

THE ROYAL CANADIAN AIR FORCE JOURNAL

SUMMER 2012 VOL.1 NO.3



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AIR SYNTHETIC
ENVIRONMENT CENTRE**

AND MUCH MORE!



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THE ROYAL CANADIAN
AIR FORCE JOURNAL



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ITEM	WORD LIMIT*	DETAILS
LETTERS TO THE EDITOR	50-250	Commentary on any portion of a previous <i>Journal</i> .
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EDITOR'S MESSAGE

You have to love springtime. It is a time of renewal and rebirth, and if you happen to be in the Royal Canadian Air Force (RCAF), or any other branch of the military, it is a period of adjustment as we see what the “budget fairies” have given us. This year we are also dealing with a strategic realignment of our reserve personnel. Long story short—resources will be stretched a bit thin. This means that the RCAF will have to ensure that ALL of its potential resources are tapped into.

This brings me to my topic—personnel undergoing on-job employment (OJE). Normally, but not exclusively, these are individuals who have been recruited into the Canadian Forces and are awaiting training. And although the system is constantly working on reducing the wait time for courses, OJE individuals can sometimes wait for months before being loaded on a course. Then there are the individuals who, for one reason or another, did not successfully complete their training and are awaiting an occupational transfer (OT) or release; both processes can take months to complete. To a large extent, dealing with individuals awaiting OT should be the focus of the “adaptive, agile and

responsive personnel generation capability” outlined by Chief Military Personnel in the *Canadian Forces Military Personnel Strategy* document.¹ Regardless of how they “arrived” on OJE, these individuals are a “talent” pool that we need to make better use of.

How big is this resource pool? As an example, Aerospace Controllers (AEC - MOSID 00184), as of 8 March 2012, had 100 second lieutenants either on course or OJE.² Depending upon the entry plan of the individual, second lieutenant rates of pay (basic) vary from \$3387 to \$4708 per month (not counting specialists like lawyers or doctors).³ This means that in this example, using the lowest rate of pay, we are spending \$4,064,400 a year to pay OJE personnel, and this does not take into account any associated training costs (such as for language training). A very healthy investment indeed.

And then there are the skill sets that OJE personnel can bring to the table. Make no mistake, these are militarily untrained individuals so asking them to undertake a MOSID-specific task is unlikely, but they do have other strengths. Of the five OJE personnel that I employ at CFAWC, ranging

in age from mid-20s to 40, there are degrees ranging from undergraduate to postgraduate (there is one working on a doctorate in gaming theory and another with a Masters in Business Administration), life experience that runs the gamut from student to company executive, and unique skills such as language proficiency (in this case Spanish).

Perhaps the most important skill set that the majority of OJE personnel bring to the table is their enthusiasm; they want to be in the RCAF. Indeed, many of them have given up civilian jobs/careers to put on a uniform and serve the nation. What they are looking for is an opportunity to contribute to the RCAF in a meaningful and useful manner.

Notwithstanding the potential of OJE personnel, they will not fit in with the mandate of every RCAF unit, and they do necessitate a certain amount of "care and feeding." Still, these are good people (otherwise we would not have recruited them) that we have invested a large amount of money in, so we need to utilize them to the fullest extent possible. Not only is this a wise policy, it is also an investment in our future. 🇨🇦



Major William March, CD, MA
Senior Editor

ABBREVIATIONS

OJE	on-job employment
OT	occupational transfer
RCAF	Royal Canadian Air Force

NOTES

1. Department of National Defence, *Canadian Forces Military Personnel Strategy* (Ottawa: Chief of Military Personnel, 2011), <http://cmp-cpm.forces.mil.ca/pub/doc/hr-rh-eng.pdf> (accessed May 5, 2012).

2. Department of National Defence, MOSID By Rank Analysis - 00184 AEC, Department of National Defence, http://dhrim04.desc.mil.ca/engraph/custom/MOS/ndmos006b_e.asp (accessed May 5, 2012).

3. Department of National Defence, Monthly Rates of Pay - Officers (Regular), Department of National Defence, <http://www.forces.ca/en/page/payscales-131#officersregular-1> (accessed May 5, 2012).



By Captain Annalee Rice, CD, with contributions by Warrant Officer David Rowe, CD

EXERCISE MAPLE RESOLVE

14–24 OCTOBER 2011

CANADIAN FORCES BASE WAINWRIGHT

The Canadian Army's task-force-level exercises are conducted regularly as the operational readiness check for the Army's deployments overseas, but what was not regular about Exercise (Ex) MAPLE RESOLVE in October 2011 (MR11) was the participation of two CH124 Sea King helicopters. Due to a number of factors, including the Canadian Forces Aerospace

Warfare Centre's recent Air Component Commander Collective Training Seminar in September 2010 and an increased desire to train the way we deploy (as a multi-asset, joint force), 12 Wing Shearwater was approached about sending its maritime helicopter (MH) assets to the Army-centric exercise. The result was two Sea Kings working out of Airfield 21 at Canadian Forces Base (CFB) Wainwright, Alberta, in support of the Canadian Army's training exercise.



The traditional deployment of a Sea King is in an air detachment structure (one helicopter, two flight crews, and a maintenance section) on board Her Majesty's Canadian Ships. In the past decade or so, common deployments have ranged from supporting the war on terrorism in the Persian Gulf, deterring Somali pirates or escorting World Food Programme ships in the Arabian Sea, countering narcotics smuggling in the Caribbean, or serving in the Mediterranean with standing North Atlantic Treaty Organization (NATO) fleets. Additionally, Sea Kings participated in Operation (Op) MOBILE for the recent Libya crisis and Op HESTIA following the major earthquake in Haiti, both of which were also based from Canadian ships. Although less frequently, the Sea King has been deployed without being on a warship, examples include aiding with the Manitoba floods and Op LAMA in Newfoundland following Hurricane Igor in September 2010.

It may be these examples of less traditional, land-based deployments or the potential for similar future requirements for the Sea King or its replacement, the CH148 Cyclone, that contributed to the request for 12

Wing to participate in Ex MR11. Regardless of the motivation, it was an excellent opportunity for the 12 Wing detachment to test out its compatibility and sustainability while working in a land-based environment. The following account will outline some of the challenges, triumphs, and lessons learned from the Sea King's participation in MR11.

PLANNING, PREPARATION, AND DEPLOYMENT

First off, the paramount challenge in the Sea King's participation was the planning, preparation, and physical deployment of the assets and personnel without truly knowing what was ahead. Aircrew and technicians were chosen from across nearly every unit within 12 Wing to create a detachment-like structure. With two helicopters, the maintenance section was more comprehensive than what would normally deploy on board a ship, but the aircrew stuck to the standard of two crews of four (two pilots, one airborne combat systems officer [ACSO], and one airborne electronic sensor operator [AESOP]).

The challenges continued with determining what to bring for aircraft maintenance and how to prepare the crews for the possible tasks

at hand. When deploying an air detachment on board a ship, there is a standard “pack-up” of spare parts, tools, and equipment, but for this deployment, the list had to be created and adjusted for what could be needed, as well as what could realistically be shipped on relatively short notice to a field base. Luckily, Wainwright is relatively close to supplies on either coast when compared to a ship that is on patrol in the middle of the ocean on the other side of the world. When something was needed that had not been included in the pack-up, a quick call to 443 Maritime Helicopter Squadron [443 (MH) Sqn] in Victoria, British Columbia, and the part was on a commercial flight to Edmonton as soon as possible.

The logistics of readying two aircraft for a land-based exercise cannot be overlooked. The first Sea King allocated to the exercise was a standard “alpha” variant, fitted with antisubmarine warfare (ASW) equipment which would be useless for an exercise in land-locked Alberta. As much as was practical, the ASW equipment was removed to free up space and increase lifting capacity. The second Sea King that was brought to Wainwright was

a “bravo” model, which already had the ASW equipment removed in lieu of 13 troop seats, and thus this aircraft was a better fit and the preferred choice for most of the missions we were anticipating.

Aircrew flight training in advance of the exercise was impossible due to the dispersed locations (personnel from every unit within the wing) and the unknowns of the specific tasks. Personnel were carrying on with their normal jobs until their departure for 443 (MH) Sqn to transport the aircraft out to Wainwright. Traditionally, an air detachment’s personnel are designated well in advance to facilitate training and administration and to ensure an easy transition to the ship. To mitigate this issue, Lieutenant-Colonel Timothy Garriock, the commanding officer of 423 Maritime Helicopter Squadron [423 (MH) Sqn] in Shearwater and the designated detachment commander for the exercise, chose crews with lots of experience. The intent was that experienced aircrew would be more likely to take in more about the different tasks and environment during a short exercise and would be in a position to share their experiences with the various units on the wing.



CONTRIBUTING TO THE EXERCISE

The next big challenge, once we had two Sea Kings on the ground in Wainwright, was to figure out how we could fit in and contribute to the exercise. There were three brand new United States Army Chinook helicopters and a ScanEagle small unmanned aerial vehicle (SUAV) on site, and 400 Tactical Helicopter Squadron (400 Tac Hel Sqn) deployed to Wainwright in its entirety for the exercise (with four CH146 Griffon aircraft, plus operations, intelligence, meteorological, and administration support staff). These traditional army-air assets and the capabilities that they bring to the table are well understood by the Army and the operations planners. Not only did we have to try and soak up as much information on the Army and what the traditional air assets do for them, but we then had to work with the planners to educate them as to our strengths, weaknesses, and capabilities so they could utilize us as effectively as possible within the exercise. Luckily, the planners and other air assets were eager to learn about what we could do, which made the task easier.

The Sea King's aircraft sensors were less than ideal for some potential tasks. Our radar is optimized for over-water operations, and thus was useless over land, while our forward looking infrared (FLIR) has neither an electro-optical day camera nor any recording capability. Thus, the Sea King was not much use for any sort of traditional reconnaissance or intelligence-gathering missions. However, four keen sets of eyes and a digital camera proved capable in a number of instances, providing intelligence information on "enemy" locations and a weapons cache.

As the only medium-lift helicopter at the exercise, the Sea King was able to sling loads of gear and equipment, conduct medical and casualty evacuations, and carry out a number

of other utility movements of personnel and gear for the task force. The Sea King's external load lift capability is nothing close to the Chinook's (which could lift the equivalent of a Sea King if it had to), but it proved useful when it was impractical to send a Chinook for a smaller load of gear or personnel.

There was definitely a steep learning curve for the MH aircrew on the types of missions the Army requires. One highlight of the exercise was when the Sea King was tasked to pick up a section of troops and sit ready to deploy them into action as a mobile road block following the Army's attack on, and occupation of, a village. This tasking gave the MH crews a full appreciation of the detailed planning, preparation, and thorough multi-crew briefings it takes to execute the multi-ship mission. In this case, the Sea King was acting as the high-value unit, and we had two Griffons escorting us to keep us safe while airborne to the various locations and on the ground. A third Griffon was at altitude to provide top-cover and maintain the communications link to the Army commanders on the ground.

Ultimately, the infantry troops proved too effective in their occupation of the village and we were never called in to drop off the section of troops, but we did have the chance to work in consort with the Griffons, pick up the troops and lie in wait for deployment. We learned a lot through our involvement in this tasking, such as landing-site selection (a Sea King needs a lot more space than what was available in the initial landing spot chosen by the Griffon operations [ops] staff). Additionally, this tasking underlined some of our limitations when working in the land-ops environment, such as the lack of a troop step up to our cargo door (a piece of kit which can be fitted on our bravo models with restrictions, but which we did not have for this exercise), and also our lack of navigational aids in the

cockpit. Unlike the Griffon or Chinook, which have global positioning system (GPS) or grid navigation displays in the cockpit, the Sea King is limited to following a needle input manually by the ACSO, or simply using visual navigation. Route and map study helps, but MH pilots are not overly accustomed to low-level overland visual navigation, so a visual display would certainly help.

One aspect in which Ex MR11 proved to be especially useful for the MH crews and our crew training was with regards to night flying training. The Sea King has only recently been converted for night vision goggle (NVG) flights, and the aircrew of 12 Wing are still building flight hours on goggles. The opportunity to conduct crew training missions within the Wainwright training area was invaluable due to the vast and varied terrain within a short distance of the airfield. The Sea King crews were tasked for a number of interesting missions at the end of the exercise,

allowing us to build on the crew experience of landing in austere sites identifiable only by the “buzz-saw” signal (infrared chemical light swung around in a circle by a soldier).

INTERFACE WITH THE ARMY

One of the frequent questions we fielded about the Sea King’s involvement in Ex MR11 was how we felt it worked with the Army vice our traditional dealings with the Royal Canadian Navy (RCN). Honestly, it was not that much different. Sure, there are obvious things like accommodations, rations, daily routine, and surroundings, but in the grand scheme of the exercise, many of the challenges that we faced are similar to those we face with the RCN.

Communications is always an issue while in flight, regardless of which element you are working with. The amount of time spent loitering outside of the active areas of the Wainwright training area equates to the



amount of time you sometimes spend loitering outside of an active area of waterspace or the ship's control zone while the proper communications are made and approvals are received. The Griffons appeared to be facing much of the same frustrations as we often have while at sea.

The Sea King's communications suite is geared for maritime operations, so we were limited with our radio frequency bands and our ability to communicate with the Army commanders on the ground. Our bravo

aircraft was better off, with a newer radio installed which permitted communications in the proper frequency band; however, all of the other aircraft involved in the exercise had multiple radios, enabling them to stay in contact with the user, ground or area controller, and the other airborne aircraft, all on separate channels. We were forced to use alternate frequencies with many of the area controllers, and resort to message passing to the Army commanders when we were flying our alpha aircraft.





As for our introduction to the Army air planning cycle and our interaction with the ops planners, the biggest lesson we learned was that our successful involvement in these sorts of exercises in the future would be enhanced by having a small ops presence of our own. Whether that is simply bringing an extra one or two crew members who can be the eyes and ears on the ground and around the ops room while the other crews are flying or sleeping, or actually bringing a small ops cell to integrate with the Griffon ops cell, it would only serve to improve the communications flow and streamline the planning and tasking of the Sea King within the exercise.

CONCLUSION

The inclusion of the CH124 Sea King at Ex MAPLE RESOLVE 2011 was a great opportunity for knowledge sharing and opening the path to common understanding of helicopter operations within the Canadian Forces. Not only did the Sea King crews who participated gain a wealth of information about how Army air functions and the sorts of missions that they conduct, but it allowed the Griffon and Chinook crews to learn a little bit about Maritime operations and how our community functions while deployed.

The lessons learned by the Sea King land-based detachment throughout MR11 expand well beyond those mentioned above. However, the overall experiences of the aircrew, technicians, and, hopefully, those who we interacted with while in Wainwright were positive in nature. Whether 12 Wing will have the opportunity or availability to send a detachment to future Army task force exercises is still yet to be seen. It would be fair to say, however, that the deployment of MH assets and personnel to land-based locations is a likely scenario of the future, whether it is at an exercise such as MAPLE RESOLVE or a future deployment at home or abroad. 🌀

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Warrant Officer David Rowe, CD, joined the Canadian Forces in 1988, spending time in the Infantry and as a clerk before training as an airborne electronic sensor operator (AES Op) in 1998. He is currently employed at 12 Wing's Helicopter Operational Test and Evaluation Facility (HOTEF) in Shearwater, Nova Scotia.

ABBREVIATIONS

ACSO	airborne combat systems officer
ASW	antisubmarine warfare
Ex	Exercise
MH	maritime helicopter
MR11	MAPLE RESOLVE 2011
Op	operation
RCN	Royal Canadian Navy
sqn	squadron



MISSED OPPORTUNITY

**CURRIE, TURNER,
AND THE ABORTIVE BIRTH
OF THE
CANADIAN AIR FORCE
IN THE GREAT WAR**

BY WILLIAM STEWART



In the First World War (WWI), over 20,000 Canadians trained as pilots in the British flying services, and many of the leading British Empire aces were Canadian. Despite this major contribution, not a single Canadian squadron served on the Western Front. Australia, with significantly fewer pilots, had three squadrons on the Western Front from 1917. That year, the two key military figures in the Canadian Expeditionary Force (CEF), Lieutenant-General Sir Arthur Currie, commanding the Canadian Corps, and Lieutenant-General Sir Richard Turner, commanding forces in England, strongly lobbied for a Canadian air service, but because they did not work in concert, their advocacy failed. This article will examine their failed efforts to form a Canadian air service in 1917, with a focus on the roles of Currie and Turner in demanding a separate service, their inability to work together, and the consequent reasons for the failure to establish a Canadian air force. The article will also look at the key players thwarting the Canadian service and their rationale for their actions.

One of the paradoxes of Canadian participation in WWI was why there was no distinct Canadian air service at the front.¹ Canada demanded the right to form Canadian army units from the war's beginning, and the British acquiesced. The British accepted this assertion of sovereignty well before Canadians demonstrated any martial prowess. By 1918, the Canadian government had achieved control over all but operational matters for its land forces, yet it was not until well into 1918 that Canadian authorities made a similar assertion for a Canadian air service.

