Sic Itur Ad Astra

Canadian Aerospace Power Studies

Volume 3
Combat if Necessary, but Not Necessarily Combat

National Defence Défense nationale

Canada

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Combat if Necessary, but Not Necessarily Combat

Edited by W. A. March

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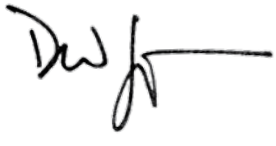
Preface

The Air Force is an important element of Canada's national power. In the aerospace realm in which it operates, the Air Force can bring to bear an impressive and flexible set of kinetic and non-kinetic capabilities. Many of these capabilities are equally useful domestically and internationally, in peace and war, or as a stand-alone contribution to a crisis or as part of a larger coalition. As a result, the Air Force must be capable of multitasking because rarely does it have the luxury of concentrating on a single mission at any one time. This means that the same organization, people, equipment, and doctrine will need to be employable across the entire spectrum of conflict.

Although this may seem obvious to anyone who is wearing a uniform and "living the dream," it may not be to the vast majority of the citizens that we have sworn to serve. As a military service, the ultimate purpose of an air force is combat. Yet, the history of our Air Force has largely been one of peace. Therefore, arguably, the true test of aerospace power from a Canadian perspective is how well we adapt our warfighting capabilities to non-warfighting requirements. Proponents of Canadian aerospace power need to be able to explain the need for new capabilities, such as those provided by new patrol, fighter, and unmanned aircraft, in a manner that reflects a broad range of national needs.

This is not an easy task. It requires the comprehensive study of aerospace power in its broadest sense. There needs to be a better understanding of how air forces influence and are influenced by the dynamics of peace as well as of combat. Also, an appreciation for the importance of non-kinetic aerospace capabilities needs to be cultivated both in and out of uniform. Finally, there needs to be a common sense of how aerospace elements, both civilian and military, are woven into the fabric of the nation.

This makes it important for organizations such as the Canadian Forces Aerospace Warfare Centre to encourage study that goes beyond aerospace power at war. The papers that are included in this volume of the *Sic Itur Ad Astra* series do just that. As you read each chapter, I trust that you will acquire additional insight into the strengths and weaknesses of our chosen profession. Remember, it would be a shame to focus so hard on "winning the war" that we ended up "losing the peace." We owe our nation more than that. Enjoy the read.



D. W. Joyce, OMM, CD

Colonel
Commanding Officer
Canadian Forces Aerospace Warfare Centre

Introduction

To understand what an air force is, is it more important to study it in war or in peace? This is an interesting question and one, I dare say, with no easy, or at least no obvious, answer. For although military professionals spend an inordinate amount of time and treasure preparing for war, the truth of the matter, thankfully, is that they rarely go to war (or engage in combat). This is especially true of the air forces of nations such as Canada that face a limited external threat.

Although there was a Canadian Air Force (CAF) prior to 1924, the permanent branch of the service that exists today came into being as the Royal Canadian Air Force (RCAF) on 1 April 1924.[1] Its fortunes have waxed and waned over the years, but the Air Force in Canada has been a fixture of the defence establishment, as of 2011, for 87 years. Of those 87 years, the CAF has gone to war or engaged in combat five times, spanning in total approximately 19 years.[2] For less than one-quarter of its existence, the CAF has been a "combat" extension of Canada's national will. Furthermore, the numbers are somewhat skewed when you consider that even during the combat years, the Air Force never ceased to play a non-combat role at home.

Currently, the *Canada First Defence Strategy* emphasizes the importance of a domestic, or North American, role for the Canadian Forces (CF). Of the six core missions listed in this document, none of them specifically addresses combat, and four of them focus on a non-kinetic role at home. The remaining two are more expeditionary in nature, but are broad enough to include everything from humanitarian assistance to peacekeeping to operations involving the use of kinetic force.[3] What the *Defence Strategy* does not state specifically is that the CF and the CAF would be called upon to conduct many of these core missions simultaneously. Unfortunately, this means that often the same resources (personnel, equipment, and treasure) have to be stretched to meet governmental demands. This in turn means that we have to be much more efficient and effective in how we do business both at home and abroad. Logic, therefore, dictates that we should spend as much if not more time studying the peacetime, non-combat elements of aerospace power as a key element of national power.

Canada First Defence Strategy: Six Core Missions[4]

1. Conduct daily domestic and continental operations, including in the Arctic and through NORAD (North American Aerospace Defence Command).
2. Support a major international event in Canada, such as the 2010 Olympics.
3. Respond to a major terrorist attack.
4. Support civilian authorities during a crisis in Canada such as a natural disaster.
5. Lead and / or conduct a major international operation for an extended period.
6. Deploy forces in response to crises elsewhere in the world for shorter periods.

Canadian aerospace doctrine recognizes the inherent linkage between aerospace and national power. The B-GA-400 *Canadian Forces Aerospace Doctrine* defines national power as "a nation's total capability to achieve its national objectives… encompasses a wide array of interrelated capabilities and includes diplomatic, informational, military, and economic elements."[5] The military component of national power is comprised of a nation's military capabilities and is normally broken down into aerospace, land, and maritime components. In this context, aerospace power is described as "that element of military power applied within or from the air and space environments to achieve effects above, on, and below the surface of the Earth."[6]

The key phrase in this definition is "to achieve effects" as it focuses on the outcome of aerospace power rather than the means. Throughout much of the last two decades, aerospace power discussions have been dominated by the debate surrounding effects-based operations (EBO) or the effects-based approach to operations (EBAO). It is beyond the scope of this introduction to delve into EBO/EBAO; however, one key takeaway from the discussion was a desire to move considerations of aerospace power away from a purely kinetic (destructive) focus to one where any aerospace capability (cyber, transport, surveillance, etc.) had an equally prominent place when considering how to achieve the desired effect.[7] Within Canadian aerospace doctrine this conceptual shift was translated into an emphasis on capabilities rather than platforms (at least in our written publications). Hence, the CAF is moving forward into the 21st century guided by six functions: Command, Sense, Act, Shield, Sustain, and Generate.[8] Although there is a

continuing—albeit low-level—debate on the suitability of the above functional terms to describe what an air force does, there appears to be a realization that aerospace power must be considered from both a kinetic and non-kinetic point of view across the entire span of conflict.

Which brings me back to my original question: to understand what an air force is, is it more important to study it in war or in peace? If you look at the basis of current literature on the subject, especially on the CAF, the jury is still out. Nevertheless, the study of air combat alone does not provide a clear picture of what an air force is even if you make the point that an air force exists for no other reason than to go into combat. Combat, or a kinetic role, may be the most difficult and important role for an air force, but actual war fighting seems to be the exception rather than the rule for air force employment. Therefore, we need to broaden our interest in aerospace power to include those not-so-exciting missions that dominate the day-to-day activity of the service. We must dismiss as too narrow statements such as the one made by Andrew Richter, an Associate Professor of International Relations at Windsor University, who, when discussing future aircraft purchases by the Canadian government wrote: "While the patrol aircraft purchase is important, and will help satisfy a key Canadian defence commitment… the fighter aircraft acquisition is more closely identified with airpower (sic) considerations."[9] Arguably, in this era of terrorism, counter-insurgencies, and small wars, our conception of what constitutes aerospace power needs to be very broad indeed.[10]

Unless it is a fight for national survival, last seen during the Second World War (WWII), it is unlikely that the aerospace element of national power will be employed in its entirety. Certainly, in Canada's case only select elements of the CAF have deployed overseas on combat operations. Therefore, although our current and desired future capabilities need to be effective in a combat battlespace, they need to be able to prove their utility and efficiency in the potentially more unforgiving environment of domestic politics. It is not enough to state that the F-35 fighter will provide the CAF with the ability to fight alongside the best against the best, we must also be able to argue that it will enhance our contribution to NORAD, contribute to Arctic sovereignty, improve our ability to respond to potential terrorist threats, and contribute to the economic well-being of a domestic aerospace industry.

We need to understand how the Air Force adapts to and meets its peacetime as well as its wartime challenges. Unfortunately, when it comes to excitement and just plain good reading, studying the non-kinetic accomplishments of an air force at peace is not considered very interesting. For example, of the three volumes of the *Official History of the Royal Canadian Air Force*, only one chapter in Volume 2, "Between the Wars," deals exclusively with the peacetime development and roles of this branch of the armed forces.[11] There is so much more that we need to study and understand.

In a very real sense, one of the main reasons that the *Sic Itur Ad Astra* series was established was to fill in the gaps when it came to studying air forces in general and the CAF in particular. Of the 21 papers produced in the first two volumes of the series, 11 address their respective themes against the backdrop of a peacetime air force.[12] This volume deals almost exclusively with non-kinetic, peacetime aerospace power roles.

Desmond Morton, in "A Non-Operational Air Force: The RCAF, 1924–1931," sets the stage by describing an air force that as an element of national power was devoted almost solely to domestic tasks such as fisheries patrols, mapping, and forest-fire spotting. The work was far from glamorous, but certainly necessary to national well-being. Jonathan Vance's paper, "The Royal Canadian Air Force and the Campaign for Air-mindedness," addresses the same type of roles as did Morton, but from a very different perspective. Vance argues that the RCAF promoted a broader appreciation of air power and embraced non-military roles and missions as a means of ensuring its survival—a rationale that continues to resonate today.

In "Swords for Peace: RCAF Sabres with RAF Fighter Command," author Carl Christie examines the beginnings of the cold war and the CAF's initial contribution as part of an aerial deterrent. This contribution to the North Atlantic Treaty Organization (NATO) highlighted the utility of having a robust air force capable of making a credible contribution to an alliance as a useful Canadian foreign policy tool. However, the commitment of a nation's air force to an alliance is not without its pitfalls. Raymond Stouffer, in "Nuclear Virgin or Nuclear Strike?

John Diefenbaker and the Selection of the CF104 Starfighter," looks at the problems associated with the need to remain militarily relevant within an alliance weighed against the political turmoil of the unpopular choice to accept a nuclear role for the CAF. Closing out the papers dealing exclusively with the CAF, Randall Wakelam, in "Air Power Writ Canadian," takes a more philosophical look at exactly what air power means from a Canadian perspective.

The remaining papers in this volume tap into the experience of other air forces during their various interwar periods. Winfield Scott, in "A Wicked Waste of Money at Present: The Origins of the RAF's Policy of Air Control in Iraq," reminds us that the line between peacetime (non-kinetic) and wartime (kinetic) employment of air power is a very fine one indeed. It also underscores the need to understand the demands of both types of employment as the personnel, equipment, and doctrine must be able to adapt as required. Next, the experience of a fellow Commonwealth nation is explored by Chris Clark in "Air Power for Non-warfighting Purposes: The Australian Experience." Like the CAF, the Royal Australian Air Force (RAAF) has been a key element of Australian national power from its inception, and undoubtedly, the RAAF will continue to be employed in a wide range of non-kinetic roles at home and abroad for the foreseeable future.

William Dean, in "Human Intelligence, Irregular Operations and Air Power: Malaya 1948–1960," and Michael May, in "Non-Kinetic Air Power Against Insurgency, Lebanon, 1958," provide two examples of the non-kinetic uses of air power from an expeditionary perspective. While both papers acknowledge the requirement to employ force when necessary, they highlight the fact that other aerospace power, such as intelligence, transport, and presence, were more useful in these types of emergencies. Finally, in his paper "Coercion Through Air Power for Political Effects," James McKay looks at the use of air power as a political bludgeon to compel a "rogue state" to conform to international dictates. McKay's examination of how the international community dealt with Iraq after the first Gulf War highlights both the seeming utility of air power as a "cheap" way to achieve a desired response, with the inherent seductiveness of trying to achieve a desired effect through purely kinetic means.

Peace or war, combat or politics, kinetic or non-kinetic effects... it is difficult to determine which of these forces, or combination thereof, has the most influence on shaping and influencing aerospace power. In reality, they all have an effect. This means that as professionals we must study how all of the above impact on our chosen profession. I trust that the papers included in this volume will assist the reader as they continue to think about aerospace power and what it means to Canada.

Notes

1. For an excellent overview of the period between the end of the First World War and the birth of the RCAF, see chapter 1, "The Birth of the RCAF" in W. A. B. Douglas, *The Creation of a National Air Force*, vol. 2, *The Official History of the Royal Canadian Air Force* (Toronto: University of Toronto Press, 1986), 37–64.

2. The Air Force in Canada was involved in WWII (six years), Korea (three years), and Afghanistan (nine years). Time spent in combat during the first Gulf War, in the former Yugoslavia, and over Kosovo, plus the current conflict involving Libya, was grouped together for an extra year.

3. Canada, Department of National Defence (DND), *Canada First Defence Strategy*, 3, http://www.forces.gc.ca/site/pri/first-premier/June18_0910_CFDS_english_low-res.pdf (accessed June 1, 2011). Even though I used the term "non-kinetic" with respect to operations in North America and Canada, history has shown that combat in, around, and over the continent cannot be ruled out.

4. Ibid., 10.

5. Canada, DND, B-GA-400-000/FP-000 *Canadian Forces Aerospace Doctrine*, 2nd ed., December 2010, 17 (hereafter cited as B-GA-400) http://www.airforce.forces.gc.ca/CFAWC/CDD/Doctrine_e.asp (accessed June 1, 2011).

6. Ibid., 18.

7. For an overview of EBO/EBAO from a Canadian perspective, see Allan English and Howard Coombs, eds., *Effects-Based Approaches to Operations: Canadian Perspectives* (Trenton, ON: DND, 2008) http://www.airforce.forces.gc.ca/CFAWC/eLibrary/eLibrary_e.asp (accessed June 1, 2011).

8. B-GA-400, 35–51.

9. Andrew Richter, "Conflict Scenarios, Airpower, and the Use of Force: How Recent Developments are Affecting Canada's Strategic Choices," in James G. Fergusson, *The International System, Canada, Armed Forces and Aerospace Power, 2018 and Beyond* (Winnipeg, MB: Centre for Defence and Security Studies, 2009), 168.

10. For a better understanding of aerospace power as it pertains to these types of conflicts, see James S. Corum and Wray R. Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists* (Kansas City: University of Kansas Press, 2003); and James Fergusson and William March, eds., *No Clear Flight Plan: Counterinsurgency and Aerospace Power* (Winnipeg, MB: Centre for Defence and Securities Studies, 2008).

11. The three volumes are: S. F. Wise, *Canadian Airmen and the First World War*, vol. 1 (Toronto: University of Toronto Press, 1980); Douglas; and Brereton Greenhous et al, *The Crucible of War, 1939–1945*, vol. 3, *The Official History of the Royal Canadian Air Force* (Toronto: University of Toronto Press, 1994).

12. The two volumes are: W. A. March, ed., *Canadian Aerospace Power Studies: Historical Aspects of Air Force Leadership*, vol. 1 (Trenton, ON: Canadian Forces Aerospace Warfare Centre [CFAWC], 2009), and W. A. March, ed., *Canadian Aerospace Power Studies: Big Sky, Little Air Force*, vol. 2, (Trenton, ON: CFAWC, 2009) both available at http://www.airforce.forces.gc.ca/CFAWC/eLibrary/eLibrary_e, (accessed June 1, 2011).

Chapter 1

A Non-Operational Air Force: The RCAF, 1924–1931

Desmond Morton

The past which I am considering may seem a very long way from the future in which you must live. I take heart from General Watt's recent invocation to respect and study your past. When I mentioned my topic to a colleague, he was puzzled. What would an air force do that was NOT operational? My unthinking answer was "How else would it survive in the 1920s?" As I thought about the answer, it was not quite as thoughtless as my colleague may have believed. After all, as I have preached before, the fate of our armed forces is not determined solely at the United Nations (UN) or by the North Atlantic Treaty Organization (NATO) or by the Pentagon, but by who fights for you in "Battle-Space Ottawa." Non-operational flying is an asset you bring to that struggle. Imagine an air force without Search and Rescue!

War to End War

In the 1920s, Canadians lived in a world that had just fought "the war to end all wars." The price had been enormous: 60,000 dead; close to a quarter–million physically or mentally disabled out of eight million Canadians; a national debt which had spun from a quarter million dollars in 1913 to an almost inconceivable two and a half billion dollars, borrowed from New York and our own citizens. To maintain the Canadian Corps, the government had shattered national unity by imposing conscription. By 1918, we had created two Canadian air forces, one to detect enemy submarines off our coasts; the other, organized from Canadians who had flown with the British Royal Flying Corps or the Royal Naval Air Service, had two squadrons training to fight on the Western Front.

Undoubtedly, the Great War made people "air-minded." Twenty thousand young Canadians served as pilots, observers, or mechanics with the British flying services, combined in 1918 as the Royal Air Force or RAF. The War may not have been an ideal environment for "growing" an aviation industry. Operational priorities stressed speed, altitude and armament, not range and carrying capacity. Wartime secrecy concealed many of the roles performed by air power; wartime publicity emphasized heroics and the destructive power of even primitive bombers. The image of valiant but mad-cap adventure displaced the pre-war reflections on aviation's potential as an industry. Flying over Canada was banned by the War Measures Act after claims that German sympathizers were planning to bomb Ottawa from a balloon launched in upstate New York. Indignant that Britain's Royal Aero Club had delegated post-war aviation policy to its Canadian subsidiary, Ottawa bundled all aviation issues, from pilot qualifications to flight safety, and handed them in June, 1919, to an appointed Air Board that initially lacked even a cabinet minister. Its dominant figures included a Scottish-born engineer, John Armistead Wilson, who had begun his civil service career managing logistics for the infant Canadian Navy, and Colonel O. M. Biggar, the Army's judge-advocate-general. In 1918, Wilson had been the civilian official responsible for the Royal Canadian Naval Air Service (RCNAS) and its bases in Nova Scotia at Dartmouth and Sydney.

After the War

Soon after the war was over, both of Canada's infant air forces were disbanded. In a world destined for eternal peace, who needed them? That was not the fate of our Navy or Militia. These were established institutions, and a commission under Major-General Sir William Otter, known as the "father of the force," got busy planning to integrate the heroic legacy of the Canadian Corps in a re-named Non-Permanent Active Militia, or NPAM. The Navy, too, would survive in reduced form. Would there even be a Canadian Air Force or CAF? That issue was bundled off to the Air Board and J. A. Wilson.

The Board's answer was shrewdly built on Canada's old militia tradition, and on a British promise to provide war surplus aircraft, parts, and other equipment related to aviation to any dominion creating an air force. By order in council on February 18, 1920, the Air Board had won

approval for a Canadian Air Force of 1,340 officers and 31,905 airmen, as part of the NPAM, with the motto of *Sic Itur Ad Astra* (Such is the Pathway to the Stars). Its specific role was to provide former wartime pilots and mechanics with a month of refresher training every two years at Royal Flying Corps (RFC) Canada's wartime base, Camp Borden. The new CAF was part of the Militia, though its dark blue uniform and its silver rank badges reflected both RAF and army traditions. A row of three silver stars equally identified a captain and a flight lieutenant. Canada's wartime Chief of the General Staff, Sir Willoughby Gwatkin, became an air vice-marshal and the CAF's inspector-general. Colonel A. K. Tylee took command. A handful of wartime officers with staff experience took on other top ranks, though most senior wartime veterans like W. A. Bishop, or Colonel R. H. Mowat, who had been preparing a bomber force to raid Berlin on November 11th, 1918, preferred to rebuild their civilian careers. They could still help. In a pragmatic but shrewd move, the CAF Association, an organization of air force veterans, was assigned a policy-making role for the new peacetime air force. Overnight, the air force had a lobby with a role in its future.

You may shudder in indignation at letting veterans run the show, but recognize the value of a respected lobby in Battle-Space Ottawa. As part of the NPAM, the infant air force might count on the Militia's array of honorary colonels and local backers; but, its policies would be guided by its own respected veterans. When the wartime Union government brought its post-war defence plans to Parliament in 1920, there was predictable indignation. Under Laurier, Canada had never spent more than $10 million a year on defence. Why, with the world at peace and Canada stocked with half a million tested veterans, would the government propose to spend $30 million? True, as everyone knew, the cost of living had doubled in the war years and salaries had increased. But why add an air force? "Where does the Minister expect invasion from?" demanded Opposition leader, William Lyon Mackenzie King, "Defence against whom?"[1]

As readers of James Eayrs' *In Defence of Canada* will know, a veteran staff officer, Colonel J. Sutherland Brown, was hard at work on Defence Plan No. 1. The enemy, as ever, would be the United States. Of course, that was a deep and embarrassing national secret. Who could admit that our neighbour and belated wartime ally would attack us? Whatever officers of the CAF thought privately, their idea of possible wars was quite different, if hardly more popular. In the post-war British Empire, the RAF was already playing a role in "Imperial Policing," particularly in the vast, trackless colonies that Britain had inherited from the war, such as Iraq, or on the North West Frontier of India, or Afghanistan, or in the Sudan. Despatching a flight of bombers to punish a hostile village was faster and cheaper than despatching a column of troops. Future wars would again see loyal Dominions supporting the Empire by supplementing the RAF. Hence, the British offer to Canada of war surplus fighters and trainers, valued at $5 million.

Finding Tasks for Aviation

The gift's value was not evident to the Air Board. No sooner was it formed than the Board got busy promoting the commercial possibilities of aviation, in addition to working out its direct responsibility for certification of pilots, mechanics, and aircraft, and reviewing the safety of new airfields and their equipment. A Directorate of Flying Operations started looking for business. Air mail was an obvious task, but Canada's first transcontinental flight in October 1920 took ten days and one crash. Not only were railways faster and more dependable, but also special mail cars could sort letters on the move. Other roles had better pay-off. Aerial photography would realize the impossible dream of mapping all of Canada. Forest protection was another role. The timber industry detected forest fires by building towers and despatching ground parties to thrash through the undergrowth for months. Air Board crews could fly over vast tracts in an hour, spot smoke, and even intervene. Forest managers, an Air Board official confessed, were as conservative as they come, but even they had to concede that aerial observation was faster and cheaper. Ontario promptly created its own air service; Quebec hired a private company, but Ottawa managed the natural resources of the western provinces. The Air Board's new Directorate of Flying Operations opened bases at Jericho Beach, Morley, Alberta, at Victoria Beach near Winnipeg, Manitoba, at Rockcliffe, Roberval, Quebec, and at Dartmouth. Waterside locations saved the cost of building landing fields in a country with very few such facilities.

Providing Infrastructure

Pre-war and wartime developments in Europe had created air strips, hangars, and a primitive flying infrastructure almost totally lacking in Canada. Communities, the Air Board insisted, must create their own landing facilities; penny-pinching governments fervently agreed. However, Canada was a land of lakes and streams. The British offer of aircraft and equipment was first challenged and then changed to as many flying boats as the British could spare: 10 Felixstowes F3s, plus a few Curtiss HS21s left behind by the American sponsors of the RCNAS. Slow, short-ranged, with open cockpits, the donated aircraft showed potential. Delivering on it posed a perennial problem Canada's Air Force still faces: procuring appropriate and affordable equipment. To stop and control a forest fire, the Air Board needed longer-range flying boats able to carry firefighters and their pumps.

A British firm, Vickers, established a plant in Montreal, claiming the promise of a monopoly. Sadly, many of its aircraft were defective or inadequate. American rivals, on the whole, offered higher quality and diversity. The Fokker Universal, with an open cockpit and closed cabin, would make the Hudson Straits expedition an aeronautical success in 1926–27. Two out of seven aircraft were lost, but Inuit guides and their own guts saved every crew member.

At the end of 1921, Canadian voters dumped the Union government and elected their first minority government, led by William Lyon Mackenzie King, and pledging drastic retrenchment. Among the victims was the Air Board, unceremoniously dumped into the Department of Militia. Its regulatory functions continued; its flying operations fell by default to the CAF. Another economy measure was to cut staff and administrative costs by joining the Department of Militia and the Department of Naval Services in a single Department of National Defence. Among the enthusiasts for the "integration" was Gwatkins's ambitious young successor as Chief of the General Staff (CGS), Major-General James MacBrien. In his plan, the CAF would come under his control. But what if his mentors, the British, took a different path? British Army friends assured him that the RAF would disappear into the two traditional services. As we know, they were wrong. Britain kept the Air Ministry and the Royal Air Force. Dismayed and embarrassed, MacBrien felt obliged to follow the same route. How else could the Canadians play their expeditionary force role? He had already started proceedings to secure the title "Royal" and the RAF ensign, insignia, and motto (*Per Ardua ad Astra*) for the CAF, and he followed through. On April 1st, 1924, as we all know, the Royal Canadian Air Force was re-born, as, in most respects, a faithful colonial replica. One exception was that the Director of the RCAF would report to MacBrien and his successors until November 1938, on the eve of the Second World War.

A "bush-pilot air force"

The RCAF would be a replica with a difference. Its members wore uniforms, saluted superiors, and drilled on parade squares, but it would bear, with mingled shame and pride, the sub-title of "a bush-pilot air force." The civil air functions, from forest fire patrols to delivering treaty money and spotting smugglers, pioneered by the Air Board, became its bread and butter. The NPAM function of retraining veterans as part-time aviators faded. A month of flying every other year was inadequate. Few qualified mechanics would put their jobs in jeopardy for a month of work on obsolete aircraft at Camp Borden. Government cost-cutting left even senior CAF officers more poorly paid than their Militia or Navy counterparts, and insistence that flying was only for young men forced them out before they could qualify for pensions. When Treasury Board yielded to pressure, the exceptions were limited to permanent, not part-time members. Only after 1932, when the RCAF was allowed to develop auxiliary squadrons would its NPAM role revive.

The focus on civil air operations had its critics. Senior RCAF officers and their Army superiors questioned the civil focus of air operations and pressed for operational training. So did the opposition Conservatives. Members of Parliament of all parties questioned why military pilots were trained and employed to find forest fires and photograph empty terrain. King's defence minister, Colonel J. L. Ralston, warned that if the RCAF was not available, each government department would demand its own "air force." While civil duties might

seem anomalous, Ralston argued that military discipline was an advantage when seemingly meaningless regulations like daily inspections of aircraft or following a precise route had to be observed.

Above all, anti-military types were content that the CAF's dominant role limited it to forestry patrols and air photography and mapping. Gradually, as its "business" grew, its establishment and resources expanded. By 1927, after the U.S. Post Office had made a success of air mail, Canada's Post Office got federal funds to follow suit. RCAF aircraft even dusted wheat fields for the Department of Agriculture, seeking in vain to eradicate stem rust. Other flights explored potential railway routes to the North. Newer aircraft allowed tiny crews of forest firefighters to land on a nearby lake and extinguish incipient forest fires. The main RCAF civil activity was aerial photography, hitting peaks of 140,100 square kilometres covered in 1930, and 196,800 in 1931. When most North Americans were captivated by broadcasts from the notorious Moose River mine disaster of 1934, the RCAF got the credit for flying in rescue crews and J. Frank Willis, a CBC broadcaster, and for ferrying out the survivors to Halifax and instant celebrity. While civilian bush pilots built a worldwide reputation for courage, endurance, and survival in Canada's Arctic, being an air force of bush pilots represented a proud status among Canadians. Slowly, the RCAF grew from 68 officers and 307 airmen to 117 officers and 454 airmen in 1929, and 175 and 669 in 1930.

Senior CAF officers completed Staff College training with the RAF in Great Britain. Occasional gestures were made to the service's operational responsibilities. In 1929, Ottawa agreed to buy nine Armstrong Whitworth Siskin fighters and half a dozen Armstrong Whitworth Atlases for army cooperation. These were the first operational aircraft since the CAF's formation five years earlier. Three Siskins were promptly detached as a demonstration flight, to perform at the Canadian National Exhibition (Toronto) and other air shows that diverted the public during the Depression years.

The Big Cut

Between 1924 and 1932, the RCAF grew steadily, reaching peak strength of 177 officers and 729 airmen by the end of the 1931 fiscal year. The annual appropriation had quintupled from $1.5 million to $7.5 million, and Trenton had replaced Camp Borden as principal station, since Borden's wartime buildings had rapidly deteriorated. Total flying hours had risen from approximately 4,000 in 1924 to approximately 30,000 in fiscal 1931.

As ever, there is a price to be paid for being a business. As we will all recognize in these times of acute recession, running a business involves more than clipping stock coupons and finding a more luxurious resort for next year's management retreat. You have to keep track of your customers and find new ones. In 1929, a Royal Commission had recommended that Ottawa satisfy a long-standing Prairie grievance by returning natural resources to the control of the provinces. That decision, like others, came too late to save King's Liberal government. Western voters joined Ontario and the Maritimes to choose a native son, Richard Bedford Bennett, and his Conservative Party. Bennett, like another Conservative successor, faced an acute budget crisis arising from a massive decline in government revenue. As usual, National Defence seemed a logical target for cuts, but, as usual, the Conservatives had pledged to remedy Liberal neglect of the military. Cutting the small professional army seemed dangerous since disciplined troops would be needed to crush angry mobs of communist-inspired, unemployed workers.

A more acceptable economy was to cut back on unnecessary government flying. Most RCAF civil operations were now based in Western Canada. The transfer of natural resources, completed in 1931, left the Prairie Provinces free to manage their own forests and aerial surveys. Now they could find the cash to pay for them, or do without. Since those provinces also veered towards bankruptcy, buying air services was well beyond their means. The Bennett government's 1931 budget had allowed $11 million for the Militia and $7.1 million for Air. In 1932, it administered what the RCAF would remember as The Big Cut. Slicing $3 million from the Air share of defence spending transferred a fifth of air force personnel—78 officers and 210 other ranks and civilians—into the vast army of unemployed. The RCAF remained responsible for checking

forest fires in British Columbia and in western national parks. It even provided an ad hoc air mail service from the Labrador Straits to Ottawa that year, as Prime Minister Bennett hosted an Imperial Conference. Civil flying was sharply reduced and the Defence Minister, Colonel Donald M. Sutherland, boasted that he had fulfilled a Conservative pledge to reorient the RCAF into a fighting service, though his new policy did not include any new operational aircraft. The RCAF began to organize its remaining assets and personnel into squadrons and to create an auxiliary air force. As Hitler's influence spread across Germany, RCAF officers could finally anticipate their expeditionary role in a future Empire war. When the Army created Bennett's notorious relief camps, the inmates spent much of their energy clearing airfields for a Trans-Canada Airway System, some of them used for the Commonwealth Air Training Plan after 1940. Some of the "royal twenty-centers" even helped to build the impressively unmovable concrete structures on the south side of Canadian Forces Base (CFB) Trenton.

On the Eve of War

When the Liberals returned to power in the autumn of 1935, J. A. Wilson and the Air Board's regulatory functions passed to a new Department of Transport. Its Minister, C. D. Howe, promptly organized Trans-Canada Airlines, Canada's first civilian transcontinental air carrier. Within the Department of National Defence, the Depression-era CGS, Major-General A. G. L. McNaughton, had recommended abolition of the Royal Canadian Navy, arguing that the RCAF could, potentially, be a more effective coast defence force than the RCN's tiny collection of worn out destroyers and minesweepers. A more convincing argument for a Mackenzie King government was the belief that Air Force casualties could never be so high as to lead Canada into a second conscription crisis. Hence, when rearmament belatedly began at the end of the 1930s, the RCAF was the chief beneficiary, rising to an official strength of 400 officers and 3,600 airmen, organized in eight operational squadrons, plus 12 auxiliary squadrons. Sadly, many of the assets acquired—Fairey Battles, Hurricane fighters, and Anson bombers—would be obsolete by the time Canada declared war on September 10th, 1939.

Still, all those years of non-operational flying had given Canadians an air force that was flexible, experienced, and far larger than it would have been if it were allowed only the phantom role of playing war games. RCAF officers had gained an impressive diversity of experiences in all the flying conditions and challenges Canada could offer, and they had established themselves in the struggles of Battle-Space Ottawa. With civilian bush pilots, the RCAF had opened the Canadian North to a nation huddled along its southern border. It had, unconsciously, prepared for both the World War and the cold war.

Notes

1. Canada, House of Commons Debates, 16 June 1920 (Ottawa: Queen's Printer), 3646.

Desmond Morton

Desmond Morton served for three years as honorary colonel for 8 Wing, Trenton, retiring in 2006. He is a graduate of Royal Military College Saint-Jean (CMR) and the Royal Military College of Canada (RMC), completed his PhD at the University of London in 1968, and taught at universities in Canada and the United States. In 1994, he became founding director of the Institute for the Study of Canada at McGill University. He is the author of forty books on Canada's military, political, and social history, and was admitted as Officer to the Order of Canada in 1997.

Chapter 2

The Royal Canadian Air Force and the Campaign for Air-mindedness

Jonathan Vance

Air-mindedness is a wonderfully evocative notion that has gone out of fashion in a world jaded by exposure to technology. It came into use in the 1920s to refer to a deep and abiding faith in the ability of flight to improve human existence, in all respects—economically, politically, socially, spiritually—and a belief that a society that flew was infinitely superior to a society that did not. Those people who tried to spread air-mindedness did so with an almost evangelical fervour, some for personal gain, but most out of a conviction that, having mounted the skies, the human race could be so much finer if everyone embraced the new technology. The efforts of the air lobby were critical in furthering the cause of aviation in Canada during the early formative years and in making possible the incredible growth of the 1940s.

For the Royal Canadian Air Force (RCAF), there was an added benefit to this public education campaign. In the chilly fiscal climate of the interwar era, that saw its strength plummet to 800 all ranks in 1932, the RCAF realized that it could ally with the civilian air lobby and embrace non-military uses of air power as a way to ensure its corporate survival in difficult times.[1] After all, an air force that existed but performed non-military duties seemed preferable to an air force that did not exist at all.

The air lobby in Canada was a very small group in the interwar era. In 1930, there were still only 539 licensed pilots in Canada, and even by considering the people who were involved in aviation in some other way, it probably would not have amounted to more than a few thousand individuals. And they faced a curious dichotomy in the 1920s and 1930s in that many Canadians were fascinated by the idea of flying, by watching airplanes, and by reading about them, but very few Canadians could imagine themselves getting into an airplane. Part of this was the natural reluctance to embrace a new technology, especially one that seemed as difficult to conceptualize as the airplane. Outside of the air lobby, the principles of aerodynamics were understood imperfectly, if at all. For the majority of Canadians, flying still had a strong whiff of mystery and perhaps even magic about it—it certainly was not for normal people.

The other factor was historical, for the history of aviation had done little to suggest that flying could and should be a part of everyday life. These were the two prevailing strains of thought that the air lobby in general, and the RCAF in particular, faced in the campaign for air-mindedness. In doing so, they came up against three stereotypes that dominated popular perceptions of flying: the flying ace, the barnstormer, and the long-distance pilot. In actual fact, these were often the same people, but they were quite distinct in the public mind. Each of them embodied different characteristics, and all of them made flying seem beyond the reach of the general public. In each of these three personas, public perception, rather than the objective reality, determined attitudes; people perceived these characters according to their own needs and desires.

This was certainly true with pilots during the First World War. The public was captivated by the air war, because it seemed to be everything the ground war was not. The operative word here is *seemed*, because censorship restrictions prevented the full story of the air war being told. In its stead, journalists, politicians, poets, and advertisers constructed a mythic version of the air war that stressed a number of characteristics. One was its purity. Unlike the ground, the air was a realm of clarity and cleanliness; being in the air was superior to being on the ground. We know from their diaries and letters that soldiers were fascinated by airplanes, and why not? Slogging through knee-deep mud in the trenches, living in holes in the ground, always wet, always cold, the life of the infantryman was hardly idyllic. And when he looked up to see an airplane flitting through the bright blue sky above him, he was powerfully struck by the contrast between his war and the pilot's, by the freedom that the airplane symbolized, by being up in the air where everything was clean and pure. For many soldiers, this contrast was sufficiently striking to convince them to transfer to the Royal Flying Corps (RFC). As Billy Bishop wrote in his memoirs:

> It was the mud, I think, that made me take to flying... I had succeeded in getting myself mired to the knees when suddenly, from somewhere out of the storm, appeared a trim little aeroplane. It landed hesitatingly in a nearby field as if scorning to brush its wings against so sordid a landscape; then away again up into the clean grey mists... I knew there was only one place to be on such a day—up above the clouds and in the summer sunshine.[2]

Another important feature of the air was the sense of vision it permitted. From ground level, it was difficult to make sense of the war because, peering over the parapet of a trench, everything looked the same. One could barely make out the enemy's positions, and during an attack, it was extremely difficult to understand what was happening. But from a few hundred feet in the air, everything began to make sense. It was possible to discern the trench lines, and even individual positions; groups of men would be followed across the battlefield so it was possible to *watch* a battle unfold. As Harry Quigley, a Toronto native who transferred from the infantry to the RFC, described it:

> We were up over 2½ hours and working between 400 and 600 ft. We could see every man in the attack and saw them take trench after trench until all objectives were reached. It certainly was a fine show and I believe I had the best seat in the house. I wouldn't have changed places with the Corps Commander that day.[3]

Because the pilot could see and understand more of what was happening on the ground, he was, in the popular understanding, superior to people who were stuck on the ground.

But the pilot was superior in another way as well. The Great War was the world's first mass war; never before had armies been as large, involving millions of people in uniform on both sides. It was also the world's first machine war in which more and more people were killed by technology—by artillery firing from long range, by machine guns that could not be seen, by aerial bombing from hundreds of feet overhead. There was, in short, much less killing in the good old-fashioned way, in hand-to-hand combat, and in that sense the individual became de-emphasized. In response to this reality, the public began to look for ways to counteract this tendency, to bring back some individuality to war and to show that the single person still mattered. The air war proved to be a particularly effective way of doing that, although the two tasks in which airplanes were critical to success in the land battle, artillery spotting and reconnaissance, were nowhere to be found in the mythic version. Artillery spotting was too mechanistic and reconnaissance too boring to grip the imagination, and so the press and popular culture became obsessed with the lone fighter ace going out to meet the enemy in single combat, the pilot who painted his aircraft in garish colours, the airman who was known by a romantic nickname—anything that made him stand out as an individual. This characterization had a long shelf life. By the time Billy Bishop won his Victoria Cross (VC) for a lone raid on a German airfield, air combat had changed. By then, it was dominated by massive battles involving dozens of aircraft, and the great airmen were the leaders of squadrons, not the lone wolves. But the general public would have none of it. Whether or not dawn duels between two pilots ever actually happened was irrelevant; people still preferred to see the air war as one in which individualism counted. It was an antidote to the mass warfare of the modern age, a return to the old days when the outcome of events was decided in single combat.

This notion came out most clearly in the image of the knights of the air, the idea that the fighter pilot was the twentieth-century version of the medieval knight; beyond the fact that he flew an airplane instead of riding a steed, there was no difference between the two. By extension, classical notions of chivalry were assumed to dominate the air war. One did not fire at an enemy pilot after his ammunition ran out, but simply waved at him and flew off to fight another day. One did not try to gain an unfair advantage by launching a sneak attack; the most sporting practice was to drop a note over an enemy airfield to invite an opponent to battle, so he could be met in a fair fight. There was a deep respect and indeed affection between pilots on opposing sides. At least, that is how the general public perceived the air battles; the knights of the air myth made the war seem more comforting, because it was less modern and unfamiliar.

Pilots constantly tried to remind people that there was no chivalry in the air war. There was no such thing as an unfair advantage, only an advantage; the pilot's only aim was to kill the enemy before he killed you. As Billy Bishop told society matrons in London, Ontario, he always tried to shoot for the head or upper body because it offered a better chance of killing the enemy pilot on the first burst. He wrote in *Winged Warfare* that he got the greatest satisfaction from seeing an enemy pilot go down in flames.[4] American ace Eddie Rickenbacker dismissed the idea that the air war was chivalric; it was nothing more than scientific murder. But few people were interested in such realism. In the public eye, the quintessential pilot was not a technocrat in an aerial killing machine but a knight of the air, a throwback to the medieval era, a demigod who fought in the skies according to some timeless code of honour.

And then peace broke out, and thousands of knights became ex-knights, looking for work like every other veteran. The war had given them a rather unusual skill set, but what could they do with it? Unlike France (where there were five national airlines by 1920, all enjoying government subsidies), Britain (where the government made Imperial Airways the British national carrier, an honour that also came with subsidies), and the United States (where the government had poured hundreds of thousands of dollars into subsidizing airmail routes), there was virtually no government support for aviation in Canada. It was not difficult to purchase an airplane immediately after the war, when surplus equipment was available from most governments, but there were few ways to make a living. VC winners Billy Bishop and Bill Barker formed an airline in Toronto that provided passenger service between the Toronto waterfront and Muskoka, but the company was a dismal failure. Rich Torontonians did not have sufficient confidence in the new technology to fly to Muskoka, and the airline collapsed in short order.

The only kind of work that seemed to promise a decent return was barnstorming. The original variety of barnstormer is an American invention, an itinerant entertainer who travelled around the west, usually by train, and put on shows in barns or halls for a night or two before packing everything up and moving to the next town. The barnstormer of the 1920s was similar, except he (and almost all of them were men) travelled by airplane. He might do some aerobatics over the town to attract attention, and then land in a farmer's field and offer to take people up for a ride for a few dollars a trip. Once he had taken up everyone who was willing to pay for the pleasure, he would move on to the next town. The same pilot could rent himself out to a county fair, with the organizing committee contracting him to put on an air show. People would pay to see pilots doing what they had done during the war: not artillery spotting and reconnaissance, but mock dogfights and stunting. At first, this was quite modest and involved little more than fly-pasts, gentle aerobatics, or mock displays of aerial bombing. But eventually the crowds tired of such tame entertainment and demanded more exciting stunts, such as wing-walking or climbing down a rope ladder from an airplane in flight to a car speeding underneath. It was dangerous and many pilots were killed in such displays, but there was a constant demand for aerial stunting.

The important thing is not so much the specifics of these exhibitions, but their meaning. The First World War, all too fresh in the collective memory, had demonstrated beyond any doubt that the airplane was an incredibly useful machine. The technological progress had been breathtaking, and the new generation of airplanes—fast, reliable, and manoeuvrable—had demonstrated that they could be invaluable in many different tasks. Furthermore, their application in peacetime was beyond doubt. Aerial photography and surveying techniques had been brought to a state of sophistication during the war, and the load-carrying capacity of airplanes had increased dramatically. It only required a little imagination to see how the equipment and practices could be used in peacetime. If there was ever an opportunity to capitalize on the situation and embrace aviation's utility, it was immediately after the war. But quite the opposite occurred. Much of the good that had been done during the war, in terms of reconciling the public to a new technology, was undone as aviation returned to the pre-war years when it was widely seen as nothing more than a form of entertainment. The image of the pilot suffered in the same way, as the great flying hero of the war years became the barnstormer of the 1920s. In 1918, Billy Bishop was adored by the public for his gallantry; in 1919, after scrapes with the law and a number of reckless stunts in the air over the Canadian National Exhibition in Toronto, newspapers were openly questioning his sanity.

Another aspect of post-war aviation also impacted on the public image of pilots and aviation in the same negative way: the long-distance flight. The world became obsessed with a single question: who would be the first person to fly from one place to another place? It did not particularly matter where the places were; obviously the farther away the better, but Canada to Cuba or New York to Mexico City could attract almost as much interest as London to Capetown. Still, the biggest prize was the Atlantic. Visionaries had dreamed of crossing the Atlantic for years, but not until the First World War did technology improve to the point where the flight was technically possible. Two kinds of large aircraft were particularly suitable. First, there were the long-range flying boats, designed to patrol the sea lanes and protect shipping against submarines and surface vessels. Perhaps the best known variant was the Curtiss flying boat, which the United States (US) Navy used in the first airplane crossing of the Atlantic, a flight from Newfoundland to Portugal via the Azores in May 1919. Second, there was the first generation of heavy bombers, such as the British-designed Vickers Vimy. It went into production too late in the war to see service, but was used in June 1919 in the first successful flight from Newfoundland to Ireland, by John Alcock and Arthur Whitten Brown.

The events of the summer of 1919 captured the imagination of the Western world. As teams of pilots and mechanics waited on both sides of the Atlantic to make their attempts at a crossing, the daily press followed every conceivable aspect of the preparations, from fuel mixture to what the airmen packed to eat. The Curtiss flying boats and Alcock and Brown succeeded, but most teams failed, and many pilots died in the effort. And yet the interest shown in that trans-Atlantic race was nothing compared to what came eight years later. There had been a few flight attempts in the intervening period, but not many successes. As remarkable as Alcock and Brown's flight was, more than anything else it proved how much work needed to be done before the crossing could be made regularly with any degree of safety. By 1927, however, there were new kinds of aircraft available with the range, the power, and the reliability to make the attempt. With a rich prize available, the Raymond Orteig Prize of 10,000£ ($15,800 Canadian)for the first non-stop flight between New York and Paris, the challengers began to gather on both sides of the Atlantic. A number of teams lined up to make the flight, most of them backed by rich investors for whom money was no object. It was a little different for the dark horse. Charles Lindbergh, born in Detroit in 1902, had been too young to serve in the First World War, but after failing out of the University of Wisconsin, he worked as barnstormer, wing-walker, and airmail pilot. He raised $15,000 from investors in Missouri and bought a stripped down Ryan monoplane, which he christened The Spirit of St. Louis in honour of his backers. In Lindbergh's eyes, the key to success was carrying as little extra weight as possible, and so as much fuel as possible: the more fuel, the greater the chance of success. He had no parachute—what was the point of bailing out into the sea?—and carried just a few sandwiches and a jug of water. The heavy metal seat had been replaced with a lighter wicker chair, and he carried no radio, no sextant, no running lights, and minimal instrumentation of any kind. To navigate over New England and Nova Scotia, he bought cheap highway maps of the kind that could be found at any gas station. The Spirit of St. Louis was little more than a flying gas tank, but Lindbergh believed it would get him the 3600 miles (5800 kilometres [kms]) to Paris with room to spare.

On the 20th of May 1927, at 7:51 AM, he was off, and the following evening, as night settled over Paris, he landed at Le Bourget airport. If the Alcock and Brown flight had been a big news story, this was a huge news story, unquestionably the biggest news story between the end of the First World War and the beginning of the Second. Lindbergh took over the world's newspapers in the days after his flight; in some papers, there was nothing but Lindbergh on the front page, and on the next five pages. Every conceivable aspect of this flight was covered in exhaustive detail, and Lindbergh became the first real media superstar in the modern sense. In the twenty-first century, when media superstars come and go like blackflies, it is difficult to appreciate the Lindbergh phenomenon. But he was easily the most famous person in the world in 1927, and many contemporaries thought him the most famous person of the twentieth century.

But what Lindbergh could not do, and he would spend the rest of his life trying to make up for this supposed failing, was to make flying accessible, to popularize it. He was quiet, unassuming, and humble, but everyone accepted that beneath the boy-next-door exterior was

a superman, a being who was closer to gods than humans. Furthermore, the very drama that characterized his flight merely proved that flying was only for the very select few, people with supernatural skill and courage; it was not something that ordinary humans could or should do. In the 1930s, an American doctor argued that pilots came from a different evolutionary route: normal people had evolved from fish, but pilots had evolved from birds.[5] The notion seems absurd to modern sensibilities, but it does sum up what many people thought about pilots and flying: they were not part of the normal world.

So, by the end of the 1920s, three very powerful images of the pilot had become firmly imprinted on the public imagination: the pilot as a modern knight in armour; the pilot as a shiftless vagabond; and the pilot as a demi-god. Clearly, none of these images was likely to convince average Canadians that flying should be part of their lives. As long as people believed that aviation was only for the select few, it could never progress. This, in a nutshell, was the thinking that the air lobby had to revise.

