting term 'doctrine'. However, several military and civilian interviewees did argue for exposing air power thinking even more than at present to comment and critique from outside the Service, rather than seeing it as a purely professional 'in house' endeavour.

On the logistics of doctrine production, views varied. Some people felt that the current revision frequency was too great given the problems of promulgating each new version of doctrine through the Service education process, whereas others felt that doctrine should become more of a living document, amenable to constant updates through presentation in a ring binder rather than book format. Some felt that the length and format of AP 3000 were about right and needed only minor tweaks, while others suggested that only multiple tailored publications could address the widely varying needs of the different user

communities. One idea was to have a much thinner 'lite' version of the doctrine for junior officers and a fuller version for more serious study, while another was to have one enduring publication focused on history and unchanging principles, complemented by a much more frequently revised digest of the latest technology and experience.

I also asked my interviewees for their views on the other official publications discussed in the previous section. The RAF Air Power Review was generally felt to have done a good job, in line with the encouraging response it received from the course students in my questionnaires. The books produced by the Air Power Workshop were also considered to be valuable contributions, but they were seen as less widely available, and it was suggested that they had tended to become a little repetitious (hence the different focus in the present volume). One person argued that the Workshop needed a broader range of contributors, including those with different views to the current rather self-selecting group of air power pundits, and he proposed the device of including debates on particular topics, as in some special editions of academic journals.

The primary aim of all of these various publications is to enhance the level of air power thought and understanding within the Services as a whole, and I will close by reviewing some broader ideas on how this might be done in the face of the challenges outlined in the previous section. I will focus briefly on four general areas — course structures, the role of inspiration, the fostering of individual talent, and novel approaches to encouraging air power thought.

It is very clear from my focus group results that courses like those at Cranwell and Shrivenham play a dominant role in air power education. My interviewees were pleased with the greater inclusivity of the new BAWC and HAWC model, but a number of them did express concern about whether there would be sufficient time in the new structure for valuable elements such as historical study, essay research and wargaming. There is no easy way to resolve

this problem given the ever greater pressures on the time of modern Service personnel due to so many ongoing military commitments, but one approach which was suggested was to take a more integrated overview of the entire educational process within the RAF (not just the air power element), perhaps in the context of a review of in-Service degree accreditation. Several interviewees warned that learning will be devalued if personnel feel they can succeed without it, and this may be why some people suggested a renewed emphasis on examinations to check that the material taught is actually being absorbed. However, others warned that such testing could simply prompt a 'learn and dump' mentality, and they argued that truly effective air power education must be based much more on carrots than on sticks.

This leads me to the second of the four areas, namely the importance which many interviewees attached to inspiration as a catalyst for interest. Having an inspiring teacher or mentor was seen as vital, and so ideas were proposed such as promoting interest in the history of one's own squadron, encouraging air power discussion groups at station level, or introducing in-house academics at Cranwell to exert the same formative influence on young officers as individuals like John Keegan and David Chandler famously had on Army officers at Sandhurst. Academics obviously have the advantage that they are dedicated to their task and provide continuity of expertise in contrast to the routine turmoil caused by Service postings, but my interviewees rightly noted the need to strike a balance between academic and military input. Not only is it vital for the academics to keep closely in touch with the latest developments lest they lose credibility in the face of the increasing military experience of their students, but it is also important that military teachers and commanders not feel free to abrogate their own educational responsibilities – in this context, the decline in usage of the Staff College library by military Directing Staff since the advent of on-site academics is a slightly worrisome development.

Again, this point leads me neatly into my third area for discussion, namely the fostering

of individual talent. Of concern to several interviewees was the risk that the inescapably bureaucratic nature of the RAF career structure left many middle-ranking officers, who were rather out of their depth with air power issues, in a poor position to inspire or to reward independent thinking (even in a context such as JSCSC), thereby raising the spectre of a Service 'doomed to mediocrity'. A number of people felt that the Air Force had to become better at spotting and developing the talent of individual officers at an early stage, even if this meant by-passing the middle managers on the way. External educational opportunities like the Masters courses at Cambridge or King's College London were seen as very useful in broadening the outlook of the chosen few, and some suggested taking this further by releasing more such officers to do PhDs as in the USAF, though others highlighted the obvious resource constraints on such an initiative. An even more difficult problem may be overcoming the perception that too much focus on intellectual matters may lead to one being pigeonholed as a 'doctrine head', and shunted into a career which, though interesting and fulfilling, has less chance of leading to the very highest reaches of the Service.

Finally, let me touch on some of the possibilities of novel approaches to encouraging air power thought, going beyond the more obvious routes of formal courses and official publications. Innovation in this regard has been rather discouraged by the poor response to the recent production of doctrinal material in CD-ROM format, which led to the common problem of enormous printing bills as hard copies were generated by users themselves. However, my focus group findings suggest that today's officers are very much open to non-traditional means of gaining information, and this does seem to be an area worthy of greater exploitation. TV documentaries in the present era of multiple digital and satellite channels offer surprisingly detailed coverage of air power history and technology in a form precisely designed to pique individual interest, and the installation of appropriate satellite or freeview decoders for

crew room televisions would seem to be a very worthwhile investment. There also seems little reason why even more material, such as JSCSC student essays and the contents of Air Power Workshop books, should not be posted freely on the internet, thereby increasing its accessibility to an increasingly web-oriented public both in Britain and overseas. In my own air power course at King's College itself, my use of various forms of conflict simulation has proven very popular as a means of giving students insights into the tactical and strategic dynamics involved, and this could prove even more the case among airmen with their inherently technological and competitive bent, especially given the advances in computer technology since the similar 'Project Warrior' which encouraged such simulation gaming among USAF personnel in the 1980.¹⁶

If there is one common thread which seems to me to unite these various ideas, it is the importance of process over product. One cannot codify inspiration or institutionalise genius, and even average officers seem to learn almost as much about air power from their own experience and private interest as from what they are formally taught. One very senior interviewee went so far as to suggest that air power doctrine should not simply be 'what is taught', but should emerge from a wide-ranging process of discussion and consultation, building on ideas from all ranks. From a traditionalist perspective, the fact that not one person in my focus groups reproduced the carefully worked out AP 3000 definition of air power might seem like a severe indictment of the success of doctrinal education in the RAF. However, from an 'effects based' viewpoint much more in tune with the approach of modern doctrine itself, the fact that almost all the officers generated insightful and sometimes thought-provoking definitions of their own does much to offset their professed ignorance and indifference, and attests to the actual (or at least potential) health of air power thinking in the wider Service community. There is still much to do, but it is more about reinforcing success than about recovering from failure.

FOCUS GROUP QUESTIONNAIRE

Which course are you currently undertaking?

Which service are you in, and how long is it since you joined?

Are you aircrew?

In no more than 50 words, please define what you understand by the term 'air power'.

Please list up to 5 recent or past conflicts concerning which you have the greatest knowledge about the air power dimension (starting with those about which you have the most knowledge of air power). Please indicate with an asterisk any conflicts in which you were personally involved.

Leaving personal experience aside, please list in rough order of priority up to 5 sources which have done most to shape your knowledge and understanding of air power. (Sources might be books, pamphlets, articles, films, TV programmes, courses, lectures or whatever. Just try to think what most sticks in your mind.)

Have you read any of the 3 successive editions of AP 3000, *British Air Power Doctrine*, and if so, roughly when and in what context? (Multiple answers are fine.)

Roughly how many (if any) of the Air Power Workshop's four recent volumes have you read or consulted? (The volumes are *The Dynamics of Air Power* (1996), *Perspectives on Air Power* (1998), *Air Power 21* (2000) and *British Air Power* (2003).)

Roughly how many (if any) articles have you read in the *RAF Air Power Review*?

Roughly how many (if any) articles have you read in US air power journals such as the *Aerospace Power Journal* and *Air Power History*?

In no more than 50 words, please explain what you understand is the purpose of doctrine (in general, not just air power doctrine).

Notes

¹ Royal Air Force Air Power Doctrine, AP 3000 (1st ed., RAF, 1991)

² Andrew Lambert & Arthur Williamson (eds.), *The Dynamics of Air Power* (Bracknell: MoD for HMSO, 1996)

³ Brian Finch, *RAF Air Power Review* 1/1, 1998

⁴ See, in particular, my article on 'Air Strategy and the Underdog', in Peter Gray (ed.), *Air Power 21: Challenges for the New Century* (London: The Stationery Office, 2000)

⁵ See, for instance, Andrew Vallance, *The Air Weapon* (London: Macmillan, 1996), and Tony Mason, *Air Power: A Centennial Appraisal* (London: Brassey's, 1994) and *The Aerospace Revolution* (London: Brassey's, 1998).

⁶ I Cameron, 'What Problems does the Royal Air Force Confront in the Face of the Increasing Importance of Doctrine?', unpublished ACSC Defence Research Paper, Joint Services Command and Staff College, 2002

⁷ On these aspects, see Anthony Seabright, 'RAF Ethos and Culture in the 21st Century – Aircrew or Air Power?', *RAF Air Power Review* 7/1, Spring 2004, and Sir Brian Burridge, 'Iraq 2003 – Air Power Pointers for the Future; Closing Address', *RAF Air Power Review* 7/3, Autumn 2004.

⁸ John Terraine, *The Right of the Line* (London: Hodder & Stoughton, 1985)

⁹ Phillip Meilinger (ed.), *The Paths of Heaven* (Maxwell Alabama: Air University Press, 1997)

¹⁰ John Warden, *The Air Campaign* (Washington DC: National Defense University Press, 1988)

¹¹ Richard Overy, *The Air War, 1939-1945* (London: Europa, 1980), Sir Charles Webster & Noble Frankland, *The Strategic Air Offensive against Germany, 1939-1945*, 4 vols., (London: HMSO, 1961), Mark Clodfelter, *The Limits of Air Power* (New York: Free Press, 1989)

¹² John Slessor, *Air Power and Armies* (Oxford: Oxford University Press, 1936), Tony Mason, *Air Power: A Centennial Appraisal* (London: Brassey's, 1994)

¹³ Carl von Clausewitz, *On War*, edited & translated by Michael Howard & Peter Paret (Princeton NJ: Princeton University Press, 1989), Richard Hillary, *The Last Enemy* (London: Macmillan, 1942)

¹⁴ John Warden, 'Employing Air Power in the Twenty-First Century', in Richard Shultz & Robert Pfaltzgraff (eds.), *The Future of Air Power in the Aftermath of the Gulf War* (Maxwell AL: Air University Press, 1992); Phillip Meilinger, *10 Propositions Regarding Air Power* (Washington DC: Air Force History and Museums Program, 1995)

¹⁵ On the relationship between official and 'hobby' wargaming, see Peter Perla, *The Art of Wargaming* (Annapolis ML: US Naval Institute, 1990). For more recent information, visit <http://www.au.af.mil/au/awc/awcgate/awc-sims.htm#general>



Dowding intended, and expected, to become Chief of Air Staff (CAS) and, for justifiable reasons, he never made it. Instead, he became the man who led 'The Few' in the Battle of Britain



The Command and Leadership Competence of Air Chief Marshal Sir Hugh Dowding GCB GCVO CMG ADC RAF

By Sqn Ldr Simon Braun

'A difficult man, a self-opinionated man, a most determined man, and a man who knew more than anybody about all aspects of aerial warfare'.

Sir Fredrick Pile¹

Air Chief Marshal Sir Hugh Dowding's place in history is secured by what, in his own eyes, was a failure. Dowding intended, and expected, to become Chief of the Air Staff (CAS) and, for justifiable reasons, he never made it. Instead, he became the man who led 'The Few' in the Battle of Britain. The manner and timing of Dowding's dismissal from his post as Air Officer Commanding-in-Chief (AOCinC)

Fighter Command in the immediate aftermath of his great victory in the Battle of Britain remains controversial, and clearly reflects upon his command and leadership competence. As Sir Arthur 'Bomber' Harris reflected: 'He is the only commander who won one of the decisive battles of history, and got sacked for his pains.'²

This year marks the 65th anniversary of the Battle of Britain, the first military campaign fought entirely in the air, and without doubt one of the most crucial contests in history. In 1940, Hitler's armies conquered and occupied Holland, Belgium, Luxembourg, Norway, Denmark, and France. The only nation still opposing Nazi Germany was

Britain. Retreating from the continent, the British army managed to save almost all personnel in the evacuation from Dunkirk. However, every piece of armour and heavy equipment was left behind. Consequently, it would be a long time before the army would be re-equipped and organised sufficiently to mount an adequate defence of the British Isles. As Winston Churchill stated at the time:

'What General Weygand called the Battle of France is over. I expect the Battle of Britain is about to begin. The whole fury and might of the enemy must very soon be turned on us. Hitler knows he will have to break us in this island or lose the war. If we can stand up to him, all Europe may be free . . . Let us, therefore, brace ourselves to our duties, and so bear ourselves that if the British Empire and its Commonwealth last for a thousand years, men will still say, this was their finest hour.'

This paper analyses a man who was singularly responsible for Fighter Command's ability to meet the threat of the Luftwaffe, and defeat it in the vital Battle of Britain — Air Chief Marshal Sir Hugh Dowding.

This paper critically examines Air Chief Marshal Sir Hugh Dowding's command and leadership competence. The first step in the examination involves insight regarding why Dowding proves to be a most deserving subject. To facilitate the examination, the following terms are defined, before addressing Dowding's command competence: leadership, effective, competent, and command. Dowding's command competence is critically examined in two areas - his career prior to 1940, the foundation for his command style, and critical incidents throughout the Battle of Britain where Dowding's command competence was tested. The next logical step is to examine Dowding's leadership using four leadership models: Kouzes-Posner Trait (Great Man) Leadership Model, Hersey and Blanchard's Situational Leadership Theory, Fiedler's Contingency Leadership Model, and Bass and Avolio's Full Range Leadership Model. Finally, this paper concludes with an assessment of Dowding's command and leadership competence.