The British authorities, furthermore, did not demonstrate intractable resistance to separate Canadian squadrons. Senior British officers, such as Brigadier-General Sefton Brancker, the Deputy Director of Military Aeronautics, indicated a willingness to accept Canadian squadrons.² In late 1915, the Army Council suggested the Dominions raise air units—an offer the Australians accepted.³

Further, the War Office accepted the offer of Sam Hughes (Canadian Minister of Militia and Defence), of four squadrons in September 1916, and as late as March 1917, representatives of the War Office were trying to meet with the Minister of Overseas Military Forces of Canada (OMFC) to discuss the offer—an offer unknown to the authorities in the OMFC because of Hughes' resignation.⁴

Canada's contribution to the British air effort was significant, as Canadians accounted for roughly one-quarter of the total British pilot strength. On a percentage basis, this was a considerably larger contribution than Canada's four divisions to the total of sixty British and Dominion divisions on the Western Front. The nature of the contribution was also notable, as four of the top ten British air aces were Canadian.⁵

Finally, there was Australia's success in raising and maintaining three squadrons on the Western Front and one in the Middle East by late 1917; this despite Australia sending one-twentieth of the pilots Canada sent to the front. Australia's contribution consisted of the 410 pilots of the Australian Flying Corps, approximately 200 more transferred to the Royal Flying Corps (RFC) under exceptional provisions, and an unknown but relatively small number of Australians were directly recruited.⁶ Yet, Australia responded to the 1915 Army Council invitation and had a squadron serving in Egypt by March 1916. The Australian Government offered a second one in July 1916, and the War Office asked for more formations in September. Australia reacted by forming three more squadrons (No. 2, 3 and 4) that after eight months of training reached the front in time for the Cambrai offensive.⁷ Australia also established a complete training organization in England with four training squadrons to instruct replacement pilots for the Australian units. No. 3 Squadron was permanently attached to the Australian Corps. Despite its much smaller pilot contribution, Australia was able to send its own squadrons to the front and

gain the resulting valuable experience for the post-war period.

Australia did have the inestimable advantage of possessing a rudimentary flying service at the start of the war.⁸ As a result of attending the 1911 Imperial Defence Conference, the Australian Defence Minister recognized the importance of air power. In reaction, Australia formed a Central Flying School in 1912, added an Aviation Instruction Staff as part of the Permanent Force in 1913, and started referring to this formation as the Australian Flying Corps in 1914.⁹

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BRITISH SERVICE.**

The Canadian government, on the other hand, demonstrated limited interest in air power before and during the first two years of the war. With no pressing demand from the public for a distinct force, the government's view was that the rapidly evolving air power technology was best left to the War Office and Admiralty. Reinforcing this view was the recommendation of the well-respected Chief of the General Staff, Major-General Willoughby Gwatkin, a British regular officer serving in Canada, who advised that while air power was important, its development was best left until after the war.¹⁰ Gwatkin's position is understandable given the unprecedented scale, scope, and nature of Canada's participation in the war and the focus on raising an enormous land army. The mercurial Minister of Militia and Defence, Sam Hughes, expressed intermittent attention to air power over the course of his tenure. He sent three pilots as

part of the First Contingent but afterwards lost interest. He was later convinced about its importance and promised the British in September 1916 that Canada would provide four squadrons, without the knowledge or approval of Cabinet.¹¹

In November 1916, the Prime Minister, Sir Robert Borden, forced Hughes to resign because of his mismanagement of his department and incorrigible refusal to follow Borden's instructions. Borden then split off the responsibility for overseas forces to a Ministry for Overseas Military Forces of Canada. He appointed Sir George Perley, who was acting High Commissioner, to be its Minister. Perley was a wealthy lumberman from Ottawa and was first elected to the Quebec riding of Arteneuil in 1904.¹² Perley was Borden's closest confidant while the Conservatives were in opposition. When elected as Prime Minister, Borden tasked him with overhauling the government machinery, and later sent him to England as the acting High Commissioner in 1914. Borden admired successful businessmen in an age where business attracted the best and brightest.¹³ Perley was an astute politician, but almost wholly ignorant of military matters.¹⁴ As a result, he relied heavily on his Chief Military Advisor, Lieutenant-General Sir Richard Turner. Perley also had the reputation of being an anglophile. Borden warned him about his perceived predilection for favouring British policies: "a cry may be raised on this side that Canadian rights will not be strongly asserted under your administration and that Canadian direction and control will not be properly maintained."¹⁵

Perley resigned his Ministry later in 1917 owing to exhaustion and his concerns about holding his seat in the upcoming federal election. In his place, Borden appointed Sir A. E. Kemp, who had replaced Hughes as the Minister of Militia and Defence in Canada. Kemp was born into humble circumstances in Quebec, but parlayed his business acumen and hard work into a successful business career in Toronto. He first entered politics in 1900 and



served as a Minister without Portfolio at the start of the war. He acted as Borden's trouble-shooter, investigating operations of various departments, and then served as the first Chairman of War Purchasing Committee in 1915. He came to England with a mandate to regain control of Canadian forces.¹⁶ Judging from Kemp's letters to Borden from England, there was no risk that Kemp would be too partial to the British.¹⁷

The two main Canadian military protagonists were Lieutenant-General Sir Arthur Currie and Lieutenant-General Sir Richard Turner. Currie was a militia officer from Victoria appointed to command the Canadian Corps in June 1917. Currie was a pragmatic nationalist and was eager to appoint Canadians to staff and command positions, but only when they were qualified. Currie had little respect for Turner and believed Perley and Turner were at war with him.¹⁸ Currie consistently made disparaging comments about Turner and his performance.¹⁹ This attitude permeated and shaped Currie's correspondence to his friends, associates, and to Turner. The possibility of shared confidences between Turner and Currie was precluded.

Currie's great rival and military senior was Sir Richard Turner, a wealthy militia officer from Quebec City. Turner had earned a Victoria Cross (VC) in the Boer War. He was the controversial commander of the 3rd Brigade at Second Ypres and of the 2nd Division at St Eloi Craters and on the Somme. Turner commanded the Canadian forces in England and assumed the position when Currie turned it down in November 1916. Turner had effected a major transformation in the effectiveness and efficiency of Canadian training and administration in England, and so was well regarded by Perley. Turner was an ardent nationalist and wanted to accelerate the selection of Canadians for command and staff positions.²⁰ As a result, Turner was more aggressive than Currie in advocating for a separate air force. In the face of Currie's hostility, Turner's relationship with Currie was cool but correct.

Turner fully appreciated the impact of air power from his bitter experiences at Second Ypres, at St Eloi, and because of success at the Somme. At Second Ypres, the 3rd Brigade suffered severely from air-spotted German artillery fire. At St. Eloi, the weather barred air reconnaissance from finding the errors in the location of the 2nd Division's positions. At Courcelette in the Somme campaign, British air superiority enabled air-spotted artillery to destroy and disrupt German defensive positions. As a result, Turner was a strong proponent of a Canadian air force. As early as January 1917, Turner was promoting a separate service in a newspaper interview.²¹ Turner wrote to Perley on 13 July and 22 September strongly advocating for a Canadian flying corps. The second letter was probably the most pointed letter Turner sent to Perley. Typically, Turner was deferential in his correspondence with Perley, but these letters were blunt and forceful.

In the first letter, Turner recommended that Canada form squadrons "as rapidly as conditions allow" with the objective of establishing a Royal Flying Corp Brigade. A brigade was normally an Army-level asset and included observation and scout squadrons, a balloon park, and an aircraft park. Turner believed this formation would provide experience in all the branches of the air service. The British would supply the equipment, with Canada supplying the pilots, who would be transferred from the RFC and Royal Naval Air Service (RNAS), and technical personnel from Canadian forces overseas. Ground personnel would require necessary technical training in British schools. He also suggested Canadian officers serve on the "aeronautics staff, the line of communications, and as equipment officers" to gain experience.²² He followed up with a second letter on 22 September strongly arguing again for a Canadian flying corps, stating it was "humiliating" that Canada had no air service when it was contributing so many men to the British service.²³

His rationale for this force was fourfold. Firstly, a distinctly Canadian service would

develop to be of greater utility to the Empire and Canada. Unstated, but understood, was the example of the Canadian Corps in demonstrating that Canadians fought best under Canadians. Secondly, Canada was supplying large numbers of its best men as pilots who were performing well at the front, with Canada receiving only indirect credit for their accomplishments. The Canadian authorities believed Canadians made up as much as 35 per cent of the flying officers in the RFC and RNAS, when the actual total was closer to 25 per cent.²⁴ Thirdly, the government was abrogating its responsibilities to its citizens while they served in the British air services, as there was no organization to protect their interests and to ensure proper promotion. Finally, Canada was losing the opportunity to gain experience in an increasingly critical branch in the fighting services. The rationale is a clear demonstration of Turner's nationalist orientation and his political sensitivity.

Turner's concern with the government's responsibility related to the inability to track most Canadians in the British air services. By early 1917, Canadians entered the RFC or RNAS via direct recruiting, transfer, or secondment. The British were recruiting and training large numbers of Canadians in Canada, and Canadians were transferring from the CEF into the RFC or RNAS.²⁵ Canadian authorities could only track seconded Canadians. In the other two entry routes, recruits and transferees were lost to oversight or monitoring by Canadian authorities. The actual number of Canadians in the British air services was unknown, as Canadian authorities had only an approximate notion of the numbers. It was not until the publication of the first volume of the official history of the Air Force in 1980 that a more precise number became known.

Perley's response to Turner's advocacy was to argue to Borden that he sympathized with the feeling that Canada should have its own air service in the same manner as it had its own "Infantry, Cavalry, and Artillery,"

but there were practical arguments against it; furthermore, he asserted that after an investigation there were no serious grounds for complaint about promotions and higher appointments.²⁶ He expressed the concern that Canadians would not want to fly in the slow observation aircraft that were a vital part of a balanced air service. Perley either did not know or chose to overlook the fact that many Canadians were already in observation squadrons. He also deprecated the concern that Canada was not gaining experience in air warfare, as Canadians were already serving in multiple roles in the air services. In addition, Perley claimed that as only a small percentage of Canadian pilots could serve in Canadian squadrons, it would create dissatisfaction in those not selected.

He identified his final and most telling point in discussions with Flight Commander Redford Mulock, the senior Canadian pilot in the RNAS. Perley, being the astute politician, met Mulock to test the validity of Turner's recommendations, and Mulock raised the issue of how to ensure a separate Canadian service would get a fair proportion of modern aircraft. Aircraft technology was rapidly developing, so aircraft were just as rapidly rendered obsolescent, and flying obsolescent aircraft was akin to a death sentence, as witnessed by the terrible losses experienced by the RFC in April 1917.²⁷ Perley's concern was that any real or perceived inequitable distribution of aircraft would rebound on the government, and the country would blame it for failing to provide the right tools to its men. There are, however, no reports from Australian sources to suggest the Australian Flying Corps had any difficulty in getting a just share of modern aircraft. At its heart, Perley's argument was that the political risks of a separate service far outweighed any potential benefits.²⁸ Kemp, in August 1917, as Minister of Militia and Defence, agreed with Perley that it was not advisable to form a separate Canadian air service.²⁹

The influential and powerful commander of the RFC in Britain, Sir David Henderson, was also opposed to a separate service, as dedicated Dominion formations would make the management and command of the RFC more onerous.³⁰ He preferred, like Haig, to have an Imperial service wherein pilots from Britain and all the Dominions and colonies would serve where it best suited the air service.³¹ Given the recent formation of the RFC, he believed it was necessary to appoint regular officers to command, staff, and administrative positions because they were best suited to developing the RFC. As Canada had few regular officers, and few of those served in the air services, it therefore explained in part why there were few Canadians in senior appointments.

All of these points had some validity, but other than the issue of modern equipment, all applied equally to forming separate Canadian ground units. Sam Hughes, however, brushed aside these objections in 1914, and he aggressively asserted Canada's sovereignty to the benefit of Canada and the overall war effort. Perley, on the other hand, had already rejected a proposal from Grant Morden, a Hughes' appointee, in early 1917, for a separate force. It is possible to argue that Perley's rejection was reasonable given the proposal was made by an appointee of the out-of-favour Hughes, and that Perley was extremely busy. It still suggests, however, that Perley had a blind spot when it came to the air force and Canadian sovereignty.³²

The question of a separate air service remained in abeyance until, in the midst of the Passchendaele offensive in early November, Currie wrote to Turner about his desire for a Canadian squadron to support the Canadian Corps. While careful not to disparage the RFC, Currie stated, "I will go so far as to say that I think we would be better serviced if the squadron detailed for us were entirely Canadian."³³ He also believed it of considerable value in preparation for a post-war Canadian Flying Corps. Turner rapidly

replied, commenting, "Your letter of the 3rd inst.[sic] has given me particular pleasure, as it is an unbiased opinion from the Field."³⁴ Turner believed that by working together they could change Perley's mind. Currie later regretted the lack of progress on the formation of a Canadian flying corps and that "our authorities have not given it much encouragement."³⁵

Currie started his letter to Turner: "Because you and I have never discussed the formation of a Canadian Flying Corps, I do not know what your views are regarding such a step." Currie's comment demonstrates a critical error made by Turner in not enrolling Currie and the senior Canadian pilots in his campaign, and it highlights the costs of the estrangement between Currie and Turner. Strong support from Currie and the prominent Canadian pilots, such as Billy Bishop, Raymond Collishaw, and Red Mulock, orchestrated by Turner, might have been sufficient to change Perley's mind. Turner wrote his first letter in the midst of an intense battle with Currie over responsibilities for appointments and boundaries, so it was not a propitious time for collaboration.



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With Kemp replacing Perley as the Minister effectively in January 1918, Turner re-opened the file by sending a series of letters in January, February, and April 1918, reiterating the case for a separate service, and adding that Currie agreed with him. He pointed out, “Canadians have made good in everything they have taken up, and I have no reason to think that the Flying Service presents greater obstacles than what they have already met.”³⁶

Additional ammunition was supplied when Billy Bishop, VC, Canada’s most famous pilot, wrote Turner’s staff demanding a separate service. He claimed all Canadian officers in the Royal Air Force (RAF) wanted their own service for reasons of esprit de corps, and leadership that is more sympathetic to Canadian sensibilities and with greater connection to Canada. Bishop further asserted that Canadian pilots “in many cases are not at all contented under British officers when they would be very happy and most efficient under one of their own countrymen.”³⁷ He represented a grave threat to the government if a leading air ace with the visibility and popularity of Bishop publicly complained about the government’s position.³⁸ Turner was quick to pass on Bishop’s views to Kemp.³⁹

The formation of the RAF by amalgamating the RFC and RNAS in April 1918 gave Turner another opportunity to push for a separate air force. He wrote Kemp on 9 February that Canada, given the size of its contribution, should have a representative on the Air Board, the governing body for the RAF, as a liaison officer could not protect Canadian interests.⁴⁰ Turner then wrote another pointed letter to Kemp at the end of April strongly recommending that Canada secure representation on the Air Board commensurate with Canada’s contribution, and begin the formation of a Canadian air force with service units. Turner’s strongest point was that while Canada was well represented in the lower ranks, it was not proportionally represented in the higher

ranks. Turner was blunt that Canadian flying personnel felt “that the Canadian authorities are lukewarm in their support, and careless of their interests and the interests of Canada.”⁴¹

Turner had considerable grounds for his complaints about Canadian representation in the command ranks, as demonstrated by the table below showing seconded Canadians making up 9.5 per cent of the pilots, but only 2 to 3 per cent of the flight commanders and above.⁴² The report suggested that the actual number of Canadians in the RAF accounted for as much as 40 per cent of its strength. Turner’s headquarters gathered this information based on officers seconded to the RAF. The low percentage of Canadian commanders can be explained in part by the majority of Canadians having only recently joined the RAF and so were not likely to be promoted. The British policy of promoting regular officers over non-regulars, however, does appear to have had an effect on Canadian command appointments. This preference policy for regulars can also be seen in the fate of non-regulars in the British Army where the most senior non-regular officer commanded a brigade; whereas, in the CEF the senior non-regular was a lieutenant-general commanding the Canadian Corps.

	Wing Leader	Squadron Leader	Flight Leader	Flying Officers
Total	56	220	970	7,426
Canadian	1	6	17	694
Percentage	2%	3%	2%	9.5%

Table 1. Seconded Canadians to RAF 5 April 1918⁴³

Turner was able to refute one last set of objections from Kemp about the Canadian service being able to absorb only a small percentage of the Canadians serving in the RAF, but this step would still disrupt RAF squadrons by removing Canadians from them. Turner suggested all the Canadians would transfer to the new Canadian service and then be seconded back to the RAF, except for the few that would make up the Canadian



squadrons. This would not disrupt existing squadrons and would ensure Canada could monitor its citizens. He closed with another emphatic plea: "The whole question of the recognition of Canada's efforts in the air has now been a subject for discussion by the Canadian authorities for over two years; and as yet no actual steps have been taken to provide an organization. I feel that we should make every effort to secure some tangible result."⁴⁴

Turner's dogged persistence, with support from Currie and leading Canadian pilots, increased public scrutiny on the absence of a distinctly Canadian service, and a less anglophile minister convinced the government to change its policy in May 1918.⁴⁵ Kemp approached Lord Weir, President of the Air Council, to initiate negotiations the day after Turner wrote his May 15th letter about the lack of progress and tangible results.⁴⁶ Turner, Kemp, and McDonald met with representatives of the Air Council to negotiate the terms of the arrangement at the end of June 1918.⁴⁷ The government decided, as *The Official History of the Royal Canadian Air Force Volume 1* phrased it, "to bring its aviation policy into line with its established concerns about identity and status in the military and constitutional spheres by the creation of a Canadian Airforce [sic]."⁴⁸ The result, however, was much less than Turner wanted, with the British agreeing to track Canadians in the RAF, provide shoulder badges for all Canadians, and allow a liaison officer at headquarters. The primary achievement was the establishment of two Canadian squadrons, but not a complete service.⁴⁹ Canada was to provide and pay the flying and ground personnel, while the British supplied training and equipment. To help establish this new service, Billy Bishop transferred to the CEF as a staff officer (GSO 1) to bring his expertise and credibility to help form the new squadrons.⁵⁰ Despite the promising start, neither squadron reached the front before the armistice, and the nascent air service was disbanded in June 1919.⁵¹

Ironically, under pressure from the British and Americans to provide better protection to East Coast convoys, the government established a Royal Canadian Naval Air Service on 5 September 1918. Nominally Canadian, the United States supplied all personnel and equipment for the Service. The intent was that, once trained, Canadians would replace the Americans, but the armistice intervened and the service was disbanded 5 December 1918.⁵²

Turner made one last attempt in June 1919 to save the service by writing a forcefully worded letter complaining about the government's lack of interest in the force. He believed it a mistake not to take advantage of the two squadrons if there was intent to form a Canadian air force. If it was, however, "not the intention of Canada to progress with the other nations in the air," then, he believed, "a great mistake will be made."⁵³ Turner's pleas had no effect.