The RCAF was part of that process. For most of the interwar period, the federal government showed little appetite for funding the military aspects of the RCAF's mandate. There was, however, some limited interest in funding non-military activities, and the air force took full advantage of any operation that could justify its existence until the federal government loosened its purse strings. Some of these tasks had enormous practical value, while others were more in the nature of public relations exercises. Things like forest-dusting or mail delivery had little to do with what we imagine to be the core responsibilities of an air force, but most RCAF officers seem to have accepted such roles as the price to be paid for the service's survival. Whether they were enthusiastic about them is another matter. In 1925, the RCAF flew 5111 hours, only 73 of which were devoted to military training, and two years later, to address concerns about a military service doing almost nothing military, the federal government created the Directorate of Civil Government Air Operations to relieve the RCAF of its non-military duties. But the move was largely a shell game. The Directorate's personnel were almost all drawn from the RCAF, and its "air stations" were simply the air force's operational squadrons whose military designations had been temporarily lifted. Nevertheless, those non-military duties did demonstrate to the government the utility of aviation at the same time as they worked towards fostering air-mindedness in the general public.

One of the most useful tasks was aerial photography and mapping, where the lessons learned during the war about the value of aerial reconnaissance were crucial. Just as an observation aircraft could bring back photographs of enemy trench works, enabling intelligence officers to create detailed maps of the front lines, so too could an airplane bring back photos of unexplored regions of Canada as a first step to generating accurate maps. Indeed, the Air Board's photographic section was staffed by men who had honed their skills over the tortured landscapes of the Western Front. Here, the popular understanding that the occupants of an airplane saw the world in miniature, as on a map, was given practical application.[6]

As early as 1917, General Willoughby Gwatkin, the Chief of the General Staff, suggested that a Canadian air force should work with the Topographical Surveys, Geographers and Forestry branches of the Department of the Interior, but not until after the war did that department establish an air survey committee to make concrete plans. The committee elected to mount a test survey to see if techniques learned during the war could be fruitfully applied to peacetime aviation; Edouard Deville, the surveyor-general, proposed that the operation be flown in the Ottawa area, simply for administrative ease. (O. M. Biggar, who, as a member of the federal government's new Air Board, should have been more optimistic, preferred a more remote location to minimize the public-relations damage should the operation fail.[7]) The experiment was a success, and the Air Board and the RCAF began mounting more ambitious operations. The first two years of surveys, in 1922–23 and 1923–24, were strictly experimental, but the success of these operations convinced the Topographical Survey of Canada to turn the management of aerial surveying over to a separate agency, which would convene an interdepartmental meeting before each flying season to determine surveying priorities and the most efficient use of resources. In succeeding years, the amount of territory covered by aerial survey flights grew

dramatically: in 1924, the flights covered some 40,000 square miles [64,375 kms^2]; in 1925 nearly 50,000 squares miles [80,465 kms^2]; and 70,000 square miles [112,650 kms^2] in 1929.[8] Though operations were scaled back somewhat during the Depression, the Topographical and Air Survey Bureau achieved remarkable things with dwindling resources, covering a record 108,000 square miles [173,800 kms^2] during the 1935–36 fiscal year. Surveying staff were delighted with the results, both in terms of efficiency and cost. They reported that aerial photography reduced by half the work that had to be done on the ground, and that aerial sketch mapping was fully 40 per cent cheaper than traditional methods.[9]

Such general surveys were in fact preceded by more specialized surveys, such as flights to classify lumber resources. In the autumn of 1918, the federal Department of Naval Services and the Quebec Department of Lands and Forests agreed to mount an experimental forest survey, using flying boats operated by the St. Maurice Forest Protective Association, a consortium of Quebec lumber companies. In June 1919, after protracted negotiations between the two levels of government, ex-Royal Naval Air Service pilot Stuart Graham made the first timber survey flight over the Lac à la Tortue region of Quebec, and at the end of the season, St. Maurice forest manager Ellwood Wilson declared the experiment to be a complete success: a single two-hour flight could produce better data than two weeks of ground work, and ten men working on foot could cover in a month only a quarter of the territory recorded in one day of aerial photography flights.[10] An experienced timber cruiser could classify varieties of trees based on their colour and shape, and determine both the density of timber and the ease with which it could be logged. Access routes could be mapped out, obstacles noted, burned over, or swampy areas marked—all in one survey flight.

The forestry industry lost no time in harnessing the immense potential of the aircraft to maximize profit. Price Brothers was one of the first companies to establish a flying branch, and began air patrols over its holdings in the Lac St-Jean area of Quebec in July 1920; in September 1922, Price Brothers' flying operations were taken over by the newly founded Dominion Aerial Explorations, under the management of Harry Quigley. The same year, Fairchild Aerial Surveys, a Canadian subsidiary of an American firm, set up shop at Grand Mère, Quebec, to fly forest survey flights using the aerial cameras it had been developing. Laurentide Air Service, established in 1921 by one of the partners in the St. Maurice consortium, emerged as the biggest player in the game, winning contracts from the Ontario government and private concerns to do forest reconnaissance flights from its base at Lac à la Tortue. The company doubled its air fleet between 1922 and 1923 and established a larger headquarters at Trois-Rivières.[11] Though it ceased operations in 1925, Laurentide was one of the great success stories of post-war aviation in Canada.

But cataloguing forest resources was only part of the job; protecting them was just as important, and certainly more challenging. The greatest threats to Canada's forests, then as now, were parasites and fire. The sawfly or hemlock looper could devastate timber stands; the federal Department of Agriculture estimated that a spruce budworm infestation in eastern Canada in the early 1920s destroyed as much as 150 million cords of pulpwood. Fire could be even more disastrous. Manned watchtowers covered only a tiny portion of Canada's forests, and a fire could burn for days or weeks before it was detected. Quite apart from the potential loss of life (the great Haileybury fire of 1922 killed 44 people and burned 2,000 square miles [3,218 kms^2] of forest), the loss of valuable timber was immense, averaging 900,000 acres [364,217 hectares] a year in the five years up to 1924.[12] Faced with such losses, forest companies were willing to try almost anything to safeguard their assets.

Determining the spread of outbreaks of parasite infestation by air was simple: an aircraft survey to determine the spread of an outbreak of spruce budworm near Lake Abitibi in 1920 yielded "more information from the air in a day as to the extent of the outbreak than they could in a season from the ground," J. A. Wilson, the chair of the Air Board, reported. On the West Coast, aircraft from the RCAF's Jericho Beach flying boat station were used to trap white pine blister rust spores at different altitudes so scientists could determine how the disease travelled to infect new areas.[13] Before long, however, governments and forestry companies discovered that outbreaks could be fought as well as monitored from the air. The techniques for fighting parasite

infestation by air were relatively complicated and took some time to perfect, but from 18 June to 27 July 1927, a pilot of the RCAF performed the first aerial forest dusting, on Cape Breton Island. A decade later, when sawflies threatened forests in New Brunswick, the provincial Department of Lands and Mines used aircraft to transport sawfly parasites to the affected areas.[14] By the end of the 1930s, government and forestry officials had a whole new arsenal with which to fight parasite infestations.

The possibility of fighting forest fires from the air had been broached in 1917, when a naval lieutenant in Ottawa suggested using aircraft to patrol for forest fires and enforce fire laws. Experience at the front had convinced Ernest Potter that the smallest fires could be spotted from miles away. Emergency landing fields at regular intervals would increase the margin of safety for pilots; to help pay for the service, he recommended (with more imagination than common sense) that the airfields be planted with cash crops.[15] After the war, Cabinet minister and future Prime Minister Arthur Meighen suggested that the government of Canada acquire some war surplus airships. "A fair degree of efficiency in the fighting of forest fires may result from the bombing of fires with gas-producing material," he proposed to George Perley, the Canadian High Commissioner in Britain. Meighen's idea was well intentioned, but showed a limited appreciation for the technology, as a staff member in the Department of External Affairs pointed out. Airships would be useful only between the Great Lakes and the Rocky Mountains; the weather in eastern Canada was too unsettled, and the mountains made it difficult to operate small airships safely. They were also tricky to control, and moved too slowly to cope with a sudden emergency. As well, the staffer suggested delicately, it was unwise to have a hydrogen-filled balloon drifting over a forest fire.[16]

But the premise was a good one, and the forestry companies quickly realized that their survey flights could double as forest fire patrols. The St. Maurice Forest Protective Association made 40 flights in 1919; because the observer could see a distance of 20 miles [32 kms] in each direction, the flights covered 180,000 miles [289,680 kms] of forest that summer alone. The service's first success came on 7 July 1919, when Stuart Graham and Walter Kahre spotted and reported a forest fire while on a patrol. The following year, the federal and provincial governments established air stations at Jericho Beach, British Columbia, Morley (later High River), Alberta, and Roberval, Quebec, to provide forest fire patrols, but Ontario went a step farther. In the early 1920s, it had contracted Laurentide to fly forest patrols, and in 1924, in a move that sealed Laurentide's fate, the cabinet decided to establish its own flying branch. And so was born the Ontario Provincial Air Service (OPAS), initially with 13 flying boats purchased from Laurentide. Headed by Roy Maxwell, an ex-RFC pilot with a blue Cadillac roadster and a fondness for high leather boots, the OPAS established its main headquarters at Sault Ste. Marie (with district bases at Sioux Lookout, Orient Bay, and Sudbury), and for a few years was the largest aviation organization in Canada. In 1930, its 33 aircraft and 79 flying personnel completed nearly 12,000 flights and patrolled some 125,000,000 acres [50,585,780 ha] of forest; losses in 1927 were only 35,000 acres [14,165 ha], down from a staggering 2.2 million acres [890,300 ha] in 1923.[17] The Minister of Lands and Forests estimated that 90 per cent of the province's forest fires never spread beyond 100 acres [40 ha] because of the OPAS's ability to deliver firefighting crews quickly and efficiently. It was the same in other provinces. Every one of the RCAF's operational squadrons listed forestry patrols as a key duty.

Aerial surveying, photography and mapping, and forestry patrols were not the only tasks that the RCAF adopted as a means to justify its existence and spread air-mindedness at the same time. Indeed, the service showed admirable creativity and flexibility in envisioning new roles for aviation, and then adapting its skills and equipment to the jobs. In 1920, the air force mounted the first cross-Canada airmail flight. Until 1925, when the job was taken over by Pacific Airways, aircraft of the RCAF flew fisheries patrols over the West Coast to police the fishing season, prevent fishing in closed areas, guard against the use of illegal nets, and stop poaching. Squadrons also flew customs patrols to watch for smugglers. In the winter of 1927, an RCAF detachment carried out aerial reconnaissance and photography over the Hudson Strait to determine how long the bay might be accessible to shipping in a season.

But completing operations in the Canadian wilderness could only go so far, even if such successes were glowingly reported in the daily press. There was another side to the campaign to spread air-mindedness, and for this, the RCAF was compelled to become a kind of advertising agency. The first step was to establish lobby groups to spread the gospel of flight. The Aero Club of Canada, chartered in 1917, informed the government in February 1919 that its 2,000 members were ready, willing, and able to take a leading role in fostering aviation; as was the Aerial League of Canada, established in 1919, with branches in Toronto, Montreal, Vancouver, and Victoria. These would be joined by a host of similar organizations in succeeding years: the Canadian Air Service Association, established in Calgary in January 1920 to bring together former members of the RFC and Royal Air Force (RAF); the Canadian Air Force Association, which held its first national convention in June 1921; and the Air Force Club of British Columbia (later the Aero Club of Vancouver), created in 1923 under Vancouver fighter pilot Duncan Bell-Irving, both as a veterans' organization and to spread the message of flight through lectures, guest speakers, and radio talks. Three years later, fighter ace and career air force officer Don MacLaren attempted to establish a National Aeronautical Association of Canada, which he envisaged as "a clearing house whence the truths of Aviation may be circulated among the citizens of the Nation, most of whom are waiting to be educated." It was all a means to, as he put it: "Nationalize the Air-mindedness of the Dominion."[18]

But it was the Canadian Flying Clubs Association (CFCA), established in 1929, that eventually emerged as the most successful aviation lobby in the country. Since the early 1920s, the air lobby had been urging the federal government to provide more support for civil aviation, and on 23 September 1927, Minister of National Defence J. L. Ralston finally announced a program of government assistance to airplane clubs: the government would pay $100 toward the training costs of each pilot who qualified for a license; the student would cover the other $150. The upshot, as the air lobby had hoped, was an explosion in the number of active flying clubs across the country. On 1 May 1928, the Toronto Flying Club became the first in Canada; it was followed the same month by clubs in Saskatoon, Montreal, Hamilton, Winnipeg, and Regina. Later that summer came clubs in Edmonton and Northern Alberta, Victoria, London, Windsor, and Calgary, and by the end of 1928, there were 16 clubs with 2,400 members. In the Empire, only Britain could boast more light airplane clubs than Canada, and the CFCA rapidly emerged as a key player in the air lobby's educational campaign.[19]

By the late 1920s, these clubs and the RCAF had come together in an informal alliance to spread air-mindedness to the Canadian public, with the air show becoming their most potent weapon. From the small-scale air shows mounted by members of the local flying club to the huge national air tours, this was aviation's travelling road show, taking airplanes and pilots to eager crowds in villages, towns, and cities. In Alberta, the big draw was the air circus. Local pilots would organize eight or ten aircraft and fly from town to town putting on shows. Like the barnstorming shows of the early 1920s, they included all the standard tricks—parachute jumps, formation flying, stunting, air races, and penny-a-pound rides. A typical gag was a pilot dressed up as an elderly woman who climbed into the aircraft for a closer look; of course, the airplane would then "accidentally" take off, much to the delight of the crowd. Usually, each town on the circus route would select an air queen for the day; at the end of the flying season, all air queens received a free trip to Calgary and a flight over the city. Air shows in other parts of the country offered the same mixture of entertainment and education intended to reassure people that flying was neither mysterious nor magical.

More sophisticated were the regional air tours that became popular in the early 1930s, such as the All-Canadian Air Tour in Alberta and the Manitoba Goodwill Air Tour, first held in 1931. The tour was such a success that it was repeated the following year, and extended to two weeks so more towns could enjoy the show. In many places attendance exceeded all expectations, and tickets sold out as soon as the aircraft arrived. "From Steinbach to Winnipeg," trumpeted *Canadian Aviation*, "the gospel of aviation was preached."[20] Aviation boosters in Atlantic Canada got together to organize the first Maritime Air Tour in August 1932. The tour was followed by a gala Maritime Air Pageant in Charlottetown, which the province's air-minded lieutenant-governor recommended "not only as a means of entertainment, but as a practical demonstration

of the value of the airplane as a safe means of transportation." He confidently predicted that it would not be long before every farmer on the island would own an airplane.[21]

These immensely popular regional air tours were themselves dwarfed by the Trans-Canada Air Pageant, modelled on the National Air Tour that travelled the United States in the 1920s and 1930s and usually included a few Canadian stops. The Pageant was equal parts entertainment, education, and marketing. Aircraft manufacturers had a significant presence, showcasing their newest products with demonstrations, fly-pasts, and ground displays. There were segments that highlighted the speed and load-carrying capacity of aircraft, and examples of aerobatics and precision formation flying, usually by the RCAF team of Siskin fighter biplanes; often a team from the US Army Air Corps or the RAF also appeared. To lighten the mood, there was always a novelty act, frequently some variation on the senior-citizen-accidentally-flies-an-airplane routine. By all accounts, the Trans-Canada Air Pageant was a hit. The CFCA, which organized the event, estimated that the first tour drew more than 300,000 spectators in the 12 cities it visited; the crowds in subsequent years were even larger.

The air lobby was unanimous in its assessment of these events. "Through the Trans-Canada Air Pageant, we made thousands of friends equally for ourselves and for the government," wrote an official of the Canadian Flying Clubs Association. "We sold aviation to the public that greatly exceeded all expectations." When J. A. Wilson toured the flying clubs of the Maritime provinces in 1931, he heard time and time again of the positive effect that the pageant had on public opinion. Officials of the Cape Breton Flying Club informed Wilson that the pageant's visit had drawn the largest crowd ever assembled at one time on Cape Breton.[22]

Unlike the air displays of the barn-storming era, which were sometimes ill-organized, slapdash affairs that invariably promised hair-raising excitement from pilots cheating death, these shows featured military-style organization and displays demonstrating the utility, accessibility, and respectability of aviation. Spectators at the Trans-Canada Air Pageant, for example, knew precisely when each aircraft was to be expected overhead, and it was a rare day when the schedule was not adhered to. Absent were the death-defying stunts by daredevil pilots—they served no good purpose and could even be counter-productive. In their place were demonstrations of freight aircraft and formation flying, informative ground displays highlighting the performance and practicability of private aircraft, and dozens of friendly, knowledgeable, and (according to contemporary photographs) well-dressed flying club members to answer questions—all intended to reassure the public about flying. The air show aimed to entertain, but primarily offered flying as a business opportunity, a profession, and a way of life. In short, these were not just air shows. They were essentially educational exercises put on by the air lobby to teach people about the potential of flight. They capitalized on the public's desire for entertainment, but disguised an educational message within that entertainment.

The campaign for air-mindedness was remarkably successful, although the measure of its success would not become clear until after 1939. It prepared people psychologically to embrace aviation as a technology, laying the foundations so that the Second World War could finish what the air lobby had started. Between 1939 and 1945, the airplane became ubiquitous as people were exposed to aviation in ways they had never been before. The RCAF, after many lean years, ballooned to a quarter of a million members, and tens of thousands of young people become air cadets. Over a hundred airfields were built or converted to serve the British Commonwealth Air Training Plan, bringing aviation into communities that had not known it before. Trans-Canada Airlines, which came into being on the eve of the war, expanded enormously, in routes, miles flown, employees, and passengers carried. In 1942, it was joined by a second national airline, Canadian Pacific. In a very real sense, the Second World War normalized flying and stripped away its mystery and strangeness, so that by 1945, the majority of Canadians were willing to accept aviation as a normal part of life. Flying remained relatively costly and uncomfortable, and only a small proportion of Canadians actually flew, even into the 1960s. But thanks to the groundwork of the RCAF and the rest of the air lobby, Canada had entered the air age, and there was no going back.

Notes

1. I will use the term RCAF consistently, if inaccurately, rather than referring to the service's many short-lived antecedents, the Canadian Air Corps (1914–15), the Canadian Air Force in England (1918–20), the Royal Canadian Naval Air Service (1918), and the Canadian Air Force in Canada (1920–24), not to mention the Directorate of Civil Government Air Operations (1927–32) and the Civil Aviation Branch of the Department of National Defence (1932–36).

2. W. A. Bishop, *Winged Warfare: Hunting the Huns in the Air* (Toronto: Hodder & Stoughton, 1918), 1–2.

3. Letter dated 6 September 1917 in Harry Quigley Papers (author's collection).

4. *London Advertiser*, 27 October 1917, 1; Bishop, *Winged Warfare*, 101.

5. Joseph Corn, *The Winged Gospel: America's Romance with Aviation, 1900–1950* (New York: Oxford University Press, 1983), 74.

6. Arnold H. Sandwell, "The Camera Takes to the Air," *Canadian Geographical Journal* 1/1 (May 1930), 61–74.

7. Arthur Sifton Papers, vol. 8, f. 1, meeting of Air Board #3, 2 July 1919 (Library and Archives Canada [LAC]).

8. Department of National Defence (DND), *Report on Civil Aviation for the Year 1924* (Ottawa: King's Printer, 1925), 15 (hereafter cited as DND Report…); DND Report 1925, 48; "Aerial Mapping Activities in 1930," *Canadian Mining Journal* 51/50 (12 December 1930), 1196.

9. DND Report 1923, 48; DND Report 1924, 49.

10. William J. McAndrew, "The Evolution of Canadian Aviation Policy Following the First World War," *Journal of Canadian Studies* 16, no. 3/4 (autumn-winter 1981), 92.

11. DND Report 1923, 14–15.

12. Bruce West, *The Firebirds: How Bush Flying Won Its Wings* (Toronto: Ministry of Natural Resources, 1974), 18–20.

13. DND Records, vol. 3577, f. 866-1-53, Wilson to Charles Grey, 10 September 1920 (LAC); DND Report 1923, 28.

14. Frank Ellis, *Canada's Flying Heritage* (Toronto: University of Toronto Press, 1954), 129; Department of Lands and Mines Records, *77th Annual Report of the Department of Lands and Mines, year ending 31 October 1937* (Public Archives of New Brunswick), 21.

15. Robert Borden Papers, reel C272, f. 411 Canadian Flying Service, Potter to Borden, 26 May 1917 (National Archives of Canada).

16. Department of External Affairs Records, series B1b, vol. 203, f. I43/84, Meighen to Perley, 21 December 1918, and B. Thomson, memorandum entitled "Small airships for forest fire patrol," 28 June 1919 (LAC).

17. West, 18–20.

18. DND Records, vol. 2928, f. 866-1-13 pt 1, D. R. MacLaren, "Development and Control of Civil Aviation in Canada," April 1926.

19. W. A. Steel Papers, vol. 5, f. 22, Air Ministry, "The Progress of Imperial Air Communications," September 1930 (LAC).

20. "A Matter of Education," *CAL Bulletin* 4, no. 2 (15 August 1932), 18–19; *Canadian Aviation* 5, no. 8 (August 1932), 6; *Canadian Aviation* 5, no. 9 (September 1932), 22.

21. *Charlottetown Patriot*, 1 September 1932, 1.

22. J. A. Wilson Papers, vol. 2, H. H. Richards, CFCA to Manion, 24 February 1932; DND Records, vol. 2928, f. 409-1-3, J. A. Wilson, memorandum on inspection of Maritime provinces, 24 November 1931 (LAC).

Jonathan Vance

Jonathan F. Vance holds the Smallman Chair in the Department of History at The University of Western Ontario, where he teaches military history, Canadian history, and social memory. A native of Waterdown, Ontario, he holds degrees from McMaster University, Queen's University, and York University. He is the author of many books and articles, including Death So Noble: Memory, Meaning, and the First World War *(1997),* High Flight: Aviation and the Canadian Imagination *(2002),* A Gallant Company: The True Story of "The Great Escape" *(2003), and* Building Canada: People and Projects that Shaped the Nation *(2006). His most recent books are* Unlikely Soldiers: How Two Canadians Fought the Secret War Against Nazi Occupation *(2008),* A History of Canadian Culture *(2009), and* Bamboo Cage: The P.O.W. Diary of Flight Lieutenant Robert Wyse, 1942–1943 *(2009).*

Chapter 3

Swords for Peace: RCAF Sabres with RAF Fighter Command[1]

Carl A. Christie

"Care would have to be taken not to give the Russians a chance to say that we were trying to fight them," Prime Minister William Lyon Mackenzie King to President Truman.[2]

"I am extremely keen on the idea from every point of view…" RAF Chief of the Air Staff, Air Chief Marshal Sir John Slessor to RCAF Chief of the Air Staff, Air Marshal Wilf Curtis, reacting to the idea of basing Canadian airmen in Britain.[3]

Little more than three years after the North Atlantic Treaty Organization (NATO) officially stood up—on 24 August 1949—the Royal Canadian Air Force (RCAF) found itself making one of the key contributions to the air defence of Western Europe. With a dozen squadrons divided equally between four wings flying perhaps the hottest fighter of the day, the F86 Sabre, this European-based component of the RCAF constituted an air force at least the equal of the one of which we are so proud today. Those who served in the Air Division, as it was known, consider this era the Golden Age of the RCAF. They did not use their ordnance in anger, but the threat to do so if necessary protected allies and helped preserve the peace during the cold war.

The story of how the RCAF found itself making such a huge commitment to the defence of Europe so soon after the end of the Second World War is a fascinating one of a dual-track process in which the politicians and diplomats on the one hand, and the air force leaders on the other discussed how Canada could help counter the perceived growing threat from the Soviet Union. This resulted in the RCAF returning to Britain in 1951 with the establishment of its first permanent post-war base overseas, probably this country's first overseas military establishment of any description during peacetime.[4] Taking over an existing RAF station, North Luffenham, in Rutland, England's smallest county, the RCAF dispatched three squadrons to form No. 1 (Fighter) Wing. For almost four years, until the entire establishment moved to its brand new station at Marville, France, in 1955, it operated as part of the RAF Fighter Command and flourished as a Canadian community in the English Midlands.[5]

In order to appreciate how and why all this came to pass, how and why the RCAF created 1 Wing, where it fit into the overall scheme of Canadian foreign and defence policy, as well as its assigned role and accomplishments—not to mention what it was like to serve there—we must first remind ourselves what the world, and our Air Force, was like only a few short years after the Second World War. During the life and death struggle against the Axis Powers, the RCAF had grown from a pitiful little organization of about 4,100 men in September of 1939 to become the fourth largest air force in the world six years later.[6]

After the war, the Government of Canada, and, indeed, the people of Canada, turned as quickly as possible to reaping the benefits of what a later generation would know as a "peace dividend."[7] Each of the armed services demobilized as quickly as administratively and humanly possible, sending tens of thousands of military personnel back into the civilian work force. The Royal Canadian Air Force, in which almost a quarter of a million men and women had served at home and overseas during the war,[8] and which had reached a peak strength of about 215,000,[9] soon became a shadow of its former self. "As so often following a war," Christopher Shores has written somewhat poetically, evoking a quintessentially Canadian metaphor, "the strength of the RCAF melted away like snow under a spring sun as soon as the peace came."[10] The Centennial Volume on the history of Canada's armed forces, published in 1967 by the Department of National Defence's Directorate of History, summarized the post-war transition:

> At the end of the Second World War the R.C.A.F. was largely demobilized. Many flying fields in Canada were put on a care and maintenance basis, others handed back to the municipalities from which they had been leased. Most fighter, bomber and coastal squadrons were disbanded within a few weeks of VE [Victory in Europe] Day; those that

> had been intended for Pacific operations were broken up in September 1945, and the Canadian Air Force of Occupation, consisting of 13 squadrons stationed in Germany and the United Kingdom, was dissolved in the spring of 1946. When the R.C.A.F. returned to a peacetime footing on 1 October 1946, its flying units had been reduced to a few transport squadrons and a number of special flights. When the last member of the Women's Division was demobilized in December, the strength of the R.C.A.F. stood at 12,735 all ranks.[11]

And this was not the nadir. By the end of the following year, the air force could boast of barely 12,200 members, and even that included 650 in the RCAF Auxiliary.[12]

These figures, while understandable in the new peacetime environment, appear somewhat ironic in retrospect. The Cabinet itself had already decided, early in 1946, to build a larger post-war air force than existed almost two years later. The plan called for an RCAF with four components: the Regular Force, the Auxiliary, the Reserve, and the Royal Canadian Air Cadets. With an establishment of 16,100 officers and men, the Regular Force would form the nucleus if war should erupt, supplemented by the 4,500 members of the Auxiliary, the units of which could theoretically be mobilized quickly. In addition, the Auxiliary would carry responsibility for the air defence of Canada.[13]

Defence policy, of course, is formulated within the context of a broader international and foreign policy, or at least we hope that this is the way governments operate. In the late 1940s, as the Soviet Union grew increasingly obstreperous, politicians and officials from several nations looked more and more at the possibility of greater coordination of their individual defence policies. Indeed, Canada was in the forefront of this movement, at both the ministerial and high civil service and military levels. With the benefit of hindsight, we can see now that, with the Soviet menace looming, numerous informal communications and personal relationships, many forged in the fires of war, led inexorably to formal talks about a Western military alliance.

Negotiations leading to the signing of the North Atlantic Treaty in Washington in April 1949 fell to the Department of External Affairs, in particular to its new political head as Secretary of State for External Affairs, Lester B. Pearson.[14] The Department of National Defence and its Minister, Brooke Claxton, along with the Chief of the General Staff, General Charles G. Foulkes, did not enter the picture until the North Atlantic Treaty Organization officially stood up in August. Claxton's biographer notes that after returning to Canada with Foulkes from a tour of NATO countries and the Paris meetings of the new organization's defence and military committees, the Minister of National Defence "believed that Canada would be called upon to provide training facilities, to send units of its armed forces to Europe on a temporary basis for training, to supply raw materials, and, as much as possible, to supply specified weapons systems. There was no call for a permanent military presence in Europe."[15] Neither man probably realized that informal communications already under way between air marshals in this country and Britain would lead to a much greater commitment than this for the department and the nation.

It is now apparent that during the summer or fall of 1949, British and Canadian officers, especially at the air officer rank, began discussing the idea of basing RCAF aircraft in the United Kingdom (UK). As the international situation worsened, war-ravaged Britain, and, indeed, all of Western Europe, felt increasingly threatened by the growing strength and pugnacity of the Soviet Union and its new East European satellites. At the same time, across the Atlantic in Canada, airmen wrestled with the perennial problem of ensuring appropriate operational training for their post-war air force.[16]

Initially, both the RAF and the RCAF leaders talked about basing one or two Canadian squadrons in Britain, as the Royal Air Force's Air Chief Marshal (A/C/M) Sir Ralph Cochrane wrote home from Ottawa to his Chief of the Air Staff (CAS), A/C/M Sir John Slessor, following an informal chat with Air Marshal (A/M) Wilf Curtis, the RCAF's CAS:

> 1. I had a long and very friendly talk last night with Curtis. There are two subjects on which he would like to enter into discussions with us. The first concerns our requirements for

> training capacity in war and I have written fully on this to A.C.A.S. [Assistant Chief of the Air Staff] Training and need not bother you at the present juncture.
>
> 2. The other matter concerns a tentative proposal which the R.C.A.F. made for stationing one or possibly more fighter squadrons in the U.K. For some reason they have got the impression that we are not keen on the idea. They are puzzled as to why we should be hesitant, and in the meantime are taking no further action.
>
> 3. I do not of course know what happened during the discussions in England, but I would have thought we should welcome this gesture no matter what the administrative difficulties. Such a welcome would have an excellent effect here. It would reinforce our defences, and would enable the R.C.A.F. fighter squadrons to obtain essential experience in air defence.
>
> 4. Curtis would, I know, greatly welcome a friendly note from you, which would encourage him to re-open the matter.
>
> 5. He will expect the squadron to be autonomous, but is quite ready for whatever unit or units are sent over to fit into the higher organization of Fighter Command.[17]

Cochrane communicated these thoughts at the end of January 1950. As soon as his airmailed letter arrived in the Adastral House office of his CAS in London, it seems to have precipitated a flurry of discussions within the Air Ministry. Reading the memoranda and minutes often literally written in longhand, and sometimes in an almost illegible scrawl (at least to the North American researcher unfamiliar with British penmanship), reveals that RAF leaders almost desperately wished to have the Canadians help them out by basing a squadron or more in Britain. Moreover, they had obviously been discussing the possibility with their Canadian confrères for at least a few months.

Slessor wrote to his opposite number across the Atlantic following quite a full airing of the question with his own senior officers. "My Dear Curtis," he adds in his own hand, before continuing in the typed text of the letter: "Ralph Cochrane tells me that you mentioned to him the tentative proposal made some three months ago by your Senior Liaison Officer in London about having one or more R.C.A.F. Squadrons in this country. He got the impression that you felt we are not very keen on the idea and are wondering why we have not taken more action about it."[18]

Not wanting any further misunderstandings, Slessor got right down to business in a very open and frank way that leaves little doubt about the British willingness to cooperate with the Canadians in air defence matters. One interesting point he mentions at this early stage is that the proposed scheme need not cost the RCAF any out-of-pocket money, and in so doing makes a suggestion that may have helped to launch Canada's post-war Commonwealth and NATO air training schemes. However, what comes through loud and clear is the enthusiasm the RAF's leadership had for the whole idea of working more closely with the RCAF.

> I must tell you at once that I am <u>extremely</u> keen on the idea from every point of view, including the suggestion that the cost of the Canadian fighters in this country should be met "in kind" by your extending to us training facilities in Canada. Obviously all sorts of details will have to be worked out but I am sure that there are no difficulties that could not be overcome and I think the whole principle is so excellent that we should lose no time in getting down to it and ironing out the details. I have not consulted my Secretary of State for Air or in fact anyone outside the Air Ministry because I did not think you would wish me to do so at this stage. But my own reactions are so strongly favourable—and indeed were when Tedder first mentioned it to me before he left—that I feel you should know them immediately.
>
> I think the trouble has been that the possibility was only put forward in a very tentative way by Hurley, who I gather emphasized that it was entirely unofficial, and, so to speak, taking soundings. I understand V.C.A.S. [Vice Chief of the Air Staff] discussed it equally

> informally with Hugh Campbell when he was here with your Minister. And meanwhile there has been going on inside the Air Ministry the usual staff examination of ways and means. But I am very sorry if you have gained the impression that we are in anyway cool towards the suggestion. Far from it, there is nothing I'd like better than to see some R.A.F. crews being trained in Canada. And as soon as we get a definite official proposal, I shall tell my staff to get on with it and allow no difficulties to stand in the way.
>
> Now - what is the next step? You will know best as the initiative came (as indeed it could only come) from you. I should have thought that the best opening gambit would be a letter from your Minister of Defence to ours, putting the proposal in principle and suggesting that, if [Her Majesty's] H. M. Government in the U.K. agrees, the staffs and the financiers should get together, either in London or Ottawa to thrash out the details and produce a scheme for the approval of Ministers on either side.
>
> Will you let me know what you think? I do hope you will be able to come over for the Air Staff Conference on May 3–5th, but I should hope that by then the discussions on this proposal would at least be far advanced.[19]

If the airmen appear to have been working on their own initially, they were still operating within the same parameters as their political masters and civilian officials. Consequently, they had little difficulty convincing their respective ministers to agree to the scheme being discussed. By the end of February, Slessor learned from Curtis that he had won the support of the Canadian Minister of National Defence, Brooke Claxton. "Dear Jack," the RCAF CAS wrote to his opposite number in Britain:

> I was very pleased to receive your letter regarding our thought of sending one or two fighter squadrons to England. I showed it to the Minister who was very interested and said he would take it up with Cabinet. Since then we have been battling with estimates to find out, first of all, how much money we were going to get, and secondly, how much for each Service. Now that this has been settled I expect we will be able to start making our future plans. I am all for sending <u>one or two squadrons as soon as we can</u> and so is the Minister so I think in due time a formal proposal will be sent over.[20]

"My Dear Wilf," Slessor began in a reply, implying that the two air force chiefs had grown closer during their correspondence and also that the RAF sincerely welcomed the RCAF's idea of stationing a squadron in Britain. "Thank you so much for your letter of 28th February," he continued. "That is excellent news and I shall look forward very much to the arrival of a formal proposal." He then tried to ensure that the Canadians followed the proper protocol: "If such a proposal is made, might I suggest that it would come most appropriately in the first instance to the Secretary of State for Air."[21]

The wheels of decision-making turned slowly, as they so often do, and Wilf Curtis did not reply to Jack Slessor for about six weeks. When he did he tried to explain part of the reason for the delay:

> I have had further discussions with the Minister regarding sending an R.C.A.F. squadron to England and he is in agreement with the idea and has discussed it with his colleagues in the Government. As a result of this I feel there is no question about it and that it will be possible just as soon as we are in a position to carry out the idea. Our build up to 5 regular fighter squadrons and 12 reserve (auxiliary) squadrons, has reached the point where we have some 10 auxiliary squadrons operating now but only 2 regular fighter squadrons. The build up to the 5 will be controlled by the supply of fighter aircraft which does not commence until this fall so that 1951–52 would be the earliest we could possibly put this scheme into effect without making a complete reshuffle here.
>
> As you suggest, the next step is up to us and will be from our Minister to your Secretary of State for Air.[22]

The internal minutes and memoranda within the Air Ministry prompted by the circulation of the most recent exchange of correspondence between the air force chiefs reveals some anxiety about the continued lack of an official proposal from Canada.[23] The British concern appears to have reached the point of exasperation by the end of June as indicated in a discreet telegram to the Senior RAF Liaison Officer in Ottawa, through the UK High Commissioner to Canada:

> 1. Subject is proposal to send an R.C.A.F. Fighter Squadron to U.K. for training which has formed subject of correspondence between C.A.S. and Air Marshal Curtis, and which we strongly support.
>
> 2. Our latest knowledge of project is as follows, Curtis wrote C.A.S. 12th June to say proposal had general agreement of Minister Claxton and he would ask Claxton to approach our Secretary of State for Air. No such approach has yet been received by the latter.
>
> 3. Curtis said he could not send Squadron equipped with CF100 until 1952/53 and he would have difficulty in getting funds to buy more Vampires. If, however, we could provide Vampires and equipment he would send Squadron personnel to U.K. to form a new Canadian Squadron early in 1951 and would subsequently rotate his Squadrons to give them all experience. We are still looking into possibility of providing aircraft and equipment and no reply has yet been made to Curtis.[24]

As if the apparent Canadian foot-dragging was not bad enough, the British air marshals appear to have had apoplexy when they read what the Canadian Minister of National Defence, who, it must be reiterated, had yet to communicate formally on this subject with his opposite number in the UK, had said publicly. During a debate on departmental estimates, Brooke Claxton had referred in the House of Commons to a plan to station RCAF squadrons in Britain. This troubled the RAF brass, who filed *The Times*' report on the incident (which bore the heading "Canadian Fighters to Train in Britain"), accompanied by a minute emphasizing that no official proposal had yet been received from the Government of Canada.[25] The memorandum just quoted went on to note the faux pas:

> 4. Although we are greatly in favour of project referred to in para. 1 we were surprised, in view of situation mentioned in paras. 2 and 3 to see in London *Times* that in Estimates Debate of 26th June, Mr. Claxton told Canadian Parliament that R.C.A.F. would begin to send Fighter Squadrons to U.K. for training early in 1951.
>
> 5. Glad if you would make tactful enquiries about this apparently premature Ministerial statement and find out if formal approach will soon be made by Canadian Minister to U.K. Minister, so as to put matters on an official footing.[26]

Whether or not Claxton's statement in the House threatened the negotiations with the RAF and the Air Ministry, it certainly upset the British officials.

This no doubt typifies many missteps by many officials of the member nations following the signing of the North Atlantic Treaty in Washington in April 1949. The North Atlantic Treaty Organization proved a complicated body to set in motion, especially when, in the minds of Western leaders, the threat from beyond the Iron Curtain loomed very real and very strong. The Defence Liaison Division of the Department of External Affairs made this abundantly clear on 5 April 1950 in a long, top-secret memorandum to the Assistant Under-Secretary of State for External Affairs. It was a big job. By this time the Western allies felt reasonably confident that the sea lanes of communication between North America and Europe would be protected in the event of war. The problems lay in other areas: "The fact is that the North Atlantic community already has nearly all the naval forces that it is estimated would be required by 1954, whereas, it only has, in aggregate about one–third of the air forces and one–fifth of the land forces needed."[27]

The writer of this memorandum ended by himself quoting another delegate at the previous week's North Atlantic Defence and Finance meetings in London and The Hague: "the cost of living everywhere has gone up: the cost of freedom has too."[28] These cautionary words on the

cost and importance of defence measures could well have been uttered at other times before or since.

Word of Canada's much anticipated official request to station an RCAF squadron in Britain finally reached the Air Ministry in the wee small hours of 13 July in the form of a telegram from that nation's High Commissioner in Ottawa. Under the subject heading, "Air Training of R.C.A.F. Fighter Squadron in United Kingdom," it spelt out the ideas discussed by the air force officers of the two Commonwealth and NATO partners over the previous months.

> 1. Letter of 10th July received today from Canadian Government begins by stating that response to Canadian Government's offer to train officers of N.A.T.O. European countries (my telegram 17th March No. 256) has exceeded expectations and it is hoped to start training early in autumn.
>
> 2. As a corollary Canadian authorities have been considering possibility of stationing fighter squadrons in United Kingdom beginning in spring 1951 to obtain training in more advanced operational techniques in close cooperation with similar R.A.F. units under operating conditions. Both Minister of National Defence and Chief of Air Staff R.C.A.F. have discussed possibility informally with members of United Kingdom Government and R.A.F. on a number of occasions and believe proposal to be considered in principal [sic] very desirable.
>
> 3. Canadian authorities have been thinking in terms of an R.C.A.F. Fighter Squadron operating as a lodger unit on a R.A.F. fighter base. This squadron would comprise only requisite number of fully-qualified air crew and ground crew necessary to service the aircraft, i.e., about 150 men. It would remain in United Kingdom for one year or less when another squadron would replace it. It would be hoped during first year that R.A.F. Vampires might be used until Canadian aircraft are available.
>
> 4. Agreement would need to be reached on compensation for facilities and services which R.A.F. would provide. When making proposal to N.A.T.O. Governments for officer training in Canada it was pointed out that arrangements requiring transfers of funds might add to the difficulties of achieving practical cooperation. If United Kingdom authorities are interested in training air navigators in Canada mutually satisfactory financial arrangements might be made which would avoid transfers of funds in either direction.
>
> 5. Canadian Government would welcome views of United Kingdom Government in order that if approval in principle is given plans may be developed.
>
> 6. Air Vice-Marshal Miller, Air Member for Operations and Training R.C.A.F., is in United Kingdom on other matters till end of this week. He is familiar with this proposal and can be made available for discussion with United Kingdom authorities. If United Kingdom Government agree to discussions Canadian Government hope that they may be held with Air Vice-Marshal Miller in next few days.[29]

The full message is quoted here because it demonstrates the extent to which the British saw the Canadian proposal to station fighter aircraft in the United Kingdom as intertwined, at least in the minds of RAF leaders, with the scheme to train NATO officers in Canada. Given the traditional parsimony of Canadian governments when it comes to defence matters, this linkage undoubtedly helped the overseas stationing of RCAF squadrons win Cabinet approval. Not having to pay real money to the British meant that members of the government would not have as hard a sell with the voters.

Receipt of the official request from Canada caused Air Ministry officials to unleash another series of memoranda and minutes. They clearly welcomed the proposal but differed on exactly what the RAF could and should provide for the visiting Canadian airmen. Some senior officers wanted to issue them Gloster Meteors or even de Havilland Mosquitoes, anything to avoid sharing the de Havilland Vampire, apparently in short supply. As Slessor put it to his Secretary of State for Air when forwarding him the file on 18 July:

> You will see from encl. 25A of this file [the document quoted above], that the Canadian Minister of Defence has now formally put forward the question of stationing a fighter squadron in the U.K. for training. For very good reasons, the R.C.A.F. would like to send over the personnel only and leave it to us to provide the aircraft and equipment. I have had this question looked into (see enclosures 24A and minute 24.) and find that we would have difficulty in providing the Vampire 5s for which they ask. [Air Ministry staff officers] A.M.S.O. put forward several alternatives (enclosure 24A), of which I prefer that we offer to provide Meteor IVs. I do not foresee any insuperable difficulties in converting their pilots to Meteors.[30]

Slessor concluded this minute to his political superior by suggesting "you might now like to write formally to Mr. Brooke Claxton to the effect that we much welcome their proposal to base a squadron in the U.K. for training and that we will pursue the question of ways and means at staff level."[31]

After considerable internal deliberation, the British official response went out to the UK High Commissioner in Canada on 10 August 1950, drawing attention to the major concerns detailed in Air Ministry internal preparatory documents.

> United Kingdom Government cordially welcome Canadian proposal that a R.C.A.F. Fighter Squadron should be stationed in United Kingdom from the [s]pring of 1951 to undertake operational training with R.A.F. Question of ways and means and other detailed arrangements will be pursued in discussions at staff level. Air Ministry have already had discussions with Air Vice-Marshal Miller during his recent visit to United Kingdom.
>
> United Kingdom Government are extremely interested in possibility of Canada training Air Navigators for R.A.F., and this is one of points that will be dealt with in consideration of ways and means.
>
> We should be grateful if you would inform Canadian authorities accordingly.
>
> For your own information, Air Ministry state that it is unlikely that Vampires will be available for the first R.C.A.F. Squadron. They have already suggested to Canadians that it might instead be equipped with Meteors from R.A.F. sources.[32]

From this point, the late summer of 1950, plans to base RCAF fighter pilots in Britain begin to take real shape and then to evolve and grow. Much of the documentation continues to deal as much with the training of pilots and navigators in Canada, demonstrating the extent to which this question connected to that of stationing any RCAF units overseas. Even so this paper will now dispense with the NATO training angle in the interest of concentrating on the essential subject of this study, the despatch of RCAF airmen to peacetime Britain and their integration into RAF Fighter Command and NATO's Western European air defence structure. Before left behind, however, Wilf Curtis's words can underline the common denominator behind all the negotiations, the quid pro quo financial factor that made it possible to launch both schemes: a kind of international barter. "As regards mutual aid feature," the RCAF CAS commented, as one paragraph in a longer signal to his RAF opposite number:

> …we hope part of cost would be offset by cost of maintaining RCAF Squadrons in rotation on other side including loan aircraft along lines previously mentioned so as to minimize transfer elements. Again I feel this can be worked out on mutual aid principle, and in view of need for haste we should be glad to get on with this now. If you concur my Minister would make simultaneous announcement here to Parliament 1900Z hours Monday August 28th.[33]

Curtis immediately followed this up with more details in a separate message that reads almost as a continuation of the paragraph just quoted:

> Further to my C.264 Para.4. We plan sending Fighter Squadron to U.K. on or before 1st April 1951. Squadron is now equipped with Vampire aircraft. We would appreciate your

> furnishing Squadron with Vampire aircraft upon its arrival U.K. pending replacement with aircraft of Canadian manufacture as soon as possible. RAF suggestion that Meteors could be made available would necessitate retraining both aircrew and ground crew which we want to avoid since my plan contemplates all RCAF Squadrons operating overseas will be equipped with aircraft of Canadian manufacture. I would greatly appreciate anything you can do to make Vampire aircraft available.[34]

Wilf Curtis seems to have used the prospect of basing Canadian-built fighters in Britain as an inducement almost from the beginning of his discussions with Slessor, not infrequently expressing pride of the potential performance characteristics of the CF100 under development by A.V. Roe Aircraft in Toronto. Perhaps this factor, along with the constant Canadian harping about the Vampire prompted the British to acquiesce within days of receiving the latest urging from Ottawa. In the absence of his own CAS, A/C/M Cochrane replied with a cipher message to Curtis: "Glad to say now see every prospect of being able to find sufficient Vampires to equip your squadron pending arrival of its own aircraft." He added a short one-sentence paragraph indicating that the RAF would welcome the Canadians: "We look forward very much to seeing the squadron here."[35]

A couple of weeks later the RCAF proposed increasing both the pace and the scope of the scheme by advancing the move date of its squadron by three months, and more significantly, by suggesting that three RCAF squadrons equipped with North American F86 Sabres should eventually be stationed in the United Kingdom.