Hugh Dowding, the son of a schoolmaster, was born in Moffatt, Scotland, on 24 April 1882. He was educated at Winchester School and the Royal Military Academy in Woolwich. He joined the Royal Artillery Garrison, and served as a subaltern³ in Gibraltar, Ceylon, and Hong Kong before spending six years in India with the Mountain Artillery Troops. Returning to Britain, he learned to fly, and obtained his pilot's licence in December 1913. Following this, he joined the Royal Flying Corps (RFC) and fought in France during World War One (WW I). In 1915 he was promoted to major, and assumed command of Number (No) 16 Squadron, before taking command of the Ninth (Headquarters) Wing during the Battle of the Somme. During the Battle of the Somme, Dowding clashed with Hugh Trenchard,⁴ the RFC commander, over the need to rest pilots exhausted by constant flying duty. As a result, Dowding saw no further operational service during the war itself. He was promoted to brigadier-general and sent back to Britain to run the Southern Training Brigade. After the war, Dowding joined the newly formed RAF.

Dowding made his real mark during the 1930s. In 1933, he was promoted to air marshal, and received a knighthood the following year. As the member of the Air Council for Supply and Research, he believed in research and development was essential, and campaigned hard for adequate funding. He knew the days of the biplane were numbered, and pushed for a faster fighter. He encouraged the development of advanced fighter aircraft, and it was largely due to his initiative the legendary Hurricane and Spitfire aircraft were ordered into production in 1934. Dowding was also responsible for early work on the Stirling and other heavy bombers, and the development of eight-gun armament. He also showed tremendous interest in the detection of enemy aircraft, and provided his full support to the new Radio Direction Finding (RDF) equipment.

Dowding's interest in defence made him the natural choice to lead the new Fighter Command when it was established in July 1936. Despite Dowding's disappointment of being overlooked for the CAS position in 1937, he continued to

prepare his command for war. He oversaw the introduction of new aircraft, the development of the Royal Observer Corps, and the integration of RDF units with communications and control organisations. The resulting system was far more advanced than anything else in the world at the time.

In 1940, Dowding worked closely with Air Vice-Marshal (AVM) Keith Park,⁵ the commander of No 11 Group, to cover the evacuation at Dunkirk. Although Dowding only had 200 aircraft at his disposal, he managed to gain air superiority over the Luftwaffe. However, he was unwilling to sacrifice his pilots in what he considered a futile attempt to help Allied troops during the Western Offensive. Dowding made a personal appeal to the War Cabinet in May 1940, and effectively ceased further aircraft detachments to France. This showed Dowding's significant foresight, preparing the defences of Britain for the Battle of Britain.

During the Battle of Britain, Dowding's defined tactical role was limited, with day-to-day control of the fighters resting with the Group Commanders. AVM Park commanded No 11 Group, and AVM Leigh-Mallory⁶ commanded No 12 Group, with 11 Group taking the brunt of the enemy attacks. Park's views of getting aircraft to intercept the Luftwaffe as far forward as possible, closely matched those of Dowding's, while Leigh-Mallory favoured large formations of defending aircraft in 'Big Wings', and Dowding's inability to settle the squabble between the two led to serious criticism of him. The Air Ministry favoured Leigh-Mallory's policies, and Dowding was increasingly seen as uncooperative and difficult. Within weeks of the end of the Battle of Britain, and with a new CAS, Air Chief Marshal Portal, in post, Dowding was removed from his position as AOCinC Fighter Command.

Subsequently, Dowding was persuaded by Churchill to visit the United States on behalf of the Ministry of Aircraft Production. The trip was not successful. Dowding was inclined to put forward his own views, which were not always in accord with those of Britain's permanent representatives.

Returning in June 1941, he was asked to prepare a dispatch concerning the Battle of Britain. This was ready before October, the month of his retirement as indicated to him by the Air Ministry. Churchill expressed 'indignation' when he learned of this, and virtually commanded Dowding to accept an appointment in the Air Ministry. The new appointment was not to Dowding's taste and, before long, the old arguments with the Air Ministry reappeared. At his own request, he eventually retired in July 1942.

An unwillingness to break with Service precedents meant Dowding was not promoted to the rank of Marshal of the Royal Air Force, even when the King recommended it, and he spent the rest of his life largely away from the RAF and became a writer of mystic works.⁷ After the war, Dowding became a legendary figure to the Battle of Britain pilots, and one of his proudest moments was to receive a standing ovation from his so-called 'chicks' at the première of the film *Battle of Britain* in 1969. In later years, he became President of the Battle of Britain Fighter Association. After his death in 1970, his remains were interred in Westminster Abbey, a fitting tribute to Dowding's remarkable achievements.

Why analyse Dowding?

Few people can be said to alter the course of history, but Air Chief Marshal Sir Hugh Dowding, later Lord Dowding of Bentley Priory, is undoubtedly one of them. As AOCinC Fighter Command during the Battle of Britain, he was the architect of one of the most significant military victories of modern times. Yet, no sooner was the battle won, his superiors removed him as AOCinC Fighter Command.

The Battle of Britain remains not only one of the most significant battles of the World War Two (WW II), it is, arguably, one of the most decisive battles of the twentieth century. But, what other British battles and military actions compete with it for historical importance? If Julius Caesar's conquest of 44-45 AD is disregarded: the Battle of Hastings in 1066, the Spanish Armada in 1588, and the Battle of Trafalgar in 1805 are the immortalised military actions.

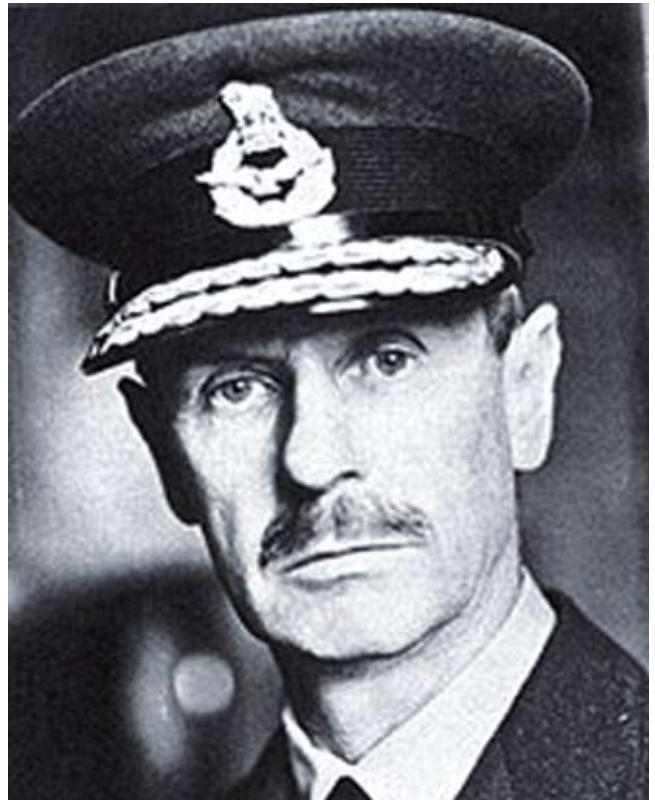
A common characteristic of all these battles is they are all invasions, or attempted invasions, of the British Isles. The first two, Julius Caesar's and William of Normandy's, were successful invasions. Conversely, the Armada and Trafalgar, like the action of 1940, were botched invasion attempts. These battles are famous in themselves as examples of brilliant naval actions, and for the greater strategic reason of ending Spanish and French aggression against England. It is for these reasons, the names of the commanders and their exploits are world-famous; they are Sir Francis Drake and Lord Horatio Nelson. However, unlike the previous momentous victorious commanders, the name of the victor of the Battle of Britain remains virtually unknown.

Considering the Battle of Britain, a recap of the political situation is beneficial:

The Nazi war machine, under bold and brilliant leadership had, by the summer of 1940, defeated and occupied all of Europe, from the Russian border to the Atlantic, and from the Swedish border to the Mediterranean. The British Army, thoroughly defeated, was evacuated at Dunkirk, and France capitulated at the end of June. Hitler's generals had promised him the RAF could be destroyed in two to four weeks⁸, and he prepared for the invasion of England.

The only thing standing between a German invasion was RAF Fighter Command. However, the inconceivable calamity did not take place due to Fighter Command; and only Fighter Command, for the Battle of Britain was an exclusively aerial engagement. Somehow, the Battle of Britain became associated with the name of Winston Churchill, perhaps because of his leadership and oratory — this is a common misconception, and Dowding was never suitably recognised for his significant role.⁹ Moreover, Dowding's treatment immediately following the Battle of Britain was abhorrent.

Much of the history of the Battle of Britain we learn about is inaccurate. Was the Battle worth fighting at all? The best evidence that we have on this came from Field Marshal Von Rundstedt.¹⁰ After the end



However, it is clear there was one man without whom the Battle of Britain could not have been won — Sir Hugh Dowding

of the war he was interrogated and one of the most important questions asked of him was when he felt that the tide was beginning to turn and when the uninterrupted catalogue of German victories became more and more doubtful. Was it Stalingrad or Leningrad or El Alamein? 'Oh no,' replied the Field Marshal, 'it was the Battle of Britain.' This answer certainly surprised the interrogators and they questioned him further. 'Well you see, that was the first time I realized that we were not invincible.'¹¹

However, it is clear there was one man without whom the Battle of Britain could not have been won — Sir Hugh Dowding.

Definitions

Leadership has been a topic of interest to historians and philosophers since ancient times, but scientific

studies only commenced around the turn of the twentieth century. There is a vast array of leadership literature available, but much of it converges when defining leadership. Definitions involve the leader, the followers and the ability to influence others to achieve results. However, this paper focuses on a single definition to delineate the essential elements of the leadership process: 'Leadership is a process whereby an individual influences two or more individuals to achieve a common goal.'¹²

The Macquarie Concise Dictionary Second Edition defines effective as 'producing the intended or expected result', and competent is defined as 'properly qualified, capable'. Van Crevald, an authority concerning Military leadership, suggests a commander must, firstly, be able to arrange and coordinate those functions an army needs to exist. Secondly, commanders must enable the army to carry out its proper mission — to inflict the maximum amount of death and destruction on the enemy within the shortest possible time and at minimum loss to itself.¹³

Conversely, command is a uniquely military concept. Commanders usually exercise command when they head military organisations, or produce military outcomes. British Army Doctrine defines command as:

*'... the authority vested in an individual for the direction, coordination, and control of military forces. The need for command arises from, and varies with, the size and complexity of the force. The larger and more sophisticated a force becomes, the greater the difficulties in preserving its cohesion and fighting power. Thus, the importance of the function 'Command' is related to the level of responsibility of an individual commander.'*¹⁴

Competence in command requires the commander to master management and leadership simultaneously and, thus, provide the most effective fighting force to achieve military objectives with minimum losses. A competent commander will use the formal power of command as an effective platform to project personal power and affect subordinates.

Dowding's command competence

Prior to 1940, Dowding entered Woolwich at seventeen and a half with aspirations to become a Royal Engineer. However, he failed, due to a lack of diligence, to attain the required standard to uphold his chance of a commission in the Royal Engineers. Consequently, he had perforce to view life from the standpoint of an officer in the Royal Artillery. Dowding vowed never to fail again. As yet, his ambition was limited, but he had the natural desire of an able man to increase his knowledge, and advance in his profession.¹⁵

In 1907, Dowding had his first encounter with another officer who would play a significant part in his future. During an exercise, Dowding's troop was to provide support for a rifle battalion retreat, the enemy being played by two companies of the 2nd Gurkhas. Dowding's advance guard reported there were Gurkhas ahead of them on both sides of the road. As a result of a spectacular night march, the Gurkhas were in an ideal position to cut off the retreat of the British battalion. Dowding silently deployed his small force along the ridge, before informing the Gurkhas of their annihilation. The subaltern commanding the Gurkhas was Cyril Newall. He and Dowding disagreed on this occasion over the claimed victory. This episode created the milieu for their future differing views.

Dowding spent six years in India as a subaltern, and he relished the strenuous, solitary, and often dangerous life on manoeuvres in the Himalayan foothills. He left India determined to rise in his profession, and was destined for astonishingly swift promotion.¹⁶ The War with Germany created the opportunity, and as Dowding later himself reflected:

*'I served for 13 years as a subaltern and then, in less than four years, I became a brigadier-general. Thereafter, with the exception of a few months, I remained a General or Air Officer for 26 years. It was a strange, lopsided record.'*¹⁷

If not an infallible passport to promotion, the letters p.s.c. (passed staff college) after his name in the Army List would enhance his career. Dowding's path to Camberley was anything but

easy, but he eventually secured a place at Staff College. On the whole he enjoyed his two years at Staff College. He was, however, irked by the contrast between the respect paid in theory to freedom of thought and the tendency to repress all but conventional ideas. Non-conformists who challenged the accepted notions were labelled 'bad boys' by the staff astounded at student's temerity. Dowding became distrustful of accepted notions, and it was not long before he became one of the 'bad boys'. It was at Staff College where Dowding earned the nickname 'Stuffy'. Although he observed the rules, his fellow students found he had a strong inclination to stand apart from the usual boisterous antics. Subsequently, he became known as 'Stuffy'. Dowding accepted the nickname in the spirit it was given, and it amused him as he considered it to be original. Later, 'Stuffy' was used with increasing affection, and the nickname would remain with him for the remainder of his Service career.

Dowding found the instructors at the Staff College to be hardworking and conscientious men, well-read, intelligent, and generally open-minded. In only two respects did they fall short of his expectations. One of these was their subservience to doctrine; the other was their reluctance to face the dawning problem of air power. During one exercise, Dowding had six aircraft at his disposal, and he decided to use all of them. His actions met with ridicule from his instructor. Dowding was not expert in air matters, but he could not understand the instructor's illogical attitude. He concluded the Army may as well have some staff officers who knew something about aviation, and he was going to be one of them.¹⁸

He decided the only way to achieve this objective was to learn to fly.