Turner also took an interest in the most highly decorated Canadian ace, William Barker. Turner had Barker seconded to Argyll House, like he did for Billy Bishop, and arranged for Barker to be transferred to the CEF and promoted to lieutenant-colonel.⁵⁴

Throughout the war, Canadian authorities struggled to supply sufficient numbers of efficient non-commissioned officers (NCOs) and junior officers to maintain the combat effectiveness of the Canadian Corps. Other than a few brief restrictions, Canada allowed approximately 20,000 men who were or could have been NCOs and junior officers in the CEF to serve in the British flying services, with limited direct benefit to Canada.

Given the extent and nature of Canada's contribution to the air war, why was there no separate service? First, the government's perspective was that the risks associated with a separate service outweighed the benefits, especially in the absence of a strong public interest. The equipment issue loomed as a potential nightmare for the government.




Perley's tendency to defer to the British also played a role. In addition, the government received poor advice from Gwatkin who under-estimated the increasing importance of air power.

The second factor was the weak information exchange between the front and Canada, which materially contributed to the government and Gwatkin's underestimation of the significance of air power. A major flaw in the Canadian war effort was the absence of mechanisms to convey the war lessons to Canada, so the government did not understand or appreciate the increasing criticality of air power. While there was a steady flow of political figures such as Hughes, Perley, Kemp, and Borden between Canada and England, no senior officer from Turner's or Currie's command visited Canada until almost the end of the war.⁵⁵ The only senior officers to visit England and France from Canada were the two inspector-generals for Eastern and Western Canada who made a relatively brief inspection tour. Only seven of the sixty-nine general officers who served in France returned to Canada during the war to take up appointments.⁵⁶ Generally, returning officers were either wounded or regarded as failures. This lack of officer exchange meant Canada operated in isolation.

Finally, the flawed relationship between Turner and Currie thwarted the presentation of a unified front to Perley and the government. Turner led the efforts to try to establish a separate air force, and his persistent efforts are commendable. However, because neither Turner nor Currie was able to enlist the other in a push for a separate service, and neither gained the support of the most influential Canadian pilots, their endeavours were frustrated. If Turner had enrolled Currie earlier, it might have been enough to tip the scales and convince Perley.

There is a striking difference between the nature of correspondence between Turner and Currie and that of their British

counterparts, Field Marshal Sir Douglas Haig, the Commander in Chief of the British Expeditionary Force (BEF) and Field Marshal Sir William Robertson, the Chief of the Imperial General Staff. Haig and Robertson regularly met and exchanged views via letters.⁵⁷ This information exchange enabled both officers to explain their situations and provide some insight into the difficulties they faced. Haig and Robertson were engaged in a fierce set of battles with their political masters, the "Frocks," so whatever centrifugal forces may have separated them were overborne by the central necessity of presenting a single front. In the Canadian situation, Currie believed the enemy was the administration in England, meaning Perley and Turner. This made it difficult for Turner to develop a common front with Currie.⁵⁸

The abortive birth of the Canadian air force had significant repercussions. The lack of institutional continuity and precedent meant re-fighting the same battles in the Second World War to establish Canadian formations larger than a squadron, despite the existence of a Royal Canadian Air Force. Secondly, albeit a smaller matter, Australia published its official air history of WWI in 1923, and Canada not until 1980. As Jeffrey Grey (an Australian professor of history) phrased it: "Although one-quarter of the RAF was Canadian by the war's end, as were many of the leading aces, the Canadians did not gain the benefit of command and administrative experience, which might have accrued to them otherwise from an independent air service and which would have been an asset after the war."⁵⁹ 

After a short 30-year hiatus in high tech, Bill Stewart returned to academia as a doctoral candidate at the University of Birmingham in the United Kingdom under Dr. Gary Sheffield, as a remote student based in Canada. Stewart is working on a military biography of the controversial Great War Canadian general, Richard Turner. The article grew out



of Stewart's research into the dysfunctional relationship between Turner and Currie and its consequences.

ABBREVIATIONS

CEF	Canadian Expeditionary Force
CGS	Commander General Staff
NCO	non-commissioned officer
OMFC	Overseas Military Forces of Canada
RAF	Royal Air Force
RFC	Royal Flying Corps
RNAS	Royal Naval Air Service

NOTES

1. Two squadrons were authorized and were in the process of forming and training at the armistice.

2. S. F. Wise, *Canadian Airmen and the First World War, The Official History of the Royal Canadian Air Force Volume 1* (University of Toronto Press in co-operation with the Dept. of National Defence and the Canadian Government Publishing Centre, Supply and Services Canada, 1980), 49, 74.

3. F. M. Cutlack, *The Australian Flying Corps in the Western and Eastern Theatres of War, 1914–1918, The Official History of Australia in the War of 1914–1918*, vol. 8 (Sydney, Australia: Angus & Robertson, 1923), 31.

4. Cubitt to Sam Hughes, 8 September 1916, 10-9-27 v1, RG 9 III A1 v80, Library and Archives Canada (LAC); Fellows to OMFC, 6 March 1917, LAC; Thacker to Turner, 7 March 1917, LAC; Perley to Air Board, 8 March 1917, 10-9-27 v1, RG 9 III A1 v80, LAC.

5. These aces were William Bishop with 72 victories, Raymond Collishaw 60, Donald MacLaren 54, and William Barker 50.

6. Australia had a policy of prohibiting other ranks from transferring to the British military. Michael Molkentin, *Fire in the Sky* (Crow's Nest: Allen & Unwin, 2010), 179; Cutlack, 421.

7. These squadrons originally had Royal Flying Corps squadron numbers but switched to the Australian identification in early 1918. Cutlack, 421–24.

8. An interesting question arising from this paper but outside of its scope is Australia's greater receptivity to authorizing a separate flying corps although Australia was remote from any centre of aircraft development, unlike Canada.

9. Alan Stephens, *The Royal Australian Air Force* (Melbourne, Oxford: Oxford University Press, 2001), 4–19; Molkentin, 6–10.

10. Ironically, post-war Gwatkin would be the Air Force's Inspector-General before it was disbanded. Memorandum Relating to the Proposed Formation of a Canadian Flying Corps, 4 August 1917, LAC 10-9-27 v1, Records Group (RG) 9 III A1 v80.

11. Wise, *Canadian Airmen*, 70.

12. Richard J. Walker, "The Political Management of Army Leadership: The Evolution of Canadian Civil-Military Relations 1898–1945," PhD thesis, The University of Western Ontario, 2003, 160.

13. John English, *The Decline of Politics: The Conservatives and the Party System 1901–1920* (Toronto: University of Toronto Press, 1977), 51.

14. Ronald Haycock, "Sam Hughes: The Public Career of a Controversial Canadian, 1885–1916," *Canadian War Museum Historical Publication*, vol. 21 (Wilfrid Laurier University Press in collaboration with Canadian War Museum, Canadian Museum of Civilization, National Museums of Canada, 1986), 265.

15. Borden to Perley, 6 November 1916, v7, File 1, MG 27 II D12 v4-7, *Perley Fonds*, LAC.

16. Kemp to Borden, 24 February 1918, MG 27 II D9 v129, *Kemp Fonds*, LAC.

17. George L. Cook, "Sir Robert Borden, Lloyd George and British Military Policy, 1917–1918," *The Historical Journal* 14, no. 2 (1971): 382; Desmond Morton, *A Peculiar Kind of Politics*, (Toronto: University of Toronto Press, 1982), 148.

18. A. M. J. Hyatt, "General Sir Arthur Currie: A Military Biography," *Canadian War Museum Historical Publication*, vol. 22 (Toronto: University of Toronto Press, 1987), 130; Tim Cook, *The Madman and the Butcher* (Toronto: Allen Lane, 2010), 248.

19. For instance, see Currie's assertion that Turner did not go to the front at St. Eloi. Desmond Morton, "Exerting Control: The Development of Canadian Authority over the CEF, 1914-1919," in *Men at War*, eds. Timothy Travers and Christon Archer (Chicago: Precedent, 1982), 13. Another example is Currie's statement that the 15th Battalion at Second Ypres ran away. It is difficult to accept an accusation of cowardice against a unit suffering 691 casualties as other than animus. Currie to May, 11 May 1915, File 34, MG 4027 C3, *Urquhart Fonds*, McGill Archives; Daniel G. Dancocks, *Welcome to Flanders Fields: The First Canadian Battle of the Great War: Ypres, 1915*, (Toronto: McClelland and Stewart, 1989), 227. Another example is Currie to Hughes: "They tell me that Turner is not joy-riding in Italy, I note, though, that the reinforcements we are receiving are classified as partially trained." Also, Currie to Garnet Hughes, 2 May 1917, File 5, MG 27 II D23 v14, *Hughes Fonds*, LAC.

20. See for instance, Turner to Perley, 27 January 1917, MG 30 E46 v11, *Turner Fonds*, LAC.

21. Wise, *Canadian Airmen*, 587.

22. Turner to Perley, 13 July 1917, MG 30 E46 v9, *Turner Fonds*, LAC.

23. Turner to Perley, 22 September 1917, MG 30 E46 v9, *Turner Fonds*, LAC.

24. Perley to Borden, 10 August 1917, MG 30 E46 v9, *Turner Fonds*, LAC.

25. Robert M. Morley, "Earning Their Wings: British Pilot Training, 1912-1918," Masters thesis, University of Saskatchewan, 2006, 88. For an in-depth discussion of the Royal Flying Corps in Canada, see C. W. Hunt, *Dancing in the Sky: The Royal Flying Corps in Canada* (Toronto: Dundurn Press, 2009).

26. Borden had instigated an investigation by Perley into complaints regarding Canadian pilot promotions. Wise, *Canadian Airmen*, 583.

27. John Howard Morrow, *The Great War in the Air: Military Aviation from 1909 to 1921*, Smithsonian History of Aviation History (Washington: Smithsonian Institution Press, 1993), 234; Peter Hart, *Bloody April: Slaughter in the Skies over Arras, 1917* (London: Weidenfeld & Nicolson, 2005).

28. Perley to Borden, 10 August 1917.

29. Wise, *Canadian Airmen*, 587.

30. S. F. Wise, "The Borden Government and the Formation of a Canadian Flying Corps, 1911-1916," in *Policy by Other Means: Essays in Honour of C. P. Stacey*, ed. Michael S. Cross (Toronto: Clarke, Irwin, 1972).

31. Haig to War Office O.B./742, 17 June 1917, 10-8-18, RG 9 III A1 v73, LAC.

32. Wise, *Canadian Airmen*, 70.

33. Currie to Turner, 3 November 1917, MG 30 E46 v9, *Turner Fonds*, LAC.

34. Turner to Currie, 7 November 1917, MG 30 E46 v9, *Turner Fonds*, LAC.

35. Currie to Grant Morden, 4 May 1918, MG 30 E100 v2, *Currie Fonds*, LAC.

36. Turner to Kemp, 19 January 1918, 10-9-27 v1, RG 9 III A1 v80, LAC.

37. Bishop to Morrison, 10 April 1918, MG 30 E46 v9, *Turner Fonds*, LAC.

38. David Bashow, "The Incomparable Billy Bishop: The Man and the Myths," *Canadian Military Journal* 3, no. 3 (2002): 57; Dan McCaffery, *Billy Bishop, Canadian Hero*, (Halifax: Goodread Biographies, 1990), 154-60.

39. Turner to Kemp, 13 April 1918, MG 30 E46 v9, *Turner Fonds*, LAC.

40. Turner to Kemp, 9 February 1918, MG 30 E46 v9, *Turner Fonds*, LAC.



41. Turner to Kemp, 30 April 1918, C-18, MG 27 II D9 v132, *Kemp Fonds*, LAC.

42. Particulars of Canadians Seconded to Royal Flying Corps, 5 April 1918, 10-9-27 v1, RG 9 III A1 v80, LAC.

43. Ibid.

44. Turner to Kemp, 15 May 1918, C-20, RG 9 III A1 v132, *Kemp Fonds*, LAC.

45. Brereton Greenhous, *Canada's Air Forces, 1914–1999* (Montréal: Art Global, 1999), 22.

46. Kemp to Weir, 16 May 1918, C-18, MG 27 II D9 v132, *Kemp Fonds*, LAC.

47. McDonald to Secretary, Air Council, 28 June 1918, 10-9-27 v1, RG 9 III A1 v80, LAC.

48. Wise, *Canadian Airmen*, 580.

49. Overseas Militia Council Submissions, 13 July 1918, O-153-3 v4, RG 9 III B1 v2892, LAC.

50. McDonald to Commander General Staff (CGS), Canadian Air Force (CAF)-8-7, 17 August 1918, M-29-36 v5, RG 9 III B1 v3091, LAC.

51. Wise, *Canadian Airmen*, 579.

52. Hunt, 246–47; J. D. F. Kealy and E. C. Russell, *A History of Canadian Naval Aviation 1918–1962* (Ottawa: Queen's Printer and Controller of Stationery, 1965), 5–7.

53. Turner to Gibson, 25 June 1919, MG 30 E46 v9, *Turner Fonds*, LAC.

54. Wayne Ralph, *Barker VC: William Barker, Canada's Most Decorated War Hero* (Toronto: Doubleday Canada, 1997), 178.

55. Turner's chief staff officer and Bishop left for Canada in October 1918.

56. A. M. J. Hyatt, "Canadian Generals of the First World War and the Popular View of Military Leadership," *Histoire Sociale – Social History* XII (1979): 425.

57. Some examples include, Robertson to Haig, 7 January 1916, 7/6/10, *Robertson Papers*, Liddell Hart Centre for Military Archives (LHCMA); Haig to Robertson, 9 January 1916, 7/6/12, *Robertson Papers*, LHCMA; Haig to CGS, 24 January 1917, WO 158/22, The National Archives (TNA).

58. According to Currie's diary, Currie met Turner in France in May of 1917 and visited Turner in England twice in June and twice in September. It was not until 2 January 1918 that Currie met with Turner again. Diary Entries, 22 May; 15, 16 June; 10, 15 September 1917; 2 January 1918, MG 30 E100 v43, *Currie Fonds*, LAC.

59. Jeffrey Grey, *A Military History of Australia*, 3rd ed. (Cambridge: Cambridge University Press, 2008), 118.

PUNCHING ABOVE ITS WEIGHT:

**The CP140 Aurora Experience within
Task Force Libeccio and Operation MOBILE**

**BY CAPTAIN DANIEL ARSENAULT
AND CAPTAIN JOSH CHRISTIANSON**





Few airborne platforms in the world have as broad a spectrum of roles as the modern long-range patrol aircraft (LRPA). Canada's LRPA, the CP140 Aurora, is no exception and over the past two decades, it has seen its scope of operations expand from the naval surface and subsurface missions of the cold war era. In the past 12 months, CP140s have been conducting operations in overland intelligence, surveillance, reconnaissance and control (ISR&C);¹ naval gunfire support (NGS); overland strike coordination and reconnaissance (SCAR);² maritime interdiction; psychological operations; counter narcotics; fisheries and sovereignty patrols; search and rescue; and support to other government departments (OGDs).

These roles continue to grow and evolve with technology and the joint force commander's (JFC's) demand for real-time situational awareness, regardless of the battlespace. In March 2011, a long-range patrol (LRP) air expeditionary unit (AEU) deployed as part of Task Force (TF) Libeccio, the air campaign within Operation (Op) MOBILE, providing the commander with that crucial awareness. Operation MOBILE refers to Canada's contribution to Op UNIFIED PROTECTOR, the North Atlantic Treaty Organization- (NATO-) led mission in Libya, which included a maritime arms embargo authorized under United Nations (UN) Security Council Resolution 1970, and was subsequently strengthened with the passing of Resolution 1973 and the establishment of a no-fly zone.³ The ultimate goal of this contribution was the protection of civilians in Libya. It was also the first LRP Canadian Expeditionary Force Command deployment out of Canada since supporting Op ATHENA in 2009⁴ and the first sustained, multiple-crew rotation deployment for the CP140 since Op APOLLO in 2003.⁵

This article will first summarize the experience of the LRP force in its preparation to deploy, highlighting the benefits of a robust

readiness and training program. Secondly, the article will look at the platform from a capability perspective and examine the LRP force's role within the overall NATO mission, touching on each of the new mission roles and allied partnerships encountered in theatre. Lastly, the future of LRP operations will be introduced as the aircraft transitions to a new tactical suite in the Block III update, and the community modernizes existing tactics, techniques, and procedures (TTP), all with a challenging deployment still in sharp focus. Writing a new chapter in LRP history over the seven months in theatre, TF Libeccio was perhaps the most significant milestone in the evolution of the Aurora's role since the end of the cold war itself.