This appears to have excited the RAF air marshals. A memorandum signed by the CAS on 12 September explained why:

> It would be much to our advantage to have these F.86s over here, as I have said in my note to the Chiefs of Staff Committee on Soviet Fighter Development, and this seems a good way of doing it. The proposals will, however, have to be looked at carefully, particularly the question of the location of the airfield, and what the R.A.F. manpower commitment might be (although the arguments used for "Galloper," i.e., an increment to strength at relatively small cost, apply equally here).[36]

The following week the British Assistant Chief of the Air Staff (ACAS) wrote from London to the Senior RAF Liaison Officer in Ottawa:

> 1. Canadian Fighter Squadrons for U.K. Latest proposal from Air Marshal Curtis is to send first squadron late January 1951. R.A.F. to provide Vampires pending re-equipment with F.86s. Second and third squadrons equipped with F.86s. to be sent at later date. Proposals accepted by C.A.S. in signal to Air Marshal Curtis, 13th September.
>
> 2. Our airfield capacity strained by expansion programme but we are looking into provision of airfield. Would like Canadian proposals for move of their squadrons to U.K. as soon as possible. In meantime could you signal preliminary Canadian views on following points:
>
> (a) Runway lengths for F.86 with ORENDA, or other type engine.
>
> (b) Approximate numbers of personnel per squadron.
>
> (c) Whether plan is to base second and third squadrons on same airfield as first. If so will R.C.A.F. provide all HQ and domestic personnel for fighter station.
>
> (d) Proposals for second and third line maintenance of F.86. Is it planned to link this with U.S.A.F. Organisation in U.K.?
>
> 3. Hope to brief C.A.S. on these points prior to his visit so would be grateful for earliest possible reply.[37]

Less than a week later the RAF'S Senior Air Liaison officer in Ottawa responded, via a top secret message, with more details regarding the Canadian desire to station fighters in Britain:

> 1. Have been advised by RCAF authorities that official Canadian proposals for movement of Squadrons to U.K. is being signalled forthwith. Following are views of RCAF on questions A to D.
>
> (A) Runways. They require runway lengths of 6,000 repeat 6,000 feet [1,829 m] for the Sabre (F86) regardless of engine.
>
> (B) Numbers of personnel Squadrons Vampire Squadron of 12 aircraft 20 Officers 15 Senior NCOs 70 Other Ranks Sabre Squadron of 25 aircraft 30 Officers 25 NCOs and 155 Other Ranks.
>
> (C) Canadians wish all Squadrons on same airfield making it complete RCAF Station. Doubtful whether able to provide domestic personnel but would use U.K. civilian labour to maximum. They estimate the following numbers required for Station. To support 1 Sabre Squadron with full maintenance 20 Officers 30 NCOs 170 Other Ranks plus 85 civilians. To support 3 Squadrons plus Fighter Wing 130 Officers 120 Senior NCOs 600 Other Ranks and 135 civilians.
>
> (D) Canadian authorities have not yet reached decision as to second and third line maintenance of F86 S [sic] nor have they discussed with USAF but are prepared to do so later.[38]

Circulation of this message from the RAF's man in Ottawa prompted another flurry of memoranda and minutes within the Air Ministry in London. One senior officer suggested that the British limit their largesse: "With regard to sub-paragraph (c) of that signal, C.A.S. thinks we must take the line that if it is to be an R.C.A.F. Station, it must be manned entirely by R.C.A.F. personnel, plus any U.K. civilians available. C.A.S. does not see why we should have to do domestic chores for the Canadians."[39]

It perhaps bears noting that the service-to-service negotiations continued, growing more detailed and specific, notwithstanding the absence of any formal agreement at the governmental level.[40] Before the end of September, however, the RAF's ACAS received notification that "the Minister of Defence has been fully briefed for his forthcoming visit to North America and will discuss the Canadian contribution as a part of the wider aspects of the North Atlantic Treaty Organization."[41] The same memorandum carries a pencilled minute indicating that the RCAF operation in Britain was "to fit into Fighter Command." In fact, this document, summarizing the conclusions of an internal Air Ministry meeting, provides a good indication of the RAF's views on the Canadian proposal. The air marshals obviously wanted the RCAF fighter squadrons to augment their own weak air defence; however, they remained unsure about where and how to fit the Canadians into their own command structure. They also craved more details from the RCAF in order to make key decisions regarding the housing and servicing of aircraft, personnel, and possibly even dependents. They wished to accommodate Canadian requests but lacked the means in many areas. Their own desire to have aircrew trained in Canada complicated all this; they did not want to give the RCAF cause to decline future reciprocal British requests.

It bears emphasizing that 1950 carries a generally unrecognized significance in Canadian diplomatic and military history, particularly (given our concerns here) for the RCAF as it prepared for its reappearance on the world's stage. With international tensions high everywhere, diplomatic activities intensified both publicly and privately. In January, the RCAF took off on its first round-the-world trip, carrying Secretary of State for External Affairs Lester B. Pearson and his wife Maryon to a number of cities in Europe and Asia, en route to and from the Commonwealth Foreign Ministers' Conference in Colombo, Ceylon (now Sri Lanka).[42] While a minor event in the grand scheme of things, this achievement underlines the professionalism of Canada's early post-war Air Force and illustrates its readiness to spread its wings, as it would soon do in support of NATO.

In June 1950, virtually at the mid-point of the detailed RAF-RCAF discussions about basing Canadian fighter squadrons in Britain, the international situation had suddenly taken a dramatic turn for the worse with North Korea's invasion of its southern neighbour. Given the fear of a world-wide communist conspiracy within the Western world's corridors of power, many saw the North Korean aggression as a diversion for a bigger Soviet attack in Europe. From the middle of 1950, NATO members struggled to bolster defences for a new war that many saw as almost inevitable. The United States, we must add, underwrote the high cost of upgrading European preparedness because the European members of NATO had not yet recovered from the economic consequences of the Second World War.

By the fall of 1950, the Government of Canada thus felt great pressure from its NATO allies, and particularly from its great southern neighbour, to increase its commitment to the new alliance. Notwithstanding the growth of the defence portion of the budget, the United States almost constantly urged Canada to contribute more. Even so, by historical Canadian standards, both before and since, this country had little to apologize for when it came to military spending at this time. Jack Granatstein and Norman Hillmer have summed up the changing view in Ottawa at this point in the cold war:

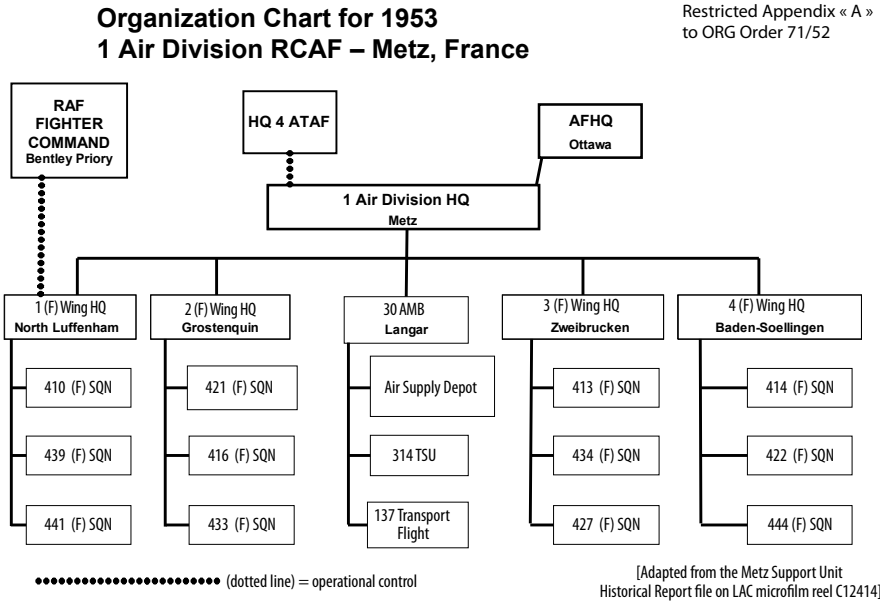
> By 7 August [1950], Cabinet had agreed to send a brigade of troops to Korea; soon thereafter, the decision was taken to station a second brigade and an air division of fighter aircraft in Europe with NATO. The brigades were not grouped with the U.S. military, but with British forces in Europe and Commonwealth forces in Korea. Ottawa's world view had altered quickly, and Canada's defence spending, just 2.2 per cent of the GNP in 1949, rose to 5.5 per cent in 1951, and 7.6 per cent in 1953. In dollar terms, the increase from $361 million in 1949 to $1.9 billion in 1953 was staggering for what was still peacetime, and indicated just how seriously Ottawa took the communist threat in both Europe, and secondarily, Asia. The lessons of the 1930s had been well learned in Ottawa. Aggression must be nipped in the bud.[43]

Although the Government of Canada officially recognized the need for rearmament to support the new North Atlantic alliance as a bulwark against the feared Soviet-led communist aggression, the gap between policy decision and implementation proved enormous. With respect to the RCAF's contribution to NATO, for example, the files of many offices within several departments and ministries on both sides of the Atlantic contain a myriad of internal memoranda, as well as interdepartmental, international, and inter-service communications regarding a host of details. Solutions had to be found to each one of many problems; all parties—national and alliance and service—had to agree on the answers to endless questions prior to the implementation of any policy. In addition to the postings and careers of individual Canadian aircrew and ground crew, civilian jobs and careers depended on the decisions made in Ottawa, Washington, London, and nine European capital cities. A youthful NATO learned and grew up on the job, under the intense pressure created by a very real fear of a new war to stop communist expansion. Despite the steep learning curve, as a later generation might describe the process, not to mention more than the odd mistake (as seen later with the benefit of hindsight), the politicians and diplomats, along with the military officers and their civilian partners, the departmental civil servants created a strong force that contributed to the maintenance of peace in those troubled times. That they accomplished this via decision-making through consensus within the alliance is amazing; that NATO continues to function in this manner with more than twice as many members is even more unbelievable. But that is another story.

Suffice it to say, negotiations continued between both air force officers and civilian politicians and bureaucrats throughout 1950 and well into 1951 to iron out numerous problems from the standpoint of either the British or the Canadians or both. The RAF showed an interest in both the Avro Canada CF100 and the Canadair-built version of North American Aviation's F86 Sabre, especially when powered by the new Orenda engine under development in Canada. By the end of September 1950, the British had learned that the RCAF would require runways of 6,000 feet for its Sabres, no matter what engine powered it. Adastral House[44] seemed pleased with this news for most of the newer RAF airfields featured runways of this length. If RAF officers were pleased with this attainable RCAF requirement, they were less keen about the RCAF desire

to have its own station rather than have its squadrons placed on RAF ones as lodger units. By this time, the discussions concerned an entire wing and not simply one squadron.

In the end, the RCAF had one wing based in Britain and three on the continent in France and Germany, all part of the North Atlantic Treaty Organization's air defence of Western Europe, with orders channelled through No. 1 Air Division headquarters, located first in Paris and then in Metz in northeastern France. The pioneering Canadians in this operation flew their three squadrons out of No.1 Fighter Wing, RCAF Station North Luffenham, Rutland, England, as part of RAF Fighter Command as a result of the negotiations detailed above. This arrangement



persisted until the spring of 1955, when No. 1 Wing moved to the newly-built station near the historic village of Marville, close to the border with Belgium in northeastern France, beginning another chapter of the RCAF's golden age.

Notes

1. Title inspired by "*Pro pace armati*" (or "Armed for Peace"), the motto of No. 1 (Fighter) Wing, Canada's first overseas military commitment in peacetime. With no disrespect to the other three wings of the RCAF's Air Division in Europe or the Division itself, "Armed for Peace" seemed a more appropriate starting point than the other RCAF European mottos of the era. See Samuel Kostenuk and John Griffin, *RCAF Squadron Histories and Aircraft, 1924–1968* (Toronto & Sarasota: Samuel Stevens Hakkert & Company, 1997), 211, 216–17; Canada, Department of National Defence, *The Insignia and Lineages of the Canadian Forces, Volume 4, Operational Flying Squadrons* (Ottawa: NDHQ/DHH on Authority of the CDS, A-AD-267-000/AF-004, 2000-04-05). "Sword" is the nickname given to the Sabre by its pilots. See Tom Langeste, *Words on the Wing: Slang, Aphorism, Catchphrases and Jargon of Canadian Military Aviation since 1914* (Toronto: Canadian Institute of Strategic Studies, 1995), 269.

2. Quoted in Donald Creighton, *The Forked Road: Canada, 1939–1957* (Toronto: McClelland and Stewart, 1976), 150; J. W. Pickersgill and D. F. Forster, *The Mackenzie King Record*, vol. 3, *1932–1939* (Toronto: University of Toronto Press, 1960), 362–63. Creighton quite accurately labels this "Naively vain advice."

3. A/C/M Sir John Slessor, CAS (RAF), letter to Wilf Curtis CAS (RCAF), 1 February 1950, National Archives of the United Kingdom, the Public Record Office, Kew, (hereafter PRO) in the file PRO, AIR 8/1628.

4. Our soldiers followed the airmen overseas by only a few weeks. The first combat elements of the Army's 27th Canadian Infantry Brigade Group docked at Rotterdam on 21 November 1951, were soon

joined by the rest of the brigade, and settled into Canada's first post-war overseas Army base at Hannover, West Germany. Sean M. Maloney, *War without Battles: Canada's NATO Brigade in Germany, 1951–1993* (Toronto: McGraw-Hill Ryerson, 1997), 14, 29–33. See also J. L. Granatstein, *Canada's Army: Waging War and Keeping the Peace* (Toronto: University of Toronto Press, 2002), 337.

5. The careful reader may note a certain resemblance, in some parts of this paper, to an earlier two-part article on the same subject by this same author, "North Luff," *Airforce* 11, no. 2, 1987, 2–4, 43; and "North Luff – 1983," *Airforce* 12, no. 2, 1988, 2. In endeavouring to share recent research on the subject, the technique chosen for the preparation of this paper has been to rewrite and build on the penultimate draft of the original article submitted to *Airforce* almost twenty years ago, in much the same way as for the paper delivered at the Air Force Historical Conference in Ottawa in 2004 ("Our First NATO Wing: No. 1 Fighter Wing, RCAF Station North Luffenham, Rutland, England, 1951–1955"), which expanded upon the earlier two-part *Airforce* magazine article through additional primary research, primarily in the British National Archives at Kew in southwest London.

6. Brereton Greenhous and Hugh Halliday, *Canada's Air Forces, 1914–1999* (Montreal: Art Global, 1999), 120.

7. The reference is, of course, to the much desired "peace dividend" following the implosion of the Soviet Union and the end of the cold war.

8. In fact, in referring to the RCAF, the Department of National Defence's military history Centennial Volume records that "during the war, 232,632 men and 17,030 women served in it." D. J. Goodspeed, ed., *The Armed Forces of Canada, 1867-1967: A Century of Achievement* (Ottawa: Canadian Force's Headquarters Directorate of History, 1967), 155.

9. Leslie Roberts writes: "In January, 1944, total strength of the Air Force had been more than 215,000." *There Shall Be Wings: A History of the Royal Canadian Air Force* (Toronto: Clarke, Irwin & Company Limited, 1959), 237.

10. Christopher Shores, *History of the Royal Canadian Air Force* (Toronto: Royce Publications, 1984), 80.

11. Goodspeed, 219.

12. Greenhous and Halliday, 122.

13. See Major Mat Joost, "The RCAF Auxiliary and the Air Defence of North America, 1948–1960," in *Canada in NORAD: 7th Annual Air Force Historical Conference Proceedings, Peterson AFB* (Air Force Base*), Colorado Springs, June 4 to 9, 2001* (Winnipeg: Office of Air Force Heritage & History), 84–94.

14. At the signing ceremony on 4 April 1949, the U.S. Marine Corps' band played "It Ain't Necessarily So" and "I Got Plenty of Nothin'," choices that US Secretary of State Dean Acheson thought added a note of unexpected realism. For his part, the senior Canadian representative present, L. B. "Mike" Pearson, found the musical selections "regrettable." See John A. Munro and Alex I. Inglis, eds., *Mike: The Memoirs of The Right Honourable Lester B. Pearson, PC, CC, OM, OBE, MA, LLD*, vol. 2, *1948–1957* (Toronto: University of Toronto Press, 1973), 60. Today a cynic might consider the choices almost prescient.

15. David Bercuson, *True Patriot: The Life of Brooke Claxton, 1898–1960* (Toronto: University of Toronto Press, 1993), 205.

16. A good feel for the situation can be gained from reading the incoming and outgoing letters, memoranda, and minutes in official files. Those of the British Air Ministry are rather illuminating. See, in particular, in the PRO, AIR 8/1628, "Stationing of Canadian Fighter Wing in UK," that includes what appears to have been the original file on the subject, "C.A.S., Deployment in the U.K., (North Luffenham), RCAF Fighter Wing."

17. A/C/M Sir Ralph Cochrane, letter to A/C/M Sir John Slessor, CAS (RAF), 28 January 1950, PRO, AIR 8/1628.

18. A/C/M Sir John Slessor, CAS (RAF), letter to Wilf Curtis, CAS (RCAF), 1 February 1950, PRO, AIR 8/1628.

19. Ibid.

20. Wilf Curtis, CAS (RCAF), letter to A/C/M Sir John Slessor, CAS (RAF), 28 February 1950, PRO, AIR 8/1628. It is unclear who contributed the ink underlining and whether it came at the sending or receiving end.

21. A/C/M Sir John Slessor, CAS (RAF), letter to Wilf Curtis CAS (RCAF), 6 March 1950, PRO, AIR 8/1628.

22. Wilf Curtis CAS (RCAF), letter to A/C/M Sir John Slessor CAS (RAF), 17 April 1950, PRO, AIR 8/1628.

23. See, for example, memorandum of 25 April 1950, PRO, AIR 8/1628.

24. UK High Commissioner in Canada, telegram to Air Commodore Revington, 28 June 1950 (PRIORITY - TOP SECRET - DISCREET), PRO, AIR 8/1628.

25. The clipping is not identified, but the context of the covering document and the typeface itself leave little doubt that it was indeed cut from *The Times*. PRO, AIR 8/1628.

26. UK High Commissioner in Canada, telegram to Air Commodore Revington, 28 June 1950 (PRIORITY - TOP SECRET - DISCREET), PRO, AIR 8/1628.

27. See Memorandum from Defence Liaison Division to Assistant Under-Secretary of State for External Affairs, 5 April 1950, Document 476 (DEA/50030-C-40), in *Documents on Canadian External Relations* (hereafter *DCER*), vol. 16, *1950*, ed. Greg Donaghy (Ottawa: Department of Foreign Affairs and International Trade, 1996), 808, (paragraph 14). The full memorandum, of 24 sometimes chatty paragraphs, fills fully seven pages in this volume of essential historical documents (804–10).

28. *DCER: 1950*, 810 (paragraph 24).

29. UK High Commissioner in Canada, IMMEDIATE, No. 695, despatched Ottawa 1808 hours 12 July 1950, received [London] 0300 hours 13 July 1950, PRO, AIR 8/1628.

30. A/C/M Sir John Slessor, CAS (RAF), memorandum to Secretary of State for Air (UK), M36, 18 July 1950, PRO, AIR 8/1628.

31. PRO, AIR 8/1628. The British wished to receive more details about RCAF needs. For example, would the Canadian fighter pilots bring their own ground crew?

32. UK, Defence Department, letter to UK High Commissioner in Canada, CYPHER (SIMPLEX), PRIORITY, no. 893, SECRET, sent 2150 hours, 10 Aug. 1950, PRO, AIR 8/1628.

33. Wilf Curtis, CAS (RCAF), letter to A/C/M Sir John Slessor, CAS (RAF), 22 August 1950, PRIORITY, TOP SECRET, C264, received Air Ministry 25 August 1950, PRO, AIR 8/1628.

34. Wilf Curtis, CAS (RCAF), letter to A/C/M Sir John Slessor, CAS (RAF), 22 August 1950, 22 August 1950, TOP SECRET, C265, PRO, AIR 8/1628.

35. A/C/M Sir Ralph Cochrane, letter to Wilf Curtis, CAS (RCAF), 26 August 1950, TOP SECRET, PRIORITY, MSX 337, PRO, AIR 8/1628.

36. A/C/M Sir John Slessor, CAS (RAF), memorandum to Vice-Chief of the Air Staff, 12 September 1950, PRO, AIR 8/1628.

37. Air Ministry London, telegram to Air Commodore Revington, A.1363, 18 September 1950 (Secret. Priority), Exclusive for Revington Senior RAF Liaison Officer from ACAS(P), PRO, AIR 8/1628.

38. Air Commodore Revington, telegram to Air Ministry London, 646, received by secure means 23 September 1950 (Priority. Top Secret), from Senior Air Liaison Officer for ACAS(P) from Revington, PRO, AIR 8/1628.

39. R. Haynes, memorandum to Assistant Chief of the Air Staff (RAF), 26 September 1950 (Secret), PRO, AIR 8/1628.

40. See, for example, Wilf Curtis, CAS (RCAF), letter to Air Ministry London, 29 September 1950, PRO, AIR 8/1628.

41. RAF ACAS, memorandum, 29 September 1950, PRO, AIR 8/1628.

42. John English, *The Worldly Years: The Life of Lester Pearson*, vol. 2, *1949–1972* (Toronto: Alfred A. Knopf, 1992), 34. Disappointingly for the air force enthusiast, "Mike" Pearson himself says nothing about the RCAF crew or aircraft in his otherwise fascinating accounts of the Commonwealth Conference and the trip itself. See *Mike: The Memoirs of The Right Honourable Lester B. Pearson, PC, CC, OM, OBE, MA, LLD*, vol. 2: *1948–1957* (Toronto: University of Toronto Press, 1973), 107–09, 112–20. Larry Milberry tells us: "January 2-February 8 a 412 [Squadron] North Star carried External Affairs Minister Lester B. Pearson around the world via Rockcliffe, Gander, the Azores, Gibraltar, Malta, Fayid, Karachi, Negombo, Karachi, Delhi, Rangoon, Singapore, Hong Kong, Wake Island, Hawaii and Hope. The trip (125:20 flying hours) highlighted Canada's growing influence in Commonwealth affairs. Pearson was visiting Asian capitals and attending the Commonwealth Conference, which led to the establishment of the Colombo Plan to aid developing nations." *Air Transport in Canada*, vol. 1 (Toronto: CANAV Books, 1997), 413.

43. J. L. Granatstein and Norman Hillmer, *For Better or for Worse: Canada and the United States to the 1990s* (Toronto: Copp Clark Pittman Ltd, 1991), 181.

44. The Air Ministry moved from its interwar and wartime home of Adastral House in Kingsway to a new building in Whitehall Gardens in 1952. See the account of the buildings used as headquarters of the three services: http://www.mod.uk/DefenceInternet/AboutDefence/History/HistoryOfTheMOD/ (accessed June 1, 2011).

Carl A. Christie

Carl A. Christie is the author of Ocean Bridge: The History of RAF Ferry Command *(University of Toronto Press and Midland Publishing, 1995); and* Truly Royal: The History of the Canadian Air Force *(University of Toronto Press, forthcoming).*

Chapter 4

Nuclear Virgin or Nuclear Strike? John Diefenbaker and the Selection of the CF104 Starfighter

Raymond Stouffer

Introduction

In the summer of 1957, after more than 20 consecutive years in power, the Liberals were defeated by the Conservative Party led by John Diefenbaker. The following spring, telling all who would listen that as a backwoods prairie lawyer he best understood the needs of average Canadians, and promising a new "vision" for a country that had grown tired of Liberal arrogance and legislative bankruptcy, Diefenbaker called another general election and achieved an unprecedented political victory. The Conservatives won an astonishing 208 out of 265 Commons seats. In doing so, they reduced the Liberals to 24 seats, the Co-operative Commonwealth Federation (CCF) from 25 to 8, and the Social Credit was completely wiped out. John Diefenbaker and his Cabinet had the political clout to do what they pleased.

The question for the Defence Department was how a Conservative majority government would affect its future? More immediately, how would Diefenbaker respond to a number of outstanding sensitive national security decisions conveniently left unresolved by the Liberals? They included the need for an integrated Canada-United States Air Defence Command, foreign control over and Canadian use of nuclear weapons, keeping Canadian forces in Europe, and the future status of the Avro Arrow. This paper will focus on the Diefenbaker government's polices with respect to the future of Canadian forces in the North Atlantic Treaty Organization (NATO). More specifically, it will describe the replacement for the aging Sabre jet fighters in 1959 for the No.1 Air Division, Canada's principal air power commitment to NATO's Central Region.

By looking at the selection process for the CF104 Starfighter, the aircraft eventually chosen to replace the Sabre in Europe, this paper touches upon the key policy challenges faced by the Conservatives common to all of the aforementioned defence priorities. Because of the need to find alternatives for the Arrow, along with Diefenbaker's rash and imprudent commitment to North American Aerospace Defence Command (NORAD), and Canada's future in NATO, the Conservatives were faced with purchasing American controlled and nuclear-capable weapon platforms. This foreign policy decision needed to be confronted in the context of domestic politics. Having to lead a Cabinet irrevocably split over the use of nuclear weapons, and eager to make good on an election promise to decrease the country's cultural, economic, and military dependence upon the United States, John Diefenbaker could not commit his country to being a nuclear power by the time he went down to defeat in the spring of 1963.

This paper will argue that by selecting the F104 without committing to the nuclear warheads needed for the strike role, Diefenbaker left National Defence without clear political direction. Consequently, in this policy vacuum, National Defence, specifically Canadian airmen, were left to make decisions with their NATO counterparts regarding the replacement and future employment of Air Division aircraft. In addition to describing a selection process that has to date been largely unknown to the public because of its classified nature, this paper brings to light the dangers of a government committing the taxpayer to an expensive and long-term weapons platform without a clear and logical policy underpinning. There is an enduring lesson to be learned for defence planners today with the story of the F104 selection. Supporting the theory put forth by Douglas Bland (Professor and Chair of the Defence Management Studies Program in the School of Policy Studies, Queen's University), in the absence of political direction, bureaucrats, especially the military, will shape policy that satisfies institutional and/or alliance goals as opposed to those of the government and the people it represents.

This paper will show that the selection of the F104 and nuclear strike mission was good for the Royal Canadian Air Force (RCAF) and NATO, but problematic for the Diefenbaker government. This unwelcome result was then exacerbated by the prime minister's own

political miscalculations and lack of concern for things military. The good news was that John Diefenbaker was a professed cold war warrior. He agreed to extend and modernize Canada's ground and air commitment to NATO. The bad news was that he remained a nuclear virgin, rendering the new weapons platforms he bought for the Canadian military, including the Starfighter, useless. His vacillation over nuclear warheads had both political and military consequences. His lack of action became a national embarrassment in NATO circles and unnecessarily angered the Americans. Canadian airmen were left planning for a mission for which they had no authority until Lester B. Pearson's Liberals returned to power in 1963 and agreed to arm the Canadian military with nukes.

NATO Strategy Evolves and Canada Gets a New Government

No. 1 Air Division was the Royal Canadian Air Force's pride and joy. It was a large part of the RCAF's "halcyon" days of the 1950s. The Air Division consisted of a headquarters at Metz and two wings in eastern France and two wings in southwestern Germany. Built up between 1952 and 1955, each wing was initially equipped with three squadrons of the F86 Sabre. Between November 1956 and the following summer, one Sabre squadron at each wing was replaced by an all-weather CF100 squadron. By the fall of 1957, the Air Division had therefore established itself as a 24-hour, all-weather air defence and offensive nuclear escort capability to NATO's central area.

In terms of overall alliance strategy and air power roles, 1957 was a watershed year for NATO under the leadership of General Lauris Norstad, Supreme Commander Allied Powers Europe (SACEUR). While Norstad understood that the Alliance's all-weather capability still provided a reasonable defence against Warsaw Pact bombers, the real need was for all NATO air forces to adopt the nuclear strike role. Such a mission involved aircraft striking predetermined targets behind Warsaw Pact lines with tactical nuclear bombs. International events during the previous year, specifically the demonstration of Soviet aggression during the Suez crisis and the Hungarian uprising, had precipitated a sense of urgency in NATO to change the priorities of its existing strategy. A tougher message was sent to the Soviets. The capabilities of NATO forces were bolstered by the addition of tactical nuclear weapons to stem an attack from the Warsaw Pact. More significantly, upon attack, NATO was to be immediately supported by the strategic nuclear counter-offensive of the American Strategic Air Command and Royal Air Force. The former forces became the "Shield" while the latter were referred to as the "Sword."[1]

These changes affected the future of the Air Division. Under Military Committee (MC) 70, tactical nuclear weapons for NATO's Shield land and air forces were to be integrated and provided by a dedicated United States (US) stockpile beginning in 1958.[2] While these weapons were to be provided to the RCAF, the protection of the Shield forces remained an important alliance objective. Consequently, General Norstad recommended in its consideration of future air power roles, the Air Division should plan for a mix of eight all-weather and four strike squadrons.[3] Norstad and his staff were well aware that the RCAF was looking at future options for the Air Division once the Sabres and CF100s became obsolete. Canadian airmen were uncomfortable operating in an air defence environment that lacked integration and left member countries to guard their own national boundaries. However, as important as the future of its NATO commitment was, Canadian airmen were unsure how the new Conservative government would respond to their needs. This was particularly of concern before Diefenbaker got his majority.

Early on, it appeared that the prime minister fully supported the military. Moreover, he was determined to be perceived as a tough-sounding cold war warrior. At the same time, his initial actions in support of the military also laid the seeds of future civil-military discord. To the surprise of many, including his own Cabinet that he did not consult, Diefenbaker committed the country to the bilateral NORAD alliance within days of taking office. Although of great relief to the RCAF, it would be a decision the prime minister would regret later on. At the Heads of State meeting in Paris in December 1957, Diefenbaker signed the agreement in which both the Army Brigade and Air Division would receive American supplied tactical nuclear weapons for use in the Central Region.[4] When reminded of this fact later on, the prime minister insisted that this agreement was not a national commitment.

The next summer, in June 1958, the prime minister announced that Canadian forces would remain in Europe because he felt it vital for Canada to bolster alliance solidarity in the face of the threat from the Soviet Union. This decision was no small political feat given that there were persuasive reasons for Diefenbaker to consider withdrawing from Europe. From the beginning, the duration of this commitment was indeterminate and related to the economic and military recovery of Western Europe.[5] By the late 1950s, European economic strength had improved considerably; whereas, the cost for Canada to maintain its forces in Europe was becoming prohibitive. The defence bill had risen dramatically because maintaining large regular forces required that they were well paid.[6] Another concern was over-escalating expenses by having to supply and maintain weapons systems over a 3,000-mile supply line for an Army Brigade and Air Division that were operationally and geographically separated. Finally, by pitting the Middle East policies of France and Britain against those of the United States, the 1956 Suez crisis had shaken NATO solidarity as well as witnessing Soviet aggression. While Diefenbaker sided with Britain, he understood the importance of getting the most powerful members of the alliance focused on the Soviet threat in Europe. In the event, Canadian airmen were relieved that the RCAF was to remain in Europe. Their priority was therefore to convince their government to agree to SACEUR's operational wishes.

Re-equipping the Air Division to Meet NATO's Military Strategy

Implicit in MC 70 was greater need for strike and reconnaissance aircraft. These capabilities would be coordinated with those of NATO missile forces to ensure that the entire weight of the nuclear retaliatory power of the alliance could be brought to bear in a decisive and coordinated effort. It was in the context of these changed roles for NATO air forces that General Norstad made known to the Canadian military authorities his recommendation that the Air Division should assume a strike role in addition to its existing responsibilities for air defence.[7]

Based upon SACEUR's proposal, changes to the composition of the Air Division were to be made incrementally during the period 1959–62. By 1963, the Air Division was to retire its remaining daytime fighter squadrons and be left with four squadrons of strike fighter bombers and eight squadrons of all-weather fighters.[8] This recommendation was resisted by the Canadian military authorities. It implied an increase to the country's military contribution to NATO's Central Region fixed since 1954 to an Army Brigade (with two in reserve) and an Air Division that performed a daytime and all-weather air defence role. The Canadian position was that any additions to these forces would have to come at the expense of capabilities in place.[9] A change to a strike role from air defence involved substantial changes in the organization and re-equipment of the Air Division. The message to Canadian airmen was clear. Whatever their preferences for air power roles for the Air Division, they had to be reconciled with existing ceilings on Canadian forces in Europe.[10]

While content with the prime minister's public commitment to NATO in 1958, the year proved a frustrating and worrisome one for the Air Staff. First, due in large part to an uncertain economic picture, the Canadian government made it clear the re-equipment of the Air Division was not to be discussed with Supreme Headquarters Allied Powers Europe (SHAPE) officials.[11] Moreover, discussions held within the Chiefs of Staff Committee (CSC) and Cabinet Defence Committee (CDC) created considerable angst for senior Canadian airmen because the future of the Air Division appeared less certain. At the national level it was becoming clear that the post-war economic boom had lost momentum. There was a reduced demand for and reduced capital investment in Canada's primary exports of wheat, timber, paper, and minerals. At over 7 per cent, the spectre of widespread unemployment had returned for the first time since the Depression years. Spending on defence as a percentage of the government's total expenditures dwindled to 26 per cent compared to an average of 41 per cent over the previous six years of Liberal rule.[12] Given these dire economic numbers, it was not a good time to talk about major military expenditures.

Annoying to airmen was that non-airmen and civilians questioned the rationale as well as the cost for re-equipping the Air Division. They estimated $1 billion was needed for a replacement fleet of follow-on fighters in light of expected increased Russian missile capabilities that questioned

the future operational utility of conventional aircraft deployed from static airfields in Europe. The understanding of several senior naval and army officers, shared by several politicians, was that it had always been assumed that the Air Division would be allowed to run down in the sense that its equipment would become obsolescent within a matter of years and that it would not be possible to replace it. It was also suggested that a stronger case could be made for re-equipment if it were considered necessary to transfer the Air Division to North America.[13]

Needless to say, these points greatly concerned the Chief of the Air Staff (CAS), the ex-Air Officer Commanding (AOC) No. 1 Air Division, Air Marshal Hugh Campbell. He vehemently denied that there was ever a planning factor that assumed the longevity of the Air Division was tied to the lifespan of its initial equipment. He emphasized that it had always been planned that support of the Air Division was tied to the continued membership of Canada in NATO. With respect to the vulnerability and thus utility of procuring fighters for the Air Division, Campbell argued that the threat by Russian offensive forces could be overcome with dispersal plans in effect and future use of vertical take-off and landing (VTOL) aircraft.[14]

Luckily for Canadian airmen, there was no serious threat to the future of the Air Division from the Alliance's point of view. SACEUR attached considerable importance to the Canadian Air Division, and therefore strongly resisted any suggestion that it should be withdrawn at an early date. Further, General Norstad did not favour its replacement by an increased army contribution. This was not a surprising conclusion considering SACEUR's professional background and years as a senior NATO air commander. Good news for the RCAF also came from the government. The Canadian military was under strict orders not to create any impression, either in Canada or abroad, that consideration was being given to the withdrawal of the Air Division. As alluded to earlier, the prime minister himself thought it most unfortunate if Canada were to add to NATO's difficulties in maintaining alliance solidarity by indicating its intention to withdraw Canadian forces from Europe.[15]

In February 1958, in preparation for the defence minister's upcoming NATO meeting the following month, Air Marshal Campbell directed his staff to prepare a comprehensive staff paper that compared the options for the re-equipment of the Air Division. Eight options were evaluated. Airmen looked at the A. V. Roe 606 VTOL aircraft, a Canadian-built flying saucer that looked like it came right out of a science fiction movie. They compared the Northrop N156F Freedom Fighter and the Republic F105 Thunderchief jet fighters. They considered equipping the Air Division with the Polaris intermediate range ballistic missile (IRBM) using existing facilities. The last three options included a strike/reconnaissance version of the Arrow, modifying the Sabre for a strike role, and improving the Sabre and CF100 for continued employment in the air defence role in the Air Division.[16]

The A. V. Roe 606 option was quickly removed from the comparative analysis led by the Chief of Plans and Intelligence (C Plans I), Air Commodore Lister. He dismissed this option because the technology for vertical takeoff was still years away, and therefore would not be available in the period needed by the Air Division. Although little is known about this project, it never advanced beyond the testing stage and died with the end of A.V. Roe in 1961. In 1958–59, however, SACEUR had made a zero-launch (take-off with little or no runway) capability an important component of MC 70. As such, the Air Staff Comptroller, Air Vice-Marshal Kennedy, and the Air Member for Technical Services, Air Vice-Marshal Hendrick, insisted that this option remain open. Their wishes were supported by the CAS.[17]

The Republic F105 was considered the most suitable aircraft. It had already flown and therefore had proven capabilities. It placed the most modern equipment in Europe in Canadian hands and proved an interim solution bridging the gap until VTOL aircraft were available. But it was very expensive. The aircraft was also too large and heavy from the point of view of zero-launching and recovery technique. The Northrop option was a proposed combat version of the T38 trainer. Not known at the time, it was to be built under licence in Canada and enter service in the RCAF in 1966 as the CF5 Freedom Fighter. While lighter and less expensive than the other options, at the time of the study it was still under development. Since its first test flight was 18 months away, it was not considered a viable option for re-equipment.[18]

As an intermediate range ballistic missile, the Polaris would have reduced vulnerability to attack, and offered a faster reaction time than manned aircraft. However, it was believed that missiles lacked some of the flexibility of employment inherent in manned aircraft, and therefore could not be used effectively with anything but atomic warheads. Yet, the missiles would have provided some significant advantage for uses in a European theatre in an all-out war.

The belief was that the Arrow could be produced in a strike version and that it would be available for introduction by 1961–62. But it was the most expensive aircraft considered. It was very large and heavy, required very long runways, and was not adaptable to zero-launching and recovery techniques. Airmen felt that a reconnaissance version could be produced for one or two squadrons in Europe for very little additional development cost. Although it lacked the range, it was expected to have good performance in the reconnaissance role. The potential of the Arrow aside, this option was no longer a serious contender in early 1958 as its future by that time was in serious doubt by the Air Staff.[19]

Most interesting was the question of the suitability of the Sabre 6 as a nuclear-strike aircraft. Prior to this study, staff officers from the Air Division and Air Staff had investigated this option with the Americans. In June 1957, Air Vice-Marshal Hendrick held discussions with the AOC No. 1 Air Division, Air Vice-Marshal Godwin, and with Colonel Baker, the United States Air Force (USAF) Wing Commander of F86-Es employed in the strike role. Hendrick's report upon return to Canada found the Sabre suitable for conversion to a nuclear fighter bomber as an interim solution until the Air Division was re-equipped with a more modern aircraft. He also forwarded the opinions expressed by American officers at wing level and at SHAPE that the supply of special (read nuclear) weapons were ample, and they exceeded the number of aircraft and crews qualified to deliver them. They were therefore quite interested in the RCAF getting into the strike role.[20]

In the February 1958 Air Staff Study, use of the atomic Sabre in the strike role was found to be the cheapest interim arrangement. On the other hand, it was expected that every other Western air force in Europe would be operating more modern and higher performance aircraft, and that Canada's prestige might suffer. Furthermore, the F86 would not bridge the gap until VTOL aircraft were available.[21] Lastly, the Sabre had a short lifespan as a USAF low-level tactical nuclear fighter bomber; having been replaced by the F100 Super Sabre within a year of being assigned the strike role. The Sabre's usefulness in this role was thus based upon little operational experience.[22]

The remaining option was modifying the Sabre and CF100 for continued employment in the air defence role in the Air Division. The Sabre was to be equipped with an after-burning engine, and fitted with Sidewinder (heat-seeking) and Sparrow (radar-guided) air-to-air missiles. The CF100 was to be equipped with the Sparrow. If inclusion of these weapons would have extended their operational utility, both aircraft would have continued to suffer from inferior performance in relation to the predicted threat of light supersonic bombers and supersonic fighters. Furthermore, there was a lack of an adequate ground environment, specifically integrated air defence radar, to cater to a high-density, high-speed, air-defence battle. Lastly, both aircraft would have remained critically vulnerable to even the simplest countermeasures the enemy was known to possess against the Sidewinder and Sparrow weapons systems.[23]

If Canadian airmen were under no illusions that the approval process for the re-equipment of the Air Division was going to be smooth and quick in light of the expense and the offensive nuclear strike role, government indecision eroded their patience and caused uncertainty and some dissension within the Air Staff regarding future NATO air power roles. By October, 1958, the Air Council concluded that equipping the Air Division needed to be based upon the abandonment of both air defence roles and adoption of the strike/attack and possible reconnaissance roles. The Air Council agreed that modifying the Sabre or CF100 was financially and operationally impractical, and therefore rejected this as an interim solution.

This is not to say that there was unanimity regarding the strike role as forming the basis of re-equipment. The Vice Chief of the Air Staff (VCAS), Air Vice-Marshal Smith, was concerned that the government might consider the strike/attack role as an offensive rather than a defensive

type of operation. Consequently, he feared that the RCAF would encounter difficulties regarding government policy that could jeopardize any idea of re-equipping the Air Division. Air Vice-Marshal Kennedy once more strongly supported the requirement for dispersal or zero launch and was opposed to re-equipping the Air Division with an aircraft type which would need long runways for normal operations. While CAS noted the concerns of Kennedy and Smith, he directed that the Air Council was to find an aircraft that could perform the strike/attack role and that an accompanying concept of operations be written accordingly.[24]

In the event, even CAS would change his position. By December 1958, fearing that he was losing his chance for a new aircraft and role for the Air Division, he returned to the original recommendations of SACEUR to have four strike as well as eight all-weather squadrons. Air Council minutes also show that Campbell was directed by his superiors to ensure that any new aircraft would have to be built in Canadian facilities. The only aircraft at that time that satisfied the dual all-weather / strike role envisaged for the Air Division by SACEUR was a two-seat version of the Grumman F11F1F Super Tiger, the 98J7.[25] Less than a week later, Campbell was most anxious to get his recommendation to procure the Grumman fighter to Defence Minister George Pearkes and the Chairman of the CSC, Charles Foulkes, before they headed for the NATO meeting in Paris. He ensured the message was hand carried to them by the new AOC of the Air Division, Air Vice-Marshal Wray, and Air Marshal Dunlap, the senior RCAF officer at SHAPE.[26]

The Grumman option may well have been capable of performing both the all-weather and strike roles, but it was clear that the CAS was intent on limiting the role of the Air Division to the latter. Campbell never supported the idea of sending all-weather fighters to Europe in the first place. In a letter written to Foulkes in December 1958, the CAS stated that the air defence of NATO Europe should be undertaken by indigenous European forces, and that the RCAF withdraw from this role. His opinion was that Canada's existing contribution was based less on current alliance needs, but more as a consequence of having bent to NATO pressure to provide four squadrons of CF100s to fill an earlier all-weather gap.[27]

During the winter of 1959, another issue impacted upon the decision to re-equip the Air Division. On February 5, General Foulkes informed the CSC that because of the serious effect on the aircraft industry of a possible decision to discontinue the Arrow programme, the government wished to give early consideration to the possibility of rearming the Air Division with Canadian-built aircraft. With the announcement by the Diefenbaker government to cancel the Arrow only weeks away, the chairman of the CSC was preparing the military for an angry public reaction and potential political fallout from the cancellation. It was evident from Foulkes' comments at this meeting that the strategy was to soften the blow of existing aerospace job losses. It was made clear that the re-equipment of the Air Division was a valid requirement if Canada was to continue with an effective contribution to NATO, and that the new aircraft for Canada's NATO role were to be built by a Canadian company.[28]

Despite preference for the Grumman Super Tiger, the Air Staff continued its examination of other possible aircraft suitable to replace the Sabres in the Air Division. In addition to the previously discussed options, the RCAF looked at the McDonnell F4H (Phantom II) and F101 Voodoo, the Lockheed F104 Starfighter, the English Electric F23 Lightning, the Chance Vought F8U3 Crusader III, and the Blackburn NA39 Buccaneer. The Phantom became a popular choice, but because of its size, complexity, and sophistication of equipment, it was considered too costly to maintain and operate.[29] Airmen were also happy with the F104. They had earlier found the aircraft underpowered yet a pleasure to fly. Its poor performance had been considerably improved with the addition of the J79 engine. Furthermore, in a letter written to Campbell, Air Marshal Dunlap mentioned that the Starfighter should be reconsidered in light of the addition of advanced avionics and navigation systems which allowed it to perform the all-weather and low-level strike roles. It was also being seriously considered by the German Air Force.[30]

Notwithstanding the above arguments, the Air Staff preferred the Super Tiger. As such they recommended the procurement of 214 of these aircraft for a total price of $452 million. This recommendation was supported by the CSC, although the Chief of Naval Staff did raise strong objections.[31] Pearkes approved this choice and presented the recommendation to the

CDC on February 24, four days following the announced cancellation of the Arrow.[32] To the consternation of the Air Staff, the expected government announcement shortly thereafter regarding the re-equipment of the Air Division did not occur.

By May 1959, no word was heard and the anxiousness of Canadian airmen was now shared by SACEUR himself. On May 18, in what later would prove to be a key factor in the approval of the re-equipment of the Air Division, General Norstad came to Ottawa and personally appealed to the Diefenbaker Government to fulfill its promised commitment to NATO.[33] The next month, on June 19, the Cabinet agreed that an Air Division of the RCAF should continue to form part of Canada's participation in NATO's defence of Europe, and that, consequently, a new aircraft should be procured to re-equip the eight F86 squadrons, on the scale of 18 aircraft per squadron. Minister of Defence Production Raymond O'Hurley was to negotiate with the manufacturers of the Grumman Super Tiger and the Lockheed Starfighter "to ascertain the most favourable arrangement obtainable for the production of 214 aircraft of one or the other of those types having regard both to price and to the possibility of partial production in Canada."[34] Since the F104 was never the primary recommendation of National Defence, its inclusion by the Cabinet as one of the two possible options demonstrated that the cost and potential national economic spinoffs of such an expensive weapons system made it as much a political as it was a military concern.

On June 27, the minister of defence production briefed his findings to the CDC. Two hundred and fourteen Starfighters were priced at $420 million as compared to $445 for the same number of Super Tigers. The real difference was in the comparison of production sharing possibilities. There were none with the Grumman option; whereas, Lockheed offered considerable national economic benefits. The F104G had been chosen by West Germany, which had ordered 66, and would build 200 more under licence. If Canada chose the F104, the Lockheed Company would place a substantial amount of the work involved in the 66 for Germany in Canada, provided the USAF agreed, and the Canadian government had approved the contract for the Air Division replacement by August of that year. Any mutual aid offer would also be filled from the tooling placed in Canada. The engine, which was the same for both aircraft, could also in large part be built economically in Canada.[35]

O'Hurley recommended that the F104G be selected as the replacement for the F86, that the airframe contract be allocated to Canadair Limited on an incentive type contract, and that the engine contract be allocated to Orenda Engines Limited, on a firm price basis.[36] This decision was another blow to A.V. Roe, and to a lesser extent, deHavilland. While politics cannot be ruled out in this matter, Canadair was in a much better position to take on the contract. It had the required facilities, skilled labour, and was already doing work on other RCAF aircraft. In contrast, A.V. Roe would have had to ramp up its workforce recently let go following the cancellation of the Arrow. The politics of where and by whom the aircraft was to be produced aside, General Foulkes confirmed that the Starfighter met the operational requirements of the Air Division as laid down by SACEUR. Final approval for the F104 and its production was announced in the House on July 2, 1959.[37]

The selection came not only as a surprise to the RCAF, but to the opposition as well. Paul Hellyer, the Liberal defence critic, immediately questioned the Minister of National Defence in the House as to why the government had chosen the Starfighter, a fighter that had "originally been designed not as a low-level strike fighter, but as the last of the high-level air superiority day fighters."[38] Hellyer was obviously aware of some of the other aircraft under consideration that were specifically designed for the low-level strike role, but for whatever reasons, were rejected. It is not clear if Hellyer was as much concerned about the operational aspects of the F104 as he was about the fact that neither deHavilland nor A.V. Roe received the contract to build the fighter. Both firms were located in his political riding in Toronto.[39]

Important in all this was the appreciation by opposition politicians and the Canadian press that with the commitment to the F104 and the strike role, the government had made a significant departure from its existing defensive post-war defence policy. The RCAF was to embark upon an offensive bombing role that had, up to that time, eluded them in the post-war period. In a television interview shortly after the House was prorogued, George Pearkes admitted that

this offensive bombing role would likely involve the use of nuclear warheads. If the Defence Minister became progressively less convincing as to the Conservative Party's commitment to nukes, months after the announcement of the Starfighter purchase, the media did not let go of the change in the RCAF role. Besides noting the switch to an offensive bombing mission, Dave McIntosh of the *Montreal Gazette* perceptively commented that the huge cost of the modified CF104 made little sense unless it was to use nuclear bombs. He also correctly predicted that the Conservatives were going to have a challenge justifying the expense and the adoption of an offensive nuclear role.[40]

From the beginning of the post-war period, Canadian airmen had reluctantly conceded the reality that a strategic bomber force was both unaffordable and politically unacceptable. They were therefore no doubt quite pleased to be given the opportunity to carry out a wartime offensive strike role that needed to be rehearsed during peacetime. The CF104 employed in the strike/reconnaissance role gave the RCAF a modern supersonic aircraft that sustained the RCAF's dominant contribution to the European theatre of operations. More importantly from an institutional perspective, its role and employment would continue the Air Division's operational independence from the Canadian Army Brigade, as well as sustain its expression of Canadian autonomy within the North Atlantic alliance. For his part, Air Marshal Campbell was more determined than before to dissuade the government from entertaining any additional roles for the Starfighter other than strike and reconnaissance. His message to his planning staff was the unquestioned assumption that the CF104 was to be employed using nuclear weapons.