In 1913, the RFC was in its infancy, and would only train candidates who already held a civilian licence. Dowding learned to fly at the Royal Aero Club at Brooklands. Flying lessons took place in the early morning, and Dowding was able to juggle his time to undertake both his flying lessons and his Staff College curriculum. He obtained his pilot's certificate (No. 711) early in the morning on

the same day as he passed out from Camberley, 20 December 1913. He obtained his licence after a total time in the air, passenger, dual, and solo, of one hour and 40 minutes.

Some men learn to fly because the conquest of the air appeals to their sense of the romantic; others because they mean to make flying their profession or source of livelihood. Dowding belonged to none of these classes; his interest in flying was prompted by his desire to gain knowledge likely to be useful to him as a soldier. As a graduate from Staff College, he was readily acceptable as a candidate for the RFC. His plan was to obtain his wings at the Central Flying School (CFS), and then return to regimental duty.¹⁹

It was at CFS, in 1914, where Dowding first met Trenchard, who was the Assistant Commandant, and whose subsequent career would impinge upon Dowding's. On more than one occasion, Trenchard's determination played a part of an immovable object to the irresistible force of Dowding's tenacity. Despite their different military careers to date, both men were similar in many respects. Both were remarkable for integrity, high-mindedness, contempt for meanness and pretence, a rare capacity for self-sacrifice in the interests of others or for an abstract cause, and a fundamental kindness concealed by an outward severity born from their determination nothing should deflect them from their path of duty.²⁰ Once posted from CFS, Dowding was serving under Trenchard, and was desperate to join the fighting in France. Twice weekly he tackled Trenchard over the issue, and eventually succeeded. Trenchard dispatched him to France as an observer — at the time this was considered a snub within RFC circles. However, Dowding was content, and, after a few weeks in France, one of his squadron's aircraft descended behind enemy lines and the crew were taken prisoner. Dowding became a front-line pilot, and was thrown into the thick of battle over the Western Front.

Dowding was promoted to major in the summer of 1915 and was posted to command No 16 Squadron at La Gorgue. The Squadron was part of the First Wing under Trenchard, who was soon to become

the RFC commander in France. Dowding viewed this new job as less satisfying than his old one, where he specialised in early experiments in wireless telegraphy. Temperamentally, Dowding was well fitted to exercise authority, yet command of a squadron was not the employment where one would expect him to be happiest. To most of his subordinates he was seen as a tall, softly spoken man with a quiet manner. He had an air of abstracted concern with things outside their ken, was curiously withdrawn, and had a disconcerting habit of mingling praise with blame. To them, he personified aloofness.

While Dowding was commanding No 16 Squadron, it brought down only one German aircraft, whose destruction was attested by its descent behind British lines. The pilot and observer landed safely, only to be shot, in a flagrant disregard of the established custom, while emerging from their aircraft. In an uncommon chivalrous act, Dowding collected their belongings and had them dropped behind German lines with a message stating the men were buried with full military honours. Many years later, Dowding was informed the incident made him a legend in the German Air Force. Amongst German units on the Western Front, it was widely held a commanding officer who thought prisoners from his unit were not being properly treated had only to drop a message for Major Dowding to secure prompt attention to their grievance.²¹

Although this is likely to be an exaggeration, it is a sound assessment of Dowding's character.

Dowding had his first major disagreement with Trenchard in July 1915. Dowding's Squadron received new propellers to fit to their aircraft; however, the propellers were designed for the smaller-engined aircraft, and would not fit. Dowding, received no satisfaction from Wing Headquarters, and asked Trenchard to look into the matter. The complaint caught Trenchard at a bad moment, and Dowding's air of superior wisdom displeased him. While Trenchard admired Dowding's technical efficiency, he was also aware of the situation concerning 16 Squadron's aircrew; the flight commanders resented Dowding's

'pernickety primness', and several of the pilots and observers were almost in open revolt. Trenchard was not predisposed to treat the complaint reasonably, and ordered Dowding to fit the propellers; Dowding compromised, and fitted one propeller with extreme difficulty. His doubts as to the final airworthiness of the machine led him to personally test fly it. Telephoning Trenchard to report on the successful, but dangerous, test flight, Dowding was informed by Trenchard he (Dowding) was quite right:

*... they were sent the wrong propellers, and the representative in Paris let them down. Dowding seized upon the incident as an indication of the technical stupidity of Trenchard who, by contrast, dismissed it as a manifestation of Dowding's self-righteous stubbornness.*²²

The second incident occurred towards the end of the Somme offensive. Dowding was appointed to the Ninth (Headquarters) Wing, and was at odds with Trenchard over tactics. Within a month of the start of the offensive, losses were extremely severe and Dowding felt justified seeking respite for his aircrew. Trenchard agreed, but the incident left him uneasy about Dowding's apparent lack of self-confidence and concerns over his obsession with casualties. Subsequently, Trenchard referred to Dowding as a 'Dismal Jimmy who could hardly be relied upon to restore squadrons' morale'²³ because of his manner and modus operandi. Dismal is perhaps not a good portrayal, but Dowding certainly was serious and austere to the point of appearing pessimistic. To contemplate and prepare for the worst is a function of command, but to show it, as Dowding did, was a mistake. As a result, in 1916, Dowding was sent back to Britain to run the Southern Training Brigade. Trenchard appointed Dowding's old adversary, Cyril Newall, as the new commander of No 16 Squadron. Dowding was promoted to brigadier-general, but saw no further operational service during the war itself. After the war, Dowding joined the newly formed RAF.

In 1930, Dowding was invited to join the Air Council as the Air Member for Supply and Research. In this position, Dowding had greater

A Supermarine Spitfire I of No 19 Squadron, 1938. This squadron was the first in Fighter Command to be equipped with the Spitfire



Perceiving the need for faster fighters, he took the lead insisting on metal monoplanes instead of wooden biplanes, and wholeheartedly supported the development of the Hurricane and Spitfire

responsibility than any other individual for fostering technical progress within the RAF. Not all of Dowding's decisions as Air Member for Supply and Research turned out well. Within a few weeks of his appointment, trusting the experts, he cleared the airship R101 for her maiden flight to India. The disaster befalling R101 at Beauvais made him wary of trusting experts without strong proof of their correctness. Perhaps his worst mistake was in connection with aircraft petrol tanks.

Trying to develop tanks to be crash-proof, he overlooked the much greater need to produce

self-sealing tanks damaged by bullet penetration. However, he also made some decisions of supreme importance to help win his Battle a few years later. Perceiving the need for faster fighters, he took the lead insisting on metal monoplanes instead of wooden biplanes, and wholeheartedly supported the development of the Hurricane and Spitfire. He also backed the development of early warning radar from the initial experiments, to operational readiness.²⁴

His considerable technical background was invaluable to his support for the development of

radar command and control, and modern all metal fighter aircraft made him well qualified, perhaps the most qualified in the RAF, to become AOCinC Fighter Command.

As he strived to create Fighter Command, his relationship with the Air Ministry was difficult, and became further soured in 1937 when, his old rival, Sir Cyril Newall, 11 years Dowding's junior, was appointed as CAS. Dowding was convinced the Air Ministry promised him the post of CAS, and he naturally felt surprised when the decision was made in favour of someone else, but he controlled any great expression of disappointment.²⁵ However, his reserved and difficult character made him less suited than Newall for the senior post. Dowding's disappointment, and poor working relationship with the new CAS, was exacerbated by the confusion created over the frequent deferment of his own retirement. Between 1937 and his final retirement, Dowding's service was extended for short terms no less than four times, and the requests conveyed in cold, discourteous terms.²⁶ This situation continued unabated throughout the whole of the subsequent critical period of the Battle of Britain. While this was intolerable to Dowding, the account reflects the immense pressures of the time as much as it does to any insensitivity or malice within the Air Ministry. The relationship between Dowding and the Air Staff before the outbreak of war, with its own ensuing pressures, was both uneasy and resentful.

It is right and completely understandable for the performance of a Commander-in-Chief (CinC) to be under the spotlight in preparing for war and conducting operations. The more at stake, the closer the interest. Many commanders would prefer to be given their task and then be allowed to pursue it to its logical conclusion, without what is seen as political meddling.²⁷ The end of the 'Phoney War' and the rapidly degrading situation in France in May-June 1940 created immense problems for Fighter Command, and brought these perspectives to a head. The alarming attrition rate of the fighter force supporting the British Expeditionary Force (BEF), drawn from squadrons necessary for the air defence of Britain,

led Dowding to directly request he be allowed to brief the War Cabinet — effectively cutting across the chain of command. On 15 May 1940, Dowding logically and starkly presented to the Cabinet the facts and consequences to home defence should further squadrons be dispatched to France, and concluded this was unacceptable. The Cabinet was swayed by his arguments, and agreed not to send any further squadrons. However, Churchill, Prime Minister of only five days, reversed the decision the same day, and dispatched four additional squadrons. Although six squadrons less than requested by France, the BEF evacuation and subsequent fall of France led to premature losses of Fighter Command assets, causing Dowding great angst. Dowding's eloquent plea and his subsequent famous letter,²⁸ reiterating the perilous state of the fighter defences, led to Churchill declaring, on 19 May, 'henceforth, no more fighter squadrons should leave the country, irrespective of events in France.'²⁹

While Dowding's appearance at the Cabinet meeting was a defining strategic moment, it allegedly created a personal aversion by Churchill towards him. However, this does not accord with the facts. Churchill subsequently intervened on Dowding's behalf in the long-running dispute concerning his retirement date. This was evident from the tone of Churchill's note to the Secretary of State for Air: 'Personally, I think he is one of the best men you have . . . in fact, he has my full confidence.'³⁰ This clearly indicates what Churchill thought of him. Dowding's strategic views may well have had a decisive impact on War Cabinet decision-making. It can be argued he filled a conspicuous gap at the strategic level of war, as well as his duty at the operational level. Conversely, many of Dowding's superiors were found wanting in this area; for example, Newall, who approved his appearance at the War Cabinet and the Air Ministry. Dowding also cultivated very close personal relationships with critical decision-makers and resource-providers, like Lord Beaverbrook, aircraft production and War Cabinet, and General Pile, CinC Anti-Aircraft Command. The catalyst for his close relationship with Beaverbrook was undoubtedly their mutual dislike of the Air Ministry. Beaverbrook called them 'the

bloody Air Marshals,' and with whom Dowding already fought running battles. In addition, Dowding had a sound political patron in Churchill, who harboured doubts over the running of the Air Ministry. Churchill approved of Dowding's organisation of Home Defence, and as the spotlight turned on Fighter Command after Dunkirk, Churchill warmed to both its young pilots and, *pari passu*, their CinC.³¹ Dowding's apparent focus on the strategic level of war and his ability to influence strategic and production decisions, underlines his command competence. Thus, it is contended Dowding's opponent's underhand manoeuvring led to his ultimate replacement, and they persuaded Churchill, against his judgement, to accept Dowding's removal as necessary.

Despite Dowding's eventual removal from post, his tenure as AOCinC Fighter Command was extended numerous times at a time when others found wanting in command competence were ruthlessly culled by Churchill, eg Wavell and Auchinleck. It could be argued no one else was capable of assuming the position at Fighter Command during a critical time in British history. However, to gain a balanced view, it is necessary to appreciate what the Air Staff thought of Dowding. In their minds, by July 1940, there were three valid reasons why he should be replaced.

Firstly, his age; Dowding was 58 years old, and the senior RAF officer holding an active Command, while several staff 10 years his junior were ready for advancement. Additionally, Dowding's command style was considered inflexible and 'old school' by many of his juniors, and was not perceived as dynamic enough to lead Fighter Command through the Battle of Britain.

Secondly, Dowding's tenure at Fighter Command commenced with its formation in July 1936. The Service custom was for an officer to hold a post for two or three years before going on to gain further experience, so Dowding's tenure of four years was exceptionally long. This manifested itself in a significant lack of direction by Dowding over the tactics employed by Fighter Command during the Battle of Britain.

Thirdly, and the main reason why the Air Council wanted Dowding ousted, was concerned more with his personality than his age. Notably, since 1937, when he failed to become CAS, Dowding developed an increasing disrespect for the chain of command and, in particular, the Air Staff. He claimed they failed to share his enthusiasm for the importance of fighter defence, and regarded them as indecisive regarding policy-making and incompetent in its execution. While his outlook was clear, it was extremely narrow, at times becoming blinkered, whereas the Air Staff's was necessarily panoramic, and had a tendency to blur when options overlapped.³²

Prosecution of the Battle of Britain

Dowding's organisation and subsequent running of Fighter Command provided an almost classic example of how a CinC should work. Over a protracted period of time, he evolved a method of formulating his plans in a strategic sense and for giving orders. He had a complete grasp of the necessity to keep his eye on the long-term view, planning ahead for what he believed would be the most likely course of future action.³³ However, if there was a potential flaw in Dowding's intellect, it was he became too involved at the tactical level. However, despite being a natural sceptic, Dowding possessed very good technical knowledge, and he did his own investigating when he considered the operational or technical advice suspect, a lesson he learned from his time in the Air Ministry. To his credit he was aware his own understanding of what was happening could well be inferior to the most junior of front-line pilots.³⁴ At this point in the paper, it is fair to assess Dowding's preoccupation with tactics undoubtedly caused him first to miss, and then mishandle, the biggest operational problem occurring during the Battle of Britain — the disagreement between his two senior commanders — AVM Trafford Leigh-Mallory, commanding No 12 Group in the north and east, and AVM Keith Park, commanding No 11 Group in the most vulnerable and active area south of the Thames. Park was appointed to command No 11 Group by Dowding ahead of the extremely ambitious Leigh-Mallory. These two very different characters had individual views

regarding air fighting strategy and tactics. Park used disruptive tactics, and scrambled squadrons as fast as he could, allowing them to intercept as far forward as they could. This was as directed by Dowding, but carried the risk of squadrons being outnumbered. Leigh-Mallory preferred to build up his intercepting force into a 'Big Wing' of four or five squadrons, taking valuable time to assemble in the air, and then try for a knockout blow on a raid.³⁵

In addition to tactical differences, Park and Leigh-Mallory disliked each other to the point of strong personal antipathy, and took no trouble to hide the fact from their staffs.³⁶

Whatever the relative merits over subsequent tactics, Leigh-Mallory's thwarted ambition was at the heart of the problem.