ALWAYS AT A STATE OF HIGH READINESS

Poised as one of Canada's high-readiness aircraft fleets, the LRP force maintains a high-readiness crew on each coast, at 14 Wing Greenwood and 19 Wing Comox, ready to deploy for up to six months on short notice. Meeting individual battle task standards (IBTS) has been part of this posture for almost five years and ensures personnel meet all Canadian Expeditionary Force Command deployment requirements. For the LRP community, this means the majority of aircrew, support staff, and technicians are already "green" across the board when given orders to deploy. Likewise, the annual personnel readiness verification (APRV) process is taken seriously, allowing the Departure Assistance Group (DAG) to be as seamless as possible. The community has also learned that developing administrative contingency plans to deploy at a moment's notice pays great dividends in the long run. This can be as simple as meeting with the unit health services manager, supply officer, or readiness training flight commander, among others, and coming up with a plan to put multiple groups of mission personnel through training quickly and efficiently. This planning could even be

looked at pragmatically as a readiness exercise with the mission support flight (MSF) under the air expeditionary wing construct.

By virtue of having so many roles assigned to one platform, CP140 aircrews have a robust plan to maintain proficiency in many of the designated warfare disciplines. Before being declared operationally ready to deploy, a CP140 crew must complete crew-based training qualifications, exercising their ability to perform not only as individual operators, but also synergistically as a crew. These structured training evolutions, dubbed “crew quals,” range from traditional antisubmarine warfare (ASW), to combined joint overland support of forces through intelligence, surveillance, and reconnaissance (ISR), and full-motion video streamed to a remote video receiver in the hands of a soldier conducting section attacks. The other benefit to these evolutions is the full-crew feedback, debriefing, standards, and training cell input, followed by submitting an event synopsis to the squadron commanding officer, who ultimately approves the crew’s tactics and decision making.

Deploying to a new, unknown base for sustained operations is a challenging task. The CP140 deployable mission support centre (DMSC) allows for the operational support function of typical Aurora missions to continue as normal, even in the most austere conditions, and is perhaps one of the highlights of our deployed capability.⁶ From the outside, it appears as a modest, olive, drab sea container, but once set up (in a mere four to six hours), it houses a full-service, classified network server, providing reachback to higher headquarters, multiple computer workstations, printers, chart-plotters, a briefing space with projector, very/ultra high frequency (V/UHF), HF, and satellite phone capability. It also contains heaters and air conditioners to adapt to climactic extremes, and when off the power grid, it can be powered by diesel generators common among many allied nations. During Op MOBILE, all CP140 aircrew briefings and post-flight video analysis took place in the DMSC.

JACK OF ALL TRADES

Before diving into a discussion on the new roles adopted by the CP140, it would be prudent to briefly address its history and foundations. Originally designed to conduct complex ASW, antisurface warfare (ASUW) and limited maritime ISR roles, Canada took delivery of the first of 18 CP140 Aurora aircraft in May 1980. As a variant of the Lockheed P-3 Orion aircraft, the Aurora was distinctly Canadian even from the outset, and at the time had an ASW and ASUW capability unparalleled by other fleets. With a persistent sub-surface maritime threat, continuing cold war tensions, and a requirement for the surveillance of Canada’s many maritime approaches, the Aurora was a much-anticipated platform by strategic planners.⁷

Fortunately, not only did the Aurora inherit the extended range and persistence capability of its predecessor, the CP107 Argus, but its impressive array of sensors allowed it to easily meet Canada’s maritime ISR requirements. These same factors allowed for a relatively seamless transition to many environments and roles. Nevertheless, after nearly 20 years of venerable service, the legacy 1970s’ technology was not only on the verge of becoming obsolete and difficult to maintain, but was also falling behind in its ability to meet contemporary roles and work in a joint and/or combined environment. In the early 1990s, as the world adapted to the end of the cold war, discussion had already begun regarding new roles and capabilities for Canada’s LRP fleet. It was out of necessity and a desire to begin the transition from a maritime patrol aircraft (MPA) to multi-mission aircraft (MMA) that the Aurora Incremental Modernization Project (AIMP) was born and would come to include three series, or blocks, of upgrades.⁸ The first two AIMP blocks are fully complete and include upgraded navigation and communication avionics in both the flight deck and the tactical compartment. The Block III update

comprised an almost entirely new sensor and data processing suite and is currently installed on three Greenwood aircraft. Block III will be discussed further below. In many respects, the Aurora's design, recent upgrades, and crew-station layout make this a versatile aircraft, as recently demonstrated overseas.

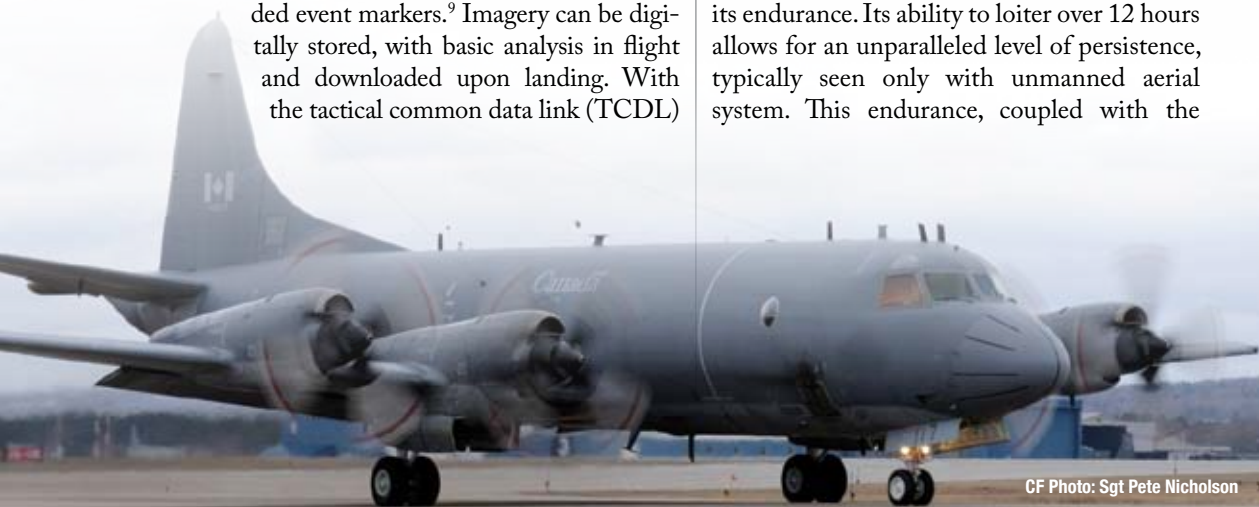
Both of the aircraft deployed on Op MOBILE were Block II variants suitable to the operational environment, although the new Block III sensor suite would have been a great asset. The modernized CP140 brought a number of unique capabilities to the fight. The radio-communication-suite upgrade provided aircrew and embarked mission specialists with an impressive communications "switchboard" to speak directly with as many as six agencies simultaneously, allowing for an agile and seamless transition to almost any command and control role.

The installation of the WesCam MX-20 electro-optics/infrared (EO/IR) camera in 2006, together with the overland electronic mission suite (OEMS) in 2009, done concurrently with AIMP upgrades, offered a data-fusion-based capability growth. The OEMS is a three-laptop suite, integrated with mission systems organic to the tactical compartment of the CP140. It enhances situational awareness, provides smart-cueing of the EO/IR camera, and assists target prioritization, greatly improving the final imagery product with embedded event markers.⁹ Imagery can be digitally stored, with basic analysis in flight and downloaded upon landing. With the tactical common data link (TCDL)

capability, video can be directly transmitted to remote video receivers (RVRs) or surface terminal equipment (STE) that can literally take control of the camera manoeuvring, similar to the control element of an unmanned aerial system.

The OEMS also receives maritime automatic identification system (AIS) "hits" that provide real-time position and movement of shipping traffic within line of sight (LOS) range, significantly improving our area coverage during domestic roles of maritime surveillance and fisheries monitoring. The CP140, in fact, was tasked to correlate the same AIS data collected by RADARSAT2 as a part of its proof of concept. All these improvements allowed crews to rapidly locate, identify, and forward required imagery (including video) and intelligence to supported commanders and agencies. While Aurora crews have been training to conduct ISR since the late 1990s, until recently, this role was considered secondary to the primary task of conducting ASW and ASUW. The camera was procured to replace the aging Forward Looking IR camera, not as an outright capability expansion. This imagery asset was extremely valuable in theatre because of its ability to collect imagery, day and night, and provide the global positioning system (GPS) position of the camera's boresight.

Perhaps one of the most valuable features of the Aurora is one that has existed all along: its endurance. Its ability to loiter over 12 hours allows for an unparalleled level of persistence, typically seen only with unmanned aerial system. This endurance, coupled with the



CF Photo: Sgt Pete Nicholson

room for extra crew members, makes it the ideal choice for the long-duration operations. This endurance enhances the role of an airborne command and control node, but in the context of ISR, it provides more than just opportunities for periodic reconnaissance (go and look), emphasizing the role of a true surveillance asset (go and watch).¹⁰ Collecting uninterrupted imagery and fusing other intelligence sources (radio chatter, electronic emissions, vehicle movements, etc.) allow analysts to break down and identify patterns of life and accurately analyse complex targets.

Perhaps one of the most valuable features of the Aurora is one that has existed all along: its endurance.

Moreover, by virtue of being a multi-crew/multi-sensor platform, the gathering and interpretation of information from an array of sensors, providing an integrated, precise, and reliable picture of the situation below, can be performed simultaneously. To illustrate this fact, it was not uncommon while deployed on Op MOBILE to see the crew carrying out multiple tasks at once: performing overland ISR with the EO/IR while monitoring vessels of interest (VOI) via AIS¹¹ and radar, while also transmitting “warning and compliance” (psychological operations) messages to pro-Ghaddafi fighters over the radios. This multi-mission capability, combined with the newer sensors and data processing capability in Block III, will secure the CP140 Aurora as Canada’s only strategic MMA.

OPENING NEW DOORS: ROLE EXPANSION IN THE HEAT OF BATTLE

When given the short-notice order to deploy in mid-March 2011, two OEMS-

equipped Block II CP140s, one each crewed by 405 Squadron (Sqn) and 407 Sqn, departed 14 Wing Greenwood and flew directly to United States (US) Naval Air Station Sigonella, Italy, an established base of operations. Once the basic logistical requirements were secured (accommodations, vehicles, food, etc.), the challenge of integrating the Canadian LRP detachment into the entire Op ODYSSEY DAWN¹² and Op UNIFIED PROTECTOR force structure was instrumental to ensuring the crews were airborne and executing their missions accordingly. This required coordination with the overall Canadian headquarters (HQ) in Naples, the air component commander in Poggiorenatico, and the TF commander, all of whom were tremendously busy setting up as well.

With respect to mission coordination, briefing the crews with intelligence summaries, and keeping apprised of continuously changing air tasking orders (ATOs), the DMSC established an excellent reputation in theatre. Visitors were consistently impressed and often wondered how to procure a similar resource for their detachment. The DMSC’s most impressive quality during Op MOBILE was its functionality as a robust and capable operations centre. It easily surpassed the required 90-day serviceability mark as a classified network server, and was still going strong towards the 180-day point on mission close-out.

EMBARGO ENFORCEMENT

When the flying operations began, the Aurora’s assigned role was the traditional task of maritime surveillance with the added benefit of the AIS. With the ability to quickly extract the surface contact data and relay it with data link into the real-time global contact database, our crews provided the NATO maritime forces along the coast of Libya with a much greater horizon, making their job of enforcing the embargo much easier. The CP140s, along with other LRPA, were hailing and providing assessments of shipping traffic,



fishing vessels, and port movements within the area of operations. Warning broadcasts were also made on maritime radio channels, advising anyone listening that NATO was watching their actions, to lay down their arms, and that anyone carrying weapons would be met with appropriate force.¹³

Throughout the entire deployment, the CP140 was always prepared for its secondary task of search and rescue. On every sortie, two 10-person survival-kits-air-droppable (SKAD) were carried in the bomb bay in the event an allied or civilian aircraft might have to ditch, or if a vessel was in distress. The Aurora was also tasked to conduct duckbutt duties, escorting numerous CF188 Hornet fighters enroute between Canada and Sicily throughout the deployment.

With such a high volume of warships along the Libyan coast, the Aurora was also tasked to detect and survey any type of rigid-hull inflatable boat that could pose a terrorist threat to surface vessels. This task was not taken lightly, as approximately a decade earlier, a rigid-hull inflatable boat-sized craft attacked the United States Ship (USS) *Cole* in the Port of Aden. Within weeks, and after some of the Aurora imagery products had made their way to strategic decision makers in Naples, the primary role of the Aurora soon changed to meet the intelligence- and imagery-product demand.

EVOLUTION BEGINS, TRANSITIONING TO COASTAL ISR

The Aurora's transition to an overland role was not immediate. As the intelligence picture became clearer, and the nature of the anti-air threat better understood, stand-off distances were reduced. Closing near the coastal cities and main supply routes exponentially increased the quality and resolution of the imagery, giving the product increasing value to operational planners. The abilities to follow troop movements and fuel trucks and to monitor all traffic flows and many other patterns of life were quickly identified

as preferred missions, as ISR platforms were already stretched thin. After a typical sortie, full-motion video (FMV) was downloaded from the OEMS, and the DMSC intelligence cell had less than a four-hour turnaround to get the excellent imagery product into the headquarters. The crew would also debrief the mission support staff and submit a detailed post-mission report to commanders in Naples. This information was then turned around quickly for input into joint targeting boards, for ISR mission prioritization, and for building onto the mosaic of strategic intelligence. It was not uncommon to see Canadian LRP imagery products praised at higher headquarters for being professionally composed, high quality, and often the first with "eyes-on," an important piece of the overall intelligence picture.

The Aurora's performance on these early missions, combined with many of the unique capabilities previously discussed, made it the natural choice for coastal and eventually inland ISR&C missions. Overland and coastal ISR, although new in the relative history of the LRP community, are anything but an afterthought. In fact, over the past decade, the role has been fully embraced by the fleet (as seen with the camera and OEMS) and the doctrine, with corresponding TTP to train with in place. However, finding agencies and organizations willing to train with has been difficult.

Operation MOBILE's successes were built largely on LRP operational employment during ISR missions such as Op PODIUM (the Vancouver Winter Olympics), Op CADENCE (the 2010 G8/G20 Summit), Op TATOU (the 2009 Commonwealth Heads of Government Summit), and the Applanix camera mapping missions in Afghanistan in 2009. A tremendous amount of combat-related ISR experience also resides within the fleet as the Heron unmanned aircraft (UA) capability in Kandahar was manned by LRP squadron personnel who then rotated back onto Aurora crews after their Op ATHENA

deployments. Unlike previous maritime roles, where proficiency was largely gained on exercise, ISR exposure has been built under the stress of no-fail missions. The ISR training opportunities during combined and/or joint exercises are often few and far between, but have lately been changing for the better.

CROSS-CUEING WITH MULTIPLE PLATFORMS

The air component of Op UNIFIED PROTECTOR had many different ISR assets, with specific sensors tailored to the needs of their respective contributing nations. The effective and synergistic use of these assets, while airborne simultaneously, quickly became a priority in order to optimize the precious time in the operations area with eyes on the ground. Initially, most information of tactical value was reported through airborne warning and control system (AWACS) aircraft to the combined air operations centre. Radio nets quickly became overwhelmed with

information reports, and not all information had the required certainty to make clear and concise decisions.

Progressively, cross-cueing of the various platforms became the norm, offering more analysis and corroborative information before passing it along to the combined air operations centre. On other occasions, UAs were assigned to investigate tactical reports from Aurora crews, and where positive identification was possible, legitimate targets were engaged by armed UAs or strike aircraft waiting in dynamic targeting queues. While the Aurora's sensors are numerous, other in-theatre aircraft had sensor and data-fusion capabilities beyond our means as a Block II aircraft. Nevertheless, by coordinating with assets, using "talk-on" procedures to identify targets and points of interest—following vehicles along main supply routes picked up by a moving target indicator, for example—the whole intelligence product was much greater than the sum of its parts.



CF Photo: Cpl Mathieu St-Amour

NAVAL GUNFIRE SUPPORT

Naval gunfire support is both old and new for the LRP community. With our maritime roots, the ASUW role has been exercised for decades; however, this traditional job was ship versus ship and involved firing missiles / gun salvos well beyond the radar or visual horizon of the vessel. With NGS, the firing unit manoeuvres relatively close to the target (within 30 kilometres) that it plans to engage. Trained spotters from allied nations accompanied crews on missions, and once targets were located with EO/IR, the spotter positively identified the contact, verified compliance to rules of engagement, provided assessments to estimate collateral damage (if any), and passed required information to the participating naval units.

It was the Canadian Aurora that became the preferred platform among the allies for this mission as the EO/IR camera provided superior imagery, and the communications suite and numerous multi-band radios allowed seamless reporting to surface vessels without compromising required routine mission communications. The NGS has not been exercised domestically with the CP140 and Canadian naval ships; however, as a result of Op MOBILE, doctrine development—along with tactical discussions with the Navy—is currently being explored to codify this joint Canadian capability—NGS.

STRIKE COORDINATION AND RECONNAISSANCE

If there was a culminating point for new mission profiles previously discussed, and for the CP140's communication and coordination abilities, strike coordination and reconnaissance were that point. After the Libyan capital (Tripoli) fell in late September, and Colonel Ghaddafi went into hiding, mission profiles quickly moved entirely overland, improving imagery quality

exponentially. Bringing the Aurora closer to the action provided a more precise picture of ground activity, facilitated the identification of targets, and established a more detailed pattern of life in areas that could not be imaged when the Aurora was limited to the Mediterranean. Furthermore, with that same degree of cross-cueing, and being closer and better linked with the UA fleets, information flow from the Aurora platform was more timely and corroborative than previously experienced.