National Concerns with a Canadian Nuclear Role

At the political level, there were no such assumptions. There was one reason Canadian politicians were less sanguine than the RCAF on this issue. In contrast to the concern of Canadian airmen, the supply of tactical nuclear warheads by the Americans was not the problem. The difficulty for politicians was the question of control once these warheads were released to the RCAF. In other words, of more concern to the Conservatives was how to balance the acceptance of American controlled nukes with the prime minister's promise to be less dependent on his southern neighbour. Diefenbaker recognized a growing nationalism that was in large part fuelled by anti-American sentiment, an outcome for which he was largely to blame given his pre-election rhetoric of cultural and economic nationalism.

Although the debate was focused more on the storage and control of US nuclear warheads on Canadian soil, it also applied to their use in Europe. The *American Atomic Energy Act* would not allow joint, let alone foreign control of US nukes. This angered those Canadians who saw the storage and control of American nuclear warheads in Canada or in the Air Division out of Canadian hands as an affront to Canadian nationalism. It also angered the anti-nuclear activists who felt that Canada's membership in two military alliances dominated by the Americans relegated their country to users of such weapons by association.[41]

By 1960, the prime minister's growing reluctance to commit his country to accepting nuclear warheads was therefore in large part based upon his perception of public sentiment. He convinced himself that "the people" did not want them, interestingly implying that the people as opposed to the prime minister and his cabinet were the ones to decide.[42] Another reason was that his Cabinet became hopelessly divided along pro- and anti-nuclear lines. Any government commitment was impossible without reconciliation between the pro-nuclear Defence Department, led by George Pearkes and his successor, Douglas Harkness, and staunchly anti-nuclear Foreign Affairs Minister Howard Green.[43] It is important to note that the reasons for Diefenbaker's indecisiveness were not limited to matching the Starfighter with nuclear warheads. He was faced with the same decision with respect to the Bomarc ground-to-air missile, the

CF101 Voodoo air defence fighter, and the Honest John ground-to-ground missile. All four weapons platforms, expensive capital acquisitions, were essentially useless without nuclear munitions. Or put another way by Peter C. Newman: "Canada under Diefenbaker's management had spent $685 million for the most impressive collection of blank cartridges in the history of military science."[44]

So how did it come to all this? On the one hand, the RCAF was ecstatic over having the CF104 come into line with an offensive bombing role. As mentioned, the Starfighter fulfilled the institutional demands of Canadian airmen. Employment of this aircraft extended the life of the coveted Air Division. It also kept the RCAF from working for the RAF and supporting the Canadian Army in the Central Region. On the other hand, with no government commitment to nuclear weapons, the RCAF lacked a policy basis for the strike mission. From a constitutional point of view, it is questionable that the RCAF was acting legally by planning for a nuclear mission between 1959 and the spring of 1963, during which they had no political mandate to do so.

Given his indecision over nuclear weapons, why did Diefenbaker commit his country to buying the F104 in the first place? In part, it was because he was acting as his own Secretary of State for External Affairs in the late spring of 1959 due to the untimely death of Sidney Smith earlier that year. Interestingly, before he appointed Smith to External Affairs, the prime minister had approved Canada's controversial entry into NORAD. In both cases, Diefenbaker did not have Smith about, one of his most capable Cabinet members, to provide sober second thought.

If the absence of Sydney Smith was a factor in Diefenbaker's acceptance of the F104, so was that of Howard Green. The latter was not appointed as Smith's replacement until after the F104 was selected. There is no doubt that given Green's obsessive and intractable determination to keep Canada nuclear free, and the political corollary of urging the prime minster to distance himself from the Americans, his presence as External Affairs minister may well have dissuaded his boss from buying the F104 built for a nuclear mission. Then again, Green could not dismiss the political-economic argument to buy the Starfighter. It was meant to compensate for the Arrow disaster by creating long-term employment for Canadian aerospace employees (although not for those who were laid off at A.V. Roe and chose to remain in Toronto). It also satisfied a government mandate to sustain an indigenous and independent aerospace industry. Finally, both Howard Green and John Diefenbaker conceded the economic and political benefits from more, not less, integration of their defence industry with that of the United States. This reality was laid bare with the successful signing of the Development and Defence Production Sharing agreement with the Americans. To the Conservatives, NORAD meant integrated defence production as well as integrated continental air defence.[45]

Another key to understanding Diefenbaker's rationale in agreeing to the F104 is that he was influenced by more than domestic political considerations. Much of his anti-American nationalism stemmed from the United States dominating the defence policies of NORAD and NATO. As a western Canadian, his resentment of American political clout in NATO was no different from his bitter perception that the big business promoters of Bay Street controlled Canadian politics. Conversely, and continuing with the Canadian analogy, alliance solidarity, like national unity, was paramount. This is why Diefenbaker agreed to Canada's participation in NATO generally, and to the re-equipping of the Army Brigade and Air Division specifically. This is also why the prime minister was persuaded by General Norstad's personal intervention in May 1959 for the Canadian government to replace the Sabres in the Air Division and accept the nuclear strike role. All this is to say that Canadian defence policy is shaped to a large extent by its alliance commitments.

Canadian defence policy unravelled when Diefenbaker no longer trusted his military. He blamed the latter for decisions that he and his Cabinet made. If not the political fallout from the Arrow cancellation, it was the embarrassment of explaining to the Liberal opposition that national sovereignty was not surrendered with the country's entry into NORAD. Civil-military relations during the Diefenbaker years were never close. The prime minister was fundamentally uninterested in things military. The CDC, in which defence policy was discussed and recommended at Cabinet level, met once a month under the previous Liberal government. It met 17 times during Diefenbaker's six years in power. The Canada-United States Cabinet Defence Committee normally met every six months. It met 3 times between June 1957 and April 1963. The irony is that the growing public debate over Diefenbaker's indecision over nuclear weapons prevented him from ignoring national defence during his last years in office.[46]

Conclusion

In concluding the story of the selection of the CF104 Starfighter and its political implications, a few comments are useful regarding the final outcome of this weapon platform and nuclear warheads. Canada's nuclear virginity was lost when Pearson agreed to satisfy his country's alliance commitments and accept nuclear warheads for the Bomarc, CF101, Honest John, as well as for the CF104. For Pearson, this decision was a political volte-face and key promise of his 1963 election campaign. If this announcement satisfied Canada's allies in general and the RCAF in particular, their joy was quickly tempered by the Liberals' intention to eventually adopt a conventional attack role for the CF104 in Europe. They also made clear that they would not buy attrition aircraft. In essence, therefore, the lessons of purchasing an expensive weapons platform without clear political direction would come full circle by 1972 when the Air Division was left with three squadrons of Starfighters no longer in the nuclear strike business. Worse, pilots of 1 Canadian Air Group (No.1 Air Division was disbanded) were compelled to carry out an attack role with an aircraft unsuitable for such a task.

It needs to be emphasized that this denouement was to some extent the fault of airmen as it was of John Diefenbaker. On the one hand, the CF104 may have satisfied existing institutional aspirations of the RCAF and the needs of SACEUR at the time the selection was made. On the other hand, neither the Super Tiger, their aircraft of choice, nor the CF104, the aircraft chosen mostly for national economic benefits, met the Air Staff's criteria for survivability in NATO's Central Region. The Starfighter was certainly not zero-launch capable. Moreover, once the Air Division was thrown out of France and reduced to its three remaining German airfields, the congestion of squadrons became a serious survivability concern. Lastly, airmen had an opportunity to consider an aircraft that could have provided tactical support to the Canadian Army Brigade. In fairness to the RCAF's stubborn refusal to do so, such a concept was not envisaged until the Americans insisted that NATO strike squadrons adopt a dual nuclear/conventional attack role as outlined in their mid-1960s concept of flexible response. At the time the F104 was selected, the prevalent air power role was nuclear strike.

For his part, John Diefenbaker's actions with respect to the F104 and its associated weapons, while understandable, were unforgivable. By denying his military nuclear warheads to which he had previously committed his government, the prime minister's performance was disingenuous, if not deceitful. To the horror of his own party during the 1963 election campaign, it became clear he was not concerned that without nuclear warheads the four weapons systems his government had purchased for just under $1 billion were militarily useless. Diefenbaker was a long-serving and shrewd politician. This fact was established when he led the Conservatives to the largest electoral victory in Canadian history. Unfortunately for the prime minister, his understanding of national defence was not matched by an understanding of national politics. Worse, he did not see defence as an important subject, an incredible position given that during his years in power discussions on nuclear strategy were inescapable in both NORAD and NATO. His indecisiveness during the Cuban Missile crisis, like that over accepting nuclear warheads for the Canadian military, confirmed to most Canadians his incomprehension of nuclear deterrence specifically, and inability to lead the country generally. Ultimately, therefore, Diefenbaker was never concerned about giving his military clear and consistent political direction.

In his favoured evangelical style, addressing a Prince Albert audience on the eve of his defeat in April 1963, the prime minister ranted that rural Canadians, those that he considered the only genuine Canadians, did not want nuclear weapons. Those that did, including the Liberals, the military, and big business interests, were unpatriotic, and lap dogs of the Americans. Given such rhetoric, John Diefenbaker was as out of touch with most of Canada as he was with things military. An election campaign strategy hinged on an appeal to a dwindling rural population made as little sense as did his views on defence.

Notes

1. Sean M. Maloney, *War Without Battles: Canada's NATO Brigade in Germany* (Toronto: McGraw-Hill Ryerson, 1997), 60.

2. Ibid.

3. SHAPE document 154/57 - Allied Command Europe Minimum Force Studies 1958–63, October 1, 1957, stated a requirement for a Canadian Air contribution to SHAPE of one strike and three attack squadrons and eight all-weather squadrons by 1961. However, the requirement from Norstad was for four strike and eight all-weather squadrons, RG 24 Series E-1-c Accession 1983-84/049 Box 102, Volume II, Library and Archives Canada (LAC). See also Minutes of Air Council Meeting 3/58, Item 7, paragraph 2, January 17, 1958, File 73/1228, Raymont Papers, Volume 1826, Directorate of History and Heritage (DHH).

4. Peter C. Newman, *Renegade in Power: The Diefenbaker Years* (Toronto: McClelland and Stewart, Ltd., 1963), 344.

5. Jon B. McLin, *Canada's Changing Defense Policy, 1957– 1963: The Problems of a Middle Power in Alliance* (Baltimore: John Hopkins Press, 1967), 45. There was also the proposal that Canada would continue as part of NATO, but by repatriating its forces and keeping them as strategic reserves in Canada, defence costs could be reduced considerably.

6. Out of a total defence budget of $1.789 billion in fiscal year 1957–58, personnel costs for all three Services were $517 million, or about 29 per cent; see Department of National Defence, *Canada's Defence Programme, 1955–56* (Ottawa: DND Canada, April 1955), 37–8.

7. Memorandum prepared by the Chiefs of Staff Committee for CAS Executive Assistant, entitled "Air Division History," November 24, 1958, RG 24, File 096-100-56/1, Volume 4, (LAC). Hereafter cited as CSC Memorandum.

8. CSC Summary of Briefing held on April 8, 1958, for the Minister of National Defence, April 9, 1958, File 73/1223, Raymont Papers, Box 147, Volume 9 (DHH).

9. CSC Memorandum.

10. Ibid.

11. External Affairs Message to Jules Leger, Canadian Representative at NATO, Paris, January 22, 1959, File 73/1223, Raymont Papers, Series 1, File 363, (DHH).

12. Newman, 203–04.

13. CSC Memorandum.

14. CAS Air Marshal Campbell, Letter to the Chairman, CSC, December 3, 1958, File 73/1223, Raymont Papers, Series 1, Box 363, (DHH). Hereafter cited as CAS Letter.

15. Trevor Lloyd, *Canada in World Affairs, 1957-1959* (Toronto: Oxford University Press, 1968), 47.

16. Minutes of Air Council Meeting 6/58, Item 23, February 11, 1958, File 73/1223, Raymont Papers, Volume 1828 (DHH).

17. Minutes of Air Council Meeting 9/58, Item 35, February 26, 1958, File 73/1223, Raymont Papers, Volume 1828 (DHH).

18. Paper prepared by the Air Staff for the Minister of National Defence and Chairman of the CSC, in preparation of their attendance at the NATO meeting in March 1958, RG 24, Series E-1-c, Accession 1983–84/049 Box 102, Volume II (LAC).

19. Ibid.

20. Air Vice-Marshal Hendrick, Internal Air Staff Memorandum from AMTS to VCAS, subject: "Trip Report: Strike Role for Air Division," June 21, 1957, RG 24, Series E-1-c Accession 1983-84/049, Box 102, Volume 3 (LAC).

21. Paper prepared by the Air Staff for the Minister of National Defence and Chairman of the CSC, in preparation of their attendance at the NATO meeting in March 1958, RG 24, Series E-1-c, Accession 1983-84/049 Box 102, Volume 2 (LAC).

22. Ibid.

23. Air Staff Paper entitled "Merits of Extending Sabre and CF100 in Air Defence Role in 1 Air Division," February 28, 1958, RG 24 Series E-1-c Accession 1983-84/049 Box 102, Volume II (LAC).

24. Minutes of A Special Meeting of the Air Council, Item 156, October 9,1958, File 73/1223, Raymont Papers, Volume 1828 (DHH).

25. Minutes of Air Council Meeting 38/58, Item 188, December 5, 1958, File 76/264 (DHH).

26. Air Marshal Campbell, Message to AOC No.1 Air Division, Air Vice-Marshal Wray, for furtherance to Air Marshal Dunlap, dated December 11, 1958, RG 24, File 096-100-56/1, Volume 4 (LAC).

27. CAS Letter.

28. Special CSC Meeting, February 5, 1959, RG 24, File 096-100-56/1, Volume 4 (LAC).

29. Air Staff Memorandum for the CSC, subject: "Future Role and Re-Equipment of No.1 Air Division," February 25, 1959, File 73/1223, Raymont Papers, Box 364 (DHH).

30. Air Marshal Dunlap, Letter to CAS, November 26, 1958, File 73/1223, Raymont Papers, Series 1, Box 363 (DHH).

31. Minister of National Defence, Memorandum to the CDC, February 24, 1959, File 73/1223, Raymont Papers, Box 364 (DHH). Interestingly, CNS argued against this expenditure because of his concern that it would take funding away from the air defence of North America as opposed to reduced funds for the RCN.

32. Ibid.

33. In a personal letter to General Norstad, July 30, 1959, Prime Minister Diefenbaker told SACEUR "the briefing you gave to Cabinet on the defence position of NATO was most helpful and of distinct benefit in making the decision to re-equip the Air Division," File 73/1223, Raymont Papers, Box 364 (DHH).

34. Record of Cabinet Decision, June 19, 1959, File 73/1223, Raymont Papers, Box 364 (DHH).

35. Briefing by the Minister of Defence Production, subject: "Replacement Aircraft for NATO," Minutes of the 124th Meeting, June 27, 1959, RG 2 Volume 2749 (LAC).

36. Ibid.

37. Record of Cabinet Decision, July 2, 1959, File 73/1223, Raymont Papers, Box 364 (DHH).

38. Richard Preston, *Canada in World Affairs, 1959 to 1961* (Toronto: Oxford University Press, 1965), 60.

39. Paul Hellyer, *Damn the Torpedoes: My Fight To Unify Canada's Armed Forces* (Toronto: McClelland & Stewart Inc., 1990), 34–6.

40. Dave McIntosh, *Montreal Gazette*, November 13, 1959, RG 24, File 096-100-56/1, Volume 4 (NAC).

41. Preston, 63–9.

42. Newman, 342.

43. For accounts of the Diefenbaker Government's handling of the nuclear question, see J. L. Granatstein, *Canada 1957-1967: The Years of Uncertainty and Innovation* (Toronto: McClelland and Stewart, 1986), 120-22; and Howard Lentner, "Foreign Policy Decision Making: The Case of Canada and Nuclear Weapons," *World Politics* 29, 1 (October 1976), 31-2.

44. Newman, 354.

45. McLin, 178–81.

46. Newman, 343.

Raymond Stouffer

Major Raymond William Stouffer was born April 21, 1956 at Baden-Soellingen, West Germany. He is the only child of Chief Warrant Officer (retired) Norman Hollis Stouffer and Gertrud Waltraud Stouffer (nee Schneider).

Major Stouffer joined the Canadian Armed Forces on August 10, 1975 and attended the Royal Military College of Canada. He graduated in May 1979 with a Bachelor's Degree (Honours) in History. Major Stouffer was employed in the military as an Air Force Transportation Officer and specialized in tactical and strategic air lift operations. He is a qualified C130 Hercules Loadmaster. Over the course of his career, Major Stouffer filled a number of command and staff positions within Air Command and National Defence Headquarters. His last tour in Ottawa was as a member of the ill-fated Strategic Airlift Project Office that was to select a new strategic transport aircraft for the Canadian Forces.

In May 2000, Major Stouffer received his Master's Degree in War Studies from the Royal Military College (RMC). In September 2002 he enrolled as a full-time PhD student in the same programme at RMC. His three areas of academic study include air power, Canadian defence policy, and Canadian history. Major Stouffer successfully defended his PhD thesis on January 28, 2005 and was awarded a Doctorate of Philosophy (War Studies) at the spring Convocation on May 20, 2005. He was employed as an Assistant Professor in the Department of History at RMC from September 2005 until December 2010, and effective January 1, 2011, was appointed Registrar of RMC.

Major Stouffer is married and has two grown children, Kimberley and Alexander. Major Stouffer's family lives in Orleans, Ontario.

Chapter 5

Air Power Writ Canadian

Randall Wakelam

This paper is based on a lecture given by Dr. Allan English to the Joint Command and Staff Programme (the Staff College course) at the Canadian Forces College in 2008. I used his slides as the basis of my own version of the lecture in 2009, and subsequently as the basis of the talk from which this paper was derived. Dr. English's presentation had an intentional link to doctrine; I have taken the approach of speculating about what major trends Canadian air power has developed or internalized over the past century. For the period up to 1945, the details to which I refer are well discussed in the three volumes of the official history of the RCAF. Regrettably, there is no post-war official history, although one is talked about. In lieu of this, several authors have offered popular histories of some of the events from the first decades of the cold war, but for the major trends in this period I have drawn from my own research. In a similar vein, regarding the decisions and events post-1975, I have made use of my own memory and experience. As a result, what follows is to some extent an opinion/editorial approach, making mention of a number of events and persons but not citing particular sources.

As air forces approach their centenaries we are often wont to conclude that air services were designed from the outset to be war-fighting services, whether as arms of the older armies and navies of their nations, or as the concepts and capabilities of air power matured, independent services in their own right. Perhaps some of that thinking is shaped by our tendency to interchange terms like air force, air service, air power, and air warfare. While the armies and navies of the world can rely on a fair degree of longevity in how they are viewed and in how they view themselves conceptually, air power thinkers are still sorting out the lexicon and what it means. We are not even sure what to call ourselves: are we air men and air women, aircrew and ground crew, or something else? While anyone in an army uniform, from the infanteer to the postal clerk to the dentist is a soldier, and anyone serving in a ship regardless of duties is deemed a sailor, those of us in uniform who work around air power are not always sure what we can safely call ourselves. For the purposes of this paper, I'll use the term aviator.

If, then, we are talking about air power and aviators in Canada, what can we say about these men and women and how they shaped the concepts, doctrines, and capability of a Canadian air force? Perhaps as importantly, were there external factors which caused them to move in certain directions, to adopt unique perspectives on air power, and ultimately to shape a Canadian air power culture? My thinking is that there were such national drivers, and that while not necessarily vastly different from other nations' air power interpretations, there is an identifiable Canadian slant.

The paper that follows looks at what could be seen as a number of seminal events, and myths, too, in the evolution of a national air power paradigm. Some are of short duration, but lasting impact, while others describe relatively long and stable periods where the aviation culture of the nation, and usually of the air service, was fairly firmly moulded.

The first of the seminal events was the Great War. For Canadian aviators this was a brief period during which national heroes were made, when a myth was born. Bishop, Barker, and Collishaw were well-known names; and, of course, who could forget Roy Brown, who was thought to have brought down the Red Baron? Whether he did or did not, he was simply one of a number of aces whose exploits, when taken together, were sufficient to show the Canadian people that while their army might have forged a national identity at Vimy Ridge, actions in the air were evidence of an important air spirit. At the same time, however, it was not insignificant that while the units of the Canadian Militia (as it was then termed) served together in a strong and powerful Canadian Corps, aviators were absorbed on an individual basis into the Royal Naval Air Service, the Royal Flying Corps, and, ultimately, after its establishment on 1 April 1918, the Royal Air Force (RAF).

Indeed, while Sam Hughes, Minister of Militia in 1914, had created a Canadian Aviation Corps (of one airplane and three aviators), this organization had not lasted longer than the time needed to ship the aircraft to Britain, and in so doing, damage it beyond repair. A second attempt to form a national air force had had to wait over four years, and when two squadrons were established in late 1918, this effort served only as a denouement as the war ended and massive demobilization followed. There was a bit of a subtext in these valiant but vain attempts to establish a Canadian military aviation capacity: in both 1914 and 1918, the aircraft to be used would be acquired from foreign nations despite the fact that it was the Canadian designed and built Silver Dart which was the first aircraft to fly in the British Empire in 1909, and that by the end of the war there was a manufacturing capability in the heart of the Dominion.

That particular capability was not, however, for the production of combat aircraft but rather for the fabrication of trainers, aircraft used in Canada by the British air services for the training of imperial aviators. In this it has been argued that Canada made a significant contribution to the war effort not unlike the manufacture of munitions, ships and other war materiel, and the production of foodstuffs needed by Britain to sustain its population.

The domestic contributions to air power—training and aircraft manufacture—would, in the long run, not be forgotten. Nor would be the brave accomplishments of the aviators. These air power activities were to persist.

But even with these themes established, they would not necessarily advance with equal force and importance through the following decades. With the world at peace, but the major air power themes clearly related to the military necessities of the previous years, it was hard to see just where an air service was needed in peacetime Canada; even during the war there had been little need for a Canadian-based combat capability with the exception of some patrols along the East Coast to keep watch for submarines and other German raiders. What now would be the utility of aviation?

The answer was to come from two unlikely gentlemen. They were unlikely only in the sense that they were not themselves aviators by training or employment, but they most certainly understood why and how a nation, and particularly its parliamentarians, might view the issues. The two were Major-General Willoughby Gwatkin, formerly the Chief of the General Staff, and Mr. John Wilson, late of the Naval Board. Both could see that the best and perhaps only way to maintain some form of air capability for the national government was to present to Canadians not the warfighting capabilities—which, if the hopes of the citizenry were to be fulfilled, the Treaty of Versailles and the nascent League of Nations would render superfluous—but rather as a national capability which could provide services which no other technology or agency could even attempt. A cross-country adventure to demonstrate that aircraft could traverse the Dominion rapidly and efficiently was soon mounted, and within a few years the Canadian Air Force, though small in numbers, did at least exist and was providing a range of support that would not have been possible otherwise: forestry patrols, anti-drug interdiction, et cetera.

How this service would be provided was somewhat uncertain. Could it be done by a civilian authority—an Air Board—or would it be best delivered by a military service? After some debate and false starts, a Canadian Air Force and ultimately a Royal Canadian Air Force (RCAF) was formed, the latter being established on 1 April 1924, largely to provide support to other government departments. Organizationally, the RCAF was to be a subordinate element within the Ministry of Militia until 1937.

There was in reality no need for a combat-oriented air arm and so buying and operating combat aircraft was not a priority. Instead, the RCAF took on much of the "bush flying" that came with opening the North, providing medical evacuations, conducting forestry and forest fire patrols and the like. The strength of the RCAF never exceeded a few hundred aviators. The implications for the purchase and operation of combat aircraft, let alone large numbers of aircraft of any sort, were self evident. The Air Force would buy a few utility aircraft with whatever money could be scraped together towards the end of each fiscal year. For manufacturers, this was better than the situation immediately after the war when there had been a virtual freeze on aircraft

acquisition; the option in 1919 to use surplus war stocks was both cheap and logical. By the mid-1920s, there seemed to be enough sales to support small but viable operations both in Montreal at Hawker Siddley and in Toronto at de Havilland. Moreover, while not large by the standards of some other nations, Canada was also seeing research and development initiatives leading to, among other things, a variable pitch propeller.

Certainly, during the 1920s, decisions and actions in Canada seemed, for the purposes of defining its air power requirements, that in the glow of peace even a prosperous and growing dominion could make do with a civil-oriented form of air power. While officially there was an air "force," its functions were virtually all non- or a-military. The situation was not to change appreciably in the first years of the 1930s when arguably there were much more important problems for Canada and the world to solve. What the situation might have been had proponents of air power pushed for a military service is impossible to know. In some other nations, and notably in the United Kingdom (UK) and the United States (US), a third service had been created and championed, either as an independent air force or as a strong air service, but whether this would have been appropriate for Canada seems doubtful. In both of the former cases, those services found work in colonial actions the like of which were not part of the Canadian experience. Gwatkin and Wilson had apparently found the appropriate approach for Canada.

By the latter part of the 1930s, the possibility of another major European war seemed likely, and this concern provided the catalyst for politicians and service leaders to begin thinking about reforming and expanding military capability. While after 1937 the RCAF had become a fully separate service with its own Chief of the Air Staff, there was little capability that it could offer. After two decades of what was effectively civilian flying, and with an industry that was not deemed capable of producing the complex combat aircraft of the period, there was little that the RCAF had to offer, compared to British and French air arms, when Canada declared war on 10 September 1939.

At the same time, however, the Prime Minister, William Lyon Mackenzie King, had, during the debates around defence build-ups, begun to push for a major role for an air force. This was not because King was a strong proponent of air power, but rather because it would allow Canada to make a significant contribution to the war effort less costly in lives than a large army contingent caught in the attrition land warfare. In King's view, he could send aircraft and aviators to Europe, and these, recreating the accomplishments of the Billy Bishops of the Great War, would satisfy the electorate that Canada was pulling its weight. This strategy was foremost in King's thinking during Imperial Defence conferences in the period before the war. But a related opportunity also played out brilliantly, from King's perspective, when the British sought to re-establish a training system in Canada. The Empire Air Training Plan, more commonly known in Canada as the British Commonwealth Air Training Plan (BCATP), would allow Canada to help win the war without putting the many Canadians employed by the BCATP, both in and out of uniform, at risk. Moreover, Canada was quite capable of manufacturing the small and relatively straightforward training aircraft that would be needed, and this production would mean jobs and profits for Canadians.

This training stratagem might have been the ideal scenario for Prime Minister King, but young Canadians did remember the heroism of the aviators and did themselves want to fly for the nation in the defence of their freedoms and values, and so there was a buildup of the RCAF. New units and commands were established in Canada, with Eastern Air Command playing an important role in anti-submarine warfare throughout Atlantic Canada and even as far afield as Iceland. But it was in England that the bulk of the wartime RCAF would serve. Unlike the experience of the Great War, where Canadians served as individuals within the British air services, now there was a concerted effort to have as many Canadians as possible assigned to UK-based RCAF squadrons. This was not something that the RAF was particularly keen on, any more than the British Army had sought a Canadian Army which served in combination with the British service, but the tradition and mythology of the Canadian Corps of 1914–1918 was very much in the thinking of the Canadian government and people.

By the end of the war, aviators were to be found in Canadian units as well as throughout the RAF, in Canada as well as in the UK, the Mediterranean and the Far East, with squadrons in all operational commands. In addition, there were Canadian groups in Bomber Command and (in fact if not in name) Fighter Command, the latter as part of the expeditionary air forces established for the invasion of Europe in 1944. Over and above this effort, Canada had established and run the BCATP. At the strategic level, the RCAF was thus operating a vastly more complex organization than had been the case even in 1939. At the tactical level, commanders and aviators generally were proving their mettle on a daily basis; indeed, by the end of the war, No. 6 Group in Bomber Command had outstripped most of its sister organizations despite a number of teething problems and limitations, including second-string aircraft, resulting from its late inception in 1943.

Aircraft production to support Canadian aviators was an issue throughout the war. While the training types needed for the BCATP came off the production lines with great success, operational aircraft for units in both Canada and the overseas squadrons were assigned by the Allied Munitions Advisory Board, which decided the priorities of all national materiel. Thus, RCAF squadrons in need of fighters in 1942 could not take delivery of licence-built Hawker Hurricane fighters being produced in Fort William, Ontario. There were problems, too, when manufacturers attempted to convert British technical requirements to North American standards and products. But this being said, by the end of the war more than 1,000 Lancaster bombers had been built from blueprint in Canada. A total of some 16,000 aircraft came off Canadian production lines, but oddly, no engines were built in the Dominion.

If one were to take a still photo of Canadian air power in the summer of 1945, it would look very military indeed. Supported by a unique training organization and indirectly by a considerable production capability, the RCAF had grown into a multi-dimensional air force, the fourth largest among the allies. But would that picture be accurate in the peace that followed?

Certainly, the RCAF peacetime structure approved by the end of 1945 was, on the face of it, highly different from what had been an air power empire just six months earlier. The government of Mackenzie King had allowed an air force of just eight regular squadrons plus a handful of reserve units. As in 1919, surplus wartime aircraft were to be the norm, and only a few of those in most cases. The total strength of the RCAF would be just 15,000. This was not the civilian aviation formula of the 1920s, but it was an air force in not much more than name, or so it seemed.

In fact, a number of things were different. First, the air marshals had learned from the experience of the past 25 years that having a national manufacturing capability was essential, but not just any aircraft should be coming off the line. While in discussions during 1944–45, the government had pushed for a transport type that could be used in the North and for trans-Canada movements, both military and civilian. In the end, there had been agreement to continue with the development of an indigenous fighter design. Not only was the groundwork laid for the design and development of the AVRO CF100, but also for a Canadian designed and built jet engine, the AVRO Orenda. While neither of these was approved for mass production in the years immediately after the war, both of them would be available as the cold war evolved into a very unpleasant warmness with the outbreak of the Korean War in 1950.

By that time, another new entry into the aircraft sector, Canadair Limited of Montreal had cornered the world market on DC3 Dakota refurbishment, while also introducing a line of DC4 (C54) transports under the name North Star. These aircraft would be used by the RCAF as part of the air bridge to the Far East. AVRO, too, had started in the commercial sector by repurposing wartime aircraft but had quickly moved on to a jet transport, the AVRO Jetliner, which flew only weeks after the world's first jet transport the deHavilland Comet. The prospects for the Jetliner looked good, except that AVRO did not have the capacity to advance all of its projects in parallel, and as the international situation worsened, and Canada needed all its aircraft and engine production for military needs, the Jetliner disappeared from view.

By 1950, the RCAF had redesigned its force structure a number of times. There was a need not just to expand capabilities for a possible European war, but also to coordinate with the

US Air Force for the defence of North America. The staffs at Air Force headquarters (AFHQ) developed a complex plan which would see an air division of 12 squadrons in Europe, equipped initially with Canadair licence-built F86 Sabres (and powered by Canadian Orenda engines), and, subsequently, with all-weather CF100s. These same CF100s, with their long-range, twin-engine performance, and all-weather capability, would also be the fighter of choice for North American air defence. At the same time, it was apparent that Canada's training expertise would once again be needed to assist in the training of NATO aviators. By 1954, the RCAF was spending half of the defence budget.

A number of themes had thus come together to give Canada a unique air power capability: a solid domestic production capability of world class aircraft; an effective civil aviation sector; an air force that had the institutional experience for running complicated and demanding programmes; the tactical proficiency to operate at a level on par with its allies; and, the vision to get ahead of or at least keep up with complex and ambiguous world circumstances.

But these circumstances were not fixed and by the end of the 1950s the air force and air power in Canada had experienced correction; in effect, the throttles had been pulled back. The threat situation had evolved, as had technology, and the government had changed. The follow-on aircraft to the CF100, the fabled CF105 Arrow, was neither needed nor affordable in the fiscal and defence climate of the time, particularly when the threat was now from intercontinental missiles rather than bombers, which the Arrow was designed to protect against. These changed circumstances and policies affected all three services, but the Air Force had the farthest to fall, as it were. As the 1960s became the 1970s, the need for major forces in Europe waned and the Air Division slowly atrophied into an air group of three under-strength squadrons. Air defence at home continued to be a necessity, but there, as in Europe, the aircraft were not top of the line. While the fighters of both roles were replaced with the then new CF18 in the early 1980s, the dominant roles and character of air power in Canada were set for another change.

With the end of the cold war, a situation not unlike that of 1919 and 1945 seemed about to unfold, with what is now called a peace dividend ready to be cashed not only by Canada, but also by NATO governments generally. And indeed, in terms of the need to maintain standing forces ready to deal with political opponents, the circumstances were just so. However, the relative stability of the cold war was quickly replaced with the relative instability of the post-cold war period. Air power now took on other forms, and capabilities previously embedded within the Army in the case of tactical helicopters and strategic and tactical transport now became the most often used forms of air power outside the country, and in their capacities for search and rescue these same air communities did yeoman work inside Canada's boundaries as well. This new prominence was actually nothing new for the air transport function, which, thanks to a number of Canadian designed and produced short take-off and landing (STOL) aircraft, had been involved in UN operations since the 1960s. In the case of the land aviation squadron, their involvement in humanitarian, peace keeping, and peace support missions began in earnest in 1985 with the attachment of a Rotary Wing Aviation Unit to the Multinational Force in the Sinai. Significantly, these aircraft, too, with the introduction of the Bell 412 Griffon in the mid-1990s, were Canadian built.

While these two aviation communities have been in the forefront, this should not lead one to conclude that there was no activity in fighter or maritime functions. Both have transformed to the times, using foresight and intellect to adapt technology and practices to current security needs.

As Canada prepares to celebrate 100 years of military aviation, we thus have to ask ourselves what sort of military aviation we will be needing. While there is a clear warfighting heritage and culture, there is also apparently much more. The RCAF was born of a campaign to show Canadians that an air service is not only a warfighting service, but one which could serve other security-related needs in the broadest sense, whether supporting other government departments, as has been the case since the first counter-drug operations in the 1920s, or conducting contemporary humanitarian and peace support operations in Canada and around the globe. This ability to undertake such a broad range of activities could easily be explained by the notion

of airpower's flexibility, but that arguably refers to tactical activities. The kind of flexibility that the Canadian air services have exhibited, both from the perspective of the leaders and the adaptability of the organization and the vision of the leaders, speaks to a much more important flexibility of the mind. In Canada, then, air power really does seem to be writ large.

But if there is a Canadian conception of air power, then we might want to ask, in the army fashion: so what? As suggested immediately above, Canadian aviators have demonstrated that they are able to adapt to a range of static imperatives and tactical necessities. While these concerns might have been adequate for the 20th century, they have been arguably less important in the complexity and ambiguity of the early years of the current century. There is little question that aviators need to recognize that they come from a cultural history where individual aviators and squadrons have excelled in combat and on operations, but they must equally recognize the necessity of continuing to think beyond purely tactical and technical matters in the contemporary security climate. In short, we have developed a particular conception of air power; we need to know how that conception came to be, and why it is important to maintain and develop the institutional nimbleness that has helped Canadian air power to survive and evolve.

Is this a finite task? Have we reached a stable conception? Clearly not. On top of everything else, the air forces of Canada have demonstrated, perhaps implicitly or even unintentionally, that they have been and need to be learning organizations. Aviation is too young a profession to be able to fall back on centuries of culture and custom. As we make our own way we must think hard about the decisions that have been made along the way and if and how those decisions and their outcomes will help us through our second century.

Randall Wakelam

Dr. Randall Wakelam flew helicopters for the army, commanding 408 Tactical Helicopter Squadron from 1991 until 1993. Subsequently, as a military educator he served at the Canadian Forces College. In 2009, he joined the History faculty of Royal Military College (RMC) as a civilian. He holds a PhD from Wilfrid Laurier. He has written extensively on military command and decision making as well as military education, with a particular focus on the air force. His first book, The Science of Bombing: Operational Research in RAF Bomber Command*, was published by University of Toronto Press in 2009.*

Chapter 6

A Wicked Waste of Money at Present: The Origins of the RAF's Policy of Air Control in Iraq

Winfield Scott

(Please note: this article has retained the American terminology and spelling of the original.)

Disclaimer: The views and opinions expressed in this article are those of the author and do not reflect the official policy or position of the United States government.

Introduction

> The analysis of British policy making during this period indicates that decision makers do not always determine their policies in accordance with a consistent set of strategic objectives, but according to idiosyncratic conceptions of national security, and various interests of a departmental, domestic and personal nature which also come into play. The identification and examination of these elements can make a greater contribution to the historian's understanding of the motivations underlying policy than can a more rigid methodology which binds analysis to definitions of national interest.[1]

This quote from Uri Bialer references the British government's fixation on the bomber threat during the 1930s, but it seems equally applicable when related to the ultimate development of the RAF policy of air control used in Iraq during the 1920s. The policy of air control was far more than a cheap method of encouraging King George's distant wards to pay their taxes. Air control developed as it did from a unique blending of circumstances that both gave birth to the organization that would eventually use it and provided the surroundings that would nurture its growth. As a policy of significant interest to the highest levels of the British government, air control would only enjoy the spotlight for approximately six years, from roughly 1919 to 1925. But during the years that started with the formation of the Royal Air Force (RAF) in 1917 and ended with Turkey's formal recognition of Iraq's northern border in 1926, the RAF's search for its proper role among Great Britain's military services, and the fight to implement air control once the strategy had been decided upon, would have significant repercussions for the Empire. Without the success of the air control policy, the Empire would very likely have started to break up earlier than it eventually did, and the RAF almost certainly would have ceased to exist in the 1920s.

Looking for the origins of air control in Iraq provides the reader with a complex view into British economic, political, and military policy in the immediate post-First World War (WWI) era. These lenses may possibly, though, provide a clearer picture of how and why the RAF ended up policing Iraq using a policy of air control. Out of a confusing maelstrom of policies and organizations emerged an unwanted course of action from an unwanted entity that somehow helped Great Britain keep the Empire together. Whether the Empire should have been kept together is a question beyond the scope of this paper, but the fact is that the majority of the British public did wish to keep the Empire as long as doing so did not interfere overmuch with domestic affairs. The truly astonishing point is that the British retained their Empire while focusing so much of their economic and political attention inward.

A significant contributor to that retention was the RAF's air control policy, which started with the German bombing raids of WWI leading to the creation of the RAF. After the war, the interactions between the Chancellor of the Exchequer, the Secretary of State for War and Air, the Colonial Secretary, the Admiralty, the War Office, and the RAF all played their parts in pushing the RAF to develop air control. Following a successful demonstration of the concept in British Somaliland, the RAF would develop the strategy to its highest level of success in Iraq. This paper will end with an assessment of how well air control met the various parties' expectations.

The Birth of the RAF

Before WWI, British air power was in its infancy. A committee formed in October of 1908 under the guidance of Lord Esher looked into the dangers posed to Great Britain should the recent advances in powered flight continue. The Esher Committee believed that airships would be used to land small raiding parties; and, also, that they would eventually be capable of dropping high explosives and incendiary bombs. It recommended that "the evidence before the Committee tends to show that the full potentialities of the airships, and the dangers to which we might be exposed by their use, can only be ascertained definitely by building them ourselves."[2] Later in 1909, when Monsieur Bleriot flew over the English Channel from France, the Army and Royal Navy (RN) began to take seriously the concept that heavier-than-air flight might have practical military uses. Initially, both army and navy leaders thought that airpower's greatest value would be found in the reconnaissance and spotting roles, although even then some foresaw the day when aircraft would be used to apply coercive power more directly. The Army and the RN each established a separate air arm to further these researches; these arms were called the Royal Flying Corps (RFC) and the Royal Naval Air Service (RNAS), respectively.

As WWI began, Lord Kitchener, the Secretary of State for War, planned to use the full complement of the RFC on the continent in support of the Army, so he turned over defense of the British Isles to the RN with aerial defense falling to the RNAS in September of 1914.[3] When the Germans began bombing the British Isles in 1915 and 1916 with Zeppelins, and continued doing so in 1917 with Gotha and Giant bombers, the weaknesses in British aerial defenses became apparent. Although the RNAS had taken offensive action back in 1914 with four successful raids on Zeppelin bases,[4] the subsequent German bombing attacks clearly revealed the shortcomings of the defensive system. Great Britain lacked sufficient aircraft and anti-aircraft guns, and the warning system for both Zeppelins and aircraft needed vast improvement.[5]

In 1917, following the June 13 and July 7 German bombing attacks on London, Prime Minister Lloyd George's War Cabinet requested that the RFC send two fighter squadrons back to strengthen the home base's defenses.[6] Lloyd George and the entire government were the recipients of significant public pressure at this time, with the pressure breaking down into two main categories: a better defense against German attacks was needed, and retribution must be taken against Germany for her actions.[7] To address the first of these pressures, Lloyd George called on the services of South African General Jan Smuts to look more closely at the way the military services were dealing with the question of London's aerial defenses.

General Smuts produced an initial report recommending the centralization of London's defenses under a single commander to avoid the dispersal of men and assets currently bedeviling the effort.[8] A second report from Smuts, completed on August 17, 1917, called for "an air ministry [to] be instituted as soon as possible." This ministry would "control and administer all matters in connexion with aerial warfare of all kinds whatsoever," which would be accomplished by amalgamating "the Royal Naval Air Service and Royal Flying Corps into a coequal third service."[9] It was this second report that has been most commonly referred to by historians as the "Smuts Report." The most controversial passage in the report identified the following assumption: "The day may not be far off when aerial operations, with their devastation of enemy lands and destruction of industrial and populace centers on a vast scale, may become the principal operations of war, to which the older forms of military and naval operations may become secondary and subordinate…."[10] Several members of the government, including Lord Milner and Lord Cowdray and nearly every senior RFC officer, feared the dislocation that would be caused by restructuring the military departments at what was considered an extremely critical juncture of the war.[11]

On October 10, 1917, President of the Air Board Lord Cowdray revealed to Admiral Mark Kerr, an Admiralty representative on the board, that Smuts' recommendation for a separate air service had been virtually ruled out.[12] Admiral Kerr strongly believed heavy bombers could be used to take the war to the enemy's heartland, but also believed that the RFC and RNAS would never look that far ahead due to the limitations of supporting their own service. Kerr proceeded to write a memorandum referred to as "the Bomb Shell." He reported that the Germans had

designed a new bomber with six engines capable of delivering five tons of explosives. On the basis of Italian reports, Kerr believed the Germans were building 4,000 big bombing machines. As such, the British needed to build at least 2,000 large bombers and concentrate their air power under a single executive. After Lord Cowdray showed this memorandum to Lloyd George, the Secret Service could find no evidence to disprove the information. While it seems unlikely that this memorandum alone moved the government to an almost complete reversal of policy, there can be no doubt that it had a considerable effect as Bonar Law informed the House of Commons on October 16 that "the Government had definitely decided to organize an Air Ministry."[13] The Royal Air Force officially came into being as a separate service on equal footing with the Army and the RN on April 1, 1918.[14]

The government's hope that the creation of a separate air force would lead to immediate improvements in aerial defense was destined to go unfulfilled. The RAF takeover did not provide new technologies, better organization, or a greater number of aircraft as if by magic. The greatest stroke of fortune for the RAF occurred when the Germans began their summer retreat in France, which cost them their closest bases in Belgium from which to attack Great Britain.

The RAF's other significant wartime effort was the development and operation of the Independent Air Force, a large bombing unit in France intended to take the air war deep into Germany and help Lloyd George make good on his promise to "give it all back to them and we will give it to them soon. We shall bomb Germany with compound interest."[15] Unfortunately, the Independent Air Force was not established until June of 1918, with Major-General Hugh Trenchard as its commander; by the end of the war it had dropped a mere 660 tons of bombs on Germany, which was very meager interest indeed.[16]

Could airpower have done better during the war? Could the RAF done better during its short existence? These were not immaterial questions for the RAF, which would come out of the war facing an immediate threat to its survival. The air power historian Neville Jones notes that

> when the war came to an end all but a small number of the Royal Air Force squadrons in France were engaged in support of the land forces. After four years of war, Britain's powerful air service was still fulfilling the role for which the small force of military aircraft had been established before the war: that of an auxiliary of the British Army. The great potential of strategic bombing was still largely unexplored.[17]

Jones goes on to argue that the Army thought far more tactically than the RN, and even fought and won a battle to keep the RN from starting a long-range bombing campaign against Germany in 1917. Trenchard's dedication to the offensive was a good idea given the technologies of the time, but Trenchard and the Army as a whole did not throw their aircraft deep enough against the under-manned Germans. Also, Trenchard's offensive strategy did not match the caliber of equipment with which the RFC was working, which contributed to very high loss rates. Jones specifically avoids making the claim that a strategic bombing campaign against Germany would have won the war, but does clearly suggest that strikes against German industry, rather than interdiction raids against German-occupied France, would have exploited a type of warfare in which the French and British would have enjoyed most of the advantages.[18]

The importance of this assessment arises from the fact that when the RAF became a separate service, it was staffed by the same senior officers who had supported the Army's view for more than three and a half years—officers extremely unlikely to immediately shift their views on the best use to which aircraft could be put upon separation from the Army. Therefore, if air power could have been used more effectively, the process would have had to begin while the RFC still controlled the Army's air power. As the RAF struggled to stay afloat after the war it had to fight against the perception that air power had contributed little to the ultimate defeat of Germany, and that the little it had contributed only supported the Army's victorious drive, even though the RAF itself had never had a chance to clarify or implement a strategy that differed from direct support of the Army. That Lloyd George's War Cabinet brought into being an organization forced to fight for its bureaucratic life after just seven months suggests that short-sightedness to a very great degree must have been affecting the Cabinet's members.