The 'Big Wing' tactic was created by Squadron Leader Douglas Bader, the highly aggressive Commanding Officer of the Duxford-based No 242 Squadron of 12 Group.³⁷ Although Bader was an extremely courageous fighter pilot and leader, he is not acknowledged as a strategist. However, he believed interception by a mass of fighters was the best method of destroying large numbers of enemy aircraft. Unfortunately, Bader's determined drive to prove this theory led him to ignore fighter controller's directions, in contravention of the system created by Dowding, and led to 11 Group's airfields not receiving the necessary fighter cover from 12 Group. Leigh-Mallory unreservedly backed the 'Big Wing' theory. However, Dowding was not in favour of this, believing the formation of five squadrons' aircraft would take too long to disperse, and large formations of fighters would get in each other's way.

Following the Battle of Britain, historical data was used to recreate one of the big air battles of September 1940 in Fighter Command. Umpires were appointed to watch the way the battle went. Leigh-Mallory, now in charge of No 11 Group, reacted to the German threat with big-wing formations that he and Bader argued were best. The exercise was a fiasco, and the umpires decreed the vital Fighter Command airfields of Biggin Hill

and Kenley were bombed before the 'Big Wings' were airborne.³⁸ This recreation proved Dowding correct in his tactics.

The Adjutant of 242 Squadron was Flight Lieutenant Peter MacDonald, who was also a Member of Parliament (MP). MacDonald was in an ideal position to hear Bader's complaints concerning the squadron's involvement, or lack of it, in the battle. During the controversy, MacDonald tackled the Under-Secretary of State for Air, Harold Balfour, concerning the situation. Balfour refused to discuss the matter with MacDonald, who then asked Balfour to arrange a meeting with Churchill. Balfour refused, but as an MP, MacDonald had a right to an interview with the Prime Minister. A meeting between MacDonald and Churchill certainly took place, but no date is recorded. Subsequent to the meeting, inquiries from Churchill were forthcoming concerning the controversy, followed by visits to Duxford by senior government officials, including Churchill, to review the situation. MacDonald's intervention was largely heralded as part of an alleged conspiracy led by Leigh-Mallory to discredit Dowding.³⁹ The conspiracy theory is supported by the reported discussion between Park and Leigh-Mallory after a meeting with Dowding in March 1940; Leigh-Mallory said he would: 'move heaven and earth to get Dowding sacked.'⁴⁰

However, the 'Big Wing' lobby appealed to the Deputy CAS, Sholto Douglas, who chaired a, now infamous, meeting in the Air Ministry on 17 October 1940 to discuss fighter tactics. This meeting was identified as an ambush by the 'Big Wing' lobby against Dowding. Certainly, the presence of Bader, an unlikely and extremely junior attendee, lent weight to their argument, as did the failure to include Park's prepared statement in the minutes.⁴¹

There is little doubt Douglas' sympathies lay with the 'Big Wing' theorists, and little substance arose from the meeting, but it should have focused Dowding's attention as a commander to the critical disagreement between his two group commanders, and for him to resolve it.

A Messerschmitt Bf-109E-1 of Stab III/Jagdgeschwader 26 which force landed in a cornfield at Northdown in Kent on the afternoon of 24 July 1940 after its pilot had been severely wounded in an engagement with RAF fighters



The key to victory was inflicting unacceptable attrition of the Luftwaffe in the battle for air superiority during daylight

The use of contrary tactics by the AOCs of 11 and 12 Groups in the middle of a battle was inappropriate. Moreover, their commander, Dowding, did not even notice and, when he did, was unwilling to make a command decision. Dowding should have intervened, and it is evident he was gravely at fault, even incompetent, for not doing so. Indeed, it was his responsibility as AOCinC to do so. While he could see the tactical arguments were not mutually exclusive, he failed to appreciate the extent to which the poor co-operation between the two groups, generated by the tactical differences, was jeopardising the whole conduct of the battle. Thus, Dowding lacked competence as a commander relating to this significant issue.

An alternative view indicates Dowding chose not to interfere; if this is the case, why not? Firstly, the

desired results were being achieved. Secondly, the locations of the respective groups had an effect on tactics. Thirdly, what is the harm of having two very capable, but egotistical subordinate commanders 'having a go' at each other so long as they fought against the common enemy successfully — as both did. Fourthly, replacing either key subordinate group commander in the middle of the Battle of Britain could have disastrous consequences on morale and combat effectiveness. Consequently, an alternative analysis of Dowding's decision not to intervene required confidence in the validity of his own strategic appreciation of the air defence of the British Isles, faith in his subordinates, and extreme moral courage given the consequences at stake.

As early as August 1940, the Luftwaffe began to mount concentrated night bombing attacks.

Dowding, at this critical stage of the battle, strongly resisted diverting any of his scarce single-engined fighters to meet this new threat, against which they were largely ineffective; he was looking to the development of airborne radar. His obstinate resolve preserving the fighter force in a condition to prosecute the main effort was maintained for too long in the face of the enemy's changing tactics and the political need to be seen to react to it. This need was demonstrated by the appointment of a high level committee chaired by ex-CAS, Sir John Salmond, who did not admire Dowding. Salmond's committee's conclusions were swiftly formulated and endorsed by the end of September, and presented Dowding as 'the obstacle to new thinking and progress at Fighter Command.'⁴² Despite coming under considerable political pressure because of the night Blitz, Dowding was perhaps astute enough to realise it could be endured, despite the pain, while the central aim was achieved. Thus, he correctly identified, the key to victory was inflicting unacceptable attrition of the Luftwaffe in the battle for air superiority during daylight. Dowding claimed the diversion of assets away from the main effort was self-defeating, and night engagements were not a decisive factor. However, he did divert some valuable resources to help develop a modest night fighter capability. Overall, Dowding continued to be steadfast in his reluctance to change tactics, showing a degree of inflexibility required of a senior commander. Arguably, Dowding's command competence could be characterised by identifying he was following the first Principle of War by careful selection and maintenance of the strategic aim. Thus, in this aspect of his tenure as AOCinC Fighter Command, Dowding is assessed as competent in command. As the eminent military historian Sir Basil Liddell-Hart wrote after the battle:

'The Germans' bid to gain command of the air was frustrated by the superb efforts of 50 odd squadrons of Fighter Command under the mastery direction of Air Chief Marshal Sir Hugh Dowding.'⁴³

The considerable angst over night defences, coupled with the political fallout of this and the 'Big Wing' saga, provided the 'evidence' needed

for Dowding's critics to persuade Churchill he should be removed. The pressure group to dismiss Dowding was led by Salmond, whose influence behind the scenes was considerable, with the strong backing of Lord Trenchard who: 'entertained qualms about Dowding's leadership, and considered he had lost his grip.'⁴⁴ As 'the Father of the Royal Air Force', Trenchard retained significant influence. Considering such a powerful lobby was needed to achieve the aim is significant, and lends credence to Dowding's backing by Churchill. It is surmised Churchill was under considerable political and military pressure, and reluctantly gave way, resulting in Dowding's removal from post on 13 November 1940.

Command competence summary

As a young officer, Dowding seemed set for an honourable but conventional soldier's life. Aviation opened new possibilities for his devoted spirit and inquiring mind. His stern sense of duty, added to his well-founded competence in practical flying matters, made Dowding a formidable advocate for views strongly held. Later, Dowding felt aggrieved by what he considered to be years of shabby treatment suffered at the hands of the Air Ministry. This discontent was compounded by the lack of camaraderie displayed with Newall, who was promoted over Dowding in 1937. Clearly, Dowding possessed strong moral character and integrity and, while not adverse to patronage, he did court it. Dowding's practical bent, his insistence for experimentation and trials to take place, and his imaginative grasp of aircrew requirements often led him into conflict with colleagues constrained by orthodox opinions. Assessing Dowding's command effectiveness and competence, it is noted he had neither the time nor inclination to be diplomatic regarding his dealings with his superiors, and being right was not necessarily an endearing quality. Reviewing Dowding's command competence, it is assessed he undoubtedly produced the intended results throughout his career and was thus, competent in command.

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Group Captain Dennis Stubbs RAAF (Retired)

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² Probert, H, 2001, Bomber Harris, p 98.

³ A British military term for an officer below the rank of captain, generally a second lieutenant.

⁴ Hugh Trenchard (1873-1956) helped to lay the foundations of the Royal Air Force (RAF) during World War One. While commanding the RFC, Trenchard established a policy of claiming air superiority by launching successive waves of attacks to gain air control - the approach became standard RFC (and later RAF) policy, although Trenchard attracted much contemporary, and subsequent, criticism for despatching obsolete aircraft on fighting missions with significant loss of life. Trenchard also focussed the RFC efforts upon ensuring his aircrews provided adequate support for forces on the ground. Trenchard was appointed Chief of Air Staff in January 1918, but resigned his position three months later following a quarrel with Lord Rothermere, the Air Secretary. Later the same year, Trenchard was given responsibility for the organisation of the Inter-allied Independent Bomber Force, consisting of a collection of heavy RAF bombers intended to raid rail and industrial targets in Germany. Re-appointed Chief of Air Staff, by War and Air Minister Winston Churchill in 1919, Trenchard founded training colleges for air cadets and staff officers, and introduced a system of short-service commissions so as to provide a reservoir of trained personnel should the need arise. Remaining Chief of Staff until 1927, Trenchard was made the first marshal of the RAF in that year, retiring two years later. Regarded by many as 'the father of the RAF'.

⁵ AVM Keith Park, a New Zealander, came to Britain to serve in the WWI as a gunner before transferring to the Royal Flying Corps during 1917 and receiving a permanent commission in the Royal Air Force. He was given command of his first squadron, 48 Squadron, on 10 April 1918. It was the first to be equipped with the Bristol Fighter, and later passed through the RAF Staff College before being appointed air attaché to Argentina. By 1938 he was Dowding's right-hand man as senior Staff Officer in Fighter Command, and was subsequently appointed as Air Officer Commanding No 11 Group. Like his commander, Park was relieved of his post almost immediately after the Battle of Britain, and given command of a Flying Training Group. In 1942 he became Air Officer Commanding Malta. This was during the anxious period when the defence of the island rested with a few Hurricanes which fought with great determination and courage until the arrival of additional aircraft and aid saved the garrison and the Mediterranean cleared. In January 1944, he was

appointed Air Officer Commanding-in-Chief Middle East and, a year later, Allied Air Commander-in-Chief of South-East Asia Command. He died in New Zealand in 1975. It was said of him by Air Vice-Marshal 'Johnnie' Johnson, a great fighter leader of the Second World War: 'he was the only man who could have lost the war in a day or even an afternoon.'

⁶ AVM Trafford Leigh-Mallory was born on 07 November 1892, at Mobberley, Cheshire. He joined the Territorial battalion of the King's (Liverpool) Regiment on the outbreak of WW I and, shortly afterwards, received a commission in the Lancashire Fusiliers. Seconded to the RFC in July 1916, he was graded as major in the RAF following its formation in April 1918. For services in France, he was mentioned in dispatches and awarded the Distinguished Service Order. Granted a commission in the RAF with the rank of squadron leader, in 1921 he joined the School of Army Co-operation, which he later command for three years. Further experience of air-land co-operation, and, after service at the Air Ministry and overseas, he commanded No 12 Group in 1937. Five years later, he moved across to No 11 Group and, on promotion to Air Marshal, was appointed AOCinC Fighter Command. Leigh-Mallory was killed in November 1944 when the plane taking himself and his wife to his next appointment as Air Commander-in-Chief, South-East Asia Command crashed en-route.

⁷ The Commanders of the Battle of Britain, viewed 07 September 2004, <<http://www.raf.mod.uk/bob1940/commanders.html>>

⁸ Bentley, G. 1990, They Flew for Britain, Defence Force Journal, No. 85, Nov/Dec 1990, p 39.

⁹ Dixon, J., 2004, The Battle of Britain: Victory & Defeat / Jack Dixon, viewed 07 September 2004,

¹⁰ <http://www.woodfieldpublishing.com/index.html?target=p_115.html&lang=en-gb>

¹¹ German Field Marshal Gerd von Rundstedt was known as "a high priest of strategy" and was one of Hitler's ablest leaders during WWII. He held commands on both the Eastern and Western fronts, played a major role in defeating France in 1940, and led much of the opposition to the Allied offence in the West in 1944-45.

¹² Foxley-Norris, Sir Christopher, undated, Myth and Legend of the Battle of Britain, viewed 11 August 2005, <<http://www.uk-us.org/foxley.htm>>.

¹³ Northouse, P. 2004, Leadership Theory and Practice,

Third Edition, Sage Publications Inc London, p 3.

¹⁴ Van Crevald. M.L. 1985, *Command in War*, Harvard University Press Cambridge, Massachusetts and London, p 6.

¹⁵ British Army Doctrine Publication Volume 2 Command (DG&D/18/34/51 April 1995) para 0103.

¹⁶ Collier, B. 1957, *Leader of the Few*, Jarrod, London, p 60.

¹⁷ Collier, B. op cit, p 64.

¹⁸ Wright, R. 1969, *Dowding and The Battle of Britain*, MacDonald, London, p 38.

¹⁹ Collier, B. op cit pp 82-83.

²⁰ Collier, B. op cit p 84.

²¹ Collier, B. op cit, p 86.

²² Collier, B. op cit, p 111.

²³ Boyle, A. 1962, *Trenchard Man of Vision*, Collins, London, p 146.

²⁴ *ibid*, p 184.