The Aurora flew its first SCAR mission on 22 September 2011, assisting a fighter aircraft being talked-on to its target using information from CP140 sensors.¹⁴ Similar to the NGS missions, an embarked SCAR coordinator flew with the crew and was responsible for certain communication, establishing collateral damage estimates, adhering to rules of engagement and positively identifying military installations as legitimate targets—certainly not an easy task.

SCAR missions are by definition a form of deep air support flown for the purpose of acquiring and reporting deep air support targets, and coordinating armed reconnaissance or air interdiction missions upon these targets. In most cases, this translated into flying over specific geographical locations in Libya; searching for, detecting, and identifying targets; followed by subsequently coordinating the attack by assigned fighters or UVs. The benefits of the Aurora in these types of missions were that it identified targets well, arguably better than many UVs with smaller, less capable cameras, and efficiently relayed movement details, ongoing battle damage estimation, and coordinated subsequent strike actions. In addition, it remained overtop the area for sustained periods, allowing the time to build an accurate picture of activities, patterns of life, further target correlation, collateral damage estimates, and final post-attack damage assessments.

BLOCK III AND BEYOND

Now that TF Libeccio has closed out with the completion of Op MOBILE and all mission aircraft, detachment staff, and the beloved DMSC have returned to Canada, it is time to take a step back and learn from the mission. How can the LRP community take the trials and successes in theatre to the drawing board for combined and/or joint doctrine improvement and mission role development? With the transition to Block III, perhaps most importantly, how can the mission systems and the training of aircrew for use across a full spectrum of roles be optimized? Upgrades now in progress will only increase the amount of information at operators' fingertips. Without continuing to train in complex air-centric, ISR mission environments in real time, the result will be that tangible and operational proficiency will erode. The right exercise will provide crews with wide-spectrum mission opportunities that push and/or emphasize the need to rapidly prioritize this information and get it out of the airplane and down to the user as timely and accurately as possible, while ensuring both security of data and uninterrupted connectivity. With Block II, the imagery product was limited to EO/IR video and still photographs. With Block III, imaging radars will provide almost monochrome photo quality shots of terrain, through moisture, and at greater ranges, as well as enhancing returns from objects like tanks, buildings, and stationary aircraft. While cloud cover was often an impediment before, it is only a minor nuisance with the Block III. The new radar processor will improve the ability to track more dynamic and hard-to-resolve targets both in the overland and maritime environments. This translates to fewer lost targets in complicated and busy environments.

An improved electronic support measure (ESM) system has brought the CP140 to a state-of-the-art capability and places the

Aurora in the category of a true, modern electronic intelligence (ELINT) collection platform, or even capable of electronic warfare (EW) roles. A new acoustic processing system and magnetic anomaly detection (MAD) system will ensure the LRP community remains effective and capable in the traditional "bread-and-butter" ASW and ASUW role and will dramatically increase the ability of the aircraft to search, detect, track, and prosecute increasingly sophisticated subsurface targets.

There is also new life being breathed into the Aurora airframe. Ten CP140s are currently scheduled for a structural life-extension project, giving a further 15,000 hours of flying time per aircraft, with the first one rolled out in December 2011.¹⁵ In short, although the aircraft may be aging, recent development and recognition of its ever-increasing capabilities will translate into a rebirth of the Aurora as Canada's ISR&C leader.

Upgrades currently underway as part of Block III of AIMP will not only ensure joint interoperability, but also render the CP140 one of the most capable MMA in the world, with its only true rival being the Boeing P-8 Poseidon.¹⁶ With the eventual inclusion of the OEMS system into the organic mission hardware and software, the ability to share information with joint platforms is almost limitless. For example, an object moving on the ground, undetectable to the human eye, even with the EO/IR, could be detected by a moving target indicator, correlated on a map to negate terrain features, analysed for motion characteristics, pushed onto the Link-16 network, identified by a closer CP140 with imaging radar, and prosecuted by an armed UA, fighter, land force, or naval warship, all within minutes. Reducing the sensor-to-shooter loop is what Block III will champion in the long run. The new data management system helps the crew manage the fire hose



of sensor information coming into and being transmitted out of the aircraft—the sky is literally the limit in employing this aircraft in the myriad of roles it may be called on to fill.

CONCLUSION

It is a central tenet of RCAF doctrine that flexibility is the key to air power, and this tenet was once again clearly displayed by the CP140 Aurora. Nowhere is this more important than in Canada, given its vast areas to protect in the overland and maritime domains, and the Aurora's versatility and long legs. Operation MOBILE was another mission in which the LRP force was able to perform extraordinarily well with short notice to deploy. History has demonstrated that the LRP community must be capable of responding rapidly to unexpected events, both domestically and abroad. Not only were LRP crews from both coasts able to fulfill classic maritime surveillance duties, but they repeatedly met and exceeded expectations to fill new and demanding roles overland in Libya. The future of the CP140 community will depend on the two pillars of success: its people and its technology. Regardless of the mission, the robust problem-solving skills and exemplary performance of CP140 aircrew, support staff and technicians, the experience and synergy derived from a "swept-up" crew that has flown together for months, a maintenance crew that always has a serviceable aircraft ready to fly, and the technological advances coming into service, the Aurora will be a force multiplier that will allow the commander to react decisively in the fog of war for years to come.

OPERATION MOBILE: A SNAPSHOT

The Canadian LRP Detachment was comprised of approximately 80 personnel, including aircrew, technicians, and support staff. By the end of the operation, 181 sorties had been conducted and over 1400 hours airborne logged, representing nearly 100

per cent mission accomplishment. Most impressive was the versatility of the aircraft to conduct missions well outside the typical maritime role associated with the CP140, including ISR, NGS, strike coordination and armed reconnaissance-coordinator (SCAR-C), and cross-cueing missions with both fighter and UA assets both off the coast and overland in Libya.

Task Force Libeccio was the land-based component of Op MOBILE, comprising the TF HQ in Naples, Italy; the Air Coordination Element in Poggio-Renatico, Italy; and the Sicily Air Wing with flying detachments in Trapani and Sigonella, Italy. Task Force Libeccio had approximately 400 Canadian Forces personnel.

The Sicily Air Wing was made up of four air operations flights and two close-support flights in two detachments. The Sigonella Detachment consisted of the CP140 Aurora Flight. The Trapani Detachment included CF188 Hornet Flight, CC150 Polaris Flight, CC130J Hercules Flight, operational support flight, and mission support flight.

Operation MOBILE also had a maritime component: the HALIFAX class frigate Her Majesty's Canadian Ship (HMCS) CHARLOTTETOWN, relieved in August by HMCS VANCOUVER, patrolled the in-shore waters of Libya as part of Combined Task Group 455.01, part of Combined Joint Task Force Unified Protector. 🇨🇦

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tor wings at the Canadian Forces Aerospace Navigation School (CFANS) in 2006. He recently returned from Op MOBILE, flying as a tactical navigator on the CP140 Aurora as a part of TF Libeccio.

Captain Josh Christianson is an air combat systems officer, flying as an acoustic sensor officer on the CP140 Aurora. He graduated from the University of Calgary with a Bachelor of Science in Molecular Biology, followed by a Masters of Science in Immunology from the University of Alberta, prior to enrolling in the CF in 2005 from Edmonton, Alberta, and obtaining his navigator wings at CFANS in 2008. He completed his on-the-job training with 404 LRP and Training Sqn and in 2010 was posted to 405 LRP Sqn, 14 Wing Greenwood. He recently returned from Op MOBILE as part of TF Libeccio.

ABBREVIATIONS

AIMP	Aurora Incremental Modernization Project
AIS	automatic identification system
ASUW	antisurface warfare
ASW	antisubmarine warfare
DMSC	deployable mission support centre
EO	electro-optics
HQ	headquarters
IR	infrared
ISR	intelligence, surveillance and reconnaissance
ISR&C	intelligence, surveillance, reconnaissance and control
LRP	long-range patrol
LRPA	long-range patrol aircraft

MMA	multi-mission aircraft
NGS	naval gunfire support
OEMS	overland electronic mission suite
Op	operation
SAR	search and rescue
SCAR	strike coordination and armed reconnaissance
Sqn	squadron
TF	task force
UA	unmanned aircraft

NOTES

1. Intelligence, surveillance, reconnaissance and control (ISR&C) is not recognized RCAF doctrine; however, it is commonly employed within the Canadian long-range patrol community. It is described as “being comprised of all weapons systems that contribute to the airborne gathering of information in support of the land or naval commander, and maritime control in the ASW role.” Department of National Defence (DND), “14 Wing Campaign Plan,” unpublished document available from 14 Wing, Greenwood.
2. Strike coordination and reconnaissance (SCAR) is not recognized RCAF doctrine. It is United States Joint Doctrine that is taught/ utilized as required with respect to coalition operations. The Auroras deployed on Op MOBILE were employed in that capacity once it was deemed safe to operate in-land/overland within the Libyan area of responsibility and their MX-20 camera was deemed one of the better cameras for that task.
3. DND, *Operation MOBILE: National Defence and Canadian Forces Response to the Situation in Libya*, <http://www.forces.gc.ca/site/feature-vedette/2011/02/libya-libye-eng.asp> (accessed August 17, 2012).



4. Two CP140s deployed with the Mapping & Charting Establishment (MCE) to produce high-resolution and stereo colour imagery of Afghanistan, providing International Security Assistance Force (ISAF) soldiers on the ground with a much anticipated tool to improve situational awareness, flying over 300 hours.

5. Two CP140s deployed to support the maritime situational awareness role in the Persian Gulf and delivered reconnaissance and surveillance support to the maritime coalition forces, flying over 4300 hours.

6. DND, "14 Wing CP140 Aurora participates on Operation NANOOK," <http://www.rcaf-arc.forces.gc.ca/14w-14e/nr-sp/index-eng.asp?id=10962> (accessed August 17, 2012).

7. Graham Edwards, "The Future of the CP140 Aurora," *Canadian Air Force Journal* 3, no. 3 (Summer 2010), http://www.rcaf-arc.forces.gc.ca/CFAWC/eLibrary/Journal/Vol3-2010/Iss3-Summer/Sections/07-The_Future_of_the_CP140_Aurora_e.pdf (accessed August 17, 2012).

8. Dalhousie University, Centre for Foreign Policy Studies, "CP140 Aurora Modernization," *Canadian Naval Review*, <http://naval.review.cfps.dal.ca/forum/view.php?topic=38> (accessed August 17, 2012).

9. Similar to scene-selection on a DVD, shortening post-flight analysis time, and crew hand-over briefings to intelligence cell image analysts.

10. Ron Walker, "What Happened to Air Force ISR?" Canadian Forces Command and Staff College, Joint Command Staff Programme, 2009.

11. The AIS is similar to an aircraft transponder, although transmitted data-packets contain information on vessel size, persons on board, course and speed, departure and destination ports, etc.

12. Operation ODYSSEY DAWN was the US-led mission against pro-Ghaddafi Libyan forces to enforce UN Security Council Resolution 1973 (no-fly zone) and ended 31 March 11, at which point Op UNIFIED PROTECTOR continued under the direction of NATO HQ in Naples.

13. Murray Brewster, "Canadian surveillance planes join the propaganda war in Libya," *Canadian Press, iPolitics*, 29 July 2011, <http://www.ipolitics.ca/2011/07/29/canadian-surveillance-planes-join-propaganda-war-urge-gadhafi-forces-to-go-home/> (accessed August 17, 2012).

14. DND, "Auroras fly first missions over Libya," <http://www.cfc.com.forces.gc.ca/pa-ap/fs-ev/2011/10/04-eng.asp> (accessed August 17, 2012).

15. Canada Newswire, "IMP Aerospace rolls out first CP140 Aurora aircraft with new wings for the Royal Canadian Air Force," <http://www.newswire.ca/en/story/892979/imp-aerospace-rolls-out-first-cp-140-aurora-aircraft-with-new-wings-for-the-royal-canadian-air-force> (accessed August 17, 2012).

16. Dalhousie University.



Unrealistic Expectations

The Luftwaffe's Doomed Mission
during the

Battle of Britain

By Captain Jim Pinhorn

In the summer of 1940, the prospects for democracy in Europe appeared very bleak indeed. Adolf Hitler's apparently unstoppable military machine had overrun most of Western Europe in less than two months and only the English Channel stood between Nazi Germany and the last remaining outpost of democracy in Europe. Britain's small army, as well as those of its allies, had been quickly defeated on the continent, and now the island nation stood alone against the enormous military might of the Nazi regime. Despite the apparent hopelessness of the situation, England refused to listen to Hitler's "reason" and vowed to fight on. Unable to achieve the negotiated peace he sought, Hitler decided that only the invasion of

to be known as the Battle of Britain, was thus part of the preparatory effort meant to clear the way for Operation SEA LION—the invasion of Britain.

As Karl Klee has noted, "For the people of Britain the air battle over their heads was a decisive battle; in fact, it was *the* decisive battle of the Second World War [WWII] for them, and the continued existence of their island empire was at stake."¹ Prospects for a British victory appeared slim. The task of defeating the largest air force in the world would

England
would
eliminate it

from the war. In view of the relative weakness of the German navy, Nazi planners concluded that only once command of the air had been achieved could there be any hope of a successful cross-channel landing. The ensuing air battle, which pitted the might of the German Luftwaffe against the Royal Air Force (RAF), and later came

fall primarily on the shoulders of the pilots and personnel of Fighter Command, led by Air Chief Marshal Hugh Dowding. Typical of British leadership at the time, Dowding pessimistically predicted that "our young men will have to shoot down their young men at a rate of five to one."² Internationally, opinion was equally pessimistic. Joseph P. Kennedy, United States ambassador to the United Kingdom, dourly informed President Franklin Roosevelt that, "England will go down fighting. Unfortunately, I am one who does not believe that it is going to do the slightest bit of good."³ In the years since, historians have continued to portray it as a battle in

which the British were constantly on the ropes and struggling to survive. However, as Wing Commander M. P. Barley of the RAF points out, the truth is that “German failings before and during the battle conspired to ensure that they would not win.”⁴ Contrary to the popular perception that the Battle of Britain was a close affair that was fought by the “few” in the face of overwhelming odds, the destruction of the RAF, as a prelude to a cross-channel invasion, was a task for which the Luftwaffe and its leadership were woefully ill-prepared.

Despite being in a favourable military position after a series of quick victories on the continent, failures in German doctrine, equipment, intelligence, and leadership conspired to ensure that the Luftwaffe would not be able to achieve success operating independently in pursuit of strategic goals. While this is in no way meant to belittle the efforts and achievements of the RAF, the reality is that German shortcomings played a greater role in the defeat of its air force than many choose to remember. The Luftwaffe was created as a tactical force, designed to be successful in a support role within offensive blitzkrieg warfare. As such, procurement, doctrine, and the role of intelligence were all geared for tactical success, and all contributed to the Luftwaffe’s inability to carry out a successful strategic campaign against Britain. Shortcomings in these areas, when combined with the disastrous effects of poor leadership, ensured that the British would be able to make the most of the advantages they enjoyed and that the RAF would ultimately emerge victorious.

In his account of the Battle of Britain, Matthew Parker asserts that “in June 1940 the Luftwaffe was unquestionably the strongest air force in the world.”⁵ Germany possessed more planes than Britain and was fresh off a series of successful campaigns through France and the Low Countries in which it had shot down over 3,000 enemy aircraft.⁶ With the decision to attack Britain, it appeared as if it was only a matter of time before the pilots of the RAF would be swept aside as well.

Hermann Göring, head of the German Air Force, confidently predicted that the elimination of fighter forces from southern England would take only four days and that the defeat of the entire RAF could be accomplished in four weeks.⁷ Field Marshal Willhelm Keitel, Chief Operations Officer of the German High Command, suggested that crossing the English Channel “should prove no more difficult than a river crossing.”⁸ These predictions soon proved overly optimistic as it became apparent that the RAF was a much more formidable opponent than had been anticipated. Perhaps more important than British prowess, however, were the limitations of German capabilities which resulted from its short history and tactical role within the German military.

The Luftwaffe had been forced to grow fast. Having been forbidden by the Treaty of Versailles from possessing an air force, German warplane manufacturers turned their efforts to commercial endeavours such as the airline Lufthansa, which by 1930 was larger than the French and British airlines combined. In this way, German industry maintained a great deal of technical sophistication with regard to aircraft design and production, and many of the aircraft which would eventually be employed during WWII evolved from the world-class civilian designs of the interwar years.⁹ But while a great deal of knowledge was retained about the design and manufacturing of aircraft, precious little existed about their employment in combat.

It was not until Adolf Hitler came to power in 1933 that Germany began to overtly develop its air force. Hitler pursued a policy of rapid rearmament, and the Luftwaffe was quickly receiving new men and materiel. The development of air power concepts and doctrine was left to officers who had little practical experience in the employment and operation of aircraft and who came almost entirely from the army.¹⁰ Therefore, it is not surprising that German air power doctrine focused on support of ground troops and that the force would be structured and trained to

fulfill this tactical role. Experience in Spain, where aircraft had been successfully employed in ground support operations, virtually ensured that the Luftwaffe would evolve as a close-support force to the Wehrmacht.¹¹ While this model was extremely successful in blitzkrieg warfare on the continent, it resulted in the creation of an air force that was incapable of independent planning and action, and one which was poorly equipped and structured for a strategic campaign against Britain.