The post-WWI economic landscape that would ultimately lead to RAF intervention in Iraq was grim indeed. The Middle East began to feel the impacts even before the armistice, as Great Britain began withdrawing troops from Syria on November 1, 1918. Sir Henry Wilson, the Chief of the Imperial General Staff, advised the government to "get out of the places that don't belong to you and hold on to those that do."[19] Lord Curzon reported to Emir Faisal, soon to be head of the new Iraqi government, that

> the peoples of the British Empire have lost over 950,000 lives, and they have incurred a debt of 9,000,000,000 pounds [$14.1 billion Canadian (Cdn)]in securing the freedom of the nations of Europe and of the peoples who formerly languished under the Turkish yoke.… It has sustained the onerous and expensive burden of maintaining law and order in countries just liberated from alien rule in the hopes that the Peace Conference would come to a rapid and peaceful solution of the difficult problems connected with the future of the Middle East. But it is unfair to the British taxpayer to ask him to bear any longer the burden of occupying provinces for which the Empire does not propose to accept permanent responsibility.[20]

Statistically, Great Britain's gross liabilities had expanded from 711 million pounds $1.1 billion Cdn] in 1913 to just under 6 billion pounds [$9.4 billion Cdn] in 1918. It would not be until 1920–21 that Great Britain's government would finally reduce expenditures to a level below revenue.[21] While deficit spending may be common in today's governments, it was considered a major violation of economic orthodoxy during that era. With the need to reduce government spending drastically, military departments could expect massive budgetary cuts almost as soon as the war ended. So, despite the fact that Great Britain still had to man its original imperial garrisons along with the new acquisitions in the Middle East, and the fact that there were still troops stationed in France, Belgium, Germany, Italy, Greece, Austria-Hungary, Serbia, Bulgaria, and Russia, rapid demobilization decreased Army manpower from 3,500,000 in November of 1918 to 370,000 in November of 1920.[22] Little wonder that the government and the War Office were searching high and low for solutions that might substitute another type of coercive power for the garrison soldier. The RAF experienced the same sort of decrease as had the Army, going from 184 operational and 199 training squadrons in November of 1918 to 20 total squadrons only a year and a half later.[23]

The RAF's Fight for a Peacetime Role

When the guns fell silent on November 11, 1918, the RAF had been an independent military service for just over seven months. A critical question for the service at this point was if it would continue as a separate service, or whether with the end of the emergency it would be broken up and returned to the Army and the RN. The first question to be addressed was who would lead the fledgling service, both from the civilian and the military side. The civilian appointee turned out to be Winston Churchill. Churchill had replaced Lloyd George at the Ministry of Munitions when Lloyd George became Prime Minister in December of 1916, and had remained at that post through the remainder of the war. Following the coupon election of 1918, however, Lloyd George wanted Churchill to take on the post of Secretary of State for War so as to see to the demobilization of more than three million members of the Army.[24] Lloyd George did not have a specific person in mind to take on the position of Secretary of State for Air and Churchill was also very keen on the Air position, so Lloyd George assigned both offices to him. Lloyd George did not see this as over-taxing Churchill, as Lloyd George was not interested in keeping the RAF alive, and therefore felt that Churchill would not retain the portfolio for Air very long.[25]

On the military side, Churchill had almost immediately decided to make a change. Lieutenant-General Sir Frederick Sykes currently served as the Chief of the Air Staff, but he would be traveling to Versailles with Lloyd George to help work out the details for the peace treaty. Easing Sykes out by placing him in charge of the new civilian air department, Churchill replaced him with Major-General Sir Hugh Trenchard. With Churchill somewhat distracted by the Army's massive demobilization effort and by the effort of Army elements to support the White armies against the Bolsheviks in Russia, most of the immediate challenges for the RAF fell right into Trenchard's lap.[26]

One of the first and most important decisions Trenchard confronted was how to spend the extremely slender budget available to the RAF. As he saw it, there were two options available. The first was to pour the majority of the funding into aircraft, with very little left over for support and infrastructure. As he saw the problem, this would make it far easier for the senior services to break up the RAF because after the aircraft were split into army and navy auxiliaries there would be almost no sunk costs to be written off as a loss by the government. The RAF would also remain very unattractive to potential recruits as the older services promised a far better level of training, housing, and support services. The second option meant spending most of the budget on infrastructure: schools, training areas, housing, and office space among other items. While this would produce a much smaller air force in terms of concrete number of aircraft, Trenchard believed dividends would be earned through much higher proficiency in pilot skill and greater satisfaction among service personnel. Trenchard's thought process went as such: "I therefore decided—and gradually convinced my Secretary of State [Winston Churchill]—that we ought to defy the other services and risk unpopularity by building foundations with nothing much to show—but foundations that would be hard to destroy. I wanted very few squadrons—just enough to gain experience and carry out domestic roles in our overseas territories when local emergencies arose."[27]

Trenchard also wrote to Major-General John Salmond to say

> I am working night and day on permanent conditions of pay and service, and Mr. Churchill is doing all he can to help. It is taking time and it is so important that I cannot do half of my other work. Directly the War Cabinet have sanctioned the proposals I will come and see you. I feel certain you will agree that I must not give way but really make good conditions. Never again shall we have the opportunity of doing it.[28]

The last sentence highlights Trenchard's concern that it was now or never for the RAF; if he did not build a sound foundation now, there would be no tomorrow to construct the edifice.

That the edifice would have to be built quickly was evident from the moment Trenchard took the job as the Chief of Staff to the RAF in February of 1919. Starting with next to nothing, he slowly proceeded to build an organization capable of running a separate military service. There were constant attacks against the still youthful organization by both the Army and the RN, however.

In May of 1919, Alfred Lord Milner, the Colonial Secretary, invited Trenchard to his office to discuss a troubling issue. Milner asked Trenchard if he could suggest some way to reduce the cost of tackling British Somaliland without imperiling the outcome.[29] Under-Secretary of State Leo Amery, in his memoirs, recalls bringing up the idea personally to Winston Churchill.[30] Regardless of the initial driver, with the government urging thrift and the services looking for opportunities to reduce manpower, Churchill and Trenchard agreed that the RAF would take over the commitment in Somaliland to pacify Mohammed bin Abdulla Hassan and his Dervish followers. Hassan had risen to prominence in the 1890s as a local leader against British occupation, and despite numerous efforts, the Army had been unable to put a halt to his ravages. The War Office complained in November of 1918 that Hassan stood alone as the only unsubdued native potentate in Africa; he represented a source of constant anxiety.[31] Despite Army opposition, the RAF received clearance to begin operations. They shipped eight aircraft to Somaliland, and on January 21, 1920, began bombing Hassan's forts. After five days of unsupported bombing, the RAF shifted to a ground support role for Somaliland's military units as Hassan's forces were now running. The entire campaign ended successfully after approximately four weeks at a total cost of 150,000 pounds [$235,400 Cdn], just a fraction of the amount the Army would have required had they been sent.[32] While this incident actually served to increase tension between the Army and the RAF as claims and counterclaims flew back and forth, it nonetheless suggested that a policy of substituting air forces for ground forces might have a future.

Trying to find some breathing room, in December of 1919, Trenchard paid a visit to Admiral David Beatty and General Henry Wilson, the heads of their respective services, and asked them

to agree to a one-year truce to let the RAF get its feet on the ground. He said he knew that if they truly wished to, they were capable of maiming the RAF fatally before it had a chance to grow. All he was asking for was a sporting chance. If by the end of 1920 the senior services still felt the RAF must go, Trenchard would not feel bitter about it. Wilson said little in response, but Beatty said, "All right. I'll leave you alone for a year—on condition that you meet our requirements meanwhile."[33]

Immediately thereafter, Trenchard proposed that the RAF be based mainly overseas with eight squadrons in India, seven in Egypt, and three in Mesopotamia, out of an overall strength of twenty-five and a half squadrons. On December 15, 1919, Winston Churchill rose in the House of Commons to defend the deployment, stating, "I must remind Honorable Members that we still have an Empire to defend, odd as it may seem on the morrow of unheard-of victories, we have all those dependencies and possessions in our hands which existed before the war, and in addition we have large promises of new responsibilities to be placed upon us. The first duty of the Royal Air Force is to garrison the British Empire."[34] This announcement was greeted with excitement from neither the House nor the general public. The military commentator Colonel Repington responded in the *Morning Post*:

> We seem to be back in the last months of the war, when the air force demands raised its personnel to some 300,000 men at a time when our infantry were so short of men that they suffered a grievous defeat.… It is absurd to talk of any fraction of our armed forces as independent, since unity of conception and control is the leading principle of war.… No evidence has been given that the Independent Air Force shortened the war by an hour.… To label an auxiliary arm predominant entails that in days of straitened means we foster it at the expense of the working infantry.[35]

In August of 1921, the government appointed a committee headed by Sir Eric Geddes to look into national expenditures with an eye toward reduction. The "Geddes Axe," as the committee's December report came to be known, recommended the Army reduce its manpower by approximately 50,000 men, which would contribute to an overall savings of 20 million pounds [$31.3 million Cdn]. Sir Henry Wilson commented that "the Geddes cuts were frankly terrifying. It was, in short, the kiss [of death] of the Empire."[36] In addition, the report addressed the question of an independent RAF. The committee had reached the conclusion that "without a separate existence the Air Force would not be able to work out developments which might, in the next decade or so, entirely revolutionize methods of attack and defence. If it were to succeed, then the Committee thought that very large economies in the cost of the fighting Services might be made by substituting air for land and sea forces."[37] The RAF could not have written a better endorsement themselves.

Despite the support of the Geddes committee, the Army and the RN were still not happy about the air arrangements. The Admiralty sent a memorandum on February 6, 1922, to the Committee for Imperial Defence making a strong case for the return to the RN of the Navy's air arm, suggesting as well that the Army should be extended the same courtesy.[38] An exchange of correspondence between Churchill and the First Sea Lord Admiral Beatty attempted to limit the friction, but if anything only succeeded in heating up the dispute. Despite Beatty's continued reassurances that the RN had no desire to break up the RAF, the result of his proposals would almost certainly have brought into being that particular outcome. The battle was to continue into the fall and winter.

Following the downfall of Lloyd George and the Coalition Government, in November of 1922, newly elected Prime Minister Bonar Law asked Samuel Hoare if he would be interested in taking on the job of Secretary of State for Air. Winston Churchill had moved to the Colonial Office earlier in the year (and was now out of office with Lloyd George), and the positions of Secretary of State for War and Secretary of State for Air had finally been separated. That there might be a motive behind this separation became apparent to Hoare, however, when Bonar Law qualified his offer with the following statement:

> [Sir Frederick] Sykes tells me that the Independent Air Force and the Air Ministry cost much too much, and that there is everything to be said in peacetime for going back to the old plan of Navy and Army control. I agree with him. I shall therefore expect you, if you take the post, to remember that it may very soon cease to exist. There will be an immediate enquiry into the whole question by the Cabinet and the Committee of Imperial Defence. Whatever is the result, we shall certainly have to clear out of Iraq, where the Air Force has recently taken over the command, and we shall not be able to spare any large sums of money for a third fighting service.[39]

Hoare decided to take the post despite the tenuousness of his position; he would at least be a privy counsellor, and this would be his first appointment to government office, which should stand him in good stead for the future.

Before Bonar Law could simply sweep the RAF aside, he needed Parliament's approval to do so, and that meant starting with a unified Cabinet. Although at the initial Cabinet meeting, it appeared that the ministers were nearly unanimous in their desire to abolish the RAF, Hoare requested a full enquiry before the final decision occurred. Arthur Balfour supported the request, and the Cabinet formed the Salisbury Sub-Committee.[40] Members of the sub-committee included all the principal ministers: Stanley Baldwin, Lord Curzon, Lord Devonshire, Sidney Peel, Arthur Balfour, Lord Weir, Maurice Hankey, and the three service ministers, among others.[41] While numerous inter-service issues were discussed, the status of the Fleet Air Arm the RAF provided to the RN turned out to be the major issue to be thrashed out. The Salisbury Sub-Committee met 19 times, but by the summer of 1923, Balfour, Peel, and Weir produced the final recommendation of the committee that the Fleet Air Arm remain under the RAF, this despite the threat of the Board of Admiralty's full resignation should they fail to regain control of their air assets.[42] The Admiralty still considered the question unsolved; Leo Amery noted that "it was only with the greatest difficulty that I dissuaded Beatty and the Sea Lords from resigning in a body, and that only by insisting that Baldwin, in his statement in the House, should make it clear that the decision was not final."[43]

As Bonar Law directed the formation of the Salisbury Sub-Committee to consider the continued existence of the RAF, he also formed the Iraq Committee in November of 1922 to make a recommendation on whether Great Britain should retain its presence in the Mandate or remove all personnel and return the country to the auspices of the League of Nations. The Duke of Devonshire headed the committee and presented a report in March of 1923. The report recommended Great Britain remain in Iraq for three reasons: "no withdrawal could be safely completed in less than two years; any retreat would involve a breach of faith with the League of Nations and with the Arab Kingdom; and, the surrender of Mosul would lay Baghdad and even Basra open to Turkish attack."[44]

The decisions of these two committees effectively ensured the continued existence of the RAF under the Baldwin government (Stanley Baldwin had taken over as Prime Minister when Bonar Law retired for health reasons while the committee was still deliberating). If Great Britain were to stay in Iraq, the cost of garrison must remain low in line with continued military parsimony, and the only way to garrison the country on the cheap was to give the RAF's air control strategy a chance to work.

The RAF and Iraq

To address the specific reasons that Iraq ended up being the testing ground for air control, the calendar must be turned back temporarily. Of tremendous significance to the future of the Middle East (and specifically Iraq) were the wartime negotiations between Great Britain and France that resulted in the Sykes-Picot agreement of 1916. Since the Ottoman Empire had entered the war on Germany's side, Great Britain, France, and Russia agreed that the Turks would be shorn of their territories assuming victory by the Entente powers. What to do with the Arabian peninsula was a question not easily answered. As a territory that had never been annexed, colonized, or otherwise occupied by a European power, there were no natural lines of division to which the victorious countries could refer. In addition, the activities of France,

Russia, Germany, and Great Britain in the Middle East prior to the war gave a strong indication of the value of these territories as trading partners, communication links, and a source of raw energy materials.

Besides the unorganized nature of the territory, the history of the relations between the three powers in this region had been one of conflict and obstruction. Great Britain and France had fought the Crimean War (1854–56) to halt Russian expansion toward Constantinople, and there had been numerous minor conflicts that contributed to the "Great Game" or the "Eastern Question" as Great Britain attempted to keep the Russians and the French away from the northwest border of India, and from the land and sea routes to the Orient. As such, any negotiations over the future of the peninsula were bound to be flavored with the enmity of the past.[45]

Oddly enough, the powers' main areas of interest did not overlap too badly. Russia was not concerned with territorial gains on the Arabian peninsula. She did, however, have designs on those portions of the Ottoman Empire that bordered Russia. In particular, she desired to obtain suzerainty over Constantinople, and to ultimately secure control over the Dardanelles, a warm-water passage to the Mediterranean and the Atlantic. France was interested in creating what might be termed a "Mittlelarabia," a swath of the peninsula encompassing modern-day Lebanon and Syria (including modern-day Israel) stretching eastward through Mosul (northern Iraq) to the border of Persia.[46] Great Britain displayed an interesting negotiating strategy that disregarded the strategic focus on obtaining guaranteed access to crude oil the Admiralty had shown in the immediate pre-war years. Sir Mark Sykes, Great Britain's lead negotiator, operated on classic British diplomatic lines, securing the southern half of the Arabian peninsula in order to protect the approaches to the Suez Canal and the Persian Gulf. Great Britain would have ideally chosen not to "carve up" the Middle East at all; entering the war as a satisfied power she would have preferred the leadership arrangements in the area remain unchanged. Given Russian and French demands for territory, however, Great Britain felt the need to provide mediation between her allies and the Arabs.[47] Russia, France, and Great Britain accordingly signed the Sykes-Picot Agreement in May of 1916.

Why would Great Britain have willingly consented to give up the Mosul area, roughly one-third of modern-day Iraq, and the area where the Admiralty had just spent two years negotiating oil concessions? The most likely reason is that a bureaucratic state was at work. The two years of painstaking negotiations that eventually brought the Iraqi oil concessions under British control were mainly conducted between the Admiralty, the Government of India, the Board of Trade, and the various commercial enterprises.[48] The concessions agreement occurred only days before the outbreak of war, and had not even been ratified by the Turkish government. It is quite possible that Sykes did not even know of the agreement in principle.

Regardless of the reason, the Sykes-Picot agreement would prove troublesome for Great Britain in the following years. Russia obviously lost access to her portions of the agreement following the Bolshevik Revolution and the signing of a separate peace with the Germans. As for France, Great Britain began to realize as the war drew to a close that relations between the two powers might be more strained in the post-war world than had been projected.[49] If France controlled the Mosul *vilayet*, she would have a forward position on the Tigris and Euphrates rivers as well as controlling a possibly oil-rich area which could lead to further tensions between the two powers.

If Great Britain were to remain in Iraq, the government deemed it necessary to press for alterations to the Sykes-Picot agreement. For one reason, Russia was no longer a valid signatory. For another, British troops (mainly Indian) had conquered Mosul and currently held it, and had done so at considerable cost, losing an entire division at Kut before successfully proceeding up the Tigris/Euphrates valley. A third reason had to do with the Balfour Declaration, a British wartime promise of support for a separate Jewish homeland. Prime Minister Lloyd George asked the French to transfer Mosul and Palestine to British control, while Great Britain would fully back France's claim to Syria and Cilicia, regardless of Arab nationality claims.[50] Great Britain also authorized French interests a 25 percent share in Mosul's oil deposits, should any be found.[51]

With the inclusion of Mosul, the formation of the Iraqi state based on the vilayets of Mosul, Baghdad, and Basra was complete by the end of December 1918.

By August of 1919, Winston Churchill was fuming at the cost of garrisoning Iraq with 25,000 British and 80,000 Indian troops costing upwards of 20 million pounds [$31.3 million Cdn] per year. In February of 1920, Churchill asked Trenchard if he was prepared to "take Mesopotamia on" with the promise of an increase of up to 6 million pounds [$9.4 million Cdn] in the RAF budget should he be willing. Trenchard was pleased, as this appeared to be the first significant opportunity the RAF might have to truly prove itself as a peacetime force.[52] With the ongoing arguments between the Army and the RN over continued RAF independence continuing, Trenchard believed success in Iraq would provide him with further ammunition for the defense of his service. Trenchard submitted a plan calling for 10 air force squadrons and minimal regular troops, to which Churchill responded very favorably. However, when Churchill submitted the plan to the Cabinet he ran into stiff opposition, led by the head of the Army Sir Henry Wilson. That Wilson may not have been judging the plan totally on its merits can be seen from his diary entry of May 7: "The sooner the Air Force crashes the better…. It is a wicked waste of money as run at present."[53]

Bigger troubles in Iraq lay ahead, though. Beginning in July of 1920, less than two months after the San Remo conference ended with Great Britain agreeing to take on the Mandate for Iraq, a massive revolt broke out against the British "occupiers." Attributable causes appeared to be the lack of movement toward satisfying a wartime promise for Arab independence, the continued drawing down of military garrisons, and a stoppage of wartime payments to local leaders for helping to keep the peace. The revolt itself had no center and no leader, which was hardly surprising considering that Iraq had never existed as a separate state. Instead, every area appeared to be fighting for its own independence. Although the Army had approximately 10,000 British and 56,000 Indian troops stationed in Iraq, they had to request further reinforcements from India; eventually, 20,000 more troops were required before the rebellion died down. By October of 1920, it appeared the worst was over.[54] Showing how well the general public understood the RAF role in Iraq, *The Times* published an article in August claiming the revolt "had tested the methods of air control and found them wanting,"[55] an interesting observation considering that air control had not yet flown any farther than the Cabinet. In the aftermath, though, numerous voices, including Winston Churchill's, were heard calling for the removal of the British presence from Iraq.

Part of the problem of coming to grips with Iraq lay in the muddled fashion that the British government dealt with the Middle East, with the Colonial Office, the Foreign Office, and the India Office each controlling territories there. In December of 1920, the Cabinet formed a new Middle Eastern department under the Colonial Office that would include Iraq, Transjordan, and Palestine. Lord Milner decided to step down as Colonial Secretary, and Lloyd George offered Winston Churchill the job.[56]

In March of 1921, Churchill called the Cairo Conference to establish leadership in Iraq and to clarify the pace of garrison reductions. Diplomatic approaches to suitable candidates for the Iraqi throne had already been made, including T. E. Lawrence's recommendation of Faisal.[57] With remarkable speed the attendees reached agreement that Faisal, the son of King Hussein of the Hejaz, should be nominated (but not too obviously) to reign over Iraq as its king.[58] Faisal would be crowned king in August. The garrison reduction question required more work, though. Especially on the heels of the rebellion, the British government perceived Iraq as virtually a black hole for soldiers and money. Savings had to be found somewhere, and the RAF had a plan to garrison Iraq that would cost far less than Army control. Presented by Trenchard as a "Scheme for the Control of Mesopotamia by the Royal Air Force," the plan called for the combined use of RAF aircraft (12 squadrons), armored cars, and an Arab army. The plan also needed wireless communication, an efficient intelligence service, and airfield construction throughout the country.[59] If the government accepted the plan, the RAF would need to expand its inventory or else more than half of its operational assets would be serving in Iraq. In other words, the

Trenchard plan was not only about conserving resources in Iraq but also an RAF power play to help ensure continued independence and a larger stake in service budgeting.[60]

Before the RAF could put air control into practice in Iraq, however, the Chanak crisis erupted. The Treaty of Sevres in 1920 had theoretically established peace between the Entente Powers and Turkey, with the Entente Powers (minus Russia) taking large chunks of the former Ottoman Empire and neutralizing the Dardanelles. However, the nationalist leader Kemal Pasha formed a Turkish army which threatened the British, French, Greek, and Italian possessions in Asia Minor. France and Italy made peace with Kemal and removed their garrisons. The Greeks and British still remained, and the Greeks had further designs that included Constantinople. In August of 1922, the Turkish army routed the Greeks and seized Smyrna. Advancing to the straits, the Turks reached the British neutral zone known as Chanak. A standoff ensued for two months as the Turks could have easily overrun the small British garrison, but Kemal was not enthused over a possible conflict with Great Britain. Prime Minister Lloyd George, strongly pro-Greek, appealed to his allies and the Dominions for support against the Turks but found his position isolated. The British eventually settled with Kemal and recognized the Turkish gains, but only after having alienated Turkey.[61] From Iraq's perspective, the badly bumbled Chanak crisis served to place a hostile Turkish army (now freed of most of its fighting requirements in the north of Turkey) on Iraq's northern border; the army of a state, furthermore, that had yet to recognize the validity of Iraq's claim to the Mosul vilayet.

The issue of oil in the Middle East was one that was tiptoed around delicately in upper diplomatic circles at the time, but there is no questioning Great Britain's interest in Iraq as a potential source of oil, possibly even larger than neighboring Iran. In November of 1922, the Lausanne Conference met to develop a new peace treaty to replace the Treaty of Sevres with a treaty approved by the new leadership in Turkey. Agreements were reached returning Constantinople and eastern Thrace to Turkey, but the Dardanelles were to remain neutral.[62] However, the question of the border between Turkey and Iraq was specifically left to be settled later. During the conference, the Turkish Petroleum Company (TPC) attempted to elicit United States (U.S.) support for a Mosul oil concession by offering an American group a 24 percent share in the company. The TPC was still primarily British and the Americans knew it. Although Shell was willing to participate in this deal, the U.S. State Department did not recognize the TPC's concession in Mosul and thus unofficially supported Turkey in the border dispute.[63] Later in the conference, Turkey announced it had recognized the Chester oil concession, a competing claim in the Mosul area put forward by an American company. After the conference ended with the border situation still unresolved, the Chester concession died a quiet death—the Turkish government cancelled it in December of 1923 as it had attracted insufficient capital,[64] but actually pointed to the political nature of the concession in the first place.

In October of 1922, the RAF officially took over the responsibility for defending Iraq from both external and internal threats. The commanding officer was Major-General John Salmond, one of a pair of brothers who had developed outstanding reputations in the RAF. Salmond would eventually succeed Trenchard as the Chief of the Air Staff after Trenchard's retirement from service in 1929. The geo-political situation when Salmond took over was grave. King Faisal had been on the throne for just over a year, and it was clear that only British coercive power was keeping him there. It was not that Faisal lacked political talent, but rather that the country of Iraq had yet to coalesce as a state. The Chanak crisis was just winding down, leaving an angry Turkey on Iraq's northern border. Abdul Aziz ibn Saud was a dangerous raider from the south; he too was engaged in nation-building.

The internal situation was not the only enemy of Iraq and the RAF; there were still numerous doubters in the British government. Sir Aylmer Haldane was on record as stating, "I do not consider that this country [Iraq] can be held and administered by a form of terrorism, which would involve the death by bombing of women and children…. Airplanes have not yet proved themselves to be reliable." His staff reported that "the sight of troops moving through the country is the only effective means of preventing or suppressing disorder."[65] This was an odd charge to level against a policy approved by Winston Churchill. While still Secretary of State for

War, Churchill supported the condemnation of General Dyer's massacre of Indian civilians at Amritsar. He denounced the apparent support shown by Dyer of a policy of frightfulness, saying "What I mean by frightfulness is the inflicting of great slaughter or massacre upon a particular crowd of people, with the intention of terrorising not merely the rest of the crowd, but the whole district or the whole country. We cannot admit this doctrine in any form."[66] Churchill's distinct view toward terror tactics must be weighed against those critics like Haldane who claimed the RAF in Iraq were indiscriminately bombing non-combatants; it seems extremely unlikely Churchill would have approved of an air control policy that failed to discriminate combatants from non-combatants.

The following description of air control comes from one of the pilots who actually flew the missions in Iraq—Air Marshal Sir Robert Saundby. His description may be somewhat on the forgiving side, but still speaks of direct experience:

> Under the method of air control, when the police or the local political officer reported the beginnings of unrest, action could be taken at once at negligible cost and the trouble nipped in the bud. The offenders would be ordered to submit themselves for trial in a court of law. If they assented, well and good; but if they refused or committed further outrages a warning would be sent telling them that, on a certain date, their village would be bombed. They were told that they should evacuate their village and that it would not be safe for them to return until they were prepared to submit to the process of law.
>
> On the day appointed the village would be bombed, but it was unnecessary, and indeed undesirable, to cause any serious damage. Occasionally the house or fort of a persistent malefactor would be selected for destruction, and this required a very high degree of bombing accuracy. An air blockade of the village, by intermittent light attacks—there was no need for heavy bombing—would then be instituted. Sooner or later the interruption of their daily life, the desire to return to the shelter of their homes and cultivate the land, and the impossibility of seeing any hope of ending their predicament, would bring about the surrender of the most intransigent lawbreakers. Then a body of police or troops would be flown in, accompanied by medical staff, to restore order, quell looting, bind up any wounds, cure disease, distribute food, if necessary, and generally to rehabilitate the area.[67]

As can be seen from this example, air control as a policy was intended to apply the minimum amount of force necessary to achieve the desired effect. There seems to be no sign of indiscriminate or terror bombing, which of course is not the same as saying that every single bomb went exactly where it was aimed. Intent, however, is an extremely important factor in a case such as this, especially when focusing on collateral damage.

Not every mission was flown against semi-peaceful villagers. Incursions of Turkish irregular and regular troops were common in the Mosul vilayet; when Salmond took over in 1922 he had to beat back very strong Turkish raids regularly. Trenchard's biographer described one such raid:

> The security of Iraq was once more menaced by the Turks in September, 1924, when troops crossed the northwest border and moved towards the town of Amandia. Higgins, under the misapprehension that they were "irregular marauders," ordered his squadrons to attack. Several casualties, running to several hundreds, were inflicted on the intruders. Consternation rose in Baghdad when it was reported that many of the dead and wounded belonged to the Turkish regular army; but Higgins, having inadvertently frustrated another attempt by Kemal to isolate and possibly seize Mosul, resisted pressure from the Iraq High Commissioner and the local Government to drive home his military advantage. Even when an ultimatum was sent to Turkey over Higgin's head, the RAF commander refused to act on it, insisting that he had done all that was necessary to deter the invaders. The ultimatum expired; the Turks withdrew in their own time; and Trenchard agreed with Higgins that it was not Kemal but a "panicky" High Commissioner who had been spoiling for a fight.[68]

Clearly, when the RAF wielded air control in this context it was not using the bomber to apply coercion in a "light, intermittent" fashion. On the other hand, in these cases the RAF assumed

it was facing formations considered more formally military, thereby justifying the direct attacks. Ultimately, the combination of heavy attacks against marauders combined with the softer air control strategy aimed at recalcitrant villagers provided an amazingly stable countryside over which King Faisal slowly gained control. By the end of 1925, it was apparent to most outside observers that the combination of King Faisal's political acumen with Great Britain's diplomatic and military support had brought a well-appreciated semblance of order to the country.

Following the failure of Great Britain, Turkey, and Iraq to come to a border agreement with respect to the Mosul vilayet at Lausanne, another Anglo-Turkish conference was convened in May of 1924, but it too failed to make headway in clearing up the outstanding issues. Colonial Secretary Leo Amery, on a 1925 visit to Baghdad, received the cheering news from Sir Henry Dobbs that "the League of Nations Commission of Inquiry, having just drunk him out of ten dozen of champagne, had left with a very favourable impression of the Iraq situation, prepared to recommend the retention of Mosul by Iraq, provided always we also were prepared to remain responsible, whether by Mandate or by Treaty, for seeing fair play between the different races."[69] Not surprisingly, in December of 1925, the League of Nations ruled that Mosul did belong in Iraq. Turkey refused to accept the ruling initially, but by 1926, she finally signed an agreement with Great Britain and Iraq that delineated the border north of Mosul.[70] Turkey capitulated as she had finally decided to seek membership in the League of Nations, and although this is speculative, because she had been unable to gain any sort of foothold in the territories claimed by Iraq. During this entire period, the RAF garrison turned back repeated Turkish border incursions. While the Turks never launched an all-out assault on Mosul, it did seem that they were both testing the strength of Iraq's defenses and continually attempting to validate their claim to the Mosul territory.[71]

Assessment of the RAF's Air Control Policy

It was clear by the end of 1925 that air control had successfully proven itself as a strategy capable of garrisoning a specific territory in the Empire. When Churchill and Trenchard proposed that air forces could police the Iraq Mandate in May of 1920, they had certain expectations of the hoped-for outcome.

Churchill's interest in the matter primarily related to financial and manpower questions; he saw a country which provided essentially no financial return into which his War Office was pouring 18 million pounds per annum. The British post-war boom had petered out, and unemployment was rising rapidly. There was the threat of a General Strike and possibly even revolution in the air.[72] At the same time, with his troop detachments in Russia failing to stem the Bolshevik tide, Churchill, the arch anti-Bolshevik, was searching high and low for more manpower to shore up the White armies. From Churchill's perspective, saving Russia from Lenin far outweighed keeping the peace in a relatively unknown backwater of the Empire.

Trenchard's expectations worked on a completely different plane. While Churchill considered his problems with the resources of the Army and the RAF available to him, Trenchard saw the world as one in which Great Britain required a good reason to retain the RAF. As the Chief of the Air Staff his view was appropriate; the bureaucracy had not given him the job of shifting for all three services, but rather of fighting for his own. While Trenchard did need budgets to keep the RAF running, those budgets directly depended on the tasks the government asked the RAF to perform. In peacetime, the RN's normal function was to secure British trading routes and show the flag, while the Army's normal function was to provide a force for domestic disturbances and to garrison the Empire. Trenchard's vision for the RAF in the long run was to become a bombing force par excellence, capable of winning major wars with limited assistance from the older services—but that task would not get him a supportable budget in the age of the ten-year rule and massive government economies. Instead, following that tack, he needed to prove that the RAF could do the peacetime jobs accomplished by the other services cheaper and more effectively. This was the standard Trenchard set for air control—could it garrison Iraq more cheaply and effectively than the Army? If it could, air control would be considered a success.

Based on these standards (cheaper than the Army, saved manpower, provided peacetime role for RAF, kept the peace in Iraq) how did air control fare? Henry Dobbs, the Iraq High Commissioner, said in March of 1924 that "[a]ir control has been so brilliantly, magnificently successful that it has far outstripped the expectations of the Cairo Conference of 1921."[73] When the Secretary of State for Air Samuel Hoare presented the House with the Air Estimates for 1926, he requested just over 15,000,000£ [$24,054,200 Cdn]for the entire RAF[74]—less than the Army had been spending per annum just to garrison Iraq in 1919 and 1920. He also said of Trenchard that "[i]n Iraq his plan of 'control without occupation' was proved to be successful. The squadrons were already in being for taking over the responsibility for defence and internal order. There was ocular evidence to support his promises."[75] Leo Amery, the Colonial Secretary, addressed the League of Nations over the border dispute in 1925 and asked that Great Britain be allowed to continue rebuilding Iraq, "which was already enjoying a greater measure of security, justice, and good government than it had known for a thousand years past."[76] At the conclusion of his outstanding work on the use of British air power for colonial control, David Omissi states: "The air control scheme offered the British government the magical formula of continued control with reduced expenditure, and this unorthodox method offered one solution to a central dilemma of post-war imperialism."[77]

As air control spread to various other parts of the Empire following its validation in Iraq, reports tended to be no less favorable. The Tribal Control and Defence Committee of India stated in 1931: "Experience has shown that, if due warning is given, air action against villages causes very insignificant loss of life and depends for its success mainly on the interruption of the normal, and consequent discomfort…."[78] Reporting of the Kotkai operations on the North-West Frontier in1933, the Army Secretary to the Government of India noted that

> prevention on the Frontier was a hundred times better than cure. The only alternative to air bombing would have been to send a land force, but the Bajauri territory was malarial and there was no road for the last 30 miles toward Kotkai. Land operations would have cost over 100,000 rupees [$2,141 Cdn] and perhaps thousands of casualties as against 15,000 rupees [$320 Cdn] and one man injured by air action. Air control on the frontier had proved economical, humane and effective, and in the last nine years it has cost only 11 casualties."[79]

These examples show the positive side of air control; there were plenty of examples and authors to provide serious criticisms with respect to the RAF policy. Haldane's objections were noted earlier. Wing Commander H. Allen, writing in 1972, points out that air control caused numerous problems for the RAF heading into the Second World War: the need to fight for air superiority was not so much considered as it was secured by default, the difficulties of bad weather flying were minimized as missions could be postponed with minimal operational impact, bomb design remained at WWI levels due to adequacy for current requirements, methods of bomb-dropping developed in the face of no significant anti-aircraft defenses, and navigation techniques remained strictly visual.[80] David Killingray points out in *Guardians of Empire* that "the Royal Air Force's role in colonial policing was also of limited value in terms of training for the future war against Germany and Italy."[81] Tami Davis Biddle, in her 2002 book, confirms these problems and more on the widening gap between air theory and reality.[82]

However valid these criticisms may be, though, they would have mattered little to Churchill and Trenchard in 1920, or in 1925 for that matter, because these criticisms did not deal with the fundamental areas of saving money and men, identifying an enduring mission, and keeping the peace. In the Great Britain of the 1920s, no government agency, military official, or private individual successfully challenged the RAF against these specific standards. By the definitions of the time, the RAF's air control policy succeeded.

Conclusion

The British Empire in the aftermath of WWI seemed to be gasping its last breath. The world's leading creditor nation had become, in four short years, a debtor nation focused on tightening the purse strings and giving short shrift to the Empire when financial needs arose. Different types of nationalisms were creating law and order problems in Afghanistan, India, Palestine,

Iraq, Persia, and numerous other points of the globe. Yet, somehow, the RAF, an organization created in panic, actively targeted for destruction by the Army and the RN following the Great War, and under-funded (admittedly in an era where every government organization could make a similar claim), somehow made a strong contribution to controlling the fractious Empire.

Having reviewed a limited example of air control in action through separate economic, political, and military lenses, the question arises: what did these lenses reveal? First of all, the 1917 decision to create a separate air force seems to have been short-sighted and ineffective. As constituted, the RAF had minimal impact on the outcome of the war, and there is every reason to suspect that had the RAF not been created, the war would have ended at approximately the same time and in the same way. The government's preoccupation with demobilization and domestic issues can be inferred from the failure to do away with the RAF despite a period of extreme austerity. Also, the personality of Winston Churchill cannot be ignored; another minister might have found it difficult to justify the RAF's continued existence. At one point or another, though, every government, be it Coalition, Conservative, or Labour during this period, found it necessary to thoroughly investigate whether the RAF should be disbanded. The driving motive behind each of these inquiries was cost, not military effectiveness. Meanwhile, a sharp battle between the three military services raged, based far less on funding and more on the Army's and RN's belief that the RAF would not look out for their air capabilities. The RAF's desperate search for a permanent peacetime mission, which would help stave off the attacks of the other two services, was what eventually led to the application of air control in Iraq. Ultimately, the success of that policy was defined by the RAF's ability to keep the peace while showing significant cost savings in money and manpower. The success of air control in Iraq ensured the survival of the RAF as an independent entity.

The government's fear of the bomber in 1917, which led to the initial creation of the RAF, foreshadowed that same fear throughout the 1930s, an anxiety that would turn out to be extremely valid by 1940. Fortunately, there was no need to create a new military organization to defend the Home Islands as there had been in 1917; apparently, the British government and military had learned at least one lesson in the intervening 23 years despite the occasional claim to the contrary.

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Winfield Scott

Lieutenant Colonel Winfield Scott has completed his doctoral coursework and is currently working on his dissertation in modern European history from Texas A&M University. During his doctoral program, he specialized in modern British history with supporting fields in modern European history, modern United States history, and geography. His Air Force career has contained numerous academic assignments. From 1986 to 1996, he served in an assortment of base-level and Headquarters communications jobs, and received a Masters of Arts degree in Management from Webster College in 1987. In 1996 he was assigned to the Squadron Officer School, serving there through 2000 as a flight commander, database administrator, and deputy director of curriculum. In 2000, he was selected for and attended Air Command and Staff College (ACSC) of the United States Air Force in residence, graduating in 2001 with a Masters of Operational Science and Art. From 2001 to 2003, he served on the ACSC faculty as a course instructor and the deputy course director for the National Security course. From 2003 to 2006 he accomplished his doctoral coursework at Texas A&M University, and since June of 2006, he has been assigned back at ACSC. He has served as the deputy course director of the in-residence Joint Forces course, then as a course director and a department chair in Distance Learning. His academic interests include the history of airpower (European and American), modern European and American military history, and small wars in the 19th and 20th centuries.

Chapter 7

Air Power for Non-warfighting Purposes: The Australian Experience

Chris Clark

(Note: Australian conventions for the designation of aircraft have been retained.)

Australia has had long experience of utilizing air power in its non-combat or non-kinetic forms, dating back to the earliest days of the Royal Australian Air Force (RAAF). In fact, no better illustration exists of Australia's willingness to embrace the non-warfighting capabilities of air power for the national benefit than in the circumstances surrounding the establishment of the RAAF itself.

A firm decision to inaugurate an air force was first taken by government in Australia in January 1919, barely two months after the First World War (WWI) had ended.[1] This intention did not stop the disbandment of the wartime Australian Flying Corps immediately upon its return from the battlefields of Europe and the Middle East, and more than two years were to pass before the formation of the RAAF on 31 March 1921. There were many reasons that accounted for this delay not the least being the plans which the Army and Navy continued to nurse for the creation of air arms within their own organization, and under their own control yet there were also factors that ought to have smoothed the path towards implementation.

For example, although the government soon afterwards became concerned to limit all expenditure that could be judged as non-essential to help ease the burden of war debt then confronting Australia, in mid-1919, London made the extraordinarily generous offer of a free gift of 100 war surplus aircraft to any of Britain's dominions that wished to set up an air force. Australia, like Canada, was among recipients of the "Imperial Gift," which included not just aircraft but all the various equipment and stores that were necessary to sustain an air force and enable it to operate as a fighting force in war.[2] Consignments of gift materiel, estimated to be worth at least a million pounds [$1.56 million Cdn] or somewhere in the order of A$80 million [$82.1 million Cdn] today, began arriving in Melbourne from March 1920, yet still the government dithered over taking the step of calling the new air service into being.

What finally galvanized the government into action turned out to be a desire to use some of the Imperial Gift aircraft for a very non-defence purpose. In early September 1920, the Nationalist Government of William Hughes decided that it would use military aircraft to establish air mail services in some of the nation's more remote regions. It was not envisaged at this stage that the Air Force would be the carrier of mails long-term, merely that it would conduct a trial for a definite period, and if selected routes proved viable, then these would be handed over to a civil aviation company to run. But this ambition of the government, headed by a Prime Minister who had publicly declared himself to be a "fanatic for aviation," was thwarted by advice from its senior aviation staff officer in Army Headquarters, one Lieutenant Colonel Richard Williams. He told the Defence Minister that nothing could be done to give practical effect to the government's wishes until the Air Force was actually in existence and established on a viable basis.[3]

This was, of course, not what the politicians wanted to hear, so it comes as no surprise that in November an Air Board was formally appointed to control and administer the Air Force whenever it did finally come into being. Then, in February 1921, orders were given by the Air Council, which the Government had set up as its principal body in charge of aviation matters, for "the development of the Air Force forthwith, to such a degree as is necessary to enable the immediate establishment of an Air Force, and to initiate an experimental aerial mail service."[4]

Within months of its inception, the RAAF had aircraft and personnel trailblazing the first routes over which the promised air mails would pass in Western Australia (which was, perhaps not so coincidentally, the home state of the Minister for Defence). Over the next year or so,

aircraft were taking off from the RAAF's sole airbase at Point Cook, outside Melbourne, to survey routes up the east coast to Sydney, and then on to Brisbane, as well as south across Bass Strait to Hobart.[5] Hard on the heels of these first ventures came others, more diverse. In 1922, the RAAF had D.H.9A bombers helping a noted civil engineer to explore the hydrography of Lake Eyre, one of the dry salt lakes in the outback of South Australia.[6] The list of tasks for 1923–24 showed the Air Force performing aerial photography (to produce photo mosaics rather than maps at this stage) for a range of government departments and even non-government agencies, such as universities and community organizations.[7]

The episode regarding the timing of the RAAF's formation is instructive because it demonstrates the way in which governments not just within Australia have always sought to capitalize on public investment in defence through visible side benefits in the civil sphere. Because expenditure on defence is essentially "lost" money, like any form of insurance premium, there is a natural tendency on the part of politicians to favour using the defence forces to show a return on the defence budget that benefits the nation in some other way. In Australia's case, it also reflected the priority accorded to nation-building in a country where nationhood was barely two decades old.

This truism was reinforced several times in the Australian setting over subsequent years. When the acting chief of the RAAF attended a meeting of the Defence Council in March 1924, he heard the desire expressed by Hughes' successor as Prime Minister, Stanley Bruce, that the Air Force should take on even more duties of general benefit to the public. Bruce was unmoved by arguments that such a course would be inimical to the Service's efficiency, and the Minister for Defence stepped in at this point and reportedly "added sweetly that the RAAF was not likely to get more money unless it indicated its willingness to carry out civil duties."[8]

This was a powerful incentive for the RAAF. It was surely no coincidence that in May 1924 the Air Force launched the headline-grabbing mission to circumnavigate the Australian continent using a lone seaplane to survey the coastline.[9] A further trailblazing flight followed in September 1926, with another seaplane used to push out into the Pacific as far as the Solomon Islands.[10] Less noticed publicly (but probably more useful for developing civil aviation) was a pioneering effort in November that same year to fly from Sydney to Melbourne at night, using the lighting of country towns along the route as a navigational guide.[11]

In 1926, the RAAF also stepped up its involvement with the Navy in surveying the Great Barrier Reef and helping to map the location of the many treacherous reefs in northern waters. Work of this kind had been performed by RAAF seaplanes since mid-1924, but now the Air Force formed a dedicated flight and kept it at the task for the next two years.[12] Another survey flight was formed in 1927 to help oil exploration work in the Australian-administered territories of Papua and New Guinea.[13]

In the same period, there were frequent calls for the Air Force to intervene when ships, civil aircraft, and sometimes even land parties went missing in areas around the continent. From 1929, RAAF personnel found themselves engaged in high-profile searches in outback areas of South Australia, Northern Territory, and Western Australia, facing the same harsh conditions which often claimed the lives of those they were trying to locate. One such operation resulted in the loss of three of its D.H.9A bombers (though fortunately not their crews), which surely dispelled all notions that the RAAF was operating the best aircraft for this purpose.[14]

That it was not just governments of one political persuasion that held expectations of the RAAF became evident after the election in late 1929 of a Labor Government with James Scullin as Prime Minister. The new ministry reviewed proposals its predecessor had been considering for the RAAF to take over the carriage of mails, and although it ultimately decided against that specific scheme, the Scullin Government nonetheless affirmed that it, too, wanted to see the Air Force employed on more civil work.[15]

As a result of this requirement being renewed, Air Force Headquarters felt itself under pressure to accept additional non-military tasks. During the summer months of 1929–30, for

example, a RAAF amphibian was kept in constant readiness at the Point Cook air base outside Melbourne to go to the rescue of fishing boats and other small vessels in distress or reported missing on Port Phillip Bay.[16] Searches of this kind became something of a staple over subsequent years. In April 1930, RAAF aircraft also took aloft Tasmanian government officials making an aerial survey of that State's forestry resources to assess their value for commercial exploitation.[17]

RAAF pilots took part in the famous exploratory expeditions to Antarctica led by Professor Sir Douglas Mawson in 1929–30 and 1930–31.[18] Just five years later they were again in the Antarctic, this time on a search for the American aviator Lincoln Ellsworth, reported missing after a flight across the southern polar cap.[19] They also began the first air patrols over state forests during the summer bushfire season,[20] flew the first aerial-dusting operations in Australia to help combat caterpillar infestation of pine plantations,[21] and commenced daily meteorological flights for the weather bureau, at first just in Victoria, but later extended to other states where the RAAF had a presence.[22]

Also in 1930, Air Force planes began a program of support for the Army Survey Section by providing aerial photography to aid the production of topographical maps.[23] Other photographic surveys followed during 1932, aimed at assisting geologists to identify potential oilfields across the continent.[24] By 1935, the RAAF had formed a "North Australian Survey Flight" and had it operating in North Queensland, the Northern Territory, and northern areas of Western Australia. This was the start of a long-term commitment to a program which ultimately resulted in complete map coverage of Australian national territory.[25]

A survey of a rather different kind arose in 1936–37, when the RAAF was asked by the Council for Scientific and Industrial Research (the forerunner of the organization now called the Commonwealth Scientific and Industrial Research Organization [CSIRO]) to provide an aircraft to help obtain reliable data on the movement of pelagic (open-sea) fish species through southeastern coastal waters.[26]

So much civil work of a non-warlike nature had, in fact, come the RAAF's way in the first 18 years of its existence up until the start of the Second World War (WWII) that it could almost be questioned what the Air Force's true purpose was. Government funding allocations had not enabled the Service to keep abreast of changes in air power technology. When the Imperial Gift aircraft were retired from service at the end of the 1920s, they were not replaced with equal numbers or more modern equivalents of the same kind. The Wapitis, which replaced the venerable D.H.9 and D.H.9A bombers in the Army cooperation role, were more a general purpose type built for use on the frontiers of Britain's empire. The force of S.E.5a fighters were replaced by a token "squadron" of eight Bristol Bulldogs, which were a great hit at air shows but barely enough to keep alive a hint of fighter skills in the RAAF. The emphasis now moved squarely onto the Air Force's training program, and all notions of providing a strategic deterrence were buried.

Multi-crew aircraft mostly for coastal reconnaissance and bombing at sea, although a few small survey and transport types were included only made their appearance in the RAAF inventory with the start of the rearmament period in the mid-1930s. It was, for instance, in a locally designed and built Gannet transport that the government sent the Chief of the Air Staff to Singapore in February 1938 as its official representative at the diplomatically symbolic occasion of the opening of the floating dock at the giant British naval base there.[27]

The RAAF appeared less and less credible as a warfighting organization. This was understandable since its personnel strength remained less than 1000 up until the start of rearmament in the mid-1930s, and was still only 3500 at the start of WWII.[28] It could almost seem that civil work in support of national development and similar worthy causes had become its principal rationale. This was not what the Air Force's leadership had planned or wanted for their Service, but their arguments had not made any impression on a succession of governments which had their minds on other priorities.