²⁵ Hough, R. & Richards D. 1991, *The Battle of Britain*, WW Norton, London, pp 28-29.

²⁶ Wright, R. op cit, pp 60-63.

²⁷ Balfour, H. 1973, *Wings Over Westminster*, Hutchinson, London, p 132.

²⁸ *Journal of Strategic Studies*, 1981, pp 199-200.

²⁹ Reproduced in *Totality at Enclosure One*.

³⁰ Collier, B. op cit, pp 192-94.

³¹ PRO AIR 19/572, Churchill to Sinclair, dated 10 July 1940.

³² Ray, J. 1994, *The Battle of Britain: New Perspectives*, Arms and Armour, London, p 31.

³³ Ray, J. op cit, p 183.

³⁴ Wright, R. op cit, p 146.

³⁵ Bishop, P. 2003, *Fighter Boys – Saving Britain 1940*,

Harper Collins Publishers, London, p187.

³⁶ Carver, op cit, p 221.

³⁷ Balfour, H. op cit, p 133.

³⁸ 242 Squadron were badly mauled in France, and its morale was low. When 'Tin Legs' Bader first arrived at the 242 squadron's headquarters at Coltishall airfield in June 1940, most of the squadron's pilots were sceptical of their new squadron leader. They thought he would lead them from his desk on account of having both legs amputated as a result of a flying accident in 1931. Bader quickly dispelled the idea by taking one of 242's Hurricane fighters and performing acrobatics over Coltishall for 30 minutes, deeply impressing 242's pilots. He quickly transformed 242 into a tight, tough squadron through his courage, leadership, and uncompromising attitude toward his pilots, ground crews, and the RAF high command, with whom he had a major brush. After taking command, Bader discovered the unit had insufficient spare parts and tools to keep its 18 Hurricane fighters operational. Unsuccessful in resolving the problem through official channels, Bader signaled 12 Group Headquarters: '242 Squadron operational as regards pilots but non-operational as regards equipment.' He refused to announce his squadron as operational until its lack of tools and spares was rectified. Within 24 hours, 242 Squadron had all the tools and spares it needed, and Bader signaled 12 Group: '242 Squadron now fully operational.' Bader became commander of the Duxford Wing, and was credited with destroying 152 German aircraft with the loss of 30 pilots. When the Battle of Britain ended, Bader was awarded the Distinguished Flying Cross (DFC) and Distinguished Service Order (DSO) for gallantry and leadership of the highest order.

³⁹ Deighton, L. 1978, *Fighter - The True Story of The Battle of Britain*, Triad / Panther Books Ltd, St Albans, p 309.

⁴⁰ Ray, J. 1994, *The Battle of Britain – Dowding and the First Victory*, Cassell & Co, London, pp 159-60.

⁴¹ Terraine, J. 1985, *The Right of the Line*, Hodder and Soughton, London, p 196.

⁴² Orange V, 1984, *Sir Keith Park*, Methuen Ltd, London, pp 128-30.

⁴³ *Journal of Strategic Studies*, op cit, p 183.

⁴⁴ Wright, R. op cit, p207.



A Sicilian airfield suffers a heavy Allied bombing attack aimed at suppressing German and Italian air defences

Did Allied Air Interdiction Live up to Expectations in the Italian Campaign 1943-1944?

By Wg Cdr F Spence

For the purpose of this essay, Air Interdiction (AI) is defined as 'air action conducted to destroy, disrupt, neutralise or delay an enemy's military potential before it can be brought to bear effectively against friendly forces'. Although air power had been employed on missions of this type since World War I, the term AI first came into general use during the Italian campaign of World War II.¹ While it is recognised that the strategic bombing campaign against industrial targets by heavy aircraft (such as the B-17 Flying Fortress) in Europe had a distinctly AI flavour, its impact was far beyond the battlefield

and is excluded from this essay. However, when these same aircraft were employed against interdiction targets within the Italian theatre, they played an identifiable role and are included in this analysis.

Throughout this study, research preference has been given to documents dating from the immediate post-war period compiled by the Air Historical Branch (AHB) including some translations of German papers and interviews. Where possible, both expectations and results have been drawn from these contemporary

sources. Following an introduction to AI strategy in Italy, this essay will consider AI in 5 sequential operations: HUSKY; AVALANCHE; SHINGLE; STRANGLE and DIADEM. In each case, expectations will be defined and an assessment of success derived both from a mixture of contemporaneous Allied judgements and the impact as perceived by the Germans.

This paper will reveal that AI doctrine and capabilities were not fully understood at the commencement of this campaign and that expectations were excessively optimistic. However, as experience grew, a better understanding of the art-of-the-possible developed, resulting in a more mature and realistic application of this pivotal aspect of air power. Ultimately, as will be demonstrated, AI came very close to meeting expectations but fell short of its full potential.

AI Strategy in Italy

Colonel Klaus Strange (German Movements Control Italy) recognised the importance of secure lines of communications (LOCs) for both protagonists in the campaign:

'Sea traffic was important to the Western Powers as rail traffic was to Germany. The shipping routes were the arteries by which the Allies delivered the supplies on which their lives depended; the railways were the nerves by which vital impulses were brought to the German prosecution of the war. Thus it was a matter of life and death for both sides to maintain their supply-lines in order'.²

For the Allies, a successful AI campaign required a comprehensive understanding of the Italian rail network. Throughout the length of the country, the geography required that all lines passed over numerous bridges, viaducts and tunnels offering many vulnerable points which could be exploited.³ Additionally, multiple nodes were identified as essential target sets by Professor Zuckerman, scientific advisor to Air Chief Marshal Sir Arthur Tedder, Commander of the Mediterranean Air Command. In his report, 'Air Attacks on Rail and Road Communications',⁴ Zuckerman contended that owing to the limited accuracy of tactical

attacks, the best method of disrupting the rail system was through the strategic effects produced by carpet bombing critical nodes, like marshalling yards which contained concentrated sub-target sets of locomotives, rolling stock and repair facilities. He further contended that a more tactical approach of cutting individual lines would require a much greater weight of effort to achieve the same disruptive effect. He did, however, acknowledge that such tactical missions had their place: "railway and road bridges are uneconomical and difficult targets, and in general do not appear to be worth attacking except where special considerations demand it in the tactical area".⁵ In sum, Zuckerman suggested that strategic results would outweigh such immediate tactical benefits for less effort, but recognised that the delay between strategic cause and battlefield effect would make it difficult to prove this definitively. However, through an analysis of the Messina to Sicily Ferry Service, he was able to demonstrate a month-on-month reduction in the flow of materiel to Sicily; in July 1943 it was just 10% of that observed in January.⁶

While Zuckerman's findings represented a valid theory, derived from detailed analysis of air interdiction results in Italy during 1943, it must be considered within the context that it was written. During the period of his report, the Germans were pouring men and materiel into Italy and thence onward to Sicily on a vast scale. Zuckerman's assertion that the railway system became "inadequate to deal with the enemy's military needs",⁷ would seem to be validated by the German High Command in July:

'... in view of the great difficulties regarding supplies for a relatively small German force on Sicily, it cannot be expected that we shall be able to hold the island indefinitely (the main reasons for the difficulties are: the low traffic-capacity and the vulnerability of the railways in Southern Italy; the uncertainty of sea transport and the possibility of a blockade of the Straits of Messina)'.⁸

However, even before Zuckerman's proposals were published, considerable opposition to his theories was evident; critics accused him of overstating the difficulty of destroying bridges

An RAF Spitfire being serviced on a Sicilian airfield alongside an abandoned Messerschmitt Bf 109



Operation HUSKY, the invasion of Sicily, commenced on 10 July 1943 and the Allied Armies rapidly gained control of the island, pushing the defending forces into the northeast, from where they withdrew across the Messina straits to mainland Italy

while underestimating the time required to repair them.⁹ Additionally, Brigadier General Partridge (Twelfth Bomber Command) proposed "... it may be possible for the enemy to move the relatively small amount of traffic needed for military supply without using extensive marshalling yard facilities".¹⁰ In substantiation of this proposal, German records show that only 5% of peacetime capacity was required to maintain a static defence,¹¹ and in such instances, the military trains were often marshalled well away from traditional railway centres. Thus, two schools of thought

developed, those in favour of Zuckerman's 'transportation theory' and those who backed an 'interdiction plan' that concentrated on cutting railway lines. From an analysis of this controversy one thing is clear, a combination of the two schools could bring about the tactical success required at the front and the strategic paralysis of the entire German supply system in Italy. Certainly as the campaign progressed the Allies possessed sufficient assets for both tasks and developed the technical expertise to conduct the former with sufficient accuracy and economy of effort.

Operation HUSKY

Operation HUSKY, the invasion of Sicily, commenced on 10 July 1943 and the Allied Armies rapidly gained control of the island, pushing the defending forces into the northeast, from where they withdrew across the Messina straits to mainland Italy. While months had gone into the planning of HUSKY, the decision to follow this with an invasion of mainland Italy was formulated rather more quickly. Plans to counter a German evacuation were not really considered until 31 July when the possibility of evacuation first came to light and it was not until 3 August that General Alexander (Deputy Commander in Chief) was persuaded, by ULTRA¹² derived information, to take action. Signalling his naval and air commanders, "you have no doubt co-ordinated plans to meet this contingency . . ."¹³ His expectations were of a joint interdiction of the evacuation. He was to be severely disappointed as neither Admiral Cunningham nor Tedder had any such contingency plans.¹⁴

As the Army was in no position to overrun the German retreat on the ground, and the Navy was unable to contend with it at sea (owing to well-founded concerns relating to significant coastal defences)¹⁵ the whole responsibility fell to the Air Component — namely Air Vice Marshal Coningham's Tactical Air Force (TAF). Intelligence analysts of the time correctly calculated that the Axis evacuations would be made at night, ideal operating conditions for Coningham's tactical Wellington bombers. This tactical AI effort did indeed disrupt the evacuation (Operation LEHRGANG), so much so that the Germans were forced to cross the straits by daylight from 13 to 16 August. This is where Coningham's gravest error of judgement was revealed. On 11 August, he had released the Strategic Air Force (SAF) B-17 aircraft, which he had had on hold for nearly a week, from their commitment to join the interdiction effort. Doubtless he was under pressure to release them for strategic tasking at the earliest opportunity and he considered that, as the German evacuation was expected to be conducted at night, his TAF assets were best placed for the task. He was right, but the successful night AI so harassed the enemy that they were forced to

recourse to daylight operations to maintain their momentum.

Following the switch to daylight operations, a staff officer of the TAF wrote that "the immense concentration of the flak on both sides of the narrows makes it impossible to go down and really search for targets with fighter-bombers. It also greatly restricts the use of light bombers".¹⁶ What Coningham really needed for a comprehensive AI effort against the retreating forces were the Strategic B-17s that he had recently relinquished. These aircraft were configured for daylight operations out of the reach of the flak that hindered the lighter TAF forces. By a twist of fate, on 13 August, just as Coningham's intelligence staff were advising him of the Germans' switch from night to day, the entire B-17 force was conducting a determined raid on rail targets in Rome, part of a greater interdiction campaign on the mainland. For reasons that remain obscure, but which probably relate to logistic and crewing issues, the B-17s remained unavailable until 17 August, by which time LEHRGANG was complete.¹⁷

Without doubt, other errors of judgement were made in all 3 environments. In his book 'Air Interdiction in Three Wars', Eduard Mark suggested that, "the cautious, even plodding, strategy pursued by the Allies in their conquest of Italy made the success of LEHRGANG possible, if not certain".¹⁸ To judge the failure of this interdiction as a purely air failing is premature. This was an operation conducted on land, sea and air, yet the final responsibility for defeating LEHRGANG fell solely to air power. With a better approach to joint planning, success would have been far more likely. Had the Allied command recognised the strategic impact of a successful German withdrawal earlier, B-17s could have silenced the coastal guns allowing the navy to enter the straits. Additionally, with greater direct air support, the Army could have advanced with more vigour on land.

The jury is still out on this issue, just one of the controversies surrounding the Italian campaign. What is certain is that the overall interdiction effort on forces retreating from Sicily did not live up to



Troops come ashore at Salerno, July 1943

Approved in July 1943, Operation AVALANCHE (amphibious landings at Salerno) commenced on 9 September. Expectations were high, with both Americans and British too readily accepting that the inevitable fall of the fascist Italian regime would cause the Germans to withdraw their forces from Italy following major Allied landings

expectations. However, these expectations were late in being articulated and over-ambitious in relying entirely on air power for this crucial task. The 60,000 troops and 13,700 vehicles evacuated would soon be confronted again on the mainland, while the 40,000 tons of supplies shipped back would provide a cushion against subsequent Allied AI endeavours during Operation AVALANCHE in September.

Operation AVALANCHE

While Churchill had always favoured follow-on enterprises in the Mediterranean, it was only the strategic delay to Operation OVERLORD that

finally enabled him to convince Eisenhower to press their advantage with an invasion of Italy. Approved in July 1943, Operation AVALANCHE (amphibious landings at Salerno) commenced on 9 September. Expectations were high, with both Americans and British too readily accepting that the inevitable fall of the fascist Italian regime would cause the Germans to withdraw their forces from Italy following major Allied landings.¹⁹ For AVALANCHE, the air forces were instructed to 'isolate the battle area'.²⁰ While air and sea routes were all but sealed owing to air activity, the isolation of land LOCs was a tougher nut to crack. Having failed to capture any significant enemy

forces on Sicily, great hopes were originally held of cutting off the German armies in 'the toe of the boot' and preventing them from escaping.