Hermann Göring, head of the German Air Force, confidently predicted that the elimination of fighter forces from southern England would take only four days and that the defeat of the entire RAF could be accomplished in four weeks.

Another challenge to the development of successful strategic air power doctrine was Germany's adherence to the concept of the supremacy of the offensive. German strategic doctrine evolved from their interpretation of Karl Von Clausewitz and their belief that the offensive must always be used to overpower the enemy.¹² The success of blitzkrieg warfare only served to strengthen this belief in the supremacy of the offence. Little thought was devoted to defence, and that which was remained predominately offensive in nature. Much of the Luftwaffe's air defence strategy, for example, rested with being able to destroy the enemy's air resources on the ground or in air-to-air combat over enemy territory. Hitler was confident of being able to achieve quick victories and had never seriously considered

the possibility of enemy attacks against Germany.¹³ Defence against such attacks, therefore, received little attention from the Luftwaffe. The impact of this was that when faced with the sophisticated air defence system of the British, Germany was unable to appreciate the capability which had been created and was, as a result, unable to develop an effective means of dealing with it.¹⁴ Britain's air defence system would continue to play a vital role throughout the Battle of Britain and would go largely untouched by the Germans because they simply could not understand the value of such a defensive apparatus.

Perhaps the greatest challenge to the development of successful air doctrine for the Germans was presented by Hitler himself. As R. J. Overy points out, Hitler "was by inclination and experience an 'army' man."¹⁵ As such, the Luftwaffe was typically relegated to a position of lesser importance within the senior leadership of the German military, despite the position of prominence held by Hermann Göring himself. Very few Luftwaffe liaison officers were stationed at the Supreme Headquarters (*Oberkommando der Wehrmacht* [OKW]), and those who were employed there were usually of low rank and had little influence.¹⁶ Luftwaffe planning staff was routinely left ignorant of Hitler's intentions and was rarely given sufficient time to gear planning to future contingencies. With no clear understanding of Germany's grand strategy, it was virtually impossible to anticipate future requirements and develop air doctrine that could be successful under the expected conditions of combat. The difficulties faced by Luftwaffe planners are highlighted by the fact that even in the weeks leading up to the start of the Battle of Britain, Luftwaffe staff were still frantically working on plans to enable an invasion which they had not even known was as a possibility only a few weeks earlier. The result, as Karl Klee describes, was a staff which, even as the battle began, "still had no very clear idea as to how air warfare against Britain was to be effectively carried out."¹⁷

While this example highlights the difficulties associated with the planning of specific operations, it stands to reason that the development of doctrine without insight into grand strategy would have been equally difficult.

Development of aircraft within the German Air Force also focused primarily on its tactical role.¹⁸ Priority had always been given to the development of aircraft that were ideally suited for the close-support role, such as fighters and dive-bombers that were designed to support army operations on the ground.¹⁹ Although the first Luftwaffe Chief of Staff, Major General Walther Wever, had in fact approached both Junkers and Dornier to manufacture a four-engined heavy bomber, the initiative died with him in a 1936 flying accident.²⁰ Subsequent development and planning discarded the need for heavy bombers because it was felt that it would not be required during the anticipated operations against continental opponents. This proved to be a valid assumption until 1940, as the dive-bombers and medium bombers of the Luftwaffe performed brilliantly in Spain as well as in the campaigns through France and the Low Countries. During the strategic bombing campaign against Britain however, the destruction of industrial and economic targets, meant to cripple Britain's war effort, required much larger payloads than Germany's aircraft were capable of delivering.²¹ As Samir Puri points out, the lack of a heavy bomber meant "that a relatively meager tonnage of bombs was actually being dropped," and "while industrial damage was considerable," it never approached a level that could have hoped to have been decisive.²²

In addition to carrying insufficient loads to have a decisive effect, German bombers soon proved to be too slow and vulnerable to defend themselves against determined fighter opposition.²³ To have any chance of avoiding unsustainable losses over British territory, the Germans quickly realized that their bombers would require fighter escorts. But here, too, the development of a blitzkrieg air force

had detrimental effects on their efforts in the Battle of Britain. Germany had focused its fighter development on fast aircraft that would be capable of achieving air superiority over a localized area in order to facilitate the advance of the army below. The presence of long-range fighters was not a requirement in blitzkrieg because the aircraft were typically operating from airfields close to the front lines. While accompanying bombers on raids over England, however, the limited range of German fighters was quickly discovered to be a weakness. Even when operating from fields on the Channel coast, German fighters often had as little as 10 minutes' reserve fuel when escorting bombers to London.²⁴ This lack of fuel, combined with the need to guard the vulnerable bombers, allowed very little freedom of action for German fighter pilots.²⁵ Often, the Germans were so fuel critical that the RAF could secure a victory without necessarily having to destroy their opponents. Simply delaying the Germans for a few minutes would occasionally be enough to force the Germans to bail out on the return trip due to lack of fuel. Being tied to the bomber force as they were and with insufficient fuel to be truly effective against RAF Spitfires and Hurricanes, Luftwaffe fighter pilots typically entered dogfights at a true disadvantage.

Equally detrimental to the structure of the force was Hitler's incessant meddling in armament production. It was Hitler himself who was responsible for the general structure of German rearmament throughout the 1930s.²⁶ As an army man, Hitler's focus was on the need to strengthen his ground forces for the inevitable show down with the Soviet Union. Neither the navy nor the Luftwaffe was ever given any priority in armaments, and the army routinely claimed the greater part of Germany's overtaxed armament production.²⁷ In addition to having to compete for resources, Hitler's insistence on rapid rearmament meant that Luftwaffe planners were often forced to sacrifice quality for quantity. His "production stop decree" in 1940, which forbade continuing work on any

project which could not be finished by the end of the year, essentially stalled military aircraft research and development and ceded the technological advantage to the Allies as the war went on. The result, as Overy points out, was that Germany forfeited “any chance the Luftwaffe had of keeping abreast of the aerial technology of the Allies.”²⁸ While the true effects of the decree would not be felt until later in the war, the decision to forego efforts to advance the technical quality of the Luftwaffe speaks volumes about how little Hitler understood aerial warfare and the role of technology within it.

Although Hitler appeared to have a detailed knowledge of aeronautics, as evidenced by his ability to recite descriptive details about the aircraft in his arsenal, he never really grasped what types of aircraft, and in what quantities, would be required for a given task. Hitler seemed to believe that victory could be achieved through weight of numbers alone. Eventually, his early insistence on quantity gave way to a desire for quality, but the resultant confusion ensured that German industry was never capable of living up to his desires. Although Germany possessed the potential to deliver massive, technically advanced aircraft production, Hitler’s constant

meddling ensured that German industry delivered neither the quantity nor the quality of which it was capable.²⁹ The result was that the Luftwaffe pursued an aircraft program which initially concentrated on aircraft that could be delivered quickly, rather than focusing on those which might deliver the required capabilities should an attack on Britain become necessary.³⁰ Medium bombers, such as the *Dornier 17*, and dive-bombers, such as the *Stuka*, were the results of Hitler’s influence on German aircraft development.³¹ While these machines were ideally suited to blitzkrieg warfare, they were simply inappropriate for the distances and payloads required in the Battle of Britain. That the Luftwaffe was dependent on aircraft so poorly suited for its campaign against England was, to a large degree, the result of Hitler’s meddling in an area he simply did not understand.³²

Although German aircraft procurement ensured that the Luftwaffe would be poorly equipped to fight the Battle of Britain, failures in German intelligence were even more damaging. The Luftwaffe intelligence department, led by Colonel Josef Schmid, was underfunded, understaffed, and far too small to meet the requirements of the world’s largest air force.³³ During the planning and



conduct of the battle, German intelligence failures included a lack of information on appropriate bombing targets, little useful information about British radar or the British air defence system, and a persistent tendency to underestimate the strength of the RAF. The inadequacy of German intelligence caused leaders to be overly optimistic before and during the battle and was a serious impediment to effective decision making throughout.

As previously discussed, Germany's embracement of blitzkrieg warfare was based on their belief in the supremacy of the offensive. As Samir Puri notes in his description of German intelligence failures during the battle, blitzkrieg was "a concept that did not profess to require a major intelligence input."³⁴ In the campaigns which preceded the Battle of Britain, sheer weight of force was used to overcome an enemy whose forces were easily located. The lack of an operational need resulted in an intelligence apparatus that was underfunded, lacked specialist training, and was typically left out of the decision-making process. Worse still, the political climate of the Nazi regime led to intelligence authors tailoring their reports to suit the wishes of their readers, rather than attempting to describe the conditions as they actually were. Even Göring himself was so afraid of Hitler that he would often falsify his reports so as not to appear critical or pessimistic.³⁵ In the absence of reliable information, decisions were made based on overly optimistic assessments that ignored military realities and resulted in unnecessary difficulties.

The Luftwaffe intelligence unit's major contribution to the planning process for the invasion of Britain was the "Study Blue."³⁶ The major sources for this report were officially published maps and handbooks, British newspaper articles, and a book on British industry that had been ordered directly from a London bookshop.³⁷ That these were the primary sources of intelligence for a report that would help to set the priorities and objectives for the world's first ever strategic air campaign

speaks volumes about the unsophisticated and amateur nature of the Luftwaffe intelligence department.

If the sources used in compiling the "Study Blue" hinted at the deficiencies of German air intelligence, its conclusions confirmed them. Schmid reported that British air defence was weak and still in the developing stage.³⁸ It included no information on radar and failed to recognize the significance of the air defence system that had been installed by Dowding. Despite having pioneered the technology, Germany simply failed to grasp its implications in aerial warfare.³⁹ This was a costly mistake for the Germans because radar, when properly integrated into the air defence system, allowed the British to husband their precious fighter resources. Early detection of incoming German aircraft meant that fighter squadrons were given the greatest possible warning and that they were able to stay on the ground until the last moment. This allowed pilots to engage the enemy with the greatest possible amount of fuel and avoided the need to mount tiresome and wasteful patrols.⁴⁰

The Germans were aware that the coastal towers were meant for the radio detection of aircraft but simply could not understand how the system worked, so they chose to attribute RAF success in locating German aircraft to luck.⁴¹ As Fred Streibigh points out, "In the first five weeks of the Battle of Britain, the 'lucky' RAF outshot the *Luftwaffe* [sic] day after day, losing 128 planes but destroying 255 by August 12."⁴² The failure of German intelligence to recognize the importance of the radar sites contributed to Göring's conclusion that the sites were inconsequential and allowed the British to make use of this valuable tool throughout the battle.

Another major flaw in Schmid's study was underestimation of RAF strength and British industrial capability. Schmid reported that the RAF had only 200 frontline fighters and that Bomber Command had in the vicinity of 500 bombers at its disposal.



While his estimate of bomber strength was remarkably accurate—there were actually 536—he failed to accurately predict the all important strength of Fighter Command, which had over 600 frontline aircraft.⁴³ Underestimating British fighter numbers by a factor of three undoubtedly contributed to German optimism before the battle. That such miscalculations continued throughout the battle was even more damaging to German efforts.

Intelligence failures were by no means limited to underestimating British numbers. Fighter bases were routinely tagged as bomber bases and parked aircraft were often misidentified.⁴⁴ The most serious mistakes, however, were the gross errors made in estimating British strength during the course of the battle. By early September, with Göring insisting that the British were down to their last 150 fighters, Hitler decided to switch the focus of the campaign to daylight bombing against London.⁴⁵ This decision must have been influenced by the belief that the RAF was finished as an effective force. The result was costly for the Germans as the break gave Fighter Command time to repair and restock. Equally inaccurate was the prediction that the British aircraft industry had no hope of catching up to the expansion of the Luftwaffe in the following two years. In fact, not only were the British able to close the gap, they would surpass German production as early as 1940, when Britain produced 15,049 aircraft compared to just 10,247 in Germany.⁴⁶ The steady flow of replacement aircraft was an important factor in the RAF's ability to continue to fight. In fact, RAF Fighter Command grew steadily stronger as the battle progressed, whereas attrition took a heavy toll on German strength.⁴⁷

Faulty German intelligence also played a role in the failure of the Luftwaffe bombing campaign. Although the objectives of the German Air Force varied from the destruction of shipping to terror bombing of British citizens, the target that needed to

be destroyed, if the Germans were to have any hope of defeating Fighter Command, was the British aircraft industry. Only if the steady supply of new airplanes could be halted could the Germans hope to win the battle of attrition that ensued throughout the summer of 1940. However, German intelligence was simply incapable of developing sophisticated target lists and determining which targets ought to be struck, and with what intensity, in order to cripple the aircraft industry. Also, by relying exclusively on post-flight reports, German intelligence was never able to accurately monitor the effects of their efforts.⁴⁸ Without accurate information, and with no means of determining the success of their efforts, German commanders had little hope of waging a successful bombing campaign. The lack of a heavy bomber, and the effect of constantly changing objectives, only served to further hamper their efforts.

While weaknesses in doctrine, equipment, and intelligence contributed mightily to failure during the Battle of Britain, the factor which ultimately ensured defeat was the poor quality of German leadership. From the outset, Hitler lacked the determination and political will that had marked his earlier campaigns. He appears to have been convinced that the threat of invasion alone would be sufficient to bring Britain to terms.⁴⁹ Addressing the *Reichstag* in July 1940, Hitler said that “a great empire will be destroyed, an empire which it was never my intention to destroy or even to harm.”⁵⁰ Hitler made this speech as an appeal to reason. He assumed that the British would recognize the peril of their situation and that a negotiated peace could be concluded, thereby allowing him to focus his attention on the real prize—the Soviet Union. Hitler was not alone in his assessment. Given the weakness of the British military situation, leaders all over the world assumed they would sue for peace.⁵¹ General Maxime Weygand, Commander in Chief of French military forces until France's surrender, predicted that in three weeks, “England will have her neck wrung like a chicken.”⁵² With such gloomy

prospects, it appeared as if England had no choice but to negotiate. Regardless of the justification for Hitler's opinion, the impact of his ambivalence was confusion for Luftwaffe planners as to the political and military goals they were to pursue.⁵³ With no clear aim, the Luftwaffe set out on a campaign against Britain which simply meandered from one objective to the next, and it was never able to determine a military means to bring about the defeat of the British.

While Hitler's ambivalence was detrimental to the German effort, British Prime Minister Winston Churchill's dogged determination was vital to his nation's efforts during the battle. Despite the many predictions of Britain's impending doom, and the defeatist attitudes of many within his own party, Churchill vowed to fight on and to "never surrender." When asked how his country would react when the might of the Wehrmacht inevitably fell upon it, Churchill's response was that the British would "drown as many as possible on the way over, and then *frapper sur la tête* anyone who managed to crawl ashore."⁵⁴ In a May 27 cabinet meeting, he made it clear that "under no circumstances would [he] contemplate any course except fighting to the finish."⁵⁵ Churchill made the British aim clear from the outset, and the result was a focused national effort. Whereas Hitler's leadership was detrimental during the course of the battle, Churchill's determination was invaluable as a source of inspiration for ordinary Britons and for the men of Fighter Command who would be charged with mounting the defence.

Although Hitler's lack of focus was serious, its effects were made worse by his Luftwaffe chief. As John Correll states, "Göring was prone to impulsive and erratic decisions."⁵⁶ Throughout the battle he constantly changed targets, leading to confusion amongst his staff and the inefficient use of his resources. According to Peter McGrath, "One week it would be radar stations: the next, airfields. Nothing was ever

finished off."⁵⁷ Such direction as he did issue on the selection of targets tended to be vague and all encompassing. On 30 June, Göring called for "attacking the enemy air force, its ground installations, its own industry," and goes on to order attacks on enemy "harbors and their installations, importing transports and warships," as well as "destructive attacks against industry."⁵⁸ There was no prioritization as to where Luftwaffe efforts should be focused. Such vague direction accomplished little more than to direct that any and all British targets should be attacked. The resultant dispersal of force and lack of focus prevented the Luftwaffe from achieving decisive results in any area of their campaign. As the battle wore on, Göring changed targets with increasing frequency, and Luftwaffe efforts to achieve air supremacy continued to be frustrated.

The lack of focus which marked German efforts was in stark contrast to the steadfast determination on the British side. Having recognized early on that the intent of repeated German fighter sweeps was to draw out British fighter strength and engage it in decisive battle, Dowding refused to play into Göring's hand. At Dowding's insistence, Fighter Command was not to accept battle unless an opportunity to attack enemy bombers presented itself. Dowding's strategy systematically avoided engagements against German fighter formations and deprived the Germans of the opportunity to gain the all-important air superiority it required.⁵⁹ At the same time, the strategy allowed the RAF to avoid wasting its limited strength in engagements that would not likely be conducive to Britain's goal of preventing an invasion. It would appear that Dowding understood from the start that a successful channel crossing would require air superiority, and that such superiority could only be achieved by destroying Fighter Command. By refusing to engage in decisive fighter battles, Dowding was able to continue the struggle and force the Germans to accept what would eventually become unacceptable bomber losses. Having identified the correct

course of action for Fighter Command, Dowding refused to alter course and eventually prevailed.