In April 1925, Richard Williams, in his role as Chief of the Air Staff, produced a document which he hoped would be the first blueprint for the air defence of Australia. His scheme was hardly radical or groundbreaking, either in identifying Japan as Australia's most likely adversary in the Pacific or attempting to address what the RAAF might do in the interval before an invader actually landed. He certainly was not attempting to establish an independent role for his force, but rather outlining a coherent strategic and organizational foundation for it. Even with these modest aims, his paper found no support within the Cabinet of the day.[29] His next attempt to obtain definitive guidance to underpin the RAAF's existence and its future development, through a visit by Air Marshal Sir John Salmond of the RAF in 1927, also made little difference.[30]

Having appreciated the realities of the situation, Williams recognized and accepted the necessity to meet the government's expectation with undertaking civil work if the Air Force was to have any future certainty at all. There was an irony in this, in that ultimately it was his perceived failure to maintain safe standards in Service flying which saw him removed as head of the RAAF on the eve of WWII. That the aircraft which caused so much angst for the Air Force in 1937 was an aircraft as obsolescent as the Hawker Demon is a double irony.

Of course, it was not just the RAAF that found itself used, or misused, in this fashion. The Royal Australian Navy has traditionally conducted searches and rescues at sea, patrolled the nation's sea approaches against a variety of non-military activities, from illegal fishing to people smuggling, and engaged in port diplomacy in support of national policy. The Army has, just as traditionally, helped the community recover from emergency situations as varied as natural disasters and civil disturbances.

Setting the Air Force apart from the other services was its possession of specific capabilities to perform certain roles, and the unique characteristics of air power itself. For instance, the uses made of the Air Force during its first two decades were principally for surveillance rather than for transport purposes. This was because photography that presented a view from the air found a multitude of users concerned with national development projects, while the single- and two-seat aircraft which the RAAF principally operated in this period could carry only small freight loads and few passengers. At the same time, it was the inherent flexibility and rapidity of action which air power allowed that made it such an attractive option to governments when deciding how to respond to emergency and unplanned situations.

At first, the low capacity of available aircraft to operate away from prepared bases also largely confined the Air Force to operating within a relatively short radius from its sole air base in the southern state of Victoria. An early program of route surveys and preparation of temporary operating bases soon enabled that situation to improve, although the types of aircraft in the RAAF inventory always remained a factor determining where and when the Air Force could operate, and what it could achieve in the realm of civil work.

A case might reasonably be mounted that this situation was really of little concern to the RAAF. Capacity for civil work properly flowed from the aircraft types that had been purchased, first and foremost, to meet the combat needs of the Air Force civil work is not normally a determinant of force structure. The point that sums up the pre-WWII situation of Australia is that its Air Force had precious little combat utility anyway, so that it was understandable that non-war fighting applications of air power came to assume vastly heightened importance.

After WWII, the situation for Australia's air force came to assume a very different character. The vastly expanded organization with which the RAAF ended the war was, naturally enough, severely reduced. But even at the harshest point in the cutback, when RAAF numbers were down to barely 7900 at the end of 1948, this was still more than double its pre-war strength.[31] The Service also had a wide array of very capable military aircraft.

The Second World War had provided the RAAF with its first taste of combat operations since its formation, but a series of operational commitments in the immediate post-war years—the Berlin Air Lift in 1948, Korea, and the Malayan Emergency in 1950—signalled that there

would be no returning to that benign situation. That prediction proved accurate, with lengthy commitments in Vietnam, Iraq, Timor, and Afghanistan, and a whole host of peacekeeping operations in between.

A force required to keep itself in a state of readiness, in realistic anticipation of being committed to combat, understandably takes a different view towards calls for its services in non-warlike situations. Even so, calls to perform in non-combat circumstances have continued without let-up in the past 60-odd years since 1945 the only difference has been the relative importance they have assumed for the Air Force as a whole.

As before, it has frequently been the specialist capability for surveillance that has dictated the use of the RAAF that remarkable facility to seek out and locate, observe and photograph, or simply monitor. Whether it was determining the best line of approach for relief parties entering the disaster area following the Mount Lamington volcanic eruption in Papua New Guinea in 1951,[32] or monitoring the fallout cloud resulting from the first British nuclear tests carried out in Australia the next year, the RAAF has played a constructive role.[33]

During the 1970s, Canberra bombers fitted out for photographic work played a valuable role in mapping operations conducted over Indonesia, and also Papua New Guinea, under the auspices of a Defence Cooperation Program.[34] The Canberras also gave valuable support with situational information for disaster relief planners, following the destruction of the northern port city of Darwin by a massive cyclone on Christmas Eve of 1974.[35] That this sort of work still goes on was demonstrated in February 2009, with Orions tracking the path of destruction being carved by catastrophic bushfires in Victoria.[36]

Occasionally, employment of those capabilities has become acutely controversial, especially when employed in domestic circumstances. In 1983, the RAAF had an interesting experience arising from directions given by an inexperienced minister in a new government to conduct a photographic reconnaissance of a controversial dam construction site in the island state of Tasmania.[37] The furore resulting from the employment of, first, a Mirage fighter and then an RF-111 brought about some notable changes governing how the Australian Defence Force (ADF) may respond in home-grown political crises.

The RAAF still routinely gets called out to join in searches for fishing and pleasure craft when these go missing. A remarkable series of rescues carried out in the Southern Ocean in 1994 and 1996–97 by P-3C Orion aircraft acting in conjunction with the Navy, at ranges exceeding 1000 nautical miles [1850 kms]from the southern edge of Western Australia, are a case in point.[38] The response mounted after atrocious weather at sea overwhelmed the famous Sydney-to-Hobart Yacht Race in 1998 is another.[39]

Occasionally, patrols at sea have taken a different edge, for enforcement purposes, as with the use of long-range Hercules transports in support of anti-poaching operations in the Exclusive Economic Zone around Heard and McDonald Islands, 2000 nautical miles [3700 kms] southwest of Western Australia, in 1997.[40] No less purposeful was the role of Hercules transports in tracking the drug-trafficking North Korean freighter *Pong Su* before it was apprehended off Australia's east coast in 2003.[41]

Sometimes, enforcement action has been opportunistic rather than preplanned, as with the time in 1978 when a Hercules preparing to land at Darwin was diverted in the absence of any available fighters to intercept and force down a light aircraft that had been detected entering northern air space with what turned out to be a consignment of drugs on board.[42]

Usually, the RAAF's transport fleet has been a major factor in Australia's response to a range of emergency situations. Back in 1946, it was a matter of using Douglas C-47s to bring out 25 tonnes of pig bristles, which were needed for paint brushes regarded as essential to Australia's post-war reconstruction program, from Chinese territory about to fall under Communist control.[43] In 1989, it was a case of stepping in to overcome the chaos created within the nation's domestic air transport system after civil airline pilots went on strike. Not only RAAF transports

but also its ex-commercial B707 airliners acquired to become in-flight refuellers, and even HS-748 navigational trainers were pressed into service for several months to keep the travelling public on the move.[44]

More recent instances make a formidable list, so it may have to suffice to cite cases of evacuating embassies from countries in the throes of civil war, delivering relief supplies to communities whether within Australia or abroad trying to cope with appalling disasters, from cyclones and earthquakes to floods and tsunamis. Often these efforts have been in conjunction with relief efforts mounted by the United Nations or its agencies, or international humanitarian organizations such as the Red Cross. Sadly, Australia has had its share of coping with terrorist atrocities, such as the bombings directed against foreign tourists on the Indonesian island of Bali in 2002 and 2005. On both occasions, the RAAF provided the immediate and the primary means of evacuating the large number of injured to Australian hospitals for treatment.[45]

Even where the United Nations (UN) has not been directly involved, the RAAF has often taken a leading role in intervention action in situations which still fall short of warlike description. In 1999, the Australian Defence Force led a UN-sanctioned coalition of 22 nations (including Canada) in an intervention to stop pro-Indonesian militias from trashing East Timor after the population voted for independence. RAAF transports were the principal means by which the first elements of the intervention were delivered into Dili on 20 September.[46] Flights by RF-111s to observe what was going on with Indonesian approval were probably the only operational use which these aircraft will have seen before retiring in 2010, after 38 years in service.[47]

Australia was asked to send troops back into Timor in 2005 because of massive civil unrest, and the following year was also asked to commit troops and police to the Solomon Islands after riots led to large parts of the capital Honiara being set ablaze. These kinds of operations do not strictly require combat capabilities, though they are frequently not without a major element of risk. Similarly, flights to extract Australian nationals and often the staff of diplomatic missions as well, have been fraught with danger, stemming from the possibility of miscalculation or simply being in the wrong place at an inconvenient moment.

The RAAF was still active in Antarctica for a while after World War II, including a period when a dedicated Air Force flight was permanently stationed at ice airfields year-round, a practice continued until 1960 when most of the Antarctic Flight's planes were destroyed in a single gale.[48] Since that time this involvement has entailed only periodic visitation to scientific research stations for sustainment purposes.

Equally, there has continued to be some participation in trials and experiments sponsored by or primarily intended to benefit or assist other agencies. For instance, in 1947, RAAF Liberators took part in a CSIRO program to develop techniques for producing rain by artificial means. These trials continued for more than a decade, before switching over solely to civil aircraft.[49]

As another example, there was work done in 1982 to refine techniques for using Hercules transports to bomb bushfires with flame retardant.[50] Specialized aircraft have since been acquired by the Australian States for use in this role, but it was the RAAF which initially validated such an approach to dealing with bushfires and which consequently bore the brunt of relief efforts.

And finally, it should be acknowledged that sometimes the Air Force has provided an unexpectedly handy means of responding to occasions where "showing the flag" has been all that was required. When the Australian government decided in 1957 that it should be represented when Ghana became the first of Britain's colonies in Africa to reach independence, it was a flight of Neptune maritime patrol aircraft which was sent in company with the Minister for Air to take part in celebrations.[51] Calls of this nature have been rare, but the precedent has been followed more recently, as with Papua New Guineas' own independence celebrations in 1975, when the RAAF sent a number of Canberras, many of them aircraft that had been previously involved in mapping the new country.[52]

The huge diversity of ways in which Australian air power has been utilized to support and advance non-military and civil objectives makes it difficult to analyze and synthesize conclusions except in very broad terms. In this coverage of the Australian experience in this area, a conscious decision was taken not to dwell on the role of air power in support of UN peacekeeping or peacemaking operations, for the reason that these are by their very nature so closely allied to the contingencies for which armed forces of most countries are properly structured and expected to perform. They are certainly more correctly viewed as "warlike" rather than non-war fighting or civil undertakings.

What the Australian historical experience in this sphere has demonstrated can be summarized in three main points. First, the fact that involvement in this field has been with the RAAF as long as there has been an Air Force provides its own testimony that most countries find the side-products of air power to be beneficial and advantageous to non-defence objectives, be that national development, law and order, or maintaining public confidence in the country's governance after unsettling events. Like it or not, politicians across the spectrum tend to view public money expended on defence as not quite wasted, but definitely consigned to an area of national endeavour for which the taxpayer sees little benefit unless there is a war. Being able to demonstrate that the public purse receives a tangible benefit back from defence outlays is something which leaves the largest number of people generally happy with the situation.

The increasing frequency with which peacekeeping and disaster relief operations have been mounted by Australia in the last decades of the twentieth century, and the first decade of this century, demonstrates another evolving element in Australia's defence equation. As governments since the end of WWII have worked to position Australia as a good global citizen, there has been a subtle change in the way the armed forces are viewed and what is expected of them. No longer are the Services just for dealing with defence emergencies and conflict situations. Instead, they are seen as part of a holistic, whole-of-government policy of active engagement with Australia's area of strategic interest, and the wider world, intended to avert as much as deter any evolving threat to national security. It is in this context that a range of activities undertaken begins to make more sense, from cooperative aerial mapping projects to assistance with clearing unexploded mines and munitions left around the region from earlier conflicts. Here the non-kinetic uses of Air Force personnel and assets can be seen to feed into non-defence objectives such as foreign policy, and other areas with indirect relevance and benefit to national security.

Secondly, a steady process of experiment and refinement has shown that, while it was initially the surveillance/reconnaissance role of air power that had most utility in the public or civil sphere, the emphasis has now shifted strongly towards airlift capabilities. These provide government with the greatest scope and flexibility in responding quickly to disaster relief and other emergency situations. There is no surprise in reflecting on the fact that the RAAF has had C-130 Hercules medium transports in service for 50 years as of 2008, in that time operating A, E, H and J models. And since 2004, the RAAF has also added a heavy-lift transport capability through the acquisition of C-17 Globemasters. With these types comprising its transport inventory, and to a lesser extent with C-47s and DHC Caribou light transports which overlapped for much of the post-WWII period, the RAAF has possessed extraordinary tools for the purpose of supporting non-war fighting operations.

Thirdly, on all the indications, the use of non-combat capabilities to support the civil community across a spectrum of opportunities will continue to be important to the RAAF. Not just politicians, but Australian society expects that the Air Force will be there to help it through the range of calamities that may befall even when these do not entail combat situations on Australian soil. The RAAF can continue to plan and structure itself for what it thinks it may need in time of war, and how it will employ these capabilities to cope with plausible future hostilities, but the inescapable reality is that it will always find itself being asked to employ whatever it has in ways that were never quite envisaged.

The Defence White Paper released in the first half of 2009 foreshadows the acquisition of several capabilities for Air Force which will surely enhance its effectiveness and continued relevance to the future war fighting operations of the Australian Defence Force. But without

anything being enunciated, no imagination is required to expect that some of those capabilities, be they Uninhabited Aerial Vehicles or the Wedgetail Airborne Early Warning & Control aircraft, will be used, once in service, in support of non-warlike purposes.

As a closing thought, the observation ought to be made that the RAAF has not objected to being called on to perform the duties encompassed in the old expression "civil work." At times it may have been thought, as before WWII, that there was rather too much coming its way, and leading people to fundamentally misunderstand what the RAAF was all about, but overall there has always been clear acceptance that there was a reasonable demand being made of it. Apart from sharing the belief that the public is entitled to expect some return on its investment in defence, RAAF leadership has consistently taken the view that to expect the support of the Australian community, which ultimately owns and sustains the Air Force, the RAAF must demonstrate its support for the community. It would certainly be unconscionable to withhold assistance that could be provided in time of need, simply on the grounds that the equipment involved has warfighting as its principal purpose. The term "whole-of-government approach" is its own explanation on this point.

Ultimately, there is a recognition that assistance provided to the civil community, whether through other government departments or non-government agencies, nearly always provides a training benefit to the Service personnel called to take part. If not in the actual execution of the operation, there will be benefit in the planning required beforehand, or in the intelligence or even simple familiarity with the operating environment that follows. Historians generally look back over past events to distil what might be of use now or in the future. Predictions may not be required, but on the evidence of the past it would be reasonable to conclude that the RAAF will remain actively committed to non-warfighting duties in support of national policy and the civil community for many years to come.

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Chris Clark

Dr. Chris Clark has been the Royal Australian Air Force (RAAF) Historian since early in 2004 and heads the Office of Air Force History within the Air Power Development Centre.

He originally trained for the Army, graduating from the Royal Military College, Duntroon, in 1972 with a Bachelor of Arts degree. After regimental training with armoured units, he served in intelligence postings until 1979 when he resigned as a Captain. As a public servant he worked in the departments of Defence, Foreign Affairs, the Prime Minister, and the Cabinet. He also gained a Master of Arts degree from the University of New South Wales in 1980.

In 1987, he became Chief of the Air Staff Historian while writing a commissioned history of the early RAAF. On completing that project, and a PhD in 1991, he was appointed Historical Fellow at

the Air Power Studies Centre (the forerunner of APDC) while writing a volume of official history covering RAAF operations in the Vietnam War. Between 1993 and 1999, he conducted his own historical consultancy, writing histories on a contractual basis.

After working as a Research Editor with the Australian Dictionary of Biography at the Australian National University, in 2001 he joined the staff of the Australian War Memorial as Historian for Post-1945 Conflicts. He has been a Visiting Associate Professor in the School of Humanities and Social Sciences at the Australian Defence Force Academy since 2003.

He has published extensively on Australian defence history generally. Apart from numerous articles, his published books on RAAF subjects have been: The Third Brother *(1991),* Edge of Centre *(1992),* The RAAF in Vietnam *(1995),* From the Ground Up *(1997),* Hit My Smoke *(1997) and* McNamara, VC *(1997).*

Chapter 8

Human Intelligence, Irregular Operations and Air Power: Malaya 1948–1960

William T. Dean III

Introduction

Traditionally, when policy makers, academics, and military personnel think about the use of air power in irregular warfare, they concentrate on the kinetic uses of aviation. It is clear, though, in all dimensions of irregular warfare, from the memoirs of David Galula[1] to Field Manual 3-24 of the United States (US) Army and Marines, that it is generally accepted that irregular warfare is primarily a non-kinetic activity. This is particularly true with the use of aviation assets and has been demonstrated time and time again throughout the twentieth century. Generally, air assets have been used in a supporting role of ground forces.[2] In irregular warfare, unusual linkages and unique approaches have to be made to be successful.

One aspect of air power and small wars that is quite clear after almost a century of conflict is that this is a highly intelligence-driven activity. More specifically, air power is highly dependent on human intelligence (HUMINT). There has to be an effective linkage between air operations and HUMINT actors on the ground. This lesson has been forgotten by modern air forces in the current global counter-insurgency. In the 1990s, the US Air Force (USAF) relinquished its HUMINT capacity for conventional and irregular operations. There was and is the Office of Special Investigations (OSI), but its role is tied to mostly criminal activity or counter-intelligence. It became apparent in recent air ground operations in Iraq and Afghanistan, especially when special operations forces (SOF) were employed, that there was inadequate intelligence from other governmental agencies as well as military intelligence organizations. When Zarqawi, the head of al-Qaeda in Iraq, was killed in Iraq in May 2006, it was a victory for HUMINT rather than for air power because he was killed by a joint direct attack munition (JDAM) from an F-16, and, in fact, it would have been better if he had been captured and interrogated by ground forces. In the last couple of years, the USAF has just begun to recover its HUMINT capability. If the USAF and other air forces were to look at the history of air power and small wars, they would see the linkage between air power and HUMINT.

One of the clearest examples of the essential linkage between air power and HUMINT and the effective use of non-kinetic airpower is in Operation Fire Dog, the Royal Air Force (RAF) campaign in the Malayan Emergency between 1948 and 1960.[3] Here, the RAF, the British Army, the police, coalition forces, and British Intelligence (MI-5) were able to collect HUMINT on the communist insurgents and then leverage non-kinetic air power against them. Even the training of indigenous personnel of foreign internal defense (FID) was involved in leveraging HUMINT. Thus, there was even a linkage between FID and non-kinetic air power. In general, the Malayan campaign has been heavily studied because it is seen as one of the most effective counter-insurgency efforts against revolutionary guerillas.

Here we see unique linkages between police work and air power, the centrality of HUMINT and air power, and the effectiveness of the non-kinetic use of air power. During this campaign in the air and on the ground, military operations were carried out with political considerations in mind. Air power was not used as a blunt instrument such as it was in previous RAF air policing campaigns. In the end, the non-kinetic use of air power was the most effective approach conducted by the British and was significantly responsible for victory. Most books written on the Malayan case, such as John Nagl's *Eating Soup with a Knife,*[4] focus primarily on ground operations, but this paper will argue that air operations were decisive. For all the reasons and linkages enumerated above, the non-kinetic use of air power by the RAF in Malaya calls for a deeper examination by military professionals and academics to illustrate effective practices and lessons learned, which may guide them in the morass that is the global irregular war.

Background

When the Malayan Emergency broke out in 1948, the British had extensive experience in that region, in developing intelligence in the colonies, and using air power in counter-insurgency. During the time of Queen Victoria (1837–1901), the British Army fought over fifty colonial campaigns and only one conventional war, the Crimean War (1854–56).[5] They had significant experience in developing HUMINT in Africa and Asia, and the record of British military in these various campaigns was quite mixed. In fact, intelligence failures led to disasters at Isandlwana, South Africa (1879), Majuba Hill, South Africa (1880), and Maiwand, Afghanistan (1880). The British were able to establish and employ developed HUMINT organizations in India, particularly on the Northwest Frontier in what is today Pakistan. Men such as Robert Warburton were able to live among the various peoples of the Northwest Frontier, gather intelligence, and keep a modicum of peace.[6] Richard Meinertzhagen was also effective to some extent in East Africa and later in the Middle East during the Great War. But it was in India in general that the British were more effective in using and developing intelligence than they were in the rest of their colonial empire.[7]

During the World Wars, the British became much more sophisticated in their use of intelligence, and technology became much more important in intelligence gathering. At the outbreak of the First World War (WWI) in 1914, the British learned how to effectively use aircraft in intelligence, surveillance, and reconnaissance (ISR). At Room 40 of Royal Naval Intelligence, the British became adept at breaking and manipulating the codes of friend and foe. Later, at Bletchley Park during the Second World War (WWII), British Intelligence greatly expanded its size and bureaucracy and its technological capability. Here the first intelligence computers were developed. Thus, the British became masters of signals intelligence (SIGINT) in WWII, and these SIGINT advances would serve the British in their counter-insurgency efforts after WWII as well.

Not only did the British develop a great intelligence technology, but also they continued to use advanced HUMINT operations during both world wars. In the Middle East during the Great War, the British launched unconventional warfare (UW) against the Ottoman Turks by sending T. E. Lawrence to lead an Arab insurgency. Lawrence developed excellent HUMINT networks that aided the conventional army of General Allenby and created a logistical nightmare for the Ottomans.[8] Later, in WWII, the British created another HUMINT and UW organization known as Special Operations Executive (SOE). This organization sought to create insurgencies throughout Nazi-occupied Europe and worked closely with the French Resistance and Yugoslav partisans. During this campaign, air power was extensively employed and a UW aircraft, the Lysander, with short take-off and landing (STOL) capabilities, was developed. Here we see an early linkage between air power, HUMINT, and UW.

Early British air operations in Africa and Asia in small wars from the Great War until WWII were crude kinetic affairs. It was during and immediately after WWI that the British conducted kinetic air operations in Somaliland and on the Northwest Frontier of India. In Somaliland, the RAF developed air policing, the proponents of which argued that aircraft could substitute for much of the ground forces. This concept was further developed and argued in Iraq in the early 1920s, when kinetic air power through air policing was used to defeat rebellious tribes in Iraq.[9] This kinetic use of air power found its limitations when it was employed in an urban environment in Palestine in the 1930s.[10] During WWII, air power was used by the RAF to promote UW campaigns in Malaya, and to insert special forces known as Chindits in Burma behind Japanese lines. At the time of the Malayan Emergency, the RAF and British Intelligence had a great deal of relevant experience.

The British had a long relationship with Malaya, dating back at least to the Napoleonic Wars. Sir Thomas Raffles played a major role in establishing British control of this region, which was obtained by 1867. The British ruled three major ethnic and linguistic groups of people: the Malays who were Muslim, the Chinese who were often highly urbanized or lived on the fringes of the triple canopy forest, and the Tamils from India. As nationalism developed in the twentieth century, the British police were able to collect accurate intelligence on nationalist dissidents who

were drawn primarily from the Chinese population. By the 1930s, the Malay Communist Party had developed and the Police Special Branch easily penetrated this group and developed a large network of informants.[11]

The troubles for the British in the region started in December 1941 when British military intelligence failed to predict the Japanese landing on the northeast coast of Malaya, and by February 1942, the British forces led by General Arthur Percival had surrendered to the Japanese. This severely weakened British political prestige in Southeast Asia. Soon, the British launched a UW campaign in Malaya, where they supplied by airdrop advisors and weapons to the Malay Peoples Anti-Japanese Army (MPAJA). This group was made up mostly of Chinese who were allied to the Malay Communist Party (MCP). This insurgent group's effectiveness was weakened by the Kemptai's (Japanese Intelligence) penetration of the MCP. At the end of WWII, the MPAJA had gained a great deal of guerilla warfare experience and the MCP was seen by many Malays as heroes.[12]

British Intelligence at the Outbreak of the Emergency

After WWII, the British re-established control in Malaya, but the Malay Communist Party wanted an independent communist state free of British interference. The British had for a long time infiltrated the MCP with an agent known as Lai Tek. The communist unmasked this agent and soon British HUMINT regarding the MCP collapsed. This is one of the reasons why the British civil authorities were caught by surprise when the insurgency broke out. In March 1948, the Soviets convened a call to arms conference in Calcutta and the MCP was inspired to start their insurgency.[13] After this conference, the Malay Races Liberation Army (MRLA) was created and this was the group that would fight the insurgency in Malaya. A parallel support and political organization was created called the Min Yuen. The task of this group was to garner widespread support, collect HUMINT, and to aid with logistics. Initially, this group worked on the fringes of the jungle.

The year 1948 was a time of strategic realignment for the British Empire. In May 1948, the British left Palestine and soon thereafter many personnel were transferred from the Middle East to Malaya. A few months later, in June 1948, the British confronted a new insurgency when they declared an emergency in Malaya after several attacks on rubber plantations. The Malay Security Service warned Sir Edward Gent (British High Commissioner in Malaya) about impending attacks, but he refused to believe them. A major problem was that there was little actionable intelligence for colonial authorities, and thus the Emergency began as an intelligence failure. Soon, Gent was recalled to London and was replaced by Sir Edward Gurney. A new police commissioner, Colonel W. N. Gray, who had just finished a tour of duty in Palestine, was brought in. Gray's previous service had a major impact on the way he conducted police operations, and he tried to create HUMINT networks in Singapore as well as in mainland Malaya. Not only did recent Palestine experience influence the police commissioner, but also many of the rank and file police who had freshly arrived from there.[14] Basically, the police pursued a law and order response to the insurgency.

Many soldiers and police were "trigger happy" and physically abused the Chinese civilian minority in Malaya, and these numerous police attacks against the civilian populace severely impeded HUMINT collection, as did the tremendous shortage of police officers or military intelligence officials who could speak Chinese, which made interrogation very difficult. Many of the police officers who were serving in Malaya were new to the region and unfamiliar with the human or geographical terrain and did not know the basic principles of counter-insurgency. Finally, there was a poor relationship between the police and the army and problems of lines of authority developed. Gurney eventually grasped these problems and tried to reign in both the police and army.[15]

Early Air Operations and the Failure of Kinetic Air Operations

Early kinetic military operations, such as large-scale sweeps carried out by the Army, were ineffective against the communist terrorists. The RAF for a time had better success. During the

early days of the Emergency, in 1948–49, the RAF employed WWII vintage aircraft such as Spitfires, Beaufighters, and C-47s. Since the largest insurgent formations operated at the edge of the jungle, these aircraft could engage in close air support (CAS) and aerial interdiction (AI). This was the heaviest use of kinetic air power in the entire conflict, and the only time when kinetic air power was remotely effective.[16]

After this initial phase of fighting, the insurgents retreated to the triple canopy jungle. AI, one of the keys to victory in most insurgencies (a lesson being relearned today in Iraq and Afghanistan), was practically impossible in Malaya because the Lincoln bombers (successor to the Lancaster) had to operate blind because ISR and HUMINT were non-existent. These bomber attacks killed very few insurgents and had virtually no impact on insurgent operations.[17] Thus, the only way to get at the MRLA was through HUMINT, trackers, and hunter-killer teams. Meanwhile, the MRLA fighters lived in the jungle while the MCP and the Min Yuen lived among the people, supplying the fighters with logistics, HUMINT, and recruits.

Reforms, Intelligence, Air and Ground Operations

In 1950, Sir Harold Briggs was made the new Director of Operations and he tried to separate the Chinese population from the MRLA. He did this by creating New Villages. Chinese squatters were moved off their land at the fringes of the jungle to villages with electricity, clean water, protective fences, medical facilities, schools, and agricultural experts.[18] Initially, this caused considerable economic dislocation and emotional trauma and did little to improve British HUMINT. The opening of the Korean War, however, created an economic boom in Malaya with the rise of rubber and tin prices. This mitigated the economic dislocation created by the development of the New Villages.[19] Further, this economic boom and the improved living standards of the New Villages undermined the information operations / propaganda of the Min Yuen.

At this time, Britain was faced with strategic problems resulting from an anemic economy at home and imperial overstretch abroad. British air and ground forces were sent to Korea, and insurgencies broke out in Aden and Kenya. The sending of forces to Malaya, exacerbated by the complications of the logistics of moving forces over such large distances, further strained the British economy. Offsetting these problems, however, were the facts that the campaign remained popular with the British voters, and the British high command was able to draw on troops from Australia, New Zealand, Fiji, Gurhkas from Nepal, and Malayans.

Limited kinetic air and ground operations slowly became more effective. The army shifted from large ground sweeps to inserting hunter-killer teams into the jungles via helicopters. This was the first campaign that the British used helicopters in great numbers. They played a role not only in infiltration and exfiltration but also in supplying teams in the field for up to 30 days. These units consisted largely of special air service (SAS) forces and other elite troops. Later in the war, forts built in the jungle were supplied by STOL aircraft.[20]

The RAF's ISR problems never improved during the Emergency and Lincoln bombers carried on ineffective and massive carpet-bombing. The response time of the RAF was quite slow because there were only three airfields, at Butterworth, Kuala Lumpur, and Changi. There was serious concern for collateral damage and destruction of rubber trees—pilots who bombed a rubber tree were in deep trouble.[21] Air operations were done with political consequences in mind, and this partially explains why the RAF became more open-minded about non-kinetic approaches to air power.

As air and ground operations were slowly improving, the same could be said about the colonial government's information operation. Hugh Green was brought from the British Broadcasting Services in London to run emergency information services in Malaya. He developed numerous pro-government radio programs and made numerous pro-government films. These radio programs and films were broadcast in Malay, various Chinese dialects, Tamil, and English. Entertainment, such as Tarzan movies, was used to entice viewers to hear the government's message. Tarzan movies, which were widely popular, were shown at night

even in remote villages. There was also a heavy use of surrendered enemy personnel (SEP). A surrendering insurgent was not imprisoned but rather was put to work in the colonial government's information operations (IO) campaign. The SEPs wrote pamphlets and gave pro-British speeches in villages after Tarzan movies. The most famous pamphlet was Lam Swee's *My Accusation*. All of the improvements in the IO campaign, along with the development of the New Villages, led to more abundant and actionable HUMINT.[22]

Templer's Improvements and Insurgent Strategy

The year 1951 was the darkest one of the Emergency for the British, with the MRLA continuing to attract a growing number of recruits. Added to this, Governor General Gurney was gunned down in October. He was soon replaced by General Gerald Templer, who was a much more effective leader than Gurney. This would further facilitate the non-kinetic use of air power. Templer had an intelligence background and understood its importance. Further, he had a background in anti-guerilla campaigns. He visited various villages and units in the field, bypassed middle management, and ended the red tape that squeezed the dynamism out of intelligence and operations.

In the same year that Templer arrived in Malaya, the MCP and MRLA shifted strategy. They began to de-emphasize kinetic operations and focus more on political action. This meant less intimidation of the rural population and greater efforts to expand the ethnic base of the insurgency to include not only Chinese but also Malays and Tamils. It was a flawed strategy. The insurgents withdrew deeper and deeper into the forest to await a general uprising, creating a logistical nightmare for themselves. They were soon on the verge of starvation and their morale was weakened. This made them ripe for psychological operations (PSYOP).[23]

As the insurgents retreated into the fastness of the forest, British intelligence was reformed. The new commissioner of police, Arthur Young, dramatically improved the police force. First, it was increased in size from 10,000 to 70,000, with a greater proportion being Chinese speaking. Relations with the Chinese civilian populace consequently improved, and relations with the Army improved as well. Further, police reforms led to greater effectiveness of the Army in the field. Soon, MI-5 was introduced into areas of operation and the counter-insurgency campaign became truly inter-agency in nature. Reforms of British military intelligence led to a better understanding of the MCP, and there was an effective delineation between army and police intelligence. Jack Morton, Director of Military Intelligence, developed a Special Branch, but this did not weaken his PSYOP efforts. He made it known that his aim was to turn the insurgents, not to kill them,[24] and this greatly enhanced and facilitated subsequent RAF psychological operations. Ultimately, key improvements in police and army intelligence led to much more actionable HUMINT, which was the necessary precursor for PSYOP.[25]

Another way that Templer's reforms increased HUMINT was the creation of Home Guards. Up to this point, most of the New Villages were poorly protected and many did not even have barbed wire. This meant the Chinese peasants who lived there did not feel secure from insurgent attacks and requests for supplies or intelligence; also, they were initially reluctant to give information to British intelligence. The creation of Home Guards helped solve this problem. Soon these villages were protected by barbed wire and fences, and village militias were created. However, Templer's creation of the Home Guards was controversial inside the British military and intelligence establishment because the British authorities would have to trust these new indigenous auxiliaries and show great patience in training them. Despite these misgivings, the Home Guards proved effective at reducing the attacks against the villages, and once the villagers felt secure, there was an increase of HUMINT from them. This was crucial in employing non-kinetic air power.[26]

Templer's reforms can be seen in a wider context, that of a learning contest in an irregular war. John Nagl argues that in counter-insurgency the side that learns the fastest wins.[27] Templer's and Briggs' reforms can be seen as a form of rapid learning, much more rapid than the learning of the MRLA. Templer encouraged junior officers and non-commissioned officers (NCO) to be part of the process, which led to learning from the lower ranks. Nagl's ideas, of course, are very

relevant to the current global insurgency, and he played a key role in writing the US Army and Marine Counter-Insurgency manual FM 3-24. The key feature not emphasized in this learning contest is the role of air power, especially non-kinetic air power.

Psychological Operations

With improved HUMINT, which resulted from Templer's reforms, the ground had been laid for psychological operations. The government's early propaganda campaign of leaflet drops from aircraft, roving movie vans, and pro-government newspapers were diffuse and ad hoc. Inside the villages, the peasants told doctors, nurses, teachers, and agricultural experts their anxiety about their sons serving with the guerillas. These personnel would report these exchanges with the local peasants to British intelligence and police personnel.[28] This showed that there were a variety of personnel and sources for British HUMINT. Now, with more detailed and actionable HUMINT that came from the New Villages, British civilian and military authorities knew where to specifically direct the efforts described above. Thus, it became possible to have a systematic and coherent PSYOP campaign and more effective non-kinetic use of air power.

Naturally, the insurgents also attempted their own IO campaign. Like Lawrence of Arabia, the MCP saw the printing press as their strongest weapon. British police and military intelligence worked diligently to prevent distribution of printed MCP material. For both the British and the MCP a key problem was that much of their target audiences were illiterate. This would lead the British but not the MCP to adopt other means to communicate with the civilian populace, such as movies, loud speakers, and radio. British information operations as well as police operations were improved with an influx of Chinese speakers.

Air Power and Psychological Operations

One key PSYOP technique and method of dissemination was the dropping of leaflets from bomber and transport aircraft of the RAF, the Royal Australian Air Force (RAAF), and the Royal New Zealand Air Force (RNAF). Sometimes, leaflets were dropped at the end of bombing runs, which was an ineffective way to conduct PSYOP. Typically, 50,000 leaflets were dropped at one time. These leaflets showed maps of the diminishing areas of MRLA control and expanding government control and told the insurgents how surrendering would not bring recriminations. Further, these leaflets asked the average insurgent if they had seen the fruits of their leader Chin Peng's promises. The MRLA feared these leaflets so much that the insurgent leadership decreed that any MRLA member caught reading them would be executed.[29]

As the British colonial government prepared Malaya for independence (1957), its FID efforts intensified. Malay air and ground forces were more heavily included in military operations, and Malay civil and intelligence authorities were given greater responsibility. This was also true when it came to PSYOP. The Malay Air Force also dropped leaflets, showing the link between PSYOP, air power, and FID. The peak of the leaflet drop was 1955 and this PSYOP campaign was a much more effective use of air power than the kinetic.[30]

The United States Air Force (USAF) played a role in the non-kinetic air campaign in Malaya. During the Korean War (1950–53), the USAF had failed in using C-47s in a PSYOP campaign against the Chinese and North Koreans because of a robust integrated air defense system (IADS). In Malaya, the RAF or coalition air forces never faced air defense artillery (AAA) whether they were inserting hunter-killer teams or dropping leaflets. An American commander in Korea, General Mark Clark, was a personal friend of General Templer, and there was an arrangement for the USAF to loan their C-47s to Templer for his expanding air PSYOP campaign. For leaflet dropping or loud hailing operations the C-47s proved to be more effective than the RAF Valettas, whose engines were too loud. Later, single-engine STOL aircraft called Austers were used for PSYOP.[31]

There were numerous tactical and operational problems in this non-kinetic air campaign. The C-47 Dakota was the main platform in the loud hailing campaign, carrying four loud speakers under its wings and a diesel generator in the cargo bay. During these operations, air

speed was maintained at 75 knots [138 kms/h] and the altitude ranged between 2,500 and 3,000 ft [762 metres and 914 metres]. Often, the loud hailers featured tapes of the mothers of insurgents pleading to their sons below in the jungle to surrender. The mothers had been identified by civilian personnel in the New Villages and were recorded by British or Malay intelligence personnel. Further, the mothers helped to geographically vector the PSYOP air operations so that the attempts of loud hailing would not be fruitless. There were even times when the mothers made live broadcasts from the aircraft to their sons below. When recorded broadcasts were done, an endless loop tape recorder system was used.[32] Typically, the broadcasts lasted thirty seconds. There was organizational accommodation for this non-kinetic campaign with the creation of the RAF 267th squadron, which was responsible for loud hailing.[33]

One of the problems with PSYOP and IO was the need for a basic level of civilization of the target, and if a group of people were extremely primitive, PSYOP might not work. The British in Malaya experienced this failure with the aboriginal Orang Asli peoples in the heart of the jungle. British anthropologists had limited knowledge of their language so British intelligence could not have loud hailed messages in their languages, and pamphlets were out of the question. The Orang Asli people called loud hailers "wind in the head." Their view of the world was limited to triple canopy jungle and they could not conceive of aircraft or tape recorders.[34]

The expanded PSYOP air campaign created command and control issues, especially in regards to prioritization of air assets. The request for loud hailing came from police channels and was sent to the Joint Operations Center (JOC). The JOC then prioritized and de-conflicted air strikes and drops and this was always done with a population-centric approach. Typically, the response time after a request was two hours. Areas were selected to be saturated with loud hailing aircraft for maximum psychological impact.[35]

A comparison can be made to American PSYOP and air power. During the Vietnam War (1965–73) and Desert Storm (1991), the USAF linked leaflets drops with conventional strategic bombing. This was highly ineffective. In sharp contrast, the British learned in Malaya to stop dropping leaflets after bombing raids because it sent a confusing message. They learned to carefully separate kinetic from non-kinetic operations. Throughout the entire Malayan Emergency, RAF bombing did not have a significant impact on the MRLA, but leaflet drops did.

Coalition and Interagency Efforts, Counter-insurgency, FID and HUMINT

Ground and air operations, along with intelligence and psychological operations, were conducted as part of a unified coalition effort. Home Guards were used as trackers for British, Australian, and Fijian Special Forces. As we have seen, there were coalition air operations. On the ground and air, the coalition forces played a major role in FID in preparing Malay air and ground units for independence. There was a spirit of cooperation among coalition forces.

Non-kinetic air power was made much more effective by the work of the police, especially the Special Branch. Here we see the unique link between police operations and air power. When kinetic operations were conducted, interagency people at the JOC saw that they were carried out in a political and cultural context.[36] Not only did doctors, teachers, and agricultural specialists collect intelligence but also they helped win the Chinese peasants over to the British and their allies.

HUMINT and counter-intelligence (CI) played a major role in selecting men for the Malay military before independence (the Mederka) in 1957. In fact, the British military had over a decade of working Malay military of all ethnicities as regular and irregular forces. This was in sharp contrast to the MRLA who could only recruit from the Chinese minority. Here we see HUMINT making FID more effective in creating reliable soldiers, another unique linkage. As the Malay regular and irregular forces became better at collecting HUMINT, the British and their allies became better at counter-insurgency (COIN).

Air and Ground Operations and Intelligence after Templer

After Templer's tenure, the RAF tried to introduce jet aircraft to the area, but these were much less effective than older prop aircraft. Soon, air mobility became much more important than bombing. In fact, bombing was the most ineffective use of air power during the Emergency. As mentioned earlier, helicopters were crucial for infiltration and logistics of British forces in the jungle. There were never any hot landing zones or serious AAA. Since there was a dramatic shortage of food in the jungle, the insurgents were forced to cut down trees and create open plots to grow crops, creating targets clearly visible from the air. In yet another non-kinetic use of air power, the RAF and its allies sprayed defoliants on MRLA crops.[37] This led to near starvation by the insurgents and forced many to surrender. Auster aircraft and other small STOL aircraft constantly resupplied coalition forts in the jungle. There was minimal use of CAS and AI in the second half of the Emergency.[38]

On the ground, large sweeps were ended and long patrols by elite troops aided by Malay Irregulars became standard operating procedure. This was possible because of a plethora of actionable HUMINT. Since Malaya is a peninsula, sanctuary was never a central issue for most of the Emergency.[39] But the insurgents did seek sanctuary in southern Thailand and at the end of the conflict a few dozen remnants of the MRLA were hiding there. Ultimately, the creation of forts in the jungle limited insurgent movement and prevented them from farming. A severely degraded logistical capability and constant coalition PSYOP campaign destroyed their morale.

In the late 1950s, large numbers of insurgents began to surrender. British intelligence and social scientists interviewed the SEPs and asked them why they had surrendered. Many of the SEPs listed loud hailers and the leaflets as prime motivators. Such intelligence was used more and more frequently in the British IO and this in turn increased the rate of insurgent surrender. Also in the late 1950s, Special Branch was able to penetrate the inner circle of the MCP. The MRLA was further weakened when the presence of its support organization, the Min Yuen, was minimized in the villages. The granting of independence to Malaya in 1957 caused further insurgent surrenders because they had lost their raison d'être.[40]

After independence, British Army and RAF officers were under the political control of the Malays. This was a unique but not problematic situation for a former imperial overlord. There were no problems because of a long, effective relationship between the Malay and British militaries. Intelligence sharing had never been an issue because of a high level of trust between the British and Malays. From independence in 1957 until the end of the Emergency in 1960, there was an effective partnership between these two allies. This demonstrates that FID and the development of trust take time, and explains why the non-kinetic use of air power was so effective. Since the British were willing to employ more non-kinetic air power, more trust could be created between the two parties.

The Defeat of the MRLA

In the later stages of the Emergency, the MRLA had to engage in an information operation against its own members; it could no longer concentrate on winning over the peasantry. Village informants became more common and this was linked to a belief of a coalition victory and the collapse of the Min Yuen. The MRLA and MCP's HUMINT virtually dried up. In 1958, over 500 MRLA fighters surrendered to the Malay government and counter-insurgency efforts were limited to an ever smaller area. In 1960, there was only a small pitiful band left in Thailand.

The RAF and its allies dropped over 35,000 short tons [31,750 metric tonnes] of bombs during the campaign. Approximately 126 guerillas were killed by the kinetic use of air power, which was less than 10 per cent of the insurgent force. Ground forces, especially hunter-killer teams, killed over 1,000 guerillas. Several thousand insurgents, the largest group during the campaign, surrendered because of the effective British PSYOP and IO campaign; the insurgents said so themselves in numerous interviews. Perhaps if the British had focused more on non-kinetic uses of air power, the Emergency might have ended sooner.[41]

Psychological Operations since Malaya

During the Malay Emergency the British conducted numerous counter-insurgency campaigns in other parts of their crumbling empire. In Kenya from 1952 to 1960, the British fought the Mau Mau Rebellion. There were officers in Kenya who had fought in Malaya who tried to carry over some of the techniques that had been successful in the prior campaign. The most famous person to do this was Frank Kitson. He created a system of pseudo-gangs with British personnel and Kikuyu tribesmen dressed like insurgents to launch attacks on pro-insurgent villages. He would bring masked informants into these villages to point out the members of the Mau Mau. This would lead to the arrest of insurgents who were then sent to the British gulag in Kenya. Kitson's techniques were effective but brutal and controversial.[42]

During the French Algerian War (1954–62) the French Army and intelligence became infamous for its use of PSYOP against the insurgents, the Front Liberation National (FLN). After the trauma of defeat at Dien Bien Phu in Indochina, the French were determined not to lose another insurgency. The end result was the doctrine of *guerre revolutionaire* and PSYOP was a key part of this. The French Army created a new PSYOP unit called the 5th Bureau, which engaged in systematic interrogation and torture. Police HUMINT was only effective against terrorist operations in the homeland. French police in Algeria were weakened by the Fifth Bureau, which was seen as a competitor. [43]

There was no unity of effort in intelligence gathering and interagency contributions were not incorporated until the later stages of the war with the Challe offensive in 1958–59. There was heavy use of auxiliaries but little FID. PSYOP in Algeria was heavily associated with torture during the Battle of Algiers in 1956–57. This systematic torture radicalized the Army, brought down the Fourth Republic, and turned world opinion against French efforts in Algeria. In terms of air power, airplanes flew over villages in so-called presence missions, along with ISR missions, and were the main non-kinetic uses of air power.

Perhaps the most famous PSYOP campaign by the United States in counter-insurgency was Operation PHOENIX during the second half of the Vietnam War. The Central Intelligence Agency (CIA) station chief in Saigon, Bill Colby, directed much of this operation in coordination with the military commander General Creighton Abrams. There was more unity of effort here than in French Algeria, but not as much as the British displayed in Malaya. PHOENIX involved the elimination of Viet Cong (VC) leadership in the countryside and was part of a larger pacification effort. Much of this involved the creation of strategic hamlets based on the British New Village program in Malaya, and Civil Operations and Revolutionary Development Support (CORDS) directed this. American intelligence wanted to suborn insurgent elements in South Vietnam and this was called *Chieu Hoi* or open arms. This was closely linked with PHOENIX. Over 80,000 VC switched sides and would help guide long-range reconnaissance patrols (LRRPs) in the bush. PSYOP was not as closely linked to air power as it was in Malaya. PHOENIX became very controversial near the end of the war because of widespread assassinations, and these revelations helped the anti-war movement in the US and hastened US withdrawal. PHOENIX was successful but politically came too late.[44]

Lessons for Military Professionals

After Vietnam, PSYOP in the US military took a back seat. In the USAF there is only a reserve outfit called Commando Solo to do PSYOP, while the US Army has enhanced its PSYOP capacity in the wake of September 11th. The USAF is just relearning that it needs a HUMINT capacity since it had abandoned most HUMINT capability in the 1990s. Two years ago the USAF stood up a new HUMINT squadron and slowly it is becoming more robust. HUMINT has played a major role in leveraging air assets in Iraq. As noted, Zarqawi was found and subsequently killed by a JDAM from an F-16 in May 2006 because of HUMINT. The current Chief of Staff of the Air Force, General Norton Schwarz, has a background in Air Force Special Operations (AFSOC), and is an advocate for HUMINT and non-kinetic approaches by the USAF. Technology alone is not sufficient for intelligence gathering, and space- and cyber-based intelligence need the sanity test of HUMINT.

The US Air Force and other Western Air Forces must carefully build up their FID capacity. Air Force HUMINT should be linked to command and control and FID as well as kinetic operations. Fighting the global insurgency is a world-wide global learning contest, and robust and dynamic HUMINT for air, ground, and sea is part of winning this global conflict. To be effective in kinetic and non-kinetic operations we have to know the history and culture of current and future areas of operations. Further, we have to know the history of the great democracies' air and ground forces in irregular warfare. The British example in Malaya demonstrates many lessons learned for the current conflict. In Malaya, as in the world today, we see that air forces have a vital role to play in FID, COIN, IO, and PSYOP. For this to happen, we must conduct our own IO campaign with our civil and military leaders as well as the general public to convince them of the importance of air power in irregular warfare and more specifically in non-kinetic operations.[45]

This article does not reflect the views of the United States Government, the Department of Defense, the United States Air Force, or Air University. The views presented in this work are those of the author alone.

Notes

1. See Anne Marlowe's monograph *David Galula: His Life and Intellectual Context* (Carlisle, PA: Strategic Studies Institute, 2010).