German records indicate that significant disruption of the Italian rail network was being experienced by August 1943.²¹ However, there were generally sufficient supplies for replenishment and even for the building-up of a reserve.²² Most of this still travelled by rail (albeit in a disrupted manner) supplemented by limited coastal shipping; additional supplies had also been recovered during LEHRGANG. However, fuel supplies were critical at this stage, and when distribution was disrupted, it had a predictable effect on the ground battle as, despite sufficient stocks in the rear, localised shortages persisted. The Germans attributed these shortages to the Allied air interdiction effort on the road and rail networks.²³

The German 10th Army under Von Vietinghoff bore the brunt of AVALANCHE. The AI campaign on mainland Italy had continued almost unabated since the beginning of the year and, prior to the landings, great care had been taken so as not to highlight the amphibious objectives. Although Von Vietinghoff was established in the area prior to the invasion, his forces were not as well supplied or as mobile as he would have liked. His Chief of General Staff wrote at the time that:

"the first decisive consequence [of the Allied AI effort] was that the traffic on the roads was delayed considerably as a result of the enemy air supremacy and the fuel which would have enabled the armoured and motorised formations to reach the battlefield in good time could not be delivered to them. For this reason, 16th Panzer Division had to continue the battle alone longer than had been intended and reinforcements arrived by small instalments".²⁴

In his own study of the campaign, Von Vietinghoff recalled that at the end of the first day of fighting, he was not dissatisfied with the situation:

"In spite of great Allied superiority, 16th Panzer Division had managed to prevent the enemy from gaining any substantial initial successes...the first

units of the 29th Panzer Division were expected during the coming night . . . and, if they arrived in time, there was hope of a favourable outcome".²⁵

However, his study subsequently acknowledged that the shortage of fuel at this time was "an important, perhaps decisive influence on the course of the battle at Salerno" and that it caused even the most advanced reinforcement units of 29th Division to be delayed by 36 hours.²⁶ By 14 September, the last reinforcements had arrived, but intensive Allied air attacks made movement on or towards the battlefield extremely difficult; by 16 September a German withdrawal had been approved.

At Salerno, the delayed arrival of key German units was pivotal to the ability of the Allied landings to be fully established and exploited. Perhaps for the first time, the effect of AI was immediately apparent at the tactical level. While there would always be calls for additional Close Air Support (CAS) in such situations, it was AI that most impacted on the enemy's ability to resist. Complete isolation of the battlefield may not have been delivered as was sought but sufficient disruption and delay was created to generate space and time in the Allies favour. However, that the Germans retreated at their own pace is perhaps the greatest indictment of the failure of AI to stem the flow away from the battlefield.²⁷ Although the enemy was not trapped in the 'toe' as hoped nor the battlefield isolated, the enemy was prevented from bringing his forces to bear at the beachheads at a rate greater than which could be handled by the landing forces. In these terms AI proved invaluable at Salerno. Similar success would soon be called for again further to the north at Anzio.

Operation SHINGLE

The AI campaign in support of Operation SHINGLE (the amphibious landing of 2 Divisions behind the Gustav line at Anzio) aimed to retard the advance of German divisions from the north towards the Allied beachheads²⁸ in line with a general confidence that 'AI could cripple Italy's railroads sufficiently to make a major [enemy] concentration impossible'.²⁹ A general Air Directive was issued on 30 Dec ' . . . to attack enemy



The final counter-attack commenced on 28 February but '[the] stubborn resistance of Allied ground forces and the damage and delay caused by air attacks had blunted the force of the attack...

communications in such a manner as to impose maximum disruption to enemy supply lines to the battle area and to support the ground and naval operations by every means possible from the air'.³⁰ Any critique of this air operation must be judged against the fact that only 23 days were available for detailed planning and that preparatory AI strikes commenced just two days later.³¹

Air aspects of SHINGLE were enabled by the extensive airfield structure captured from the retreating Germans in the south of Italy, Sicily, Sardinia and Corsica; at the peak, 2903 aircraft participated.³² There were three phases to the Allied AI plan: from 1 – 14 January, a disruption

of rail communications in central Italy combined with deception operations in the North; from 15 – 21 January, an all-out effort to isolate the battle area by increasing attacks on both railways and roads north of Rome and those leading to Anzio; and from D-day (22 January) onwards, a continued isolation of the battle area. Throughout, the TAF was focused on targets in central Italy while the SAF concentrated on targets to the north.³³

Owing to Allied AI of roads and railways, Major General Wolf Hauser recalled that the first counter-attack, planned for 28 January, was delayed until 3 February.³⁴ This timing coincided with a period of bad weather that reduced the ability of

air power on either side to influence the battle. When the weather improved, control of the air was heavily contested by the Luftwaffe with significant tactical successes being made by German ground forces. However, the Allied deception to the north resulted in some German doubt and was a key factor in this initial success not being pressed home immediately.³⁵ Regardless, by 12 February, the Germans held master positions for an all-out drive that, if successful, would cut the Allied beachhead in two and prevent their evacuation. The main problem for the Germans was to build up sufficient forces to carry their plan forward.³⁶ To counter this, AI played a critical role. The second, and largest, German counter-attack on 16 February (in which Hitler demanded the elimination of 'this abscess' in three days)³⁷ showed early promise but by 19 February shortages of ammunition, water and reinforcements had taken their toll. Exhausted, the enemy withdrew on 20 February to reorganise;³⁸ a clear indication of AI affecting his plans. The final counter-attack commenced on 28 February but '[the] stubborn resistance of Allied ground forces and the damage and delay caused by air attacks had blunted the force of the attack . . . From [1 March, the] German strategy could be perceived to have shifted gradually from the offensive to the defensive'.³⁹

During SHINGLE, it was apparent that the AI campaign was having an effect, as the prolonged attacks on the Germans' logistic tail constricted their availability of fuel and ammunition. Indeed, retrospective statistics suggest that the Germans were only able to fire one artillery shell for every 12-15 of the Allies.⁴⁰ 'The third major landing on Italian soil had been executed and like its forerunners, had only been secured by a narrow margin'.⁴¹ Thus, SHINGLE failed to achieve the rapid success desired by Churchill. However, AI proved to be a decisive factor in slowing the German counter-attacks and reducing their ferocity; AI created the 'narrow margin'.

In his report on SHINGLE, the Air Commander-in-Chief, General Baker, concluded that "military critics have not appreciated what air forces can and cannot do and the true influence of the weather in placing a ceiling on their capabilities". Baker's final observation was that the better weather in the spring would allow the containment of German

divisions in Italy and "so cut them up that they will be of little use elsewhere".⁴² Operations STRANGLE and DIADEM were planned to do just that.

Operation Strangle

Operation STRANGLE marked the watershed between Zuckerman's 'transportation strategy' and the alternative 'interdiction strategy'. Central to STRANGLE was 'an attempt to force the Germans into retreat by attacking their railroads at about 100 miles from the front so as to increase the strain on the enemy's already inadequate motor transport'.⁴³ The directive of 18 February 'Operations in Support of DIADEM [including STRANGLE]' sought to break the Italian stalemate solely through an aerial siege of the Gustav Line to the point where the 17 to 20 German divisions in the south of Italy became insupportable forcing a withdrawal to at least the Pisa-Rimini line.⁴⁴ In deference to Zuckerman, the SAF would continue to target six rail-centres in the north of the country, but tactical forces would switch their main effort to cutting enemy LOCs.

This switch of main effort can be explained by a maturing intelligence analysis that recognised that: the marshalling of military trains was seldom conducted in marshalling yards; the vast stocks of engines and rolling stock rendered attacks against them irrelevant; and that the enemy's static defence was still being supplied, despite 8,258 tons of Allied bombs being dropped on marshalling yards over the preceding 19 weeks.⁴⁵ Additionally, technical advances now rendered bridges vulnerable to less than 200 tons of bombs compared with 500 to 1,000 tons during the period of Zuckerman's study.

STRANGLE commenced on 19 March, when sufficient tactical aircraft became available for the revised concept of operations. Certainly, on 20 March, the Germans noted a change in AI tempo and tactics, particularly with respect to the fighter-bomber contribution.⁴⁶ The intensity of these tactical attacks resulted in significant disruption along much greater lengths of track owing to precision attacks on bridges, trains, track and the electrical and communications supply systems. Whereas the strategic bombing effort had been fairly predictable owing to the limited target

sets, the fighter and medium bomber threat was omnipresent resulting in disruption over the entire rail and road networks, creating the need for a much more reactive and responsive repair system. Critically, it also demanded that gaps in the lines be linked by motor transport, thus eating into precarious fuel reserves.

With Allied air supremacy by day, it was only at night or during bad weather that German logistics could regenerate. During this period, it was recognised by the Germans that ‘... all these troubles arose from the new air offensive. The difficulties multiplied and seemed to become insurmountable’.⁴⁷ However, in a typically resilient manner, additional railway engineers were imported and an improved air defence infrastructure was created, resulting in occasional logistic respite when traffic was kept moving for hours or even nights at a time.⁴⁸

The TAF report on STRANGLE concluded that ‘there was no doubt as to the complete tactical success’.⁴⁹ However, despite this tactical acclaim, strategic hopes that air power could be employed unilaterally to isolate the battlefield and force a general retreat were not fulfilled. The German perception of the combined effects of strategic bombing, tactical interdiction and armed reconnaissance of STRANGLE was less debatable; the capacity and manoeuvrability of the German 10th and 14th Armies fell severely short of their expectations and they were concerned that their supplies would prove inadequate once the predicted Allied spring offence commenced. By the start of Operation DIADEM, German stocks of critical items were still at a lower level than those planned for the start of STRANGLE, two months previously.⁵⁰

Operation DIADEM

In a letter sent to Air Chief Marshal Portal (Chief of the Air Staff) during the height of STRANGLE, Air Marshal Slessor (Deputy Commander Mediterranean Allied Air Forces) stated: “...we have now made it impossible for the Hun to act offensively, as he did against the [Anzio] beachhead in February. But we have not yet succeeded in making him pull out, and I don’t think we shall by air action alone: what we have done ... is to make it impossible for him to resist

successfully, a determined and sustained offensive by the ground forces”.⁵¹

Operation DIADEM was conceived to fulfil this requirement by ending the stalemate in Italy and capturing Rome. The Air Component was required to ‘render it impossible for the enemy to maintain his forces on [the Gustav] line in Italy in face of a combined Allied Offensive’.⁵² In AI terms, therefore, it differed from STRANGLE in that the effort was conducted in coordination with a ground offensive which placed additional consumption demands on the Germans. While the Germans had sufficient logistic support for a static defence, it was calculated that the additional 1,000 tons per day required to oppose the Allied ground offensive would generate a critical situation, especially with respect to fuel, which would curtail German mobility near the front.⁵³ However, by concentrating their offensive on a narrow frontage, the Allied scheme of manoeuvre failed to fully exploit the German motor transportation crisis, despite the increased demands of heavy fighting.

Conceptually, DIADEM was a continuation of STRANGLE, though the interdiction line increased to 140 miles in depth to further increase the demands on the fragile motor transport and fuel situation. Additionally, and in accordance with the ground advance, AI was required to interdict forces retreating from the front. In this realm, intensive patrols of armed reconnaissance aircraft added to the action ensuring a continual harassment across the battlefield by day.⁵⁴ The ability of the enemy to conduct re-supply at night or in bad weather, by both land and sea routes, had long been recognised but the Allied air forces were poorly placed to improve the continuity of their AI action. While improved tactics, incorporating flare-dropping aircraft, were successfully employed, filling the AI void at night was inadequately resourced; only four squadrons, of Bostons and Baltimores, plus the occasional Wellington were assigned to these duties.⁵⁵ In terms of expectation, DIADEM certainly broke the stalemate of the campaign and great advances were made by the Allies; Rome fell on 5 June. However, compared to the promise recognised previously, AI during DIADEM appears disappointing at first glance. All the lessons from

previous operations had been applied, technical advances had been incorporated and these factors, combined with contrived battle consumption ought to have rapidly produced the predicted collapse of the German logistic system. However, while the under-resourced night effort was partly to blame, the absence of total and immediate collapse should not be considered as a failure of AI but as a malfunction of the joint planning process, which failed to marry together the ground and air plans, to best exploit the AI induced motor transport crisis. Although DIADEM did live up to expectations, disappointingly, AI failed to reach its full potential, despite all the building blocks having been recognised.

Conclusion

The modern understanding of AI was born in the Italian campaign and it was required to mature very rapidly. Initially, excessive expectations were made of it while it was undergoing tactical, doctrinal and technological growth.

Early in the campaign, Zuckerman's theory was influential in determining target sets and provided a methodical and logical structure to the initial AI effort which sought to stem the strategic flow of forces into the theatre in general and Sicily specifically. During HUSKY, the need for a joint approach to interdiction planning was revealed as the Germans successfully evacuated Sicily with minimal losses in broad daylight. Although the limitations of unilateral AI were highlighted by this failure, faith in its potential remained, as evidenced by the increasing demands placed upon it in subsequent operations.

AI in AVALANCHE and SHINGLE revolved around delaying and disrupting German advances towards vulnerable bridgeheads. Such amphibious operations presented the enemy with an immediate need to counter attack as strongly and rapidly as possible. In both cases, the key to success was to win the logistic competition to build sufficient forces faster than the enemy. At Salerno, it was the AI induced delay and disruption of the 29th Panzer division that really foiled the Germans' ability to counter attack and repel the landing. At Anzio, it was a general reduction in the fighting capacity of the Germans in and approaching the

battle area that eventually won the day – but only just. In both cases, AI failed to completely isolate the battlefield as had been expected, but its delaying contribution was central to Allied survival.

The nature of AI during STRANGLE and DIADEM was different as the Germans were entrenched in static defensive positions. Here, AI effort was aimed at depleting German fighting capacity and restricting their freedom of manoeuvre to such an extent as to force a withdrawal. In both operations, AI proved capable of inflicting significant disruption to the flow of goods into the area, but isolation remained an elusive expectation. The anticipated spontaneous German withdrawal under the combined pressure of AI and land offensive (a wholly realistic expectation at this stage) failed to materialise as rapidly as expected, owing to the limited front that the Germans had to defend and supply.