Of course, the most disastrous contribution of German leadership was the decision of September 7, 1940, to shift the focus of German bombing away from RAF airfields and to focus on London.⁶⁰ This decision may have been motivated by a desire to retaliate for Allied raids on Berlin, or possibly as the result of Göring's insistence that Fighter Command was down to its last few planes. Whatever the rationale, the decision afforded the RAF time to regroup and was a turning point in the battle. Having observed the damage wrought by one of the first German attacks on London, Air Vice Marshal Keith R. Park was quick to grasp the significance of the change in German strategy; "Thank God for that," he said of the carnage created by the German bombs.⁶¹ Park realized that the German change in strategy had come at an important time for the RAF. The Germans had let up just as they were beginning to achieve significant results. While the failure to establish clear goals and objectives was significant in contributing to German defeat, the decision to make such a fundamental change to German strategy, without having secured a definitive victory against the RAF, was the single most costly leadership failure of the campaign.



The Battle of Britain was Germany's first serious failure in WWII.⁶² In the days leading up to the battle, however, such a defeat seemed highly unlikely. Fresh off its easy victories through France and the Low Countries, it appeared certain that it was only a matter of time before the Luftwaffe would brush aside the RAF, just as it had its opponents in earlier campaigns. Britain's tiny army had already been routed on the continent and their air force had suffered serious losses as well.⁶³ However, despite the apparent inevitability of yet another German victory, the destruction of British air power and securing the conditions necessary for a successful invasion were tasks which the Luftwaffe was never capable of completing. German failures before and during the battle would conspire to ensure that they would never be able to bring about a British defeat.

Much of the Luftwaffe's early success was the result of its development as a tactical air force. Operating primarily in support of ground forces, the Luftwaffe had little need of the planning capability or the type of doctrine that would be required in a strategic campaign. Similarly, the lack of a heavy bomber and long-range fighters was not detrimental to its efforts during earlier campaigns. In the Battle of Britain, however, the German Air Force would be called upon to do something very different from its earlier roles. For the first time in history, an attempt was made to use air power to cripple an enemy to such an extent that it would be incapable of offering any further resistance.⁶⁴ This was a task for which the Luftwaffe was simply inadequate.⁶⁵ Its development as a close-support force to the army had resulted in little thought being given as to how to employ air power strategically, or over great distances. As successful as the air force had been within blitzkrieg warfare, it simply was not organized or equipped to carry out a strategic campaign. Furthermore, German adherence to offensive strategy blinded them to technical possibilities within the realm of air defence.⁶⁶ By devoting so little thought to their own air defence system,



they were simply incapable of recognizing the potential of the British system and, therefore, failed to identify it as an important target that needed to be destroyed as quickly as possible.

German intelligence, before and during the battle, was abysmal. Lacking the resources to serve such a large air force, the department made critical errors in assessing the strength of the RAF, particularly that of Fighter Command. It was equally ineffective in determining the capabilities of the British aircraft industry and identifying significant targets for the bombing campaign. In the words of Michael Handel, writing on the role of intelligence services within military operations, “good intelligence will act as a force multiplier by facilitating a more focused and economical use of force.”⁶⁷ It is equally true, however, that poor intelligence is highly detrimental to one’s efforts. Without reliable intelligence, German leadership was never able to accurately identify those targets which were of the greatest strategic value or what the effects of their efforts had been. As such, they were at a serious disadvantage when trying to determine appropriate courses of action.

Of all the German failures in the Battle of Britain, none was more significant than the failure of its leadership. Hitler’s ambivalence with regard to an eventual attack against Britain left planners at a disadvantage, as they were never really aware of the political aim they were meant to achieve. This shortcoming, along with Göring’s incessant meddling and changes of targets, combined to ensure that Luftwaffe efforts were never focused and that it was never able to complete any of its objectives before moving on in a rational manner. The fateful decision to switch to daylight raids against London, and the reprieve it afforded the embattled British fighter forces, was simply the most significant in a long line of German leadership failures.

Despite the challenges posed by its doctrine, equipment, and faulty intelligence, the Luftwaffe was still able to push the RAF

to the very brink of defeat. By late August, the Germans were destroying British fighters faster than they could be replaced, and they seemed to have Fighter Command on the ropes.⁶⁸ Having apparently compensated for all of its other deficiencies, it was ultimately the failure of German leadership that ensured the Luftwaffe’s defeat. Had they been better led, as the British most certainly were, the results may have been very different. Hitler and Göring, however, were very much part of the package, and it was a package that was simply inadequate for the task it was being asked to perform. Ultimately, and contrary to the German belief that superiority in numbers could be used to overwhelm the enemy, such abundance was simply not sufficient to overcome the damage caused by inept leadership.

The Battle of Britain was meant to pave the way for a German invasion. To have any chance of success, such an invasion would require both sea control and air superiority in order to avoid having German ships blown out of the water.⁶⁹ The first step in achieving both was the destruction of Fighter Command. For the people of Britain, the battle was perceived as a struggle for national survival in which the RAF provided the last line of defence.⁷⁰ Despite the fact that many in Britain, and indeed throughout the international community, assumed it to be only a matter of time before the British would be forced to capitulate, the “inevitable” German victory never came. Exceptional leadership and the tireless efforts of RAF personnel were essential to the eventual British victory. More important, however, were the German failures before and during the battle that ultimately ensured defeat. Contrary to the popular belief that the Battle of Britain was one in which the “few” achieved victory against overwhelming odds, the lack of appropriate doctrine and equipment, combined with failures in intelligence and leadership, ensured that the defeat of the RAF was a task which the Luftwaffe could never achieve. ☹



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Abbreviations

RAF	Royal Air Force
WWII	Second World War

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BOOK REVIEWS

15 MINUTES: GENERAL CURTIS LEMAY AND THE COUNTDOWN TO NUCLEAR ANNIHILATION



By L. Douglas Keeney

New York:

St Martin's Press, 2011

372 pages

ISBN 978-0-312-61156-9

Review by **Colonel Peter J. Williams, CD**

It likely still remains the gold standard for readiness: at the height of the cold war, Strategic Air Command (SAC), led by United States Air Force (USAF) General Curtis Lemay, was expected to have 33 per cent of its strike aircraft (with nuclear bombs aboard) and tankers on 15-minute alert, this time being the maximum warning one could expect of an impending Soviet missile attack.¹

As SAC's inventory increasingly included intercontinental ballistic missiles (ICBMs), the 15-minute rule was extended to them as well. SAC was expected to launch 10 ICBMs within a quarter of an hour of being ordered to do so and another 10 within two hours.²

I was drawn to this book for two reasons: first, a brief review of it in *Maclean's* magazine this past spring, and, secondly, because of a long fascination with the figure of General Lemay, perhaps generated by an article about the USAF, with a centrefold of all aircraft then in USAF service, in the September 1965 issue of *National Geographic*.

L. Douglas Keeney is the co-founder of The History Channel and is a military historian and researcher based in Kentucky. Using many formerly classified documents, he has sought to tell the story of SAC, in what the blurb says "is one of the most important works on atomic war ever written." The list of sources seems impressive enough, containing as it does declassified documents

from the National Security Archive and the Departments of Defense and Energy. The book also contains a useful glossary of cold war terms, so throughout the book we are introduced to “base surge,” “fail safe” (which the author takes some pains to explain does *not* have the meaning popularly attributed to it, and which was later referred to as “positive control”), “overkill,” and so on.

The book takes a somewhat chronological approach to tracing the development of “The Bomb” and, indeed, the United States (US) nuclear deterrent, which, in the days before ICBMs and ballistic missile submarines, was based on the manned bomber. SAC itself was formed in March 1946 and was initially commanded by General George Kenney; Lemay, having been posted to command the USAF in Europe, only assumed command of SAC two years later. I say “somewhat chronological” in that the author’s style involves, at least in the initial parts of the book, jumping between several stories, all of which are germane to the story being told. Perhaps the major subplot is that of the development and deployment of the so-called and ultimately tragic Texas Towers, which were air defence radars mounted on quasi-offshore oil drilling platforms so as to give the Americans more warning of a Soviet attack on the continental US. I found this back-and forth-style somewhat unusual and one which made it rather difficult to follow the narrative. In the latter stages of the book, I found the story flowing much more easily.

There were also a number of other disturbing elements, but these are deliberate and as a result of the research Keeney has done. I was amazed at the number of accidents involving SAC aircraft carrying nuclear bombs, including those in which the bombs were simply lost or never recovered. The highly cavalier, or what the author calls the “hairy chested,” attitude toward radiation exposure for those observing nuclear tests is still maddeningly difficult to understand after many years, and finally, the description of a “runaway bomb” test and the ultimate effects

on births by native women near Pacific Island test sites, read like scenes from a horror movie.

On a more pleasant note, if the subject of nuclear war can be termed at all pleasant, the story of how Lemay built his force, which maintained its 15-minute readiness for almost three decades, is fascinating. A rigorous system of operational readiness inspections was introduced in which the passing grade was 100 per cent. On bases, SAC crews had their own checkout lanes at the exchange and food lines in messes. Lemay implemented a system of “spot promotions” (and demotions for failures). At the height of the cold war, they had much public and media support, as well as that of Congress. Over time, the force grew, so that by the end of 1962 it had some 2600 bombers and tankers (942 of which were on 15-minute alert) and over 200 ICBMs.³ The writing was on the wall for the manned bomber, however, so that a few years later, SAC had just 219 bombers, but 928 ICBMs. President George Bush (senior) ordered SAC to stand down from alert in 1991, and within a year SAC itself was dissolved.

There is a Canadian connection to all this. At various times, nuclear bombs were stored in Goose Bay, Labrador, which was a dispersal site for SAC aircraft. Also, various radar lines meant to prevent SAC bombers from being destroyed on the ground, including the Distant Early Warning Line (DEW), were constructed in Canada. As a young boy, I recall having my father point out B-52s flying high above our home, a memory brought back to mind by a United Press writer’s comment referred to in the book and meant to reassure American audiences: “The next time you see a vapour trail high in the sky, remember the bombs on board and join a silent prayer that the mission will come to naught, that it will turn around under the rules of fail safe.”⁴ Amen to that. ☺

Colonel Peter J. Williams, CD, an artillery officer, is Director Current Operations on the Strategic Joint Staff.

Abbreviations

ICBM	intercontinental ballistic missile
SAC	Strategic Air Command
US	United States
USAF	United States Air Force

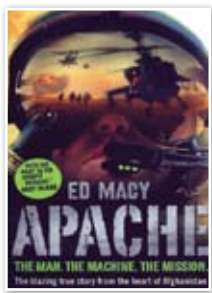
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APACHE: THE MAN. THE MACHINE. THE MISSION.

By Ed Macy

New York:
Harper Press, 2008
374 pages
ISBN 978-0-00-728816-8

Review by

Captain Scott Fuller (Retired), CD

This is an Apache (AH MK1) pilot's cockpit view of ground support combat in Afghanistan in 2007 told from an attack tactical helicopter perspective.

The author takes the reader on a detailed technical tour of the Apache and provides a clear insight into its operational capabilities. He describes mission planning for ground support, the criticalities of target acquisition, the suite of sensors and the weapons systems employed by the Apache. He provides further information on the lethality of those systems as well as their restrictions.

Having set the stage with that background information, Macy then takes the reader along on several combat support live-

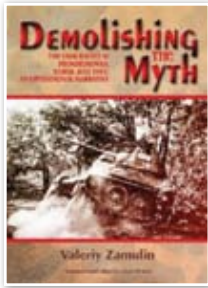
fire missions with such clear description that it is almost possible to feel the rotor wash and the articulation and manoeuvring of the Apache to such a degree that the reader might want a "little white bag" handy ... The only aspect of this story that cannot be replicated is the smells of the engine, the reek of expended ordnance, and the sight of the dead and dying.

The author then takes the reader on an extremely rare, hazardous and very high risk rescue mission using two Apaches to deliver four Royal Marines into a hot live-fire zone to effect the recovery of a wounded British soldier. The Marines are snapped to the outside of the two Apaches by their body harnesses!

He then describes his gut feeling about going far "beyond the call" to attempt that combat rescue, ultimately recovering the wounded soldier, who had, by the time his recovery was completed, died of his wounds. The Apache crews who put themselves and their helicopters into such a line of fire were at first admonished for their failure to follow standing operating procedures, but later, when cooler heads prevailed, were all decorated, the pilots receiving a Distinguished Flying Cross (DFC), the crews and Royal Marines receiving the Military Cross.

This book is highly recommended to all tactical helicopter pilots and crews and to all those involved in flying doctrine and training. 🇨🇦

The reviewer served 32 years in the regular force and eight years in the primary reserve before accepting a position with the public service and is currently the Senior Procurement Officer at the Ottawa Detachment of the Canadian Forces Aerospace Warfare Centre. Scott Fuller is also a Director at Large for Policy Development for the North Atlantic Treaty Organization (NATO) Veterans Organization of Canada and a technical advisor to the Honours, Awards and Decorations Advisory Committee at Rideau Hall.



DEMOLISHING THE MYTH: THE TANK BATTLE OF PROKHOROVKA, KURSK, JULY 1943: AN OPERATIONAL NARRATIVE

By Valeriy Zamulin

Edited and translated by Stuart Britton

Solihull, England:

Helion and Company Ltd., 2011

630 pages

ISBN 978-190603389 7

Review by

Major Chris Buckham, CD, BA, MA

With the fall of the Soviet Union in 1989, many documents and unit records of Soviet operations during the Second World War became available to scholars. Valeriy Zamulin has taken advantage of this opportunity to draft an outstanding operational history of the Battle of Prokhorovka. Fought on the southern front of the Kursk conflict between 2 and 17 July, 1943, this battle represented the zenith of German offensive capability on the Eastern Front. From this point on, German efforts were defensive in nature, while Russian operations transitioned into full-time offensive.

Of note in Zamulin's book is that it is written from the perspective of the Soviet forces. He has taken advantage of numerous first-hand accounts, ranging in level from junior soldiers to front commanders, which provide context and depth to the narrative. While the scope of his study is relatively narrow (the Battle of Prokhorovka within the larger Kursk conflict), the breadth of his operational narrative is such that it provides a clear sense of the challenges faced by the Russian commanders controlling the fast-moving and fluid conflict.

Zamulin's approach to the Russian command performance during the battle is balanced and objective. His use of daily logs, orders, situational reports, and first-hand recollections highlight some of the strengths and weaknesses of Russian command and control. Specifically, the tendency of the Russians to be extremely stratified in their decision making is repeatedly identified. Interestingly, the pressure on senior commanders to perform effectively was compounded by the implied (and real) threat of consequences should they fail. This expectation resulted in micromanagement, and a fear of error that permeated throughout the command structure. Zamulin refers to an example of this: just prior to the initiation of the Soviet counterattack on 12 July, Stalin himself directed that the senior front commanders spread themselves out among individual regional headquarters. Thus, the front commander, his chief of staff, and other key commanders were physically separated while trying to coordinate a multi-army, combined-arms battle.

One of the real strengths of this book is the ability of the author to expose the reader to both the interdependent role that the various arms operated under and the individual challenges and success that each arm faced. This battle revealed a growing confidence in the Russian military leadership in their abilities and equipment. Many errors were committed, and these are discussed within the larger narrative of the battle. Also, weaknesses were highlighted in senior leadership's ability / experience level to coordinate effective counter-attacks using combined-arms assaults. Nevertheless, it is evident from the overall performance of the Russian command and soldiers that morale and competency were improving dramatically.

What I particularly enjoyed about Zamulin's book is the way that he presents his evaluation of the battle. Thus, while he sets his third-person narrative at the operational level, in order to provide context and depth,



he seamlessly transitions to the tactical and first person. This provides the reader with a much greater appreciation of what was going on within the heads of the individual commanders and soldiers. Additionally, while this book is primarily a narrative on the Russian experience, he does make a concerted effort to include the German perspective, which adds further context and flavour.

Another strength is Zamulin's chronological presentation of Prokhorovka. Therefore, despite the complexity of the battle, the reader is easily able to follow as the battle unfolds from the German offensive from 2 to 12 July to the Russian counter-offensive running from 12 to 17 July. Zamulin has obviously researched the units involved in great depth. Included within the narratives (in chart format) are breakdowns of unit strengths by vehicle type and personnel, unit replacement rates, and overall loss rates for both the German and Russian sides.

Zamulin concludes his narrative by addressing the commonly held beliefs of historians surrounding the Battle of Prokhorovka. Using primary source documentation only recently made available to historians, he refutes, for example, the idea that Prokhorovka involved the largest concentration of armour participating in a single combat operation on the Eastern Front. Additionally, he summarizes very succinctly the strengths and weaknesses of the Russian commanders from an experience as well as a doctrinal and quality-of-equipment perspective.

Rounding off his book is a comprehensive listing of all of the units from both sides involved in the battle. He also provides an in-depth bibliography of his primary and secondary sources. One observation that I would make involves the concentration of the maps into one section of the book. While a very small point that in no way takes away from the narrative, it would have made tracking the battle easier for the casual reader

if the maps had been appropriately dispersed throughout.

This is an outstanding historical analysis of a "battle within a battle." Zamulin's work represents for the military professional and the casual military historian a work of profound depth and scope. There is something for any branch of the combat arms professions and for operators in a joint environment. The cost was horrific, but the Russians learned many lessons from their experiences during the Battle of Prokhorovka, and they did not waste time applying them. 🇷🇺

Major Chris Buckham is a Logistics Officer in the Royal Canadian Air Force. He has experience working with all elements, including special operations forces (SOF). A graduate of the Royal Military College of Canada, he holds a Bachelor of Arts in Political Science and a Master of Arts in International Relations. He is presently employed as an International Line of Communication (ILOC) officer with the multinational branch of European Command (EUCOM) J4 in Stuttgart, Germany.