2. This argument is made clearly in the conclusion of James Corum and Wray Johnson's *Air Power and Small Wars Fighting Insurgents and Terrorists* (Lawrence, KS: University Press of Kansas, 2007), 423–39.

3. See Malcolm Postgate's *Operation Firedog: Air Support in the Malayan Emergency 1948–1960* (London: Stationary Office, 1992) for details on the entire air campaign.

4. See John Nagl's *Counterinsurgency Lessons from Malaya and Vietnam: learning to eat soup with a knife* (Westport, CT: Greenwood Publishing Group, Inc., 2002), 59–107.

5. See Byron Farwell's *Queen Victoria's Little Wars* (New York: Harper & Row, 1972).

6. See Charles Trench, *Frontier Scouts* (London: Jonathon Cape, 1985).

7. For British intelligence in India, see C. A. Bayly, *Empire and Information Intelligence Gathering and Social Communication in India 1780-1870* (Cambridge: Cambridge University Press, 1997).

8. See James Barr, *Setting the Desert on Fire: T. E. Lawrence and Britain's Secret War in Arabia 1916–1918* (New York, W. W. Norton & Co., Inc., 2009).

9. On the myths of air policing see Corum and Johnson, 51–66.

10. Ibid., 65–66.

11. On early infiltration of the MCP, see Richard Stubs, *Hearts and Minds in Guerilla Warfare: The Malayan Emergency 1948-1960* (Singapore: Oxford University Press, 2004), 55.

12. Ibid., 42.

13. Ibid., 59–60.

14. Nagl, 65–66.

15. Stubbs, 67–78.

16. Postgate, 60–62.

17. For details on bombing campaign, see Ibid., 58–59.

18. This is in some ways reminiscent of the current Provincial Reconstruction Team being used by coalition forces in Afghanistan or the SWET (Sewage, Water, Electricity, and Teaching) program that has been used by US forces in Iraq. For more details on the SWET program see FM 3-07 Stability Operations 2008.

19. On the creation of New Villages and economic problems, see Stubbs, 173–84.

20. See John Coates, *Suppressing Insurgency: An analysis of the Malayan Emergency, 1948-1954* (Boulder, CO: Westview Press, 1992), 157–59. For ISR problems of the RAF, see Postgate, 129–34.

21. For centralized use of air power by the RAF in Malaya and concerns for collateral damage, see William Dean's "Small Wars and the Future of Air Power: Lessons from the Past," *Penser les Ailes francaises,* no. 12 (January 2007), 91–102.

22. On the growing sophistication of British Information operations, see Stubbs, 123.

23. On shifting MRLA strategy, see Ibid., 152.

24. This became standard US policy in Vietnam in what became known as the Chieu Hoi or open arms program. Chieu Hoi was very successful and it turned 80,000 Viet Cong. Many of these men

came to serve as trackers for elite American units. For more detail, see Lewis Sorely, *A Better War: the Unexamined Victories and Final Tragedy of America's Last Years in Vietnam* (New York: Harvest Book Harcourt, Inc., 2007). Today, in Afghanistan, the US and its allies have had some success in suborning members of the Taliban.

25. On Arthur Young's police reforms, see Ibid., 160–61.

26. On New Villages, see Coates, 95–96 and 120–21.

27. Nagl, chapter 1.

28. Stubbs, 188.

29. On leaflet drops, see Wing Commander Bryan Hunt, "Air Power and Psychological Warfare Operations, Malaya 1948-1960," *Royal Air Force Air Power Review* 11, no.1 (spring 2008), 11.

30. On RAF FID with Malays, see Postgate, chapter 6.

31. On USAF help with air PSYOP campaign, see Hunt, 12.

32. In the Philippines in the early 1950s (at the same time as the Malayan Emergency), Colonel Edward Lansdale, USAF, was capturing, tape recording, and executing communist Huk insurgents. When the pro-Huk villagers found an insurgent body they would bury it near the village. A few days later, using the dead man's tape recording, Lansdale arranged for the dead man to speak from the grave. Soon the Filipino villagers switched sides. See Cecil Currey, *Edward Lansdale The Unquiet American* (Boston: Houghton Mifflin, 1989), 102. Americans and British found different uses for tape recorders for PSYOP in a counterinsurgency.

33. For Details on loud hailing, see Hunt, 12–13.

34. Ibid., 13.

35. Ibid., 13–14.

36. On the operations of the JOC, see Dean.

37. On crop spraying, see Postgate, 113–114.

38. On STOL aircraft and jungle forts, see Ibid., 91–94.

39. In most counter-insurgencies, sanctuary of the insurgents is a key strategic and operational issue. This could be seen with the FLN in Algeria using Tunisia and Morocco for sanctuary, the Viet Cong against the US using Cambodia and Laos, and today with the Taliban using Pakistan for sanctuary. The question of sanctuary only became a minor problem for the British allies at the end of the Emergency. Their campaign was effective partially because of the geography of Malaya.

40. On the impact of Malayan independence on the insurgents, see Nagl, 101–03.

41. These numbers are taken from Hunt, 15–16.

42. On the Mau Mau Rebellion, see Caroline Elkins*, Imperial Reckoning, The Untold Story of Britain's Gulag in Kenya* (New York, Henry Holt, 2005).

43. For French PSYOP in Algeria, see Paul and Marie-Catherine Villatoux *La Republique et son Armee face au Peril Subversif Guerre et Action Psychologique* (Paris: Les Indes Savantes, 2005).

44. The standard work on Operation PHOENIX is Mark Moyar, *Phoenix and the Birds of Prey* (Lincoln, NE: University of Nebreska Press, 2007).

45. To this date, there is no standard work on the US Air Force's contribution to the ongoing campaigns in Iraq or Afghanistan since 2003, while there are numerous works on Army and Marine operations.

William T. Dean III

William Dean is an associate professor of history at the Air Command and Staff College at Maxwell Air Force Base, Alabama. He is a graduate of the University of the South (Sewanee) and received his doctorate and master's degrees from the University of Chicago in European military and diplomatic history. He was a Chateaubriand recipient from the French government and has won the Military Officer of America Association (MOAA) award for civilian educator of the year, and the Major General John Alison Award for Air Force Special Operations. He has published on French colonial warfare, intelligence, and air power issues in Revue Historique des Armées*,* Penser les Ailes françaises, Defense Intelligence Review*, and several chapters in various books.*

Chapter 9

Non-Kinetic Air Power Against Insurgency: Lebanon, 1958

Michael Perry May

Following the Korean War, the United States (US) Ninth Air Force staff proposed a radical departure from the growing strategic focus of American air power. Ninth Air Force staff under General Edward "Ted" Timberlake proposed holding tactical air assets in reserve in the continental US, and then, at a time of crisis, sending specially packaged strike groups rapidly to the crisis area.[1] Although the strike group would possess great kinetic power, including the ability to deliver tactical nuclear weapons, tactical air command (TAC) commander General Otto "Opie" Weyland hoped that the mere arrival in theater of this composite air strike force (CASF), as they would come to be known, would be enough to prevent a small conflict from escalating to a Korean War-sized engagement.[2] Although many historians remember these CASFs for their global show-of-force tours and nuclear firepower, it was in their non-kinetic employment against a local insurgency in Lebanon in 1958 that they were most effective as a means of supporting national policy.[3]

Nevertheless, in this first rapid-response expeditionary deployment, poor planning, bad weather, mechanical failures, operational fatigue, and aircrew inexperience caused severe friction and sorely tested the new concept as a means of responding to international crises. Regardless, TAC staff believed that the Lebanon intervention proved their new expeditionary air power strategy "without a round of ammunition being fired or a bomb being released."[4] In reality, the joint expeditionary forces operating under the command of Army Major General Paul D. Adams developed and employed a successful strategy of tactical containment that prevented escalation among Lebanese insurgents, denied overt intervention by the Syrian army, and permitted an environment in which the Lebanese regular army could consolidate its power, provide local security, and defeat the insurgent forces. Adams' strategy emphasized strictly non-kinetic means of air and land power and a close air-ground partnership. Due, in part, to this "air containment" strategy, a favorable political outcome was achieved. The American intervention into Lebanon was a success.

Politics of Intervention

On July 14, 1958, Iraqi military officers overthrew the Hashemite monarchy and executed Iraqi King Faisal II and his uncle Regent Abd al-Ilah. Fearing the spread of a pan-Arabic or leftist revolution, President Dwight D. Eisenhower ordered a massive intervention into the neighboring state of Lebanon. Lebanese President Camille Chamoun requested the intervention under the terms of the Eisenhower Doctrine, which allowed for military support for existing governments in the Middle East in order to maintain independence from external attack or internal subversion.[5] Lebanon was on the cusp of civil war as terrorists, insurgents and rebels threatened to oust Chamoun, a pro-Western Christian, who feared assassination from his own palace guard. US joint intervention forces were given the following objectives: protect President Chamoun until his term of office expired later that summer; ensure a peaceful presidential election to find his replacement; and, by consequence, ensure the independence of Lebanon from leftist insurgents or Arab rebels. To do this, the joint force had to be strong enough to confront any contingency, but apply as little kinetic force as possible to achieve objectives, maintain tenuous relationships, and balance power in the Middle East.

The situation was complex. Lebanon had a politically and religiously diverse population of about 1.5 million. Over 50 per cent were Christian and fewer than 40 per cent were Shiite, Sunni or Druze Muslims. By May 9, 1958, open rebellion began. Arab insurgents supported by Syria and Egypt resented Western influence in the region. Opposition leaders accused Chamoun of ordering the assassination of a popular opposition strong man. The United Arab Republic supplied, trained and even fought alongside the insurgents, but the insurgents fought among themselves. Having loyalties divided by several strong men, including Kamal Jumblatt and Saeb Salaam, who led the leftist Druze and the Basta extremists, respectively, they never provided

a united front.[6] Meanwhile, the Phalange, a militia allied to the Chamoun regime, engaged the insurgents and terrorists frequently without official sanction.[7] The Lebanese regular army represented a cross-section of the entire population, and therefore, was less than trustworthy as a means of security and legitimacy. Chamoun was also less than trustworthy. Eisenhower questioned Chamoun's motives for requesting the intervention. Chamoun was a widely unpopular president who, the Eisenhower administration feared, might never step down from the presidency, as the Lebanese constitution demanded.

A favorable replacement for Chamoun, however, emerged in General Fuad Chehab. As commander-in-chief of the Lebanese army, Chehab worked to unify and legitimize his politically, ethnically, socially and religiously diverse army. Many of his younger officers had openly questioned the Chamoun regime and even threatened a coup d'etat.[8] His greatest concern, however, remained in the Shiite populated Bekaa where Shiites greatly outnumbered the Christians in the area. He feared that the Christians might pre-emptively attack the Shiites, or vice versa. Such a religious war would destroy his army and any hope for an independent republic with it.[9] Therefore, a primary yet unwritten objective for the US intervention forces was to ensure a viable and legitimate Lebanese regular army as means for providing safety and security for the people and the newly elected Lebanese government.

Chamoun, however, was not pleased by Chehab's handling of the insurgency. He demanded that Chehab use air strikes against Jumblatt's Druzes. Chehab refused and accused Chamoun of trying to use the military to eliminate his political enemies. Chehab strongly believed that the use of such overwhelming fire power could cost him the war. Fence-sitters would flock to the insurgency and his army would fracture, becoming wholly incapable of providing a viable defense. For Chehab, there was no military rationale for employing air power against the Druzes and doing so would actually have been counterproductive to Chamoun's aims. Up to that point, the insurgency had been an internal Lebanese affair with minor Syrian intervention and training support for the Druze rebels, but Chehab worried that the use of air power or other heavy-handed measures would give the Egyptian army a reason for overt military intervention. Chehab also did not find air power to be that effective in tactical-level counterinsurgency operations. Near the Syrian border, he sent the Lebanese air force to sweep the area and attack targets of opportunity. The insurgents, however, learned quickly to disperse into groups of twenty or less at the sight of the Lebanese air force, making it difficult for aircrews to locate and target them. The only time that the Lebanese air force had success interdicting insurgent movements was when Jumblatt Druzes left their urban hideouts and ventured into open country.[10] Although he viewed air operations as practically useless, of the situation on the ground, Chehab told the American ambassador that "I could not feel more happy [sic] over the military situation . . . if the American army were posted there."[11] Nevertheless, the American army was on its way.

Reality of Rapid Response

On July 14, 1958, the joint chiefs ordered CASF Bravo to Incirlik Air Base, Turkey, as part of the joint intervention force Eisenhower had ordered into Lebanon.[12] Brigadier General Henry "Vic" Viccellio, commander of the 19th Air Force and TAC's composite air strike forces, asked Colonel Francis "Gabby" Gabreski, commanding the 354th Tactical Fighter Wing at Myrtle Beach, South Carolina, to launch two squadrons within the next seven hours.[13] Gabreski was surprised. His wing had just been changed over from multi-role fighter operations to fighter-bomber operations only two weeks earlier. They had no experience flying over water and little experience with aerial refueling. One recent exercise revealed that Gabreski's airmen needed extensive training in formation flying and full-load refueling during both day and night—techniques they would most certainly require en route to Incirlik. Moreover, their fly-away kits necessary for the expeditionary mission had just arrived and had not been properly checked for deficiencies.[14] In short, the 354th Tactical Fighter Wing was the least prepared unit for overseas deployments, especially possible combat operations in support of the Army. Nevertheless, they were chosen for the intervention.

The first squadron of F-100 fighter-bombers took off within two hours of receiving the order.[15] They began running out of fuel along the Grand Banks, southeast of Newfoundland.

Three aging KB-50s of the 4505th Air Refueling Wing (anchored at the pre-determined refueling rendezvous point) had to abort due to bad weather. The remaining five KB-50s were not fully loaded with fuel since ongoing runway repairs at Langley Air Force Base, Virginia, prevented the tankers from taking off with full loads. Without sufficient fuel to continue their deployment, two F-100s had to land at Greenwood Air Base, Nova Scotia, while a third crashed due, most likely, to a confluence of lack of fuel, bad weather, flight fatigue and general inexperience.[16] Eventually this inexperience in night operations, insufficient numbers of tankers with insufficient fuel loads, bad weather, communications problems, mechanical malfunctions and flight fatigue at all three rendezvous points conspired against any hope of success in rapid deployment to the Middle East.

Things only got worse as the leading flight of CASF Bravo—the codename for the composite air strike force sent to Lebanon—ventured out over the Atlantic. En route to the Azores in the Atlantic Ocean, the F-100 crews became separated and lost. Five of the remaining nine aircraft had to land on Terceira Island due to navigational errors at night. Only four successfully refueled at the second rendezvous point near the Azores and a third rendezvous point over southern France. The four supersonic F-100s began arriving at Incirlik just two hours before the last airborne unit from Europe touched down, only twelve-and-a-half hours after leaving Myrtle Beach on the morning of July 16.[17] Although fatigued and reduced in number, the fighter pilots readied themselves to cover the arrival of the landing MATS [military air transport service] and United States Air Forces in Europe (USAFE) air transports and provide air support to the off-loading airborne battle groups.[18] Although Weyland and Viccellio's staffs were pleased by the twelve-and-a-half hour response time, both expected a much smoother deployment in the first operational test of the CASF concept. What they got was a fiasco.

Although the airlift operation ran much more smoothly than that of the strike force, it was not without its own problems. At dawn on July 16, 34 C-130s, 16 C-124s, and 22 C-119s of the 322nd Air Division began airlifting the 1st Airborne Battle Group, 187th Infantry (designated Force Alpha). The air transports moved the 1,755-man force from Fürstenfeldbruck, West Germany, to Incirlik in 27 hours (well under their planned 36-hour deployment time). However, because of Austrian neutrality, General Lauris Norstad, commander of all US Air Forces in Europe, had an important decision to make. During pre-intervention planning he told the joint chiefs that in case of an emergency in the Middle East, he would order the Air Force to break Austrian neutrality and overfly their sovereign air space in order to arrive as rapidly as possible at Incirlik. The time had come and, as the theater commander, the joint chiefs had told Norstad that the choice was his. He chose to divide the force. The slower C-119s and C-124s were sent over a long air route from Marseilles, France, to Naples, Italy, to Athens, Greece, to Incirlik. The faster C-130s—the bulk of his airborne force—were sent directly through Austrian air space to Incirlik. This was a risky move but underscored the tactical advantage he believed speed in deployment would give him. As expected, the Austrian government strongly protested. Instead of escalating the situation further, Norstad rethought his decision and ordered his C-130s to join the air route followed by the slower air transports. However, he was thrown another curve ball when on July 16, Greece—a member of NATO—denied the United States staging and overflight rights for the remainder of the intervention. This forced the air transports to take on more fuel at Naples in order fly around Athens to Incirlik, thereby reducing the cargo load they could carry and increasing the number of sorties needed to fulfill their airlift requirements. Problems with loading, unloading, and dispersal of aircraft at the departure airfields only multiplied the negative effects of these political complications to the rapid deployment and eventual sustainment of the airborne battle group.[19]

The second and third flights of F-100s from Myrtle Beach lifted off on July 16. Eight of the original nine F-100s made it to Incirlik after an unscheduled refueling stop at Wheelus Air Base near Tripoli because none of the required KB-50 tankers were at the pre-selected rendezvous point. Air operations at Wheelus were kept quiet and, if discovered, they were denied. The Libyan government wanted no part—real or suspected—in the US intervention. They feared that it was nothing more than an invitation for Soviet reprisals and subsequent general war.[20] The ninth F-100 from the second flight aborted shortly after take-off. The third flight was composed mostly of pilots that had aborted earlier. Four of those unfortunate pilots had to

make further unscheduled landings at Lajes Field, Terceira Island, in the Azores due to multiple canopy failures and oxygen shortages. The full complement of 26 F-100s did not arrive until July 20.[21] Although the four-day response time was more than twice what Weyland had hoped for, the unexpected delays and mishaps en route staggered the landing times and fortuitously alleviated some of the congestion at the air base. Notwithstanding, the friction encountered during the deployment took its toll on the pilots and crews of CASF Bravo.

Upon arrival, CASF Bravo's primary mission was to establish airhead security. Establishing airhead security was an essential component to the Air Force's new expeditionary strategy. The airhead was the logistical hub of the joint intervention forces. The air bridge was its lifeline—the air route from the point of embarkation to the airhead. In order to secure the airhead during assembly, CASF Bravo was authorized to "take immediate and aggressive protective measures against attacking forces, including, if necessary and feasible, hot pursuit of the attacking force into air space and waters adjacent to . . . operating areas."[22] Thus, it was crucial that the lead element of CASF Bravo arrive prior to the 322nd Air Division and Force Alpha.[23] Unfortunately, they were late. The Army criticized CASF Bravo for being late and leaving Force Alpha exposed to possible Syrian air or ground attack. To their credit, however, Navy F9F-6P Panthers and A4D-1 Skyhawks had established air superiority as a normal part of fleet defense, but also arrived 15 minutes too late to cover Marine Battalion Landing Team 2/2, which went ashore in full battle gear just south of the Beirut City Airport. Regardless, within three hours, the Marines secured the airport and opened the facility for international air traffic the next day.[24]

Problems with the deployment of the composite air strike force continued. RF-101s, RB-66s and WB-66s of the 363rd Tactical Reconnaissance Wing from Shaw Air Force Base, South Carolina, followed the F-100s to Incirlik to provide visual surveillance, optical or photographic imagery, and non-optical imagery, such as electronic and meteorological reconnaissance.[25] Visual aerial surveillance and electronic and communications intelligence (ELINT) supplemented ground-based human intelligence in identifying targets. In Lebanon, all forms of intelligence were necessary, as insurgents supported by the local populace wore no identifying uniforms or insignias, and had infiltrated the regular army. Reconnaissance was also necessary in sufficiently monitoring enemy force movements and possible intentions. Weather data, especially wind current data, had to be catalogued for easy reference in the event that the employment of tactical nuclear weapons went beyond the theoretical planning stages and a decision needed to be made.[26] In the deployment, however, one RB-66 crashed 325 miles southeast of the Azores and five of the 12 RF-101s suffered mechanical failure and returned home.[27]

In addition to mechanical failure, other CASF units arrived slowly and with less than adequate supplies for initial operations. By noon on July 18, all 12 B-57Bs of the 498th Bomb Squadron (345th Bombardment Wing) from Langley Air Force Base, Virginia, arrived at Incirlik. The B-57 crews also experienced problems during the deployment. Mechanical and communications malfunctions forced eight of twelve bombers to divert to Ernest Harmon Air Base, Newfoundland, to have their equipment checked.[28] Their slow response time of over 40 hours underscored General Weyland's desire to replace all of his B-57s with supersonic F-105 fighter-bombers, which had an internal bomb bay and thus were optimal for bombing front-line forces as well as enemy command and control infrastructure.[29]

Fifty-three C-130s of the 463rd and 314th Troop Carrier Wings airlifted the CASF command and control facilities, including enough food, fuel and ordnance to last thirty days. This CASF airlift included 860 passengers, including General Viccellio, and 293 tons of cargo. Nevertheless, the C-130s left Pope Air Force Base, North Carolina, and Stewart Air Force Base, New York, without important equipment.[30] One air commander noted that the pre-packaged fly-away kits, which General Weyland touted as being essential to the rapid-response capabilities of the composite air strike forces, were not pre-packaged and amounted to little more than 5,000 pounds of useless materials. Some of those materials, including tents, folding tables, chairs, typewriters and office supplies, proved valuable for Army ground troops who had some of their supplies pilfered by the Navy during sealift.[31]

CASF Bravo finally assembled by July 20—nowhere near the envisioned 48-hour response time. The unit included 26 F-100s, 12 B-57s, 7 RF-101s, 7 RB-66s, 3 WB-66s and 53 C-130s. General Norstad added 9 F-86Ds from the 512th Fighter-Interceptor Squadron, 86th Fighter-Interceptor Wing, based at Ramstein Air Base, West Germany, to provide an all-weather capability for air base defense to the forces deployed at Incirlik. In addition to the issue of air base defense, less than a week after President Eisenhower's decision to intervene, Incirlik had become completely overcrowded with 165 aircraft of all types. Air base commander Colonel Peter J. Markham had an enormous problem. Overcrowded air bases hindered operational flexibility and were highly vulnerable to sabotage or surprise attack. The 165 aircraft, over seven million pounds of supplies, and hundreds of combat and support personnel would have made a good target for a Soviet tactical nuclear weapon had the Soviets chosen to intervene.[32]

From a logistical point of view, the saturated staging base at Incirlik was unacceptable. "Under combat conditions," General Norstad, the US theater commander in Europe, reported after the crisis in December 1958, "the situation would have been untenable."[33] Norstad noted that, in the future, USAFE would need an additional staging base. He wanted a base with adequate port and ground transportation facilities to alleviate the demand for an "all-airlift operation," despite a growing sentiment in joint and Air Force circles to provide all-airlift operations with increasing frequency around the world. Norstad was skeptical of placing too much faith in the emerging expeditionary air power strategy. Supplying fielded forces engaged in combat solely through an air bridge and air head was "an inadequate solution to the staging base problem." Meanwhile, Norstad did not believe that a build-up of more than 30 days of supplies ashore was feasible. Long-term supplies needed to be maintained at sea and backed up by the ability to resupply by air in case of emergency.[34]

General Thomas "Tommy" White, the Air Force Chief, saw the idea of pre-stocking around the world as the wrong lesson to draw from the deployment phase of the operation. It would only lead to greater rigidity of the expeditionary capability of US forces. White believed that pre-stocking supplies all over the world sucked flexibility away from the President in being able to answer any possible crisis with military force.[35] White had a point. The military had only so many supplies in stock. Holding those supplies within the continental United States allowed the President the ability to contest any contingency by pulling the needed material from the continental United States and concentrating it at the necessary point. However, this contradicted the traditional Army view of expeditionary operations. Traditionally, the Army favored pre-stocked forward outposts they could draw on in times of need. Air power brought the ability to pull supplies from their ports of origin and rapidly concentrate those supplies anywhere the Army required. This ability was a huge force multiplier to the sustainability of an expeditionary ground force. But this was one of the main differences between the Army's emerging expeditionary mindset and that of the Air Force. The Army preferred stocks and supplies to be prepositioned for their use rather than depend upon the capability of the Air Force to get them where they were needed. For one reason or another, if the Air Force could not deliver at the necessary time—because of lack of airlift assets or contested air space—the Army's ground force was out of luck. Admiral Arliegh S. Burke, the chief of naval operations, sided with Army Chief Maxwell Taylor in this post-intervention debate. Burke did not understand why the Air Force wanted to replicate the long air bridge and massive air cargo requirements of the Lebanon intervention in the future. Burke thought that reducing such logistical lines for emergency situations short of general war was only prudent. [36] It also ensured the Navy's preeminence in stocking and supplying US fighting forces in future expeditionary operations.

As the intervention continued to build in number of forces, supplies, and time on station, the overcrowded air base strained relations with the host nation. The Turkish government had agreed to allow airlift support to forces bound for Lebanon and approximately 75 combat aircraft to use the Incirlik Air Base. For the deployment this was just fine. Even the overcrowded nature of the air base seemed not to overly concern the host nation. By August, however, excess supplies continued to arrive with no ending in sight. Over 4,000 tons [3,600 metric tonnes] of ammunition and 4,400 tons [3,990 metric tonnes] of petroleum, oil and lubricants had to be diverted from the Beirut International Airport to Incirlik. Excess clothing, equipment and

engineering supplies needed to be stored in the nearby cities of Adana and Iskenderun.[37] The main problem came to this: without a shot being fired or an enemy engaged there was no wastage of materiel normally planned into an operation—just the costs of shipping, storing and reshipping.

Although the rapid deployment was anything but rapid, it still appeared to take Syria by enough surprise to prevent the Syrian government from ordering its air force to intervene on behalf of the Druze rebels, which had been a real threat in the minds of the operation's planners. Furthermore, the overwhelming intervention force of more than 14,000 Americans caused the insurgents, and, ironically enough, the Lebanese national army, to think twice about resisting the American landings. Once the Marines were ashore, the airborne troops deployed, and the Air Force overhead, the difficult task remained of creating a viable plan of action. The plan decided upon was one of tactical containment by closely coordinated air-ground forces.

Air Containment

Once deployed, CASF Bravo had to coordinate operations and missions with the Army ground forces. Support missions included psychological warfare operations, show-of-force flights, air base defense patrols, air cover missions, battlefield surveillance flights, airlift operations, and air superiority alerts. Although preplanned air-ground coordination did not exist, coordination increased incrementally but consistently throughout the intervention. Admiral James L. Holloway, the specified commander for the theater of operations, selected Army Major General Paul D. Adams as the commander in chief of the US land forces. Without sufficient guidance, Adams took the initiative. He sat down at his desk and wrote out specific military objectives for the intervention, which would be approved by Admiral Holloway. He needed to secure the US embassy in Beirut, Chamoun's presidential palace, and the small, makeshift Army base at the Beirut International Airport. He needed to secure the capital city as a whole—the center of Lebanese political, social and economic life—from internal or external attack. He needed to train the 10,000-man Lebanese army and maintain a constant state of visible readiness among his own military forces. Next, he needed to set up strong points that protected and kept open all the principal transportation routes in the city, to the airport and to the seaport. His troops would patrol the routes with convoys and air reconnaissance flights. F-100 and B-57 crews from CASF Bravo would cover the convoys and air reconnaissance patrols. Although his patrols and show of force movements would be strong, Adams' directive to his troops was simple: "We were not there to kill anybody."[38] Therefore, close coordination with his Air Force counterparts was essential for his joint operations. Brigadier General David W. Gray, commanding Force Alpha, coordinated all his airlift requirements but never discussed close air support or battlefield interdiction with Air Force counterparts.[39] Fortunately, however, Adams bunked in the same room with Viccellio, the CASF commander, which greatly streamlined air-ground coordination.

Beyond simply talking with one another, Army ground forces needed to know that they could depend upon support and reconnaissance missions when they needed them. Although the entire strike force, including the airlifted command elements, was finally in place at Incirlik by July 20, the slow response hindered initial Army ground force actions. Since the RF-101s had been delayed, naval F8U-1 Crusader reconnaissance missions provided General Gray with his initial understanding of the Levant. Gray noted that the tactical airlift of his task force was an especially smooth and well-coordinated operation. He praised the efforts of Air Force Colonel George McCafferty, who commanded the Combat Airlift Support Unit (CALSU) in Beirut and coordinated all military airlift requirements between the Beirut International Airport and the airhead at Incirlik. Airhead operations and the redeployment of forces and supplies throughout the theater provided tactical mobility and enhanced the coercive influence of the expeditionary air forces through the demonstration of capabilities other than kinetic fires. Nevertheless, Switzerland, Austria and Greece each refused to allow overflight rights, which greatly complicated the airlift operation. Despite these complications, by July 27, airlift moved 7,912,371 pounds [3,500 metric tonnes] of all types of cargo. In a parallel coalition effort, C-124s and C-130s shuttled fuel and supplies to British expeditionary forces in Jordan.[40]

In Lebanon, the US intervention forces were neither informed about the five different warring factions, their culture, politics, or religion, nor did they think themselves hindered by the general lack of knowledge, at the tactical level, of the insurgent and terrorist ideals. Even the Marines, which prided themselves on knowing how to operate in such an expeditionary environment, made severe diplomatic blunders at the tactical level. After the Marines secured the airport, they told the members of the diverse but loyal Lebanese army "to pack up and go home," inferring that the conflict was an American fight now. General Chehab was outraged. He had worked for months trying to build his national army into a fighting force and, more importantly, a force for national stability, pride, and unity. Under prior agreement, his army was the one that would be engaging the insurgents and terrorists on a regular basis, not the Americans. The thoughtless remark almost crushed months of diplomacy between the American embassy and Chehab. The American embassy understood that misinterpretation of the US presence in Lebanon could lead to the failure of the intervention and the eventual overthrow of national independence.[41]

Chehab had never been in favor of the US landings. He believed that US intervention would only give control of the government to Salaam's Basta Muslims at best or Jumblatt's Syrian Druzes at worst—the population would flock to their colors and blame the current government for the US occupation. Only through agreement on very stringent rules of engagement did Chehab agree to the American presence.[42] Although Adams became a close friend of Chehab and understood his point of view, he did not hamstring his forces. Adams clarified that if the US forces were fired upon, they were to return fire at the source of the attack with the next larger weapon. For instance, if an insurgent used a machine gun, Force Alpha would retaliate with artillery. If the insurgents used artillery against US forces, Force Alpha would call in an air strike.[43] It was slightly disproportional, but highly coercive. Although he embraced operational restraint, he had no desire to fight with his arm behind his back at the tactical level; doing so only invited disaster. US commanders immediately understood that a top priority in Lebanon necessitated informing the Lebanese people, and to a greater extent, the Lebanese army why they were there and what they would be doing. The crisis also revealed that everything the US intervention forces did or did not do had a positive or negative impact on the Lebanese people. Leaflet drops and radio broadcasts were necessary to combat the lies that the insurgents were spreading, but they could not substitute for good behavior amongst the troops. On July 21, CASF Bravo began psychological warfare operations with the purpose of informing the Lebanese people about the US presence. F-100s escorted two C-130s that dropped over one million leaflets explaining the US military presence in Lebanon. This added to naval flyovers, other leaflet drops, and air reconnaissance already underway.

Low-level reconnaissance missions formed the bulk of Air Force sorties. Adams used RB-66s and high-speed RF-101s to monitor Kleiat airfield in the Bekaa Valley. He received a report that two Syrian army companies had seized the route to the airfield—a report that, if true, would drastically escalate the crisis. Aerial reconnaissance reported, however, that only Lebanese soldiers patrolled the Bekaa. More importantly, Adams used aerial photographs to reveal sand barricades, ditches, barbed wire, and at least 10 machine gun emplacements in the Muslim extremist Basta region of Beirut.[44] Through this battlefield awareness provided by CASF Bravo, Adams was able to better manage the fluid situation on the ground.

On July 24, the 322nd Air Division landed Troop Charlie of the Ninth Cavalry Task Force Reconnaissance Unit in Beirut. As Lebanese insurgents prepared to repel the landings, soldiers loyal to Chamoun opened fire in support of the US troops. In just a week, the Lebanese army had gone from almost resisting the US landings themselves to supporting US operations against their own countrymen. Chehab had remarked with a sense of pride that his army was so well trained and disciplined that his Muslim soldiers had no compunction in firing upon Muslim insurgents. It was a sign of increasing solidarity and legitimacy and a harbinger of hope that the intervention might work after all. F-100s and B-57s of CASF Bravo combined with Navy fighters from the nearby carriers flew cover for the US landings and the embattled Lebanese army by flying show-of-force and surveillance sorties.[45]

Even though the crews of the 354th Tactical Fighter Wing (TFW) gained experience in deployment, they still had limited training in long-distance flights, aerial refueling operations, and, most importantly, conventional ground assault tactics. Prior to the intervention, pilots had received familiarization training for conventional weapons, but none was qualified to deliver high explosives.[46] None practiced dive or dive-toss bombing techniques traditionally used to pinpoint bombing in close air support operations. Even the B-57 crews of the 498th Bomb Squadron lacked the required training to deliver conventional, general-purpose bombs, such as white phosphorus, napalm, or high explosive munitions, despite its designation as a tactical bomber unit. Their ineptitude stunned the TAC staff. CASF Bravo, whose fire support was absolutely essential for the airborne battle groups, would have been overwhelmed had the intervention escalated to a theater-sized conflict.[47] Their lack of training was explainable, though not excusable. Weyland chose to train his units for tactical nuclear warfare at the expense of normal conventional operations for several reasons. Almost all conventional bombs in the Air Force stockpile had been expended in the Korean War. Some conventional "iron bombs" from World War II remained, but they were delayed-fuse bombs with very old fuses. Weyland remembered, "You never knew when they were going off, if they went off. Many of them just didn't go off."[48] In addition, high turnover among maintenance crews in TAC reduced the number of training hours available for fighter-bomber pilots. General Weyland explained that an average fighter-bomber pilot needed at least 25 hours per month in flight training to maintain basic proficiency levels. Fighter and bomber pilots needed to perform deep interdiction strikes against Soviet targets with low-yield nuclear weapons, defend the skies over the continental United States from a Soviet air attack, and provide coordinated, iron bomb air support for friendly ground forces in limited wars. All demanded great proficiency and skill. Lack of skilled maintenance personnel precluded adequate flight time and resulted in drops in flight proficiency. With fewer hours to train for various scenarios, tactical fighter forces trained mostly for those scenarios that posed the greatest threat to national security—nuclear warfare—instead of those which were most likely—contingency operations.[49]

Although inexperienced in conventional warfighting tactics, forward air controllers coordinated practice iron bomb air strikes and close air support missions with the Army task force. F-100s flew 874 combat sorties including air patrols, scrambles and training missions. The F-86s flew over 500 air defense sorties. Despite the large number of sorties, General Viccellio pointed out that an inability to utilize an existing Turkish air defense system because of differences in language, needlessly complicated operations for the defense of the air base.[50] F-100 and B-57 crews flew many air cover missions that were really show-of-force flights.[51] By October, the Phalangist party went on strike. CASF Bravo sought to contain possible violence through increased show-of-force flights. To this end, F-101, B-57, and F-100 crews practiced air strikes against ground targets using 20-mm cannons, 2.75-mm rockets, and napalm. Sonic booms, precision formation flying and low-level, high-speed photo reconnaissance contributed to the display. The Army's concurrent training operations in mountain and urban combat, weapons familiarization, airborne assault, and coalition operations with the Lebanese army added to the deterrent power of the joint force and further trained the Lebanese army.[52] Marine tanks patrolled neighborhoods, ironically inviting both protest and security.

These types of air cover missions were important because they helped deter Syrian intervention. A Syrian armored battle group remained poised to intervene just to the east of Lebanon throughout the duration of the intervention. General Adams recognized that the Syrian army was just "one big dash" from Beirut. He placed Brigadier General Sydney Wade and the Marines across from the Syrians as a blocking force supported by Fleet and CASF Bravo air power. The insurgents also found resisting airpower maneuvers difficult. They did, however, regularly fire machine guns and rifles at the slow-moving RB-66s surveying Beirut and the Lebanese countryside. Battlefield air reconnaissance missions were often the most deadly. On September 2, an unarmed, specially-equipped EC-130 left Incirlik to intercept Soviet radio traffic about 85 miles (136 kms) from the Soviet Armenia border. The pilot had become disoriented in bad weather and low visibility. His radio compass had locked onto a powerful radio signal in Yerevan, Soviet Armenia. Thinking it was a signal in Turkey, he crossed the border. Three Soviet MiG-17 fighter-interceptors immediately scrambled and shot down

the plane. The airplane had a crew of 17. Six of the crews' remains were ultimately returned. The 11 others remained missing; the Russians never confirmed their whereabouts either. This EC-130 crew complemented the U-2s of Detachment B based in Turkey, which had been tasked with providing specific information concerning Soviet military movements in the area in order to detect any Soviet intention to intervene. The administration tasked the U-2s during the Lebanon intervention with detecting any foreign intervention before it happened and relaying that message immediately to US forces at Incirlik and Beirut.[53]

To some degree, normal flight operations around Lebanon were fraught with dangers—dangers that could have been avoided. Although this was a joint intervention, no doctrine for the coordination of air flights had been developed. The Air Force had no air traffic control capability outside of the immediate area around Incirlik. Air Force and Navy strike planes used different radio frequencies, further complicating the air traffic control problem. They could not agree upon the "panel codes" needed by the ground forces to mark their positions in order to prevent attack from friendly air power. Neither had they agreed on how to coordinate joint fire support—when airstrikes would be called upon, when naval gun or Army artillery fires would be called upon, or, even more importantly, how to coordinate the two at the same time. In other words, the joint intervention forces were fortunate that the operation remained a non-kinetic affair.

By the time CASF Bravo did leave Incirlik Air Base on October 19, 1958, the unit had become more experienced in conventional warfighting, including interdiction and close air support, than any other similar unit in TAC. As a by-product of the ongoing training for conventional close air support operations in Lebanon, TAC's posture for conventional ground support operations also improved once CASF Bravo returned to the continental United States, having learned through experience. Also, General Thomas White realized that future limited wars necessitated more effective air-ground teamwork at the outset of an operation than had been demonstrated in Lebanon.[54] General Viccellio added that not only did the Army and the Air Force need to further develop close air support doctrine and inter-service procedures, but also "at least in the sphere of limited war . . . the Navy and the Marine Corps must be included in future development of such joint agreements," in order to better coordinate all joint fires on the expeditionary battlefield. [55] However, the Navy would prove reluctant to formally combine with the Army or Air Force in a joint organization for limited war when one finally was created in 1961.[56]

Although General Weyland agreed with General White about the need for greater air-ground teamwork, his TAC staff believed that CASF Bravo demonstrated a powerful coercive, if non-kinetic, force. They believed that their presence and constant air flights over Beirut demonstrated both the political resolve of the US government and the military capability to thwart any coup attempt.[57] The outcome was definitely favorable in that the Lebanese government held peaceful elections. To what degree CASF Bravo compelled the Lebanese insurgents or the Syrian army to alter their previously planned courses of action was impossible to know. Weyland argued that operations where the situation demanded restraint in the use of force, or operations where only enough force would be applied to achieve a predetermined effect, were desirable but practically impossible to foresee. Knowing how an enemy actually altered their previous plans because of an act of coercion necessitated a level of intelligence as to enemy intentions that was difficult to know with any degree of certainty—such was the case in Lebanon. Air Force analysts lauding the praise of CASF Bravo never asked what CASF Bravo would do had a coup d'état actually taken place. It appeared reasonable, however, that Air Force operations would not have changed one bit. CASF Bravo would still, primarily be there to contain the insurgency, isolate the battle space, and deter any external threat from intervening and taking advantage of the internal situation. The internal situation would have to be handled by Chehab and his army, while the US ground forces contained but did not engage the insurgency themselves.

Conclusion

Certainly part of the success of the Lebanon intervention lay in the fact that General Chehab won the presidential election in August 1958. Two months before the intervention, Chehab told his US Army counterparts that his indigenous national army was small but loyal and well-disciplined. Chehab did not doubt that his army could defeat the insurgents in sustained conflict. However, he believed that his army's religious diversity made it too brittle for sustained operations against insurgents with strong religious motives. Chehab initially proposed to contain the insurgency and let it run out of fuel. This idea governed the US strategy in Lebanon developed by General Adams—do not engage the insurgency and add fuel to the fire, but contain it until a peaceful electoral process can elect a compromise successor who can build bridges of unity and understanding instead of burning them. As commander of the national army, Chehab did this.[58] The Lebanese army passively observed bloody rebel raids. Even when its own outposts were the targets of attack, Chehab made little effort to retaliate "or stamp out the source of rebel forays."[59]

Without US assistance, Lebanon could have fallen prey to many disparate fates. None of which were favorable to US national interests in the region. US national interests in Lebanon, which included the preservation of a pro-Western government and the denial of a pro-Soviet or pro-Nasser government in the oil-rich Middle East, were vital. The intervention revealed the importance of joint operations. President Eisenhower later wrote that the "Lebanon operation demonstrated the will of the United States to react swiftly with conventional armed forces to meet small-scale, or 'brush fire' situations." However, he recognized that such joint force deployments and their accompanying conventional operations were extremely costly. He also recognized air mobility would be essential in future deployments, as not all regions of crisis would have nearby beaches for offshore logistical operations.[60] In essence, President Eisenhower confirmed the need for an air-mobile fighting force capable of massive and measured striking power. Likewise, the Joint Chiefs of Staff and many command officers in all the services used experience gained in Lebanon to improve US capabilities for limited military operations.

Thus, the military forces deployed to Lebanon achieved their objectives in protecting Chamoun, demonstrating the will of the US government and ensuring a peaceful government transition from the Chamoun to Chehab regimes. However, commanders were dissatisfied with their performance. Indeed, they should have been. It was true that frictional forces, the fog of war, or unexpected circumstances would always be a part of military operations, but even the things that the military forces deployed to the region could control, they did not. Planning had been poorly coordinated between all the joint forces. Several commanders placed in charge of the operations did not have knowledge of the operational plans. Air war training exercises prepared strike force crews for the wrong war. In case actual fighting broke out, CASF Bravo was ill prepared for conventional close air support operations. Fortunately, all the joint intervention forces needed to do was to contain the insurgency at the operational and tactical levels of war.

Air power played a major role in this strategy of containment. This "air containment" strategy revealed that air power was especially valuable in counterinsurgency operations when employed holistically, and in measured and discriminating ways. In Lebanon, CASF Bravo and the 322nd Air Division were more than force multipliers; they were necessary components of the joint expeditionary force. They employed an array of non-kinetic functions against the insurgent forces including show-of-force flights, air surveillance, high-speed reconnaissance, air patrol, air demonstrations, psychological operations, and air mobility operations. They provided essential joint systems for expeditionary operations, including air traffic control, tactical air control, forward air control, aerial refueling, sustained airlift, airhead defense, electronics and communications reconnaissance, visual surveillance, and air-ground network. Although not without mishap or blunder, these essential elements of air power, holistically employed, ultimately contained the insurgency, and working in concert with the Army airborne forces, left a pattern to follow in future counterinsurgency operations.

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Michael Perry May

Dr. Michael P. May is an associate professor of comparative military studies at the US Air Force's Air Command and Staff College at Air University, Maxwell Air Force Base, Alabama. Dr. May received his doctorate degree from Kansas State University in 2005 with an emphasis on air power history and air warfare. He has since presented papers and published research on an array of air power topics. He is currently completing a book on the development of a US Air Force strategy for limited wars and small-scale contingencies entitled Expeditionary Air Warfare.

Chapter 10

Coercion Through Air Power For Political Effects

James R. McKay

While it has not been a phenomenon unique to the 20th and 21st centuries, coercion has been a fashionable thing to study or consider at two times in recent history. The timing of the phenomenon coming into vogue reveals a great deal about it as well as the eras in question. After the Cuban Missile Crisis of 1962, theories like Mutually Assured Destruction suggested that gambling in a nuclear-armed bipolar world was dangerous at best and sheer insanity at worst. Limitations on conflict were useful, but a belief in the self-restraint of one's adversaries was naïve. There seemed to be a need to show that some political utility was possible with limited uses of force so long as they did not escalate into full-scale superpower conflict. Furthermore, the 1960s saw the triumph of managerial mystique and rational thought. With such lines of logic, the notion derived from the proverb "an ounce of prevention is worth a pound of cure" met with the idea that conflict was fundamentally a social activity where two or more polities interacted. Even the uses of force were an exercise in communications or bargaining.[1] The popularity of such thinking waned shortly thereafter except for those studying the more violent ends of international relations. It would remain so until the post-cold war era.

To be clear, any armed service can act as the proverbial tool of coercion and it need not be air power. The term "gunboat diplomacy" was once synonymous with coercion.[2] The results of the 1991 Gulf War vindicated the community of air power advocates that had existed since Giulio Douhet—air power could win wars after all if organized and equipped properly. The troubles that followed in the wake of the collapse of the Soviet Union, such as the disintegration of the former Yugoslavia, the anarchy and starvation in Somalia, and the Iraqi government's refusal to cooperate with the international community, suggested that there may be limits to this newfound belief in air power's war-winning ability. It seemed to be the case that air power could be decisive under suitable conditions. Contemporary political conditions favour the use of air power. Air power, as memorably observed by Eliot Cohen, was ". . . an unusually seductive form of military strength, in part because, like modern courtship, it appears to offer gratification without commitment."[3] Its advocates promised results from a seemingly controllable use of force without significant risks of casualties on both sides. Coercion involving air power also addressed the need to be seen to be "doing something" without committing the state completely to the matter. The risks of casualties seemed to be lower than the alternatives of larger scale uses of force, and precision-guided munitions offered the promise of surgical applications.[4] Coercion became popular again because it offered a means to deal with those complicated problems that appeared to warrant the use of force to resolve but political conditions constrained the ability to engage in larger scale uses of force. It allowed political leaders to do something to deal with particular crises within the realm of the possible.

In current practice, coercion using air power remains a modified version of strategic bombing theory. The latter holds that in war, direct attacks against the enemy's homeland will lead to the collapse of the enemy's economy (thus weakening their ability to sustain their armed forces) and/or popular will to fight.[5] While the historical evidence does not necessarily support the argument about popular will, and the destruction of an economy is no longer considered a mere matter of servicing a series of target sets or economic nodes, strategic bombing theory represents the intellectual foundation of coercion. Instead of seeking to conduct bombing campaigns with the expressed goal of breaking a country's will or ability to fight in war, a country seeking to coerce another can threaten or impose costs through discrete uses of force to obtain concessions prior to having to resort to war. This is another manifestation of the proverbial "ounce of prevention." It represents a potentially kinetic means of getting the desired non-kinetic political effects.

This paper will explore the phenomenon of coercion through the use of air power. It will first clarify its definition and relationship to other phenomena. It will summarize the major works and contributions to its study. It will then examine a process model. Last, the paper will discuss future avenues of research.

Definition

Coercion is a politico-military and psychological phenomenon. It can be defined, albeit loosely, as the employment of threats of and/or the use of force by one or more states (henceforth known as the "coercer") in order to obtain particular forms of behaviour from an adversary (henceforth also known as the target state).[6] The phrase "particular forms of behaviour" refers to one or more concessions that could be offered by the target of coercion in response to the threat or discrete use of force. For example, the post-1991 Gulf War coalition often threatened and used force against Saddam Hussein's Iraq to allow the United Nations Special Commission (UNSCOM) to conduct overflights or inspections of suspected Iraqi weapons of mass destruction (WMD) facilities. The Iraqi government often offered concessions such as allowing the overflights or inspections with specific conditions. The coalition's response was often to restate its demands and use force in response, which often obtained the desired concession of allowing the inspections or overflights to continue without limitations. The terms used are the point at which consensus on the concept ends. Even if one accepts the aforementioned definition, this does not mean one will accept the system of classification and theories of how the phenomenon actually works.