In his summary of the Spring Offensive (dated 18 June 1944), Slessor recognised the things that AI could not be expected to do:

"It can not by itself defeat a highly organised and disciplined army . . . It can not enforce a withdrawal by drying up the flow of essential supplies . . . It can not prevent entirely the movement of strategic reserves to the battlefield. . . In short, it can not absolutely isolate the battlefield from enemy supply or reinforcement".⁵⁶

Armed with these realisations, it is evident that the expectations of AI in the Italian campaign were overambitious and perhaps even impossible. However, within a coordinated joint effort, AI held great promise.

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Notes

¹ Sallagar (1972) p 1.

² AHB Translation Vol 10 (1947) – VII/100 p 8.

³ *ibid* p 9.

⁴ AHB Vol I App 19.

⁵ *id.*

⁶ *id.*

⁷ *id.*

⁸ AHB Translation Vol 10 (1947) – VII/100 p 5.

⁹ Mark (1994) p 94.

¹⁰ AHB Vol I p 308.

¹¹ *ibid* p 308.

¹² Top Secret, deciphered intelligence gleaned from German Enigma transmissions.

¹³ Mark (1994) p 67.

¹⁴ *id.*

¹⁵ A study of the naval losses in the Dardanelles in 1914 would explain his concerns.

¹⁶ Mark (1994) p 74.

¹⁷ *ibid* pp 71-72.

¹⁸ *ibid* p 77.

¹⁹ *ibid* p 84.

²⁰ AHB Vol I p 142.

²¹ AHB Translation Vol 10 (1947) VII/100 p 2.

²² *ibid* p 4.

²³ *ibid* p 7.

²⁴ *ibid* p 7.

²⁵ *ibid* VII/97 p 15.

²⁶ *ibid* pp 12-13.

²⁷ AHB Vol I p 145.

²⁸ *ibid* pp 237-238.

²⁹ Mark (1994) p 114.

³⁰ *ibid* p 238.

³¹ *ibid* p 237.

³² *ibid* p 259.

³³ *ibid* p 240.

³⁴ AHB Translation Vol 10 (1947) VII/99 p 7.

³⁵ AHB Vol I p 254.

³⁶ *ibid* p 255.

³⁷ *ibid* p 258.

³⁸ *ibid* p 263.

³⁹ *ibid* pp 266-267.

⁴⁰ Marc p 137.

⁴¹ AHB Vol I p 268.

⁴² *ibid* App16.

⁴³ *ibid* p 148.

⁴⁴ *ibid* p 149.

⁴⁵ *ibid* p 149.

⁴⁶ AHB Translation Vol 10 – VII/100 p 14.

⁴⁷ *ibid* p 15.

⁴⁸ *id.*

⁴⁹ AHB Vol II p 21.

⁵⁰ marc p 190.

⁵¹ Terraine 1985 p 594.

⁵² AHB Vol I p 326.

⁵³ Mark (1994) p 184.

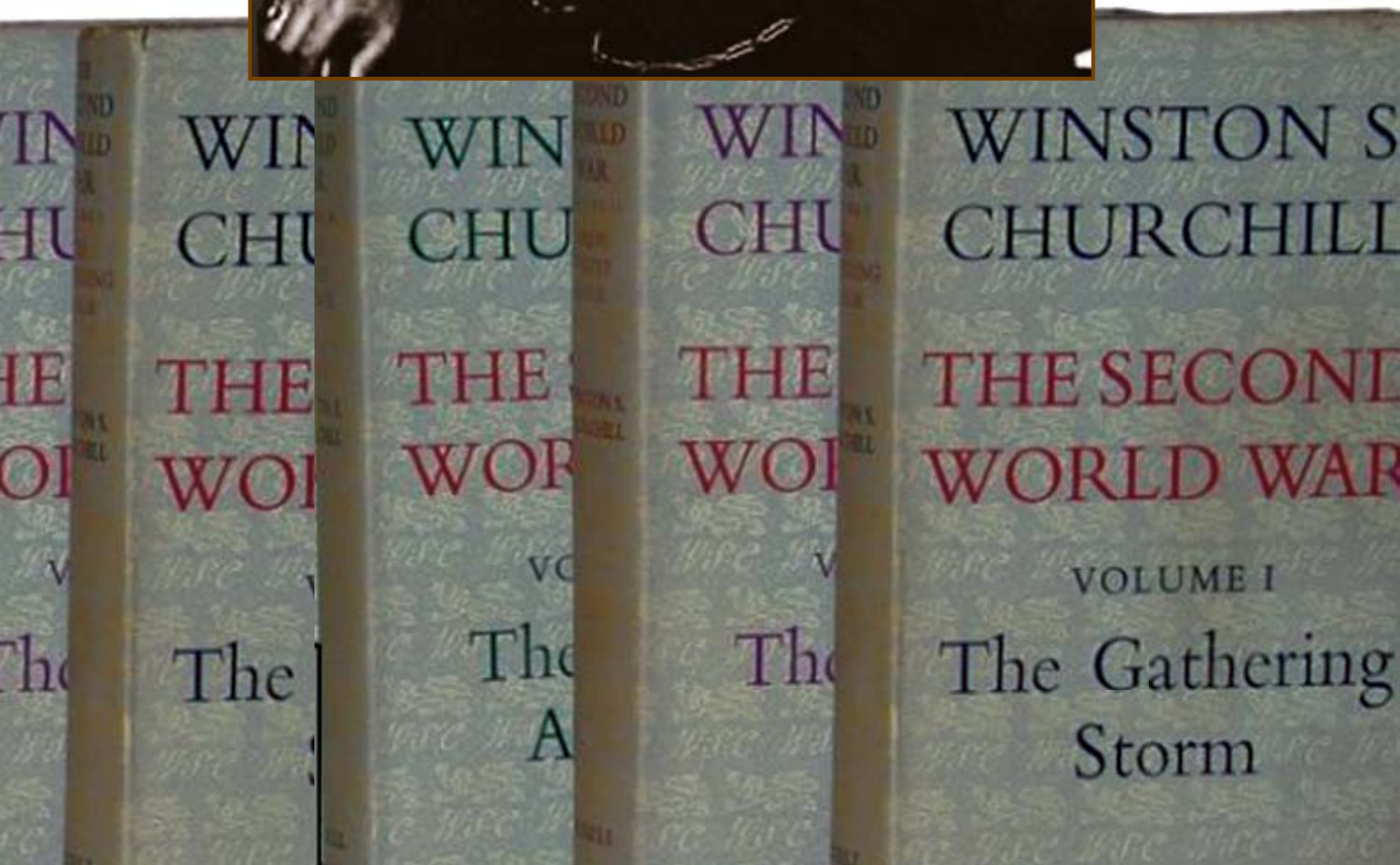
⁵⁴ AHB Vol II p 11.

⁵⁵ *ibid* p 25

⁵⁶ AHB Vol II -APR 5 p 1.



Churchill and his
six-volume memoirs



In Command of History:¹

The Air Power Implications

A Review Essay by Air Cdre Peter W Gray RAF

Churchill regularly stated that he was more than content to leave a particular controversy (of which he presided over many) to history – but then quipped that he intended to write the history himself! This clear intention was manifest throughout his long career, both in and out of office. Churchill was a master of communication in all of its forms. His speeches, and broader rhetoric, are still regularly turned to as sources of quotations; his journalism kept him almost close to being able to afford the lifestyle that he chose to adopt; and his multi-volume histories have established his place as an esteemed historian of the English-speaking world. By the time that he returned to office as First Lord of the Admiralty in Chamberlain's government, Churchill had considerably refined his methodology for preparing for prosperity – of which his place therein was of no small importance! Indeed, Churchill's preparation, paper handling, archive forming and occasionally the contents of his

famous minutes all had his writing of the history in mind to a greater or lesser extent.

This major work by Professor David Reynolds² concentrates on Churchill's authorship of the six-volume memoirs-cum-history *The Second World War*. The Allied victory in this conflict cemented, for better or worse, the Churchillian legend that he had done much to engender. The *Second World War* was, and is, a huge work comprising of some 2 million words. Cassells published the work in the UK with sales passing the two million mark; similar sales were recorded in North America where it was also serialised in the *New York Times* and *Life*. The *Second World War* was composed over some seven years and each volume reflects the politics – domestic and international – of the period after 1945 in which it was written. As such, his own role as titular leader of the opposition, or prime minister, had a bearing on what he could, and could not, say. Churchill had a number



Churchill, however, did not ignore air power in its entirety. After all, he was a keen follower of technology and had attempted to gain his own Pilot's Licence; he had been seriously taken with the 'fascinating new art' of flying and it took a near fatal crash

in 1919 to persuade him that his pressing on would be irresponsible to his family. This did not, however, stop him wearing RAF 'Wings' on his Air Commodore's uniform on occasions!

of motivating factors for undertaking such a monumental work while visibly ageing and under increasing pressure. Not least of these was money and Reynolds' descriptions of the machinations Churchill's lawyers undertook to prevent most of the proceeds from the prolific world-wide sales ending up as tax make fascinating reading. Churchill was also seeking to re-establish awareness of the reality that the United States had not won the war on her own – as contemporary publications and movies were beginning to imply. Most of all, however, as Reynolds points out, Churchill was seeking vindication for his own actions – and condemnation of others. He was hugely successful in his damnation of appeasement with the reputations of Chamberlain and Baldwin never recovering. Likewise the stark contrast between the 'feeble French and the defiant

British' in 1940 'has shaped English-language history ever since'³. The implication that this work should have such far-reaching influence and authority has been no accident. Churchill's Cabinet Secretary, Sir Edward Bridges, and his successor Sir Norman Brook both considered the work to be part memoir, but also part official history. Indeed, the latter acted both as a censor and unofficial editor with several pages of the work entirely in his own words.

A work of this authority had immediate implications for the ensuing historiography of the Second World War; for the careers of those of whom Churchill approved; and for the myriad of policy issues on which Churchill commented. The role, and delivery, of air power is one such case. This review essay will explore the issues

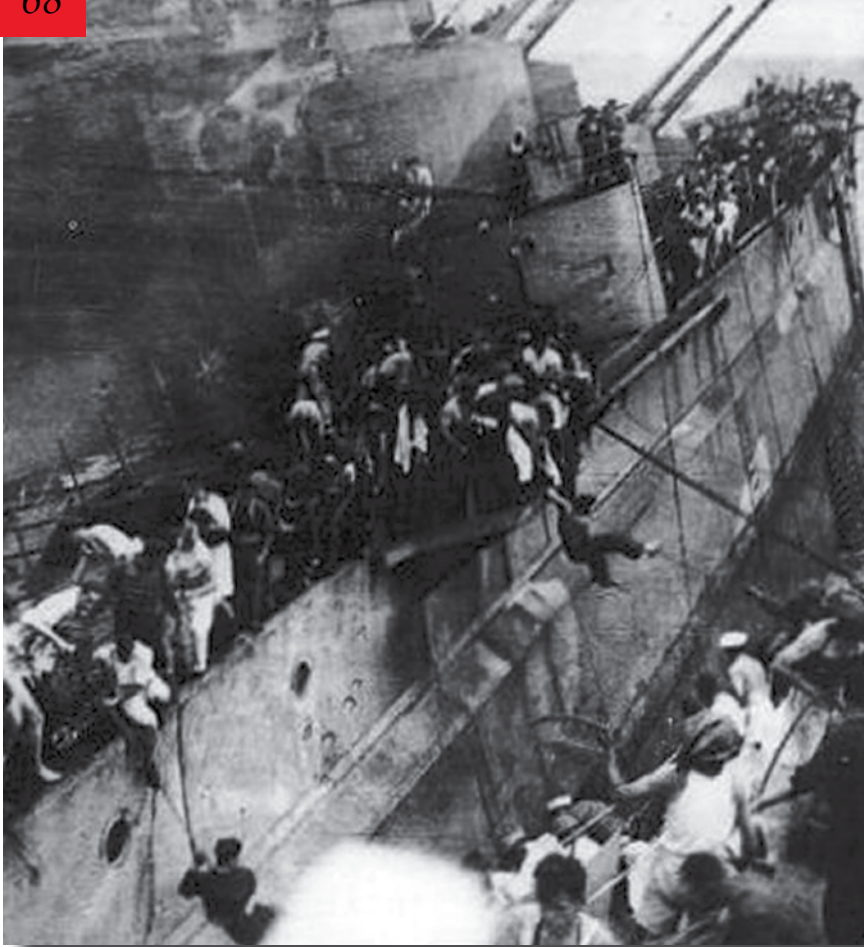
that Reynolds highlights in his book along with the methodological rationale that led to the subject being dealt with in the way that Churchill chose so to do.

In analysing Churchill's treatment of airmen and air power in *The Second World War*, it must first be acknowledged that Churchill did not write all 2 million words himself. Rather, the six volumes were the result of the endeavours of a team of researchers who became known as the 'syndicate'. In addition to the unofficial efforts of the Cabinet Secretary, Churchill drew on the expertise of a former Vice-Chief of the Imperial General Staff – Lieutenant-General Sir Henry Pownall – who handled military operations, for example producing papers on the Battle for Monte Cassino; his efforts run consistently through the whole. Churchill was also assisted by Lord Ismay who had been the wartime Military Secretary to the Cabinet. Professional historical academic support came from William Deakin who had served as a Colonel in the Army in command of the first British Military Mission to Tito⁴; he had previously assisted Churchill with his work on the life of Marlborough and later went on to head one of the Oxford Colleges. The naval aspect was provided by Commodore Gordon Allen who had served at Jutland in the First War and then ended the Second as Senior Naval Officer in the Combined Operations HQ. The fifth recruit was Denis Kelly who had won an MC in Burma. Two things immediately become apparent: the first is that each of these individuals came to the party with their own baggage, memories or agendas. Pownall, for example, had worked in British Expeditionary Force HQ and had later had first hand experience of Churchill's erratic working habits. More importantly, Churchill did not have an airman permanently on his team. As Reynolds points out⁵ this led to the air power angle suffering from neglect. Admittedly Churchill referred some texts to Viscount Portal who had been his Chief of the Air Staff for much of the War. He also attempted to fill the gap by asking Air Marshal Sir Guy Garrod to produce some material on the strategic bomber offensive, albeit that this material ended up being unceremoniously dumped out of sequence in a later volume. But in terms of balance, this created

an immediate and lasting imbalance within the six-volume book and the serialisations. It also, and arguably more importantly, led subsequent air power historians to have to rely on the official histories of the individual campaigns (such as Webster and Frankland's *Strategic Air Offensive against Germany 1939-1945*).