STRATEGIC SURVEY 2010: THE ANNUAL REVIEW OF WORLD AFFAIRS

By The International
Institute for Strategic
Studies

Routledge Taylor and Francis Group, 2010
433 pages
ISBN 978-1-85743-563-4

Review by
Commander Mark R. Condono

Two years ago, nuclear disarmament became the focus of the United States (US) National Security Policy. A few months later, in February 2010, the release of the *Quadrennial Defense Review* (QDR) identified new mission areas and changes in America's defence policy, while strategic plans, new concepts, and focus change dominated the three major security organizations in Europe.

These events and their subordinate issues form part of three specially commissioned essays, which, along with an in-depth review and analysis of key incidents in the six continents in the past year, constitute the latest of the International Institute for Strategic Studies' annual *Strategic Survey*. This edition is divided into 10 chapters. As in the past, spearheading the collection is the valuable "Perspectives" section, wherein the ongoing conflict in Afghanistan is given a thorough examination on the essence of the attainment of the allied objectives.

The first section covers the US strategic policy issue mentioned above, including US nuclear and defence policy, and Europe's security architecture. The next section includes a chapter examining the domestic and economic issues affecting the US during the first year of President Obama's

administration. It also includes a chapter on the developing and expanding influence of Latin American countries on world affairs, especially concerning Brazil and Venezuela, and rising political issues as new leaders in Chile, Honduras, among others, took the helm of their respective governments.

The third section on Europe details the integration in the Balkan region, Germany's role in Afghanistan, the North Atlantic Treaty Organization's (NATO's) anti-piracy operations off Somalia, and Turkey's emerging role as a regional power amongst other issues on the European front. An entire section is devoted to Russia, assessing and detailing the country's direction and economic developments, as well as its relations with NATO and the European Union. The fifth section, on the Middle East, discusses regional concerns about Iran's nuclear programme, triggering an arms buildup in the region, evidenced in the growing acquisitions of fourth-generation fighter aircraft and anti-ballistic missile systems. The African continent is studied in the sixth section, with examinations of the coalition governments in Kenya and Zimbabwe and the political developments in most of the African countries, based on recently held elections.

The last two sections address issues in South and Central Asia and the Asia-Pacific Region. Notable topics are the Taliban insurgency in Pakistan and Afghanistan's national security amidst the continuing conflict. Lastly, there is the economic growth in China and China's rising influence in military and international affairs, and Chinese-US relations. The tensions on the Korean peninsula after the sinking of the Republic of Korea Navy's (ROKNS) corvette *Chonan* (FSG 772), recently concluded polls in Indonesia and the Philippines, and the developing regional security of Southeast Asia as it relates to China and the US, and to the Association of Southeast Asian Nations (ASEAN) countries are some of the paramount issues of the region.



The penultimate chapter provides a strategic assessment and in-depth look at the events and pivotal political and military developments and issues, and their implications for the present and future, as they are weightily added to and considered in light of each region's or country's economic concerns.

The Institute's director general and his staff are to be commended for this remarkable tome. The depth of information and the invaluable insights are impressive, especially on obscure topics that we cannot readily read about in the papers. Issues such as terrorism, economics, the environment, and security concerns continuously affect us, as do the shifting trends towards international and bilateral cooperation and strategic balance.

Documentation is augmented with the twenty-page section on "Strategic Geography," which looks into various global and regional issues, such as climate change, the earthquake in Haiti, the magnitude of the multinational response to that tragedy, and the massive Gulf of Mexico oil spill. A chronicle of events from the period of July 2009 to June 2010, seven maps, and an index are also supplemental.

In conclusion, I recommend the *Strategic Survey* (<http://www.iiss.org/publications/strategic-survey/strategic-survey-2010/>) as a valuable addition to the libraries of foreign ministry officials, the media, academics—especially those in the field of strategic studies, economics, and business—and mostly to military officers, especially those in strategic planning, intelligence, civil-military operations, and international relations. 🌐

Commander Mark R. Condeno is currently Liaison Officer, Foreign Armed Forces Attaché Corps, International Affairs Directorate, Philippine Coast Guard Auxiliary. He holds a BSc degree in Architecture from Palawan State University. He was with the Class of 1997 of the Basic Naval Reserve Officer Training Course, Philippine Navy, and with the Class of 1999 of the Philippine Coast Guard Auxiliary Officer Indoctrination Course.

Abbreviations

NATO	North Atlantic Treaty Organization
US	United States

POINTS OF INTEREST

"Rescue 907" Aircraft Commander Capt Jean Leroux (centre) and SAR Tech Sgt George Olynyk (left) are presented with the 2012 SAR Award for Operational Rescue Excellence by Chris Reynolds, Director General of the Irish Coast Guard.



AGUSTAWESTLAND CONGRATULATES ROYAL CANADIAN AIR FORCE HELICOPTER SAR CREW FOR WINNING INTERNATIONAL AWARD

Reprint from AgustaWestland website <http://ca.agustawestland.com> 30 March 2012



442 Squadron's heroic rescue using AW101 Cormorant helicopter recognized at Shephard Search and Rescue conference

AgustaWestland, a Finmeccanica Company, extends congratulations to the members of Royal Canadian Air Force 442 Squadron at Canadian Forces Base (CFB) Comox, on winning the SAR Award for Operational Rescue Excellence at the 2012 Shephard's Search and Rescue Conference in Dublin, Ireland.

"The crew of Royal Canadian Air Force Cormorant, call sign 'Rescue 907' of 442 Squadron, was the clear choice of the judges for this year's SAR Award for Operational Rescue Excellence," said Alex Giles, CEO of UK-based Shephard Media. "Their rescue of an injured hiker from Hat Mountain, BC, at night and in the most demanding of weather conditions, displayed exceptional flying skill, crew coordination, and personal bravery."

On hand to receive congratulations and the rescue award were aircraft commander Captain (Capt) Jean Leroux, stationed at CFB Comox, and search and rescue technician (SAR Tech) Sergeant (Sgt) George Olynik, who is now stationed at CFB Gander. They were presented with the award by Chris Reynolds, Director General of the Irish Coast Guard, host organization for the conference. The other members of the crew who were honoured by the award were Major Troy Maa, first officer, Sgt Carl Schouten, flight engineer, and SAR Tech Master Corporal Nicholas Nissen.

"For that mission we had all the complicated elements, high winds, icing, severe down flow, at night, high altitude and low visibility, but we had the right crew and the best machine to do the job—I pushed my crew to the maximum, but we pushed also the [Cormorant] to the maximum and neither

let us down," said Capt Leroux at the award ceremony. "That night we had a bit of time on the long return transit to talk about the mission, and we all said that we hoped we'd never have to do that again."

The crew was dispatched on the night of December 23, 2010 to rescue a 23-year-old man who was stranded on a steep side of Hat Mountain in Cypress Provincial Park, BC. The Cormorant crew was racing against time, with a powerful winter storm approaching. The stranded hiker was located at 1,600 metres up the mountain, 150 metres into dense clouds, in a narrow and steep bowl. As the crew approached in their AW101 helicopter, they were battered by the turbulence of 85-kilometre per hour wind gusts blowing straight down the mountain.

This is the second rescue award for the crew. They were presented the 2011 Cormorant Trophy in November in a ceremony at CFB Comox in the presence of Canada's Chief of the Defence Staff, General Walter Natynczyk, and Base Commander Colonel Jim Benninger.

"This crew is fully deserving of the national and international recognition for this extremely difficult rescue," said AgustaWestland Canada Head of Region Jeremy Tracy. "It is also rewarding to us that Canada's brave search and rescue crews put their faith in the capabilities of the Cormorant so they can confidently focus on their primary task of saving Canadian lives." 🌀

Abbreviations

CFB	Canadian Forces Base
SAR Tech	search and rescue technician



POINTS OF
INTEREST

CANADA'S AIR SYNTHETIC ENVIRONMENT CENTRE: ENABLING FORCE TRANSFORMATION

BY LIEUTENANT-COLONEL KELVIN TRUSS

REPRINT FROM THE *DEFENCE MANAGEMENT JOURNAL*, ISSUE 57 SUMMER 2012,
"THE DETAIL IN THE DETACHMENT" WWW.DEFENCEMANAGEMENT.COM



Hidden away in a nondescript brick building on the Shirley's Bay Campus in the greenbelt of Canada's National Capital Region, a small detachment of the Canadian Forces Aerospace Warfare Centre (CFAWC) is making great strides in the world of synthetic environment training and experimentation.

Life at CFAWC's Ottawa detachment, affectionately dubbed "the det," was once sheltered, but the traditionally esoteric domain of synthetic training is rapidly gaining popularity as the benefits of using leading-edge modelling and simulation (M&S) technology become increasingly apparent to Royal Canadian Air Force (RCAF) leaders.

As of 1 April 2012, the det has a new branch: the Air Synthetic Environment Centre (ASEC). Working under the auspices of CFAWC, a military unit established in 2005 to be the engine of change for the RCAF, ASEC is mandated to provide the capability to conduct training, mission rehearsal, and experimentation in a synthetic air environment, supporting Canadian Forces (CF) and RCAF force development and force generation efforts.

"ASEC's new name reflects the emerging priority of M&S and will enable due focus on operational modelling and simulation," said Lieutenant-Colonel Kelvin Truss, CFAWC Ottawa Detachment Commander and ASEC Branch Head. "In recent years, we have been directed to make more effective use of M&S in collective training endeavours, and the dedicated men and women of ASEC are committed to ensuring this service is delivered to the highest possible standard, thereby maximizing the benefit to its users and to the organization."

Modelling and simulation is a very broad field of work, and ASEC has been cautious to first focus on the incremental growth of the RCAF's distributed mission training capability which links real-time simulators to the exercise mission-planning and execution processes.

"By connecting mission training simulation devices in common synthetic environments, ASEC will provide the ability for myriad RCAF assets to conduct collective training within our domestic lines of operation individually, jointly with our land and naval forces, and with our coalition partners throughout the world," said Truss.

ASEC is moving forward with several domestic and coalition initiatives aimed at highlighting the advantages of current distributed mission training (DMT) capabilities and at examining potential areas of future growth in the DMT field.

Since 2010, ASEC has been conducting vignette training activities between the distributed mission operations centre (DMOC) facility in Ottawa and aerospace controllers (AECs) at the North American Aerospace Defence Command (NORAD) Canadian Air Defence Sector (CADS) facility located at 22 Wing North Bay, Ontario.

"As part of their training, AECs working in an air weapons role are required to control fighter aircraft during miscellaneous NORAD missions simulating potential response to aerospace defence violations, including airspace incursions and aircraft hijacking scenarios," said Truss. "Through the establishment of persistent network enclaves, ASEC has connected live controller systems in North Bay with CF18 Hornet simulators in Ottawa, collectively enabling the CADS crews to routinely operate with real CF18 pilots in a simulated environment."

The availability of sophisticated, distributed simulation training technology is now providing a cost-effective option for the force generation efforts of members of the AEC occupation, whilst providing the opportunity to alleviate pressures on CF18 flying rates. As this type of training negates the requirement for the physical displacement of personnel, mission briefings and debriefings, including the collection of valuable lessons learned, are conducted using video teleconference capabilities.

In addition to vignette training, ASEC is also contributing to joint operational effectiveness through Canada's JOINTEX series of exercises, computer assisted command-post exercises focusing on the operational level of war. JOINTEX capitalizes on DMT through the delivery of distributed, collaborative, and interactive tactical and operational planning training. ASEC's role in JOINTEX primarily involves the provision of virtual and constructive simulations that populate and fly the air campaign, including the use of offensive counter-air, defensive counter-air, and tactical aviation elements. "Ultimately, RCAF participation in JOINTEX contributes to shaping the development of expeditionary command and control constructs for impending operational deployments," added Truss.

On a coalition front, ASEC has led CF participation in the annual Coalition Virtual Flag exercise since 2009. Led by the United States Air Force's (USAF) DMOC facility at Kirtland Air Force Base, Albuquerque, New Mexico, Coalition Virtual Flag is a multinational, large-force exercise that integrates live, virtual, and constructive elements in a realistic major combat operations scenario. The event successfully links simulators and operators at the CFAWC Ottawa facility with those of the USAF, Royal Air Force, and Royal Australian Air Force in a full-spectrum aerospace warfare campaign. It provides effective DMT to RCAF and Canadian Army participants in a common synthetic environment.

"Coalition Virtual Flag has been very successful in its aim to incorporate coalition players into the Virtual Flag series of exercises, training war-fighters in a representative wartime environment via distributed simulation," said Truss. "From a Canadian technical perspective, the exercise has allowed the RCAF to have a presence on the USAF DMT networks, facilitating our ability to participate in coalition events and to foster

our valuable working relationship with USAF DMOC personnel."

Members of ASEC have learned a great deal from their interactions with the USAF DMOC staff, whom by all accounts are leaders in the fields of tool sets, processes, and connectivity related to DMT. While ASEC is still using low-fidelity mission simulators to participate in DMT missions, the long-term plan sees the incorporation of higher-fidelity technology into the process. "It is hoped that the frontline CF18 simulators located at our main operating fighter bases in Bagotville, Quebec and Cold Lake, Alberta will eventually come on-board, but until those connections are established, ASEC will continue to focus on the active pursuit of well-rounded, versatile air-power practitioners," added Truss.

Despite the low fidelity of the current simulator systems, ASEC personnel have observed that war fighters who unite in a common synthetic environment over a number of missions learn to operate together just as they would in a real-world setting, thanks to the valid transfer of knowledge that takes place between participants. Accurate representations of tools (such as radios, sensors, weapons, and other mission-related equipment) and a focus on decision making go a long way to fostering interoperability amongst forces.

"In order to interoperate effectively, each participant should understand their role in the larger picture of the air campaign," said Truss. "One of the advantages of DMT is that it allows us to really focus on training an operator's mind rather than placing the immediate emphasis on the hands and feet. Therefore, used in conjunction with traditional training methods, DMT plays an important role in the formation of well-rounded, versatile leaders."

In addition to providing the ability to execute an entire mission from start to finish, DMT also provides conveniences, such as:



- freedom from exercise-imposed airspace restrictions, normally enforced for flight safety reasons;
- freedom from geographic limitations, such as reserved airspace;
- the ability to interact with large numbers of unpredictable opposing forces and trained “aggressors”;
- the ability to represent a full range of electronic warfare threats and effects, targeting, and weapons procedures;
- the ability to conduct representative battle damage assessment; and
- the provision of representative mission radio communications and relevant radio chatter.

While their current focus remains on response to domestic requirements, visions for future expansion of ASEC’s responsibilities include increased connectivity to sites in the United States, United Kingdom, and throughout Europe. ASEC is also involved with plans to connect training bases from the west to east coasts of Canada, leveraging the Canadian Advanced Synthetic Environment (CASE) project that aims to provide network backbone connectivity to a number of army, navy and air force sites, thereby providing varying levels of DMT to participants across the country. In alignment with the CASE project, ASEC will look to build upon the network backbone to formally roll DMT out to the RCAF, ensuring that simulation devices are integrated and modifiable and that crews are equipped with the proper sets of network and web tools to carry out their functions. Under the RCAF managed readiness planning cycle, DMT will be included as an integral part of the readiness training cycle.

“One of the big challenges we face is convincing our operators that DMT augments—and in some cases is a suitable alternative to—live collective training,” said Truss. “Improving the member’s performance in the simulator allows valuable flying hours

to be expended more effectively, freeing up more of these hours for valuable operational flying and specialized training.”

While the plan to grow the RCAF’s DMT capability is being implemented, ASEC will continue to look forward, sharing lessons learned and increasing the unit’s interoperability with industry and coalition partners. 🇨🇦

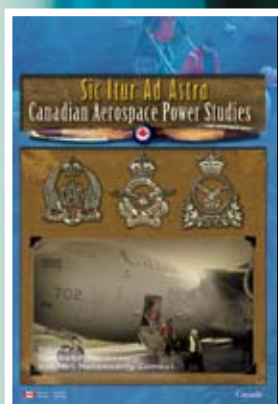
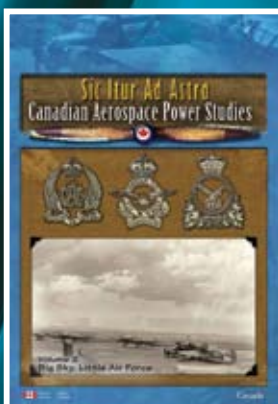
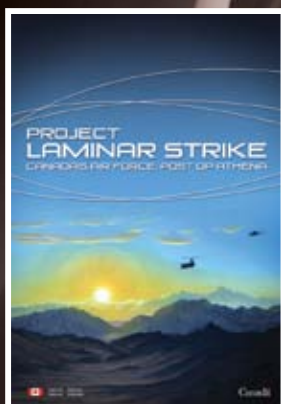
CFAWC is headquartered at 8 Wing / Canadian Forces Base Trenton, Ontario, and is functionally organized under 2 Canadian Air Division, a command established in 2009 to regroup the RCAF’s learning, training, education, doctrine, and lessons learned capabilities into one formation. CFAWC is mandated to ensure the evolution of Canadian aerospace power.

Lieutenant-Colonel Kelvin Truss, Ottawa Detachment Commander, Canadian Forces Aerospace Warfare Centre and Air Synthetic Environment Centre Branch Head.

ABBREVIATIONS

AEC	aerospace controller
ASEC	Air Synthetic Environment Centre
CADS	Canadian Air Defence Sector
CASE	Canadian Advanced Synthetic Environment
CF	Canadian Forces
CFAWC	Canadian Forces Aerospace Warfare Centre
det	detachment
DMOC	Distributed Mission Operations Centre
DMT	distributed mission training
M&S	modelling and simulation
NORAD	North American Aerospace Defence Command
RCAF	Royal Canadian Air Force
USAF	United States Air Force

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