The lack of consensus stems from the co-existence of different systems of classification using the same terminology. Some systems base the classification on different types of coercion and others try to situate it within types of uses of force. Some, such as Group Captain Andrew Lambert of the Royal Air Force (RAF), try to classify the phenomenon on whether it is threat-based or force-based. He argued that coercion was primarily threat-based and the intent was to persuade; whereas, the use of force was an attempt to deny the opponent the ability to succeed.[7] Michael Clarke avoided this taxonomy, using instead a division of the use of force along functional lines. The use of force for denial meant an attempt to constrain or destroy the adversary; whereas, the use of force for coercion represented attempts to threaten, hurt, or punish the adversary.[8] The intent of the use of force was what mattered to Clarke as opposed to a distinction between the two. The most commonly used system, however, tried to classify the phenomenon as either attempting to get an adversary not to do something they otherwise might do (deterrence), or to do something they otherwise might not do ("compellence").

Deterrence is a subset of coercion where the intent of threats is to prevent any attempt by the adversary to change the status quo.[9] To prevent further unwanted acts, the coercer must demonstrate the will and capability to reverse an action or punish the adversary. This is normally done over a longer period. This creates some taxonomical difficulties, as the study of deterrence requires a complete understanding of the adversary's intent. It is possible to apply a strategy of deterrence and still not have a deterrence situation. The two are very different, albeit related things, as Richard Ned Lebow noted:

> . . . it is important to distinguish between the theory of deterrence and the strategy of deterrence. The former pertains to the logical postulates of deterrence and the assumptions on which they are based…. Deterrence strategy is concerned with applying the theory of deterrence….[10]

While it is possible to describe the application of a deterrence strategy, the existence of a deterrence situation is improvable without conclusive evidence that the adversary sought to alter the status quo.[11] This poses significant challenges for academics engaged in its study.

Compellence is a much easier phenomenon to study from an academic perspective. It is a subset of coercion where threats and/or uses of force should convince the adversary to alter the status quo.[12] Compellence relies on the use of ultimatums, and the time frames are much shorter than with deterrence. Methodologically, one can prove its existence, unlike deterrence. Robert Pape argued in his book *Bombing to Win* that coercion was fundamentally distinct from deterrence as the latter sought to maintain the status quo, and posited that coercion (i.e., compellence) was therefore a harder task to achieve.[13] This stems from the fact that all of Pape's cases came from wars. Deterrence, belying its cold war origins, is largely a peacetime phenomenon devoted to preventing adversaries from undertaking acts of war that might have

led to nuclear Armageddon. Compellence also differs in that its users may be willing to escalate to outbid their adversary.

Coercion is about forcing an adversary to make a choice between the costs of compliance and paying a cost through threats and/or uses of force. For the purposes of discussion about the target of coercion's perceptions, the terms "pain" and "cost" are interchangeable. Coercion relies on the induction of specific perceptions in the target decision-makers' mind from a physical and psychological distance through a combination of actions and communications—there is a significant cost to be paid for failing to comply with the coercer's demands, and there are benefits to compliance, such as the absence of pain.[14] Threat-based coercion uses threats to induce a perceived cost for non-compliance. Force-based coercion uses violence to impose a real cost.

What makes coercion different from war? Both war and coercion include threats and/or the use of force in order to alter an adversary's decision calculus. Coercion is an application or threat of force for distinct political purposes based on altering the adversary's choice in accordance with the national will. War is an application of force in order to impose the national will, therefore denying the adversary any choice in the matter.[15] Choice (or the lack thereof) is the determinant of coercion or control, and control is inevitably a form of war.

This begs the question of whether coercion can occur in war. There are two major positions on this matter. Pape believes that it can as actions may cause an adversary to alter their behaviour. Sir Lawrence Freedman argues that choice is crucial for strategic coercion; which leaves the potential for coercion to occur in war.[16] This also allows for methodological distinctions as the coding of cases becomes much easier. This is a difficult issue to resolve. On the one hand, attempts at coercion in war would force an enemy to do something to react to the attacks, thus forcing them to divert resources and effort to avoid accepting the costs associated with the attacks. The German reaction to the Combined Bomber Offensive provides the best example where resources committed to the air defence of Germany could not necessarily be committed elsewhere.[17] On the other hand, the target of coercion in war faces a choice between paying one cost or the other cost, and the issue of concessions is simply not relevant. If the logic of coercion holds that concessions are the means of success, then choice matters. This is not to say that coercion cannot occur in war, but the alteration of the adversary's choice is often secondary to the achievement of military objectives.[18] To be clear, the alteration of the adversary's choice refers to the decision by the target decision-makers to offer concessions to the coercer or continue to endure the pain.

Schools Of Thought

As a psychological concept, coercion is difficult to depict or quantify. This poses a challenge for those studying coercion. There have been two different approaches to this problem. Pape offered one approach and Michael Clarke a second.

Pape employed a mathematical approach to describing how coercion works in *Bombing to Win*. Using cases from wars where air power conducted strategic bombing, he conceptualized the adversary's choice in an equation:

R=Bp(B)-Cp(C)

R: the degree of resistance, B: the benefits, p(B): the probability of obtaining the benefits, C: the costs and p(C): the probability of the costs

Success occurs when $R<0$.[19]

From this, he postulated that there were four basic strategies:

punishment - elimination of will to fight by targeting of civilians

-The increase of **C** by the coercer;

risk - weakened form of punishment, where it starts small and escalates

-The increase of **p(C)** by the coercer;

denial - attacks intended to deny the enemy the ability to enact their strategy

-The reduction or elimination of **p(B)** by the coercer; and

decapitation - elimination of will to fight by targeting the enemy leadership

-The increase of **C** and reduction or elimination of **p(B)**.[20]

There are three ways of determining failure with this model. If the coercer stops before the target offers concessions, then the attempt has failed. If the coercer continues without concessions, then the attempt has failed. Failure also occurs if the total defeat of the target becomes necessary.[21] The last determinant offers a practical limit for force-based coercion. This involves all uses of violence intended to alter the adversary's decision calculus short of war.

This construct is a useful means of conveying coercion as the coercer's manipulation of abstract variables. It is less helpful in dealing with particular human factors. Adversaries, regardless of political structure, tend to seek to maintain their own domestic credibility. One's credibility may rely on strength, power, wisdom, or courage, but it is more difficult to change an adversary's decision calculus if it will undermine the source of the adversary's domestic credibility. There are some costs that target states will never accept.

Despite the inherent ambiguity in his model, Pape drew some strong conclusions. He argued that a strategy of denial (where air power was employed at the theatre level in tandem with land operations) was the most likely to succeed.[22] His advocacy of theatre air power implies that he believed that air power could not serve as an instrument of coercion in isolation.[23] In short, Pape argued that air power was not decisive. Yet this argument may be flawed. His cases drew from wartime experience where both land and air forces fought the war. This selection of cases is misplaced. Not all the cases used to generate his theory were cases of coercion, as denial involving the large-scale use of land forces often strays into the realm of control.

Such strong conclusions attracted criticism of Pape's methodology. Some critics noted that this argument about denial deduces outcomes based on process. However, the determinants of success or failure relied on induction as they assessed the effects of the actions taken. Pape's model assumed all actions are the product of deliberate decisions and plans and engages in reductio ad absurdum. Yet rationality is always bounded in human motivations and cognition.[24] One then has to assess how the adversary would perceive costs and benefits to develop a sense of the adversary's motivations and strength of will. It is equally important to avoid attributing all actions to images of the adversary's motivations and beliefs about the level of willpower. Byman and Waxman have committed themselves to this approach and have supported it through the exercise of identifying centers of gravity without also relating the centres to target sets.[25] Rationality and motivations are not mutually exclusive causes that can explain all actions. More recently, one study concluded that despite the methodological criticism, the evidence supports Pape's claim about the effectiveness of denial strategies in aerial coercion.[26]

Clarke offered a set of subjective and pragmatic criteria that are used to clarify coercion without using mathematical models. His list of criteria included the following:

What did the coercer want the target to do?

What behaviour will lead to the removal of the threat?

What does the target's decision calculus look like?

How (and by whom) are decisions made so that they match the policy direction and extent desired?

Has the threat and desired behaviour been communicated clearly?[27]

Unlike the other models, this reflects an understanding that coercion is an exercise in communication designed to alter the adversary's decision calculus. Attacks by themselves are not the communication; however, the combination of statements, threats, and attacks contribute to the communication. The content of communications to the adversary is therefore most important. Attempts at deception are unhelpful in coercion as they engender a lack of trust in any future communications. There is a trade-off between surprise and credibility. Unlike Pape's model, the criteria are far from being reductionist, and seek to explain coercion as an exercise in communication by word and deed.

Process

Coercion model

A four-stage cycle provides the simplest and clearest description of the phenomenon of strategic coercion. The four stages of the cycle are threat, action, measurement of effect, and decision. See Figure 1 below for a depiction of the cycle. A state engaging in coercion normally goes through the cycle until one of the following conditions is satisfied: the target behaves in the desired manner or offers sufficient concessions to the coercer to cause them to stop; or the coercer decides to stop unilaterally or escalate to the point of total war.

- **Threat**

The initial step in any coercive process is the communication of the desired behaviour and the penalty as well as a deadline for failing to comply. Force is not always necessary in cases of coercion. In some cases, the mere threat of its use is sufficient to convince the target to comply with one's demands. When threats are insufficient, the use of force becomes necessary to establish the credibility of threats and/or to impose costs on the target.

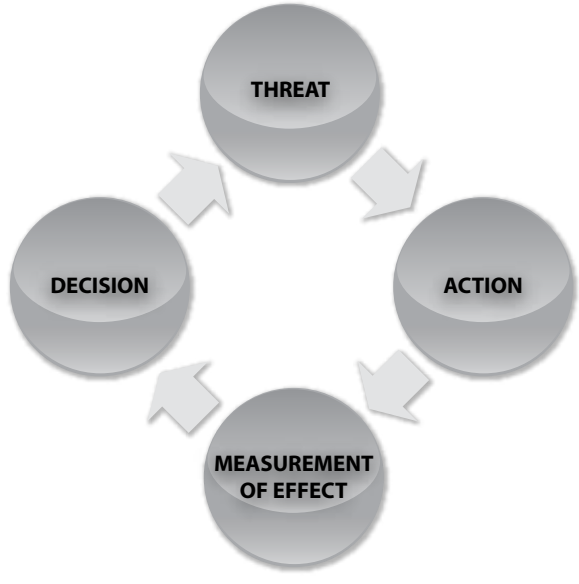

Figure 1: Cycle of Strategic Coercion

The coercer completes the initial step by issuing a threat to the target, such as: "Comply with our demands by next week or else the bombing will resume." This is the point at which communications, whether they be implicit in the form of symbolic actions or explicit in the form of communications or a combination of both, be as clear as possible. It is crucial for the target state to understand the behaviour desired and that a penalty will follow.[28] It is not necessary to clarify the nature of the penalty, but it is necessary to ensure that the inevitability of a penalty is credible in the eyes of the target.

The threat needs to be overt. Such communications are those direct or public transmissions of information from one party to another, such as press conferences, diplomatic communiqués, telegrams, et cetera. Being overt in communications is crucial, as clear communication with an individual or a group of individuals is difficult to achieve under ideal conditions.[29] Clear communications lie at the foundation of coercion. This implies that a degree of transparency of word and deed is vital to success. Similarly, it is necessary to ensure time exists for the other party to receive and process the information.[30] Communication to the target can be through symbolic actions, overt communications, direct actions, or a combination of all three. Symbolic actions are just that; they are actions intended to convey a particular impression or indicate a specific situation exists. For example, one might wish to signal readiness for nuclear release by opening missile silos and/or by fueling rockets demonstrably. Direct actions describe those discrete uses of force such as an air strike or missile attack.

The coercer must communicate clearly to the adversary that the outcome of events is wholly dependent on the adversary's choice. This is reminiscent of Thomas Schelling's analogy of the game of Chicken played by two drivers in sports cars.[31] The target must believe the costs are inevitable if they fail to comply with the coercer's demand. In summary, the target should believe that the costs of resistance are greater than the costs of compliance.

The ideal situation occurs when the target feels that a threat is real and will happen in the absence of compliance. Credibility requires the adversary sensing that the costs of intransigence are inevitable.[32] The adversary should not feel any doubt that the actions threatened will occur or that further actions will occur. If the threat is credible, the adversary will be certain that the action described will be undertaken and should begin to seek ways to prevent the threat from coming to fruition, including compliance. The credibility of threats and actions represents the psychological aspect of coercion—the creation of a particular perception within the adversary's mind.

An adversary must understand that the coercer has the capability to carry out their threat. Capability refers to the military capacity to employ particular courses of action, and relates closely to the political willingness to execute those courses of action. As a result, for the purposes of the adversary's perceptions, capability and intent are inseparable. The coercer must ensure that the adversary can perceive the presence (and to a limited extent, the composition) of the coercer's forces, but not necessarily the movements or dispositions of those forces. This creates a trade-off between ambiguity for the purpose of surprise and the credibility of one's threats.

- **Action**

Should a threat not be sufficient, then the coercer must act in order to establish the credibility of future threats and impose sufficient pain on the target to cause the latter to offer concessions. In order to coerce the target through action, one must select targets to strike. Target selection becomes more important when using "standoff means", such as cruise missiles or strategic bombers. This means that one has to assess the relative value of any given target or set of targets to the target of coercion. This is not an easy task, as the destruction of ". . . enemy forces, key lines of communication, and key command and control facilities has a clear impact on enemy war-fighting capabilities. Attacking targets that *may* have an impact on enemy behaviour creates far more uncertainties . . ."[33] The key to assessing coercion, like any use of force, lies with the assessment of the effect of any threat or attack on the enemy.[34] However, it is possible to become fixated on the battle damage assessments (BDA), and argue that quantity (physical damage) translates directly into quality (political results). This is not necessarily so for two reasons.

One, the choice of means used to inflict pain may influence the nature of the message. One of the potential avenues for future research is to test the hypothesis that there is an inverse relationship between the level of risk of casualties assumed by the coercer and the perception of motivation in the eyes of the coerced.[35] The use of standoff means of attack may lead the target to believe the coercer is not willing to assume any risk, and as such lacks the motivation or willpower to stay the course. While some standoff means may be attractive to democratic politicians for obvious reasons, they may be less effective and ultimately contribute to escalation.

Two, the ability to escalate in discrete terms is vital. A coercer must possess the demonstrable ability to make it worse for the coerced. The coerced will be inclined to resist. For coercion to succeed, the adversary's will to resist must erode. Target selection should be considered in terms of duration and significance. To be clearer, the effects of striking specific targets should be long lasting and palpable across the country. The coerced must be capable of perceiving some form of pain in terms of the frequency, the scale, or the completeness of destruction of bombing targets or a target set. This reinforces the credibility and capability of future attempts at coercion.

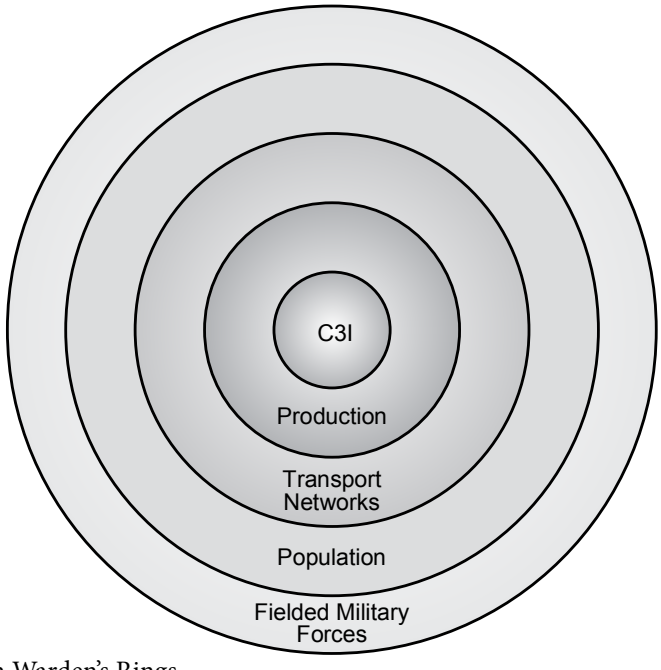

Figure 2: John Warden's Rings

John Warden, of the 1991 Gulf War fame, believed that if the aim was to influence the enemy leadership, that coercion had to be somewhat personalized—one had to target the leadership itself to achieve success. He argued that ". . . a state realizes its political objectives when the enemy command structure (i.e., the enemy leader or leaders) is found by direct or indirect action to make concessions. . . ."[36] The corollary of this belief was that direct attacks on command, control, communications, and intelligence (C3I) targets would lead to the achievement of political objectives through inducing a form of paralysis.[37] However, Warden did not suggest that one should only attack C3I targets in isolation. He conceptualized the enemy as a system composed of five concentric rings.[38] See Figure 2 above for a depiction. The fifth ring included all air defences, including those that defended the enemy's own territory.[39] While the focus was arguably to influence the enemy leaders, the key to this theory was to attack on all five rings as simultaneously as possible in what he termed "parallel attack."[40] Warden believed that a successful offensive campaign against all five rings could be conducted solely by conventional air forces.

- **Measurement of Effect**

Threats or attacks are apt to be an irrelevant form of theatre unless they come with a degree of destruction. A coercer must make the adversary feel some form of either potential or real pain. This means that the target sets under attack must cause or threaten some form of loss, whether it be political (a loss of power, authority, or control), fiscal (a loss of revenues), or military (a loss of military capability). This requires a good understanding of the nature of the adversary beyond military terms.[41] This understanding should extend into the political and economic natures of the adversary's power base within their polities. The measurement of effect relies on two interrelated questions.

Was the use of force sufficient to cause pain in terms of the level of destruction and the second or third order effects of that use of force? This is a function of choosing a bombing target of significance from the target's perspective, ensuring a level of sufficient destruction to get their attention, and having gained the attention, increased the level of pain felt to reinforce the message that compliance was less costly than resistance. States may also engage in self-restraint and avoid specific target sets and/or widespread uses of force should they be beyond the pale for the domestic body politic or where escalation is too risky.[42] This suggests Pape's three criteria for failure have great utility; should a coercer need to escalate to war, it is clear that the coercion failed.

Two, was the pain enough to change the adversary's decision-making at the strategic level? The target is never a passive entity. They also have a number of choices for how they might react:

- they can withstand the pain;
- they can seek to mitigate the effects;
- they can offer other concessions; and
- they can comply with the demands.

There are two points to note. One, coercers should keep in mind that some concessions will never be obtained by coercion, as they may be too highly valued by the target to concede after a mere threat or discrete use of force. Two, so long as the target believes that they can take the pain, or that it might even be beneficial, they will have the will to resist. The pain must lead the target to believe that inevitably the situation will worsen.[43] This means that the selection of bombing targets should include further effects that will last well beyond the initial attack. This erosion of willpower must also counter an adversary's attempts to mitigate the effects of the coercion. These offer a glimmer of hope that can keep an adversary from compliance.

If the attacks lead to significant international criticism or isolation of the coercer, the target may opt to accept the costs. There can be benefits for a target in terms of international sympathy or political costs if they appear to be the victim of aggression. They may also accept the costs of bombing if others make offers of mitigation.

Isolation and the erosion of willpower are inherently related. Isolation refers to the political and diplomatic isolation of the adversary, and occurs when no other state can offer an external means of the mitigation of coercion.[44] In effect, the coercer must devote efforts to ensuring that there is an international consensus on the necessity for action against the adversary and that the benefits of forceful action outweigh other courses of action.

As coercion is a form of bargaining, the target can make counter-offers even if they do not wish to comply with the coercer's specific demands. This indicates a willingness to cooperate at least symbolically even if they do not wish to comply. This may be a gambit to obtain offers of mitigation or a means to open peaceful negotiations.

One recent example illustrates how the target of coercion can react to attempts at coercion. Between 1991 and 2003, the Iraqi government had a number of mitigation strategies for dealing with the coalition's attempts at coercion. Two assumptions formed the foundation of these strategies. One, the United States (US) appeared to be sensitive to casualties. Two, the coalition relied on a consensus within the international community about the need to contain Iraq. This consensus appeared to be at its strongest when the Iraqi government was at its most bellicose, and weakest when the US, the coalition's core, acted unilaterally. The Iraqi government therefore applied three fundamental strategies: Civilian-suffering; Coalition-fracturing; and American or allied casualty generating.[45] Byman and Waxman asserted that each of these strategies had complementary effects:

> The United States often finds itself caught in increasingly problematic feedback cycles: adversary responses that cause rifts in coalitions may prompt the United States to alter its

> approach to repair the rupture, in turn emboldening the adversary to direct further efforts at coalition-splitting. Adversary efforts to exploit collateral damage (both real and fabricated) resulting from US attacks may prompt the United States to restrict its own future efforts, both undermining the potency of its follow-on threats and encouraging further exploitation of suffering.[46]

Each of these strategies merits amplification.

The Civilian Suffering strategy aimed at generating popular sympathy for the plight of the Iraqi people, and by so doing impose political costs for forceful actions. This was an effort to obtain benefit from the coercion rather than an attempt to mitigate the effects of coercion. The Iraqi government appeared to believe that international sympathy for ordinary Iraqis might translate into increased willpower to resist, or into offers of support from outside Iraq. In order to apply this strategy, the Iraqi government had several options. It could camouflage target sets by placing military targets in proximity to civilian targets. This would also blur the targets, making it more difficult to identify or accurately strike a target. It could fail to offer resistance to air strikes, accept the damage, and then focus the international media on the damage done to Iraq. It could also shift the effects from Iraqi elites onto the less influential members of Iraqi society.

The Iraqi government could also seek to fracture the coalition. This involved engaging in theatrical cooperation, or seeking to make deals with one or more interested governments that led to offers of external support. The goal of the former was to remove the justification for coalition action by appearing to cooperate without actually complying with the demand. The latter held two possibilities: the first was to weaken the consensus for the need for force or even the need to deal with the problem of Iraq, and the second was to cause one or more of the local allies hosting coalition forces to restrict military operations against Iraq.

The Iraqi government was also aware of the coalition's belief in the danger of casualties. To impose such costs appeared to offer a means (or at least the hope) of inducing an American withdrawal from the region. There were three options. The Iraqi government could try to impose losses in the skies over Iraq, engage in asymmetric attacks on military infrastructure in neighbouring states supporting coalition activities, or engage in symbolic resistance so that the suppression of enemy air defences became more important than attacking targets of greater significance.

- **Decision**

The coercer has three options after the first attempt, whether it is a threat or use of discrete force. The coercer could quit, escalate (bringing the situation closer and closer to total war), or decide that whatever concessions offered were sufficient. This model, of course, assumes that coercion only occurs short of war.

Military actions in support of strategic coercion should cause the enemy leadership to feel a significant degree of pain. To be clear, this means bombing targets that the enemy leadership values in that their destruction or neutralization would impede their ability to obtain their goals and/or jeopardize their political situation. Not only do the bombers have to strike at the appropriate targets, they must also do sufficient damage in a physical sense to the targets. The processes of target selection, the matching of bomb loads to the targets, and the BDA are vital to the success or failure as a result.

Measuring political effects is even more difficult than measuring military effects. In the case under examination, without a clear means of communications, the coercer must gauge the political effect of actions from the enemy leadership's statements and/or negotiating behaviour with discernible causal links to the military reaction. This juxtaposes clear communications (i.e., public revelation that the military action occurred) with the need to avoid a cycle of escalation or the end of negotiations. Paradoxically, both success and failure rely on the absence of clear communications on the matter.

Some mention must be made of how the target government and its leadership might make decisions. Two decision-making models are most important. The first is expected utility theory, which holds that the targets of coercion will make decisions based on rational assessments of the costs and benefits of resistance against the costs and benefits of compliance.[47] For the practitioners, this suggests that if one could merely increase the cost of resistance to the point that it would exceed the cost of compliance, success would follow. This, however, suffers from reductio ad absurdum; it is easy to understand but does not always reflect reality. The second, prospect theory, is based on the argument that under situations involving risk, actual decision-making differs somewhat. Prospect theory holds that the assessment of value of various options (i.e., to comply or to resist) relies on a perceptual reference point that serves to delineate perceived losses from perceived gains.[48] The theory holds that decisions are two-stage affairs; people first edit the range of options available to them to simplify the second process of evaluation.[49] For the practitioner, this suggests that one needs to establish at least a reasonable facsimile of the reference point (or multiples thereof) and then manipulate the costs in light of the credible options and reference point(s). This, as a depiction of reality, has greater fidelity, but it is also more difficult to understand.

The cycle need not be circular. This is where Pape's criteria are most useful as they offer a means of assessing the success and failure of attempts at coercion. See Figure 3 below for details. A state could begin with threat-based or force-based coercion. If the threat fails to cause the target to offer the desired concessions, then the coercer has the choice of ending their attempt or escalating to the use of force. If the initial use of force does not lead to concessions, then the coercer can escalate any number of times, but with every escalation, the coercer comes increasingly closer to war without obtaining concessions. The resort to war, whether intentional or accidental, means the attempt at coercion failed.

This begs the question of the utility of coercion. Is it something that a state or armed force should be preparing to be capable of doing? If so, how much time ought to be devoted to it? The answer to such questions is an unequivocal maybe. The exercise of coercion represents a potential tool for a state to deal with international political crises, but the devotion of any significant amount of time to the matter by an air force would not be the best use of its already limited time. A state and its air force should only spend enough time to figure out how to operationalize the exercise of coercion in preparation for the possibility of future crises.

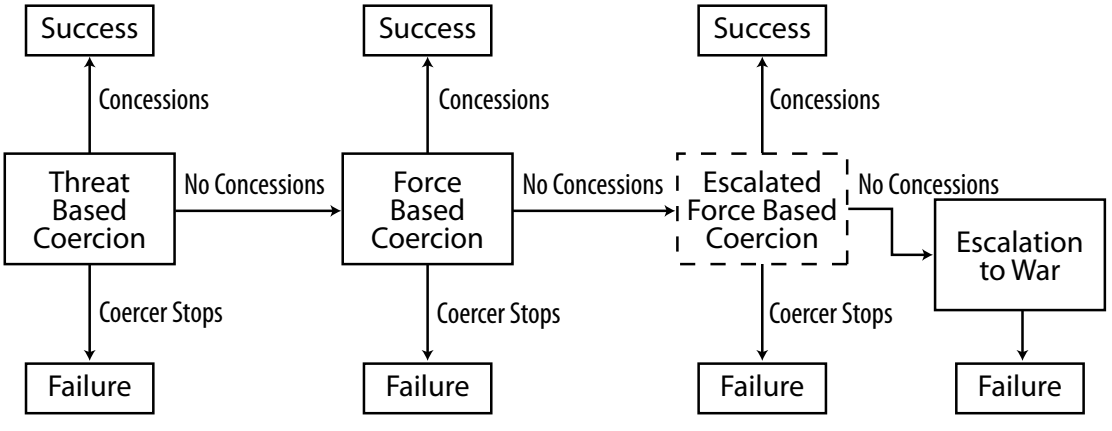

Figure 3: Alternate View of Cycle of Coercion

Operationalizing Coercion

Three issues merit discussion when considering how a state and its air force could operationalize coercion. The first is whether a government would be willing to expend the domestic or international political capital associated with the use of threats or force. The second

is the problem of target selection and control of the use of force. The last, and far from the least, is trying to establish a means of drawing links between target sets and the target's political power base.

Initiation of an attempt at coercion is at essence a governmental responsibility. The government has to decide first if coercion is a suitable means to obtain the desired results. It must also choose to accept the domestic and international political criticism that may come because of their threats or uses of force against another state. This is a function of weighing the benefits associated with obtaining concessions against the expenditure of political capital.

Given that coercion requires the synchronization of diplomatic initiatives and military operations, it is not something orchestrated by an air force in isolation. Governments must first choose to attempt coercion, consider the potential political ramifications, and mitigate them by adding restraints on the military planners charged with planning how the use of force would occur. The best means of preparing for this is to war-game a crisis at the governmental level to establish the decision-making mechanisms, the required times to react to developing crises with a coercive air operation, and the means to consider the issue of target selection. In addition, such war games may lead government officials to consider and outline under what conditions they may be willing to make threats or use force against other states. To be clear, this represents a case that does not lead to a defined plan, but the exercise of planning would inform future events if necessary.

The responsibility for target selection during a crisis is an important yet complex issue. Since the Vietnam War, there has been a general acceptance within the United States, and the western world, that there is a division of responsibility between the political leadership, the strategic military leadership, and the theatre-level military leadership where the conduct of affairs in an operational theatre is not micro-managed from a capital. Should the political leadership exercise greater influence over the selection of targets or simply state the effects desired along with the limits on military options, or become more directly involved in the process? Should states develop a form of doctrine for such cases?

On the one hand, advocates of strict controls on the use of force would advocate greater influence from the government level over the conduct of military operations designed to coerce another state. Influence, however, represents a spectrum. At one end, the government may be willing to impose a series of restraints in advance, and reserve the right to approve the operation prior to its execution. At the other end is the most notable example of the excesses of governmental control. During Operation ROLLING THUNDER, the American bombing campaign of North Vietnam that ran from 1965 to 1968, the Cabinet of the Johnson Administration became increasingly involved in the process of target selection and often did so over lunch on Tuesdays. Critics of increased governmental roles in target selection often cite the Tuesday Lunch sessions as the reason why the military should lead the exercise of targeting. They tend to follow this up with the observation that the expertise rests with the military. While the latter is correct, governmental responsibility does not end with a lack of expertise in the matter. A flawed exercise in increased influence does not mean that governments ought not to have influence over the process.

On the other hand, advocates of greater military latitude would advocate less governmental influence for the reasons mentioned above. There are potential perils that may be immediately obvious. One runs the risk of losing sight of the aim of obtaining political concessions while pursuing a military advantage over the target. The instinctive desire on the part of air forces to establish command of the air and suppress air defences may lead them to treat this as a necessary precursor to striking targets of greater value. One should not fault them for doing so as these are vital elements of ensuring that one can exploit the aerospace medium, but it runs the risk of unintended escalation as the target may not consider the loss of the ability to contest command of the air as sufficiently significant to offer the desired concessions. Those engaging in coercion must balance the risk of losing aircraft, and more importantly, aircrews with the need to strike target sets of value. This may mean that politicians and commanders would accept greater

risks of losses by selecting targets to strike without a greater degree of preparing the proverbial battlefield.

The optimal degree of influence appears to be closer to the end of the spectrum where governments impose a series of restraints in advance, and reserve the right to approve the operation prior to its execution. This suggests that the planning for any coercive air operation is iterative and requires a significant degree of coordination between the military and the government. Given that such efforts are extremely complex, those governments that seek to be able to use coercive air operations as a foreign policy tool will need to practice the exercise of planning. In addition, they will also need to consider the matter of controlling their execution, particularly the important decision of when to stop and under what conditions.

Are there any rules for target selection in relation to the desired effects? Warden's work offered a principle that merits further research; this was the idea that the enemy leadership will offer concessions when they cannot exercise their power over their polity. As a result, the working hypothesis is that concessions will occur if the target's base of political power is threatened. Other work, such as that on axiological targeting, suggests that one could select targets based on Maslow's hierarchy of needs.[50] Regardless of political ideology or system of governance, all political leaders tend to seek to remain in power as long as possible. The effect of the difference between forms of government relies on the set of rules governing transitions between governments. Authoritarian governments may change because of violence; whereas, democratic governments have specific rules for when and how to turn over power to legitimate successors. Yet the maintenance of political power remains the goal of all governments.

Earlier theories of strategic bombing, such as the Air Corps Tactical School, maintained that a state's economy could be conceptualized as a system with nodes of varying importance. The bombing of specific nodes would lead to the eventual collapse of the state's economy, thus removing the capability to sustain the war machine and leading to the state's capitulation.[51] While this line of thought was brought into question by the evidence from the Combined Bomber Offensive, the idea of the enemy as a system survived in other forms.[52] This idea has much merit and may provide a way of translating attacks on target sets into concessions. Some readers may wonder if there are any differences between the ideas contained herein and Warden's work. Indeed, there is a significant intellectual debt, but Warden's theories address the idea of strategic warfare through paralyzing an enemy with attacks on all levels of the system. The means used are identical but the ends are different, in that a coercer should threaten the target state's power base to get concessions.

What, then, might constitute a target that threatens such a power based? The answer to this rests on the question of what keeps governments in power. This, of course, varies depending on the state, but offers a conceptual model to consider. Making sense of the sources of power, however, requires a good understanding of the nature of the adversary beyond military terms.[53] This understanding should extend into the political and economic natures of the adversary's power base within their polities. There are three general sources of power: the ability to employ violence within their territories, their legitimacy, and their economic well-being.

The ability to use violence within the state refers to the state's security apparatus, namely its military and police forces used to maintain control over the population. In democracies, these exist legitimately with the consent of the electorate and are less intrusive in the daily lives of the citizens. For the exercise of targeting for coercion, their value to democracies is much lower than they might be for authoritarian governments that lack legitimacy.

Legitimacy rests on the maintenance of popular consent to the rule of the government. Consent rests on the roles played by other groups in the political process, such as political parties, ethnic or religious groupings, corporations, or armed factions, and the government's ability to communicate effectively with them. Governments that do not enjoy a high level of legitimacy may seek to offset this lack with a more intrusive security apparatus. Target selection should consider the roles played by other groups and seek to create opposition to the target of

coercion as opposed to creating additional support. In short, they need to avoid rallying the population and other groups to the target if they wish to obtain concessions.

The final source of power is the target's ability to provide for the economic well-being of the population. In short, it is about the target's ability to provide services for its population efficiently. While different political systems organize the distribution of wealth within their society in different manners, they all seek to provide services in some form. This is perhaps the most difficult node to consider targeting, as the destruction or neutralization of a government's ability to provide services can have effects beyond the conflict. Attacks on infrastructure may lead to humanitarian crises and much larger issues. Great caution and consideration is necessary to ensure that the exercise of coercive air operations do not lead to tragedies.

Conclusion

The phenomenon of coercion merits further study. While it has come in and out of vogue, it remains an option for addressing crises and complex problems that may be resolved with the use of force. Governments may or may not choose to exercise the option regardless of academic debates. A clear process of threat-action-measurement of effect-decision brings greater clarity to the phenomenon. It aids those that may consider its use or may have to carry out operations in advance. The discussion of process also helps identify potential areas of difficulty in advance of crises that could be resolved; however, it is well understood that preparation for crises that may occur in the future is but one of many tasks for governments and their air forces. A simple exercise in risk management suggests that this is a function of probability multiplied by the consequences. While the consequences could be potentially high, the probability of occurrence may be rather low. This may lead many to opt to spend the state's valuable time, effort, and treasure on more pressing matters.

While those interested in the phenomenon of coercion have sought to provide greater illumination on the subject, there is still much work to be done apart from the exercise of achieving a common lexicon and theoretical framework. Further research is required on the working hypothesis about the relationships between a government's power base and suitable target selection. Given that every state is different, is it possible to go beyond simple heuristic devices and into the exercise of more detailed models? The answer to such questions is not immediately clear. In addition to this, another fruitful avenue of research might be to assess whether the means used to coerce actually matter to the target state. While such debates may stir up the advocates of each service's contributions to warfare, there is much more to the matter, such as the combination of diplomatic, military, and economic pressure through the freezing of assets and/or economic sanctions. This line of inquiry may offer much more to the collective understanding of bargaining using force between states than the debates over which armed service is the most decisive.

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Notes

1. T. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1988), 21.

2. For a discussion of that phenomenon, see: J. Cable, *Gunboat Diplomacy, 1919-1979: Political Applications of Limited Naval Force* (London: Macmillan, 1981), 57.

3. E. Cohen, "The Mystique of U.S. Air Power," *Foreign Affairs* 73, no. 1 (January-February 1994), 109.

4. This point first appeared in B. Glosson, "Impact of Precision Weapons on Air Combat Operations," *Airpower Journal* 7, no. 2 (Summer 1993), 4–10; E. Mann, "One Target, One Bomb: Is The Principle of Mass Dead?" *Airpower Journal* 7, no. 1 (Spring 1993), 35–43. See also: R. Mandel, "The Wartime Utility of Precision Versus Brute Force in Weaponry," *Armed Forces & Society* 30, no. 2 (Winter 2004), 171–201; P. Meilinger, "A Matter of Precision," *Foreign Policy*, no. 123 (March-April 2003), 78–79.

5. While there is no shortage of definitions of, or debates over, this term, this paper uses that of R. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca: Cornell University Press, 1996), 46.

6. L. Freedman, "Strategic Coercion," in Strategic Coercion: Concepts and Cases, ed. L. Freedman (Oxford: Oxford University Press, 1998), 15–20.

7. A. Lambert, "Air Power and Coercion," in *Perspectives on Air Power: Air Power In Its Wider Context*, ed. S. Peach (Bracknell: UK Joint Services Command and Staff College, 1999), 268 and 270–272.

8. Michael Clarke, "Air Power, Force, and Coercion," in *The Dynamics of Air Power*, eds. A. Lambert and A. Williamson (Bracknell: RAF Staff College, 1996), 68–69. See also: M. Horowitz and D. Reiter, "When Does Aerial Bombing Work?: Quantitative Empirical Tests, 1917–1999," *Journal of Conflict Resolution* 45, no. 2 (April 2001), 148–154; and P. Viggo Jakobsen, *Western Use of Coercive Diplomacy after the Cold War* (Basingstoke: Macmillan, 1998), 11-24.

9. Freedman, 25.

10. R. Lebow, "Deterrence: A Political and Psychological Critique," in *Perspectives on Deterrence*, eds. P. Stern, R. Axelrod, R. Jervis and R. Radner (Oxford: Oxford University Press, 1989), 25.

11. P. Morgan, *Deterrence: A Conceptual Analysis* (London: SAGE, 1978), 33.

12. G. Schaub, "Compellence: Resuscitating the Concept," in Freedman, 42.

13. Pape, 4, 6, 12.

14. A. Lambert, "Coercion and Air Power," *Air Clues* 50, no. 12 (December 1996), 449. See also: Karl Mueller, "The Essence of Coercive Air Power: A Primer for Military Strategists," *Air and Space Power Journal – Chronicles Online Journal,* 5, http://www.airpower.maxwell.af.mil/airchronicles/cc/mueller.html, (accessed June 1, 2011).

15. Freedman, 25. See also: G. Craig and A. George, *Force and Statecraft: Diplomatic Problems of Our Time* (New York: Oxford University Press, 1983), 189; T. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), 2–6.

16. Freedman, 15.

17. B. Watts, "Ignoring Reality: Problems of Theory and Evidence in Security Studies," *Security Studies* 7, no. 2, 162–63.

18. S. Cimbala, *Coercive Military Strategy* (College Station: Texas A&M Press, 1998), 4; D. Gates, "Air Power and the Theory and Practice of Coercion," *Defense Analysis* 13, no. 3 (December 1997), 242; P. Viggo Jakobsen, "The Strategy of Coercive Diplomacy: Refining Existing Theory to Post-Cold War Realities," in Freedman, 65; Lambert, "Coercion and Air Power," 446, Pape, *Bombing To Win*, 4, 12, 15; Schelling, *Arms and Influence*, 3.

19. Pape, *Bombing To Win*, 16–19. This assumes a degree of rationality on the part of the adversary.

20. Ibid., 18–19, and Watts, 130. Karl Mueller has a more complex model on page 9.

21. Pape, *Bombing To Win*, 15.

22. Ibid., 10; R. Pape, "Coercion and Military Strategy: Why Denial Works and Punishment Doesn't," *The Journal of Strategic Studies* 15, no. 4 (September 1992), 423–75.

23. See Pape, *Bombing To Win*, 316.

24. J. Kimminau, *The Psychology of Coercion: Merging Airpower and Prospect Theory* (Maxwell AFB: School of Advanced Airpower Studies, 1998), 11, 26.

25. For a description, see K. Von Clausewitz, *On War* (Chicago: University of Chicago Press, 1943), 465–66.

26. See Horowitz and Reiter, 163–64. Another study suggests that the key variable is the ". . . domestic legitimacy of target state's regimes . . ." For details, see: A. Belkin et al, "When Is Strategic Bombing Effective? Domestic Legitimacy and Aerial Denial," *Security Studies* 11, no. 4 (Summer 2002), 51–88.

27. Clarke, 70–71, 73.

28. Patrick Bratton, "When Is Coercion Successful? And Why Can't We Agree on It?" *Naval War College Review* 58, no. 3 (Summer 2005), 101; J. Harvey, "Deterrence: Essential, Complex and Uncertain," *Air Clues* 50, no. 11 (November 1996), 404; Mueller, 4.

29. Gates, 246.

30. Craig and George, 202.

31. Schelling, *Arms and Influence*, 116–125.

32. See: Bratton, 101; Harvey, 404; Mueller, 4.

33. A. Cordesman, *The Lessons of Desert Fox: A Preliminary Analysis* (Washington, DC: CSIS, 1999), 103. Italics appear in the original.

34. Clarke, 70–71, 73, 83–84; Cordesman, 11.

35. Horowitz and Reiter, 164, asserted that ". . . air power works best when coupled with ground forces and indicates that there are limits to what air power can accomplish, specifically that it is unlikely to be able to make dictators stand down from power."

36. J. Warden, "Employing Air Power in the Twenty-First Century," in *The Future of Air Power in the Aftermath of the Gulf War*, eds. R. Shultz and R. Pfaltzgraff (Maxwell AFB: Air University Press, 1992), 63.

See also: J. Warden, "The Enemy as a System," *Airpower Journal* 9, no. 1 (Spring 1995), 40–55. In *Bombing To Win*, 57, 79–86, Pape referred to this as "decapitation."

37. E. Mann, *Thunder and Lightning: Desert Storm and the Airpower Debates* (Maxwell AFB: Air University Press, 1995), 91. See also: J. Barlow, "Strategic Paralysis: An Air Power Strategy for the Present," *Airpower Journal* 7, no. 3 (Winter 1993), 4–15.

38. Warden, "Employing Air Power," 64–67.

39. Ibid., 74.

40. Ibid., 79. Warden argued that historically, there was a trend where forces sought to destroy the fielded forces in the "5th (Outermost) Ring" and work their way inwards. See also: Warden, "Enemy as a System," 54–55.

41. Clarke, 72; John Warden, *The Air Campaign: Planning for Combat* (Washington, DC: National Defense University, 1988), 133–34.

42. P. Sabin, "Modern Air Power Theory - Some Neglected Issues," *Air Clues* 48, no. 9 (September 1994), 328–29.

43. Lambert, Coercion and Air Power, 292; Warden, "Employing Air Power," 131.

44. Lambert, Coercion and Air Power, 449, argued that the perception of isolation is crucial to obtaining compliance.

45. D. Byman and M. Waxman, "Defeating US Coercion," *Survival* 41, no. 2 (Summer 1999), 110–116.

46. Byman and Waxman, 117.

47. G. Schaub, "Deterrence, Compellence, and Prospect Theory," *Political Psychology* 25, no. 3 (2004), 388–89; See also: Bratton, 104.

48. W. Boettcher, "The Prospects for Prospect Theory: An Empirical Evaluation of International Relations Applications of Framing and Loss Aversion," *Political Psychology* 25, no. 3 (2004), 331–62, Christopher K. Butler, "Prospect Theory and Coercive Bargaining," *Journal of Conflict Resolution* 51, no. 2 (April 2007), 227–50, R. Jervis, "The Implications of Prospect Theory for Human Natures and Values," *Political Psychology* 25, no. 2 (2004), 163–75; D. Kahneman and A. Tversky, "Prospect Theory: An Analysis of Decision Under Risk," *Econometrica* 47, no. 2 (March 1979), 263–91.

49. Kahneman and Tversky, 274.

50. See: P. Rexton Kan, "Axiological Targeting and the Abiding Limits of Airpower Theory," *Air & Space Power Journal* 18, no. 1, Spring 2004, 25–32; P. Wijninga and R. Szafranski, "Beyond Utility Targeting Toward Axiological Air Operations," *Aerospace Power Journal* 14, no. 4, Winter 2000, 45–59.

51. Peter A. Faber, "Interwar US Army Aviation and the Air Corps Tactical School: Incubators of American Airpower," in *The Paths of Heaven: The Evolution of Air Power Theory*, ed. P. Meilinger (Maxwell AFB: Air University Press, 1997), 186, 211–12, 221; P. Meilinger, "The Historiography of Airpower: Theory and Doctrine," *The Journal of Military History* 64, no. 2, April 2000, 476.

52. For example, see Warden, "Enemy as a System."

53. Clarke, 72 and Warden, "Employing Air Power," 133–34.

James R. McKay

James R. McKay was educated at Bishop's University, the Royal Military College of Canada, and King's College London. He has multiple research interests, including strategic coercion, strategy, Canadian politics, and the Vietnam War. He is currently an Assistant Professor at the Royal Military College of Canada.

List of Abbreviations

A/C/M	Air Chief Marshal
AAA	air defence artillery
ACAS	Assistant Chief of the Air Staff
AF	Air Force
AFB	air force base (United States)
AFHQ	Air Force Headquarters
AI	aerial interdiction
AMB	Ambulance (Squadron)
AOC	Air Officer Commanding
ATAF	Allied Tactical Air Force
BCATP	British Commonwealth Air Training Plan
BDA	battle damage assessments
C3I	command, control, communications, and intelligence
CAF	Canadian Air Force
CAS	close air support
CASF	composite air strike force
CDC	Cabinet Defence Committee
CF	Canadian Forces
CFCA	Canadian Flying Clubs Association
CGS	Chief of the General Staff
COIN	counter-insurgency
CSC	Chiefs of Staff Committee
CSIRO	Commonwealth Scientific and Industrial Research Organization
DND	Department of National Defence (Canada)
EBAO	effects-based approach to operations
EBO	effects-based operations
F	fighter
FID	foreign internal defence
HQ	headquarters
HUMINT	human intelligence
IO	information operations
ISR	intelligence, surveillance and reconnaissance
JDAM	joint direct attack munition
JOC	joint operations centre
MC	Military Committee
MCP	Malay Communist Party
MI-5	British Intelligence (Military Intelligence Section 5)
MPAJA	Malay Peoples Anti-Japanese Army
MRLA	Malay Races Liberation Army

NATO	North Atlantic Treaty Organization
NCO	non-commissioned officer
NORAD	North American Aerospace Defence Command
NPAM	Non-Permanent Active Militia
OPAS	Ontario Provincial Air Service
PSYOP	psychological operations
RAAF	Royal Australian Air Force
RAF	Royal Air Force
RCAF	Royal Canadian Air Force
RCNAS	Royal Canadian Naval Air Service
RFC	Royal Flying Corps
RN	Royal Navy
RNAS	Royal Naval Air Service
SACEUR	Supreme Commander Allied Powers Europe
SEP	surrendered enemy personnel
SHAPE	Supreme Headquarters Allied Powers Europe
SIGINT	signals intelligence
SQN	squadron
STOL	short take-off and landing
TAC	tactical air command
TPC	Turkish Petroleum Company
TSU	Technical Support Unit
UK	United Kingdom
UN	United Nations
US/U.S.	United States
USAF	United States Air Force
USAFE	United States Air Forces in Europe
UW	unconventional warfare
VC	Victoria Cross
VC	Viet Cong
VCAS	Vice Chief of the Air Staff
VE Day	Victory in Europe (May 8, 1945)
VTOL	vertical take-off and landing
WWI	First World War
WWII	Second World War