Churchill, however, did not ignore air power in its entirety. After all, he was a keen follower of technology and had attempted to gain his own Pilot's Licence; he had been seriously taken with the 'fascinating new art' of flying and it took a near fatal crash in 1919 to persuade him that his pressing on would be irresponsible to his family⁶. This did not, however, stop him wearing RAF 'Wings' on his Air Commodore's uniform on occasions! Churchill was also well aware of the potential of German air power and his message features prominently in Book 1 of *The Gathering Storm* (Volume I of the master work)⁷. It is evident, even in this early reference, that Churchill was rather dismissive of the potential of tactical air power while showing a propensity for exaggerating the scope for civilian casualties. Reynolds points out very clearly⁸ that Churchill's memoirs suggest that he was considerably more clear thinking and far-sighted than was actually the case. It should also be acknowledged that he was not quite the lone voice that has become part of the Churchillian myth. In fact, he was but one of a number of players working to increase awareness of German potential. Nor was he alone in misjudging the potential casualty figures that could result from the Luftwaffe attacking our cities. In *The Gathering Storm*, Churchill makes a bland admission that he painted too dark a picture – but deliberately excises some of his numerical predictions from one speech and buries others deep in appendices.

In fairness to Churchill, his involvement in pre-War air defence committees gave him a head start when he became Prime Minister in 1940. The fall of France and the Battle of Britain provide the central theme to Volume II – *Their Finest Hour*. Naturally these events also provide the scope for some of Churchill's most memorable speeches. But the rhetoric often hides the divisions that



The crew of HMS *Prince of Wales* abandoning ship

Churchill's sublime self-confidence in his own ability as an accomplished naval strategist was to suffer several rude awakenings at the hand of air power during the conflict. One, almost literal, awakening came with the news of the loss of the Prince of Wales and Repulse to Japanese aircraft in December 1941

were present within the strategic leadership. Lord Halifax, as Foreign Secretary, remained convinced that a negotiated settlement with Hitler was the only practical solution. From Reynolds' uncovering of 'Confidential Annexes' belonging to the Cabinet Secretary⁹, it is apparent that Churchill himself admitted to the possibility of subsequent negotiations with a successor regime to Hitler's once German resistance had been lowered. Seen through the prism of 1940, when the abyss seemed all the darker and wider, it is clear that the only practical mechanism for Britain to bring this about was through the generation of our own strategic bombing offensive. Hindsight allows Churchill, and his successors, to see the inescapable logic of 'unconditional surrender'. But this only became feasible after Hitler's attack on Russia and American entry into the conflict. At the time, strategic bombing was, in modern vernacular, a 'no-brainer'.

But first the threat of invasion had to be countered. Reynolds again highlights¹⁰ that the various intelligence staffs had been seriously rattled by their failure to predict many of Hitler's more audacious moves and the success of tactics such as Blitzkrieg. The assessment pendulum swung from complacency to panic and invasion fever was alive and well. The disagreements between Churchill and his Chiefs of Staff over the severity of the invasion threat, its target area and whether it would be attempted without air superiority were largely eradicated from the successive drafts of *Their Finest Hour*.

Churchill's subsequent description of the Battle of Britain is as well known as any other English-language classic. What is interesting from this description, particularly from the historiographical point of view, is that the story was already well known when Churchill reached for his pen (or

more accurately started dictation). The Air Ministry (through the Air Historical Branch) had, in 1941, published a publicity pamphlet under the title, not surprisingly, *The Battle of Britain*. At threepence a copy, and sixpence for the illustrated version, orders exceeded 1.5 million within the first week¹¹. It was marketed widely in America and served to elevate the Battle of Britain to parallel Trafalgar (although reference to the latter was taken out of the French version!). Churchill had its original author tracked down and commissioned him to update and prepare a companion paper on the Blitz. Churchill therefore accepted the official account of the Battle with its four phases and concentration on 15 September 1940 – even though post-war research (available at the time) had shown that the Luftwaffe lost more aircraft on 15 August. This allowed him to avoid a battle of numbers and perpetuated the myths that he had helped to create. A final point that comes out of the writing of this episode was the depth of focus on ‘the Few’. When Churchill made his famous speech on 20 August 1940, he deliberately referred to all British aircrew — including the Bomber crews who would be taking the battle to the Reich¹². This theme was a key factor in his thinking at the time, that modern warfare was to be fought by relatively few specialists, rather than the masses involved in trench warfare¹³. The Air Ministry pamphlet had focussed public attention on the Fighter Command pilots as being ‘the Few’, and with the debate growing on the ethics and effectiveness of the Bomber offensive, Churchill was more than content not to rock this particular boat.

Churchill’s sublime self-confidence in his own ability as an accomplished naval strategist was to suffer several rude awakenings at the hand of air power during the conflict. One, almost literal, awakening came with the news of the loss of the Prince of Wales and Repulse to Japanese aircraft in December 1941¹⁴. Churchill’s treatment, in Volume III, *The Grand Alliance*, of these incidents also reveals his greater strategic error in underestimating the power and potential of Japan. He gave vent at the time to his anger over Japanese by urging a massive air assault on Japan which should include the ‘burning of Japanese cities by

incendiary bombs’; not surprisingly, and consistent with his stance on Dresden, Churchill was less aggressive in his memoirs.

On 3 September 1940, while Fighter Command was locked in its deadly contest with the Luftwaffe, Churchill wrote that ‘the Bombers alone provide the means of victory’¹⁵. He went on to advocate the destruction of the enemy economy as the only option open at that time. Although Churchill printed these, and other similar comments, on bombing in *Their Finest Hour*, they are either buried in appendices or quoted out of context. Reynolds dryly comments their ‘significance for strategy is thereby obscured’! A similar stratagem was used in the publication of the papers prepared by Air Marshal Sir Guy Garrod on the strategic bombing debate. This debate was at its height in 1942 and should therefore have fitted into Volume IV *The hinge of Fate*. Admittedly publishing pressures did not help, but they cannot excuse the consignment of this work, out of context, into Volume V *Closing the Ring*. The debates on whether air power should have been transferred to the Middle East, or to support the Battle of the Atlantic, are well known. The fact that by summer 1942 they had escalated to Cabinet and Chiefs of Staff level is glossed over by Churchill¹⁶. In practical terms, Churchill could see little real alternative but to continue the Bombing offensive. He was certainly reluctant to see the air power assets spread too thinly between the Coastal Command and the army. Reynolds suggests that Churchill did not share Trenchard’s view that the strategic bombing offensive could make an invasion unnecessary. But it is clear that he saw the systematic attacks on Germany as essential preparation for the eventual invasion. It is not explicitly stated that Churchill foresaw that an absolutely essential element of the preparation – the battle for air supremacy over the beaches and landing grounds of Normandy – would actually be conducted over the heartland of the Reich. Churchill’s treatment of the work of Bomber Command in his volumes is, at best, lukewarm. It is clear that Garrod was neither a historian, nor an accomplished staff officer like Pownall. Garrod’s work was therefore comparatively pedestrian and it is evident that he brought little ‘baggage’ on the

subject to his narrative (he had been in the Far East and the Mediterranean for the last two years of the war, rather than involved in the controversy over bombing policy).

In his minutes, Churchill was unambiguous over the need to hammer the enemy — whether it was Germany, Italy or Japan. It became evident as the War progressed that Churchill did not stay abreast of the various debates, particularly the ones that centred on primacy between oil, transportation and area bombings in 1944. There is also a strong suggestion that, by this stage, he was positioning himself for the post-war moral high ground¹⁷. His rather grudging comments on Harris' leadership are just part of the theme.

As one progresses through the original six volumes, or through Reynolds' probably more readable text, it becomes clear that Churchill has a very clear preference for a given style of leadership¹⁸. It would probably be too grand to say that he espoused one theory over another, but it is clear that he favoured certain 'Great Men' of history and of the contemporary conflict. Particular favourites included Montgomery, Mountbatten and Alexander. Although it is evident from Henry Probert's fine biography of Harris that Churchill had a close relationship the Commander-in-Chief of Bomber Command in the early years of the war, this is not reflected in *The Second World War*. The World Statesman and Nobel Prize Winner (albeit for Literature, not to Churchill's chagrin for Peace) was content to keep his distance in posterity. Churchill is equally reticent over Dowding in general and, in particular, his unseemly dismissal in late 1940. Reynolds usefully points to an early draft covering this episode in which Churchill admits to having been wrong in not standing up to the Air Ministry¹⁹.

Conversely, Reynolds describes Air Chief Marshal Sir Charles Portal as rarely standing up to Churchill²⁰ in his role as Chief of the Air Staff. During Admiral Pound's time as First Sea Lord, especially as he was increasingly dogged by ill health, he had been relatively docile; the burden of challenging Churchill fell, by default, to General

Alan Brooke (later Viscount Alanbrooke). Pound's replacement by Cunningham, which according to Reynolds, changed the internal dynamic within the Chiefs of Staff Committee. Almost inevitably this is in marked contrast with Denis Richards' tale in his official biography of Portal²¹ in which the CAS is regularly seen as perfectly willing, tactfully and with charm, to stand up to Churchill when necessary. Alex Danchev, Field Marshal Viscount Alanbrooke's *Diaries*' editor, points out that Portal was "highly intelligent, and a model of integrity, he was perhaps the most reserved of the COS". It may also be that Portal had the sense to let Alanbrooke do the fighting as he clearly relished the challenge — and was anyway the Chairman of the Chiefs²². Churchill's own words²³ shed little light. Alanbrooke's diaries²⁴ go both ways. On 8 March 1944, Alanbrooke describes a wrangle with Churchill over Pacific strategy in which "Portal as usual not too anxious to argue against the PM, and dear old Cunningham so wild with rage that he hardly dared let himself speak. I therefore had to do most of the arguing"²⁵. Alternatively, in discussing aid to Russia on 4 December 1941, Portal refused to sanction the Prime Minister's intent leading to Churchill storming out of the Chiefs of Staff meeting that he was supposed to be chairing complaining that they sought to block every move he tried to make²⁶. This interchange led to Alanbrooke confiding to his diary "God knows where we would be without him, but God knows where we shall go with him!".

Overall, Reynolds has produced an outstanding volume containing much original analysis. Beyond that, it is a highly entertaining contribution to the Churchill genre of material. It provides a unique insight into Churchill as an author per se; and more importantly into Churchill as the 'Master' (in the Syndicate's own words) of a complex and talented research engine. In *Command of History* is both a book about *The Second World War* and about the rest of the historiography surrounding the early writings on the conflict in the English-speaking world. It also sets the tone for much of the subsequent debate on the Cold War which was escalating, to Churchill's dismay, as he wrote. In *Command of History* also highlights the pitfalls in reading only one version

of history. Churchill had his own complex agendas which varied as he wrote each successive book and volume. Their contents have to be seen in that light. More worryingly the generations of subsequent historians, politicians and practitioners who have either read, or been taught, according to the authorised Churchillian view without seeing the need to read further. In some ways, air power came off lightly in being relatively neglected!

Notes

¹ In *Command of History: Churchill Fighting and Writing the Second World War*, David Reynolds, Allen Lane 2004, Penguin Books 2005, London

² Professor of International History at the University of Cambridge.

³ Penguin version (as all page numbers from the Reynolds text) page 504. For a detailed discourse on the impact of the work on the historiography of the War see pages 153-9.

⁴ F W D Deakin, *The Embattled Mountain*, OUP, London, 1971, tells the story from the first parachute insertion.

⁵ Page 77 for example.

⁶ Page 523.

⁷ Page 119.

⁸ Pages 97 – 100.

⁹ Page 173.

¹⁰ Page 184.

¹¹ Page 186.

¹² For the full text, see *The War Speeches of the Rt Hon W S Churchill*, compiled by Charles Eade, Vol 1, Cassell, London, 1951 pages 240, 241.

¹³ See also footnote 54 in Chapter 6 to Stephen Bungay's *The Most Dangerous Enemy*. Bungay states that, as an avid reader of H G Wells, Churchill derived this notion from *War in the Air*.

¹⁴ Pages 264-7 and 269.

¹⁵ Page 175.

¹⁶ Page 321,

¹⁷ Reynolds cites Max Hastings *Bomber Command*. But see also this author piece on *Dresden 1945 – Just Another Raid?* In *Air Power Review*, Vol 4 No 1, Spring 2001.

¹⁸ The author is currently Director of the Defence Leadership and Management Centre and lectures widely of Leadership theory issues.

¹⁹ Page 187.

²⁰ Page 405.

²¹ *Portal of Hungerford- The Life of Marshal of the Royal Air Force Viscount Portal of Hungerford*, Heinemann, London, 1977, Chapter XVIII.

²² Churchill effectively appointed him to replace Pound whose health was failing, but ahead of Portal whose 'turn' it would have been.

²³ W S Churchill, *The Second World War*, Vol V, 'Closing the Ring', Cassell, London, 1952, has many quotations from his official memoranda, but little of the substance. Disagreements with Clement Atlee prevented him from quoting the Chiefs of Staff responses.

²⁴ *War Diaries 1039 -1945*, Field Marshal Lord Alanbrooke, edited by Alex Danchev and Daniel Todman, Wiedenfeld & Nicholson, London, 2001.

²⁵ *War Diaries*, *ibid*, page 530 and *The Second World War*, *ibid*, pages 504 – 6 on the same subject.

²⁶ *War Diaries*, *ibid*, page 207.

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