

FALL 2010
VOL. 3, NO. 4

THE CANADIAN

AIR FORCE JOURNAL



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TO BE A FIGHTER PILOT

BOOK REVIEWS
HAP ARNOLD
AND THE EVOLUTION
OF AMERICAN AIRPOWER

WHIRLWIND:
THE AIR WAR AGAINST JAPAN 1942-1945

AND MUCH MORE!



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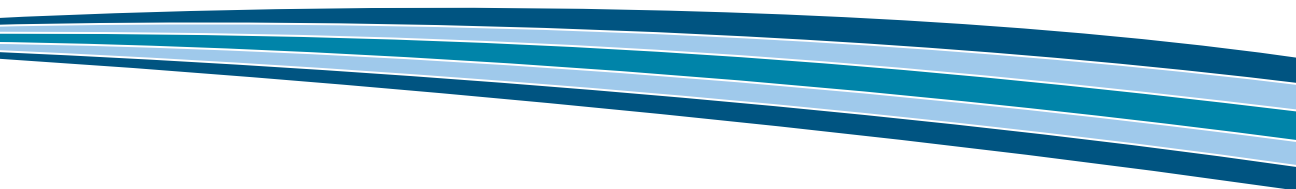
Anne Pennington

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THE CANADIAN
AIR FORCE JOURNAL



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CF Photo: Sgt Ron Flynn

EDITOR'S MESSAGE

Welcome to our last issue of Volume 3 of *The Canadian Air Force Journal*! The staff and I have managed to put together an interesting collection of articles that I hope will be both enjoyable and thought-provoking. And while all of the items between these covers are worth a read, I want to highlight one in particular that deals with an individual who, in my opinion, is truly one of the Air Force's greatest heroes—Second Lieutenant Alan Arnett McLeod. The story behind how this 18-year-old Canadian airman earned the Victoria Cross during the First World War is as inspiring as it is unbelievable.

In less than a year from now, as per government direction, the Canadian Forces will be going through a period of change with respect to its role in Afghanistan. There is no doubt that our involvement in this conflict (dare we call it a war?) has had, and will continue to have, a lasting influence on how we do business. From an Air Force perspective, Afghanistan has impacted us in a myriad of ways, such as the acquisition of new capabilities (unmanned air vehicles, C17s and Chinook helicopters), implementation of new roles (armed helicopter escort, digital mapping), and influencing new doctrine (B-GA-400 *Canadian Forces Aerospace Doctrine*, for example). All in all, this short list only skims the surface of the ocean of change that has impacted the Air Force. However, the question that should be on everyone's mind is... what now?

Undoubtedly, for a large portion of the Air Force it will continue to be "business as usual," for we should never forget that our national responsibilities do not cease while we deploy to support international operations. This being said, we will need to study, adapt, and inculcate the lessons of Afghanistan to prepare for the next mission and the one after that—both at home and abroad. This brings me to a request for you, the reader, as we gear up for Volume 4.

I would like to see you put finger to keyboard (as opposed to pen to paper) and provide me with your vision, or "gut-feeling" if you will, on what the Air Force of 2011–2020 could, should, or must learn from the previous decade. How will we employ our new capabilities at home and overseas in less combat-focused tasks such as support to humanitarian and peacekeeping operations? How should the structure of the Air Force adapt to get the most out of what we have experienced? What will be the impact on our people, our training, and our leadership? Can we make "Joint" better?

The topics are endless and the need is evident—the Air Force must continue to evolve. So let's poke a few chests (respectfully), make some people angry (in a thought-provoking way), and shake a few trees (à la Newton and the apple). You write 'em and I'll print 'em!



Major William March, CD, MA
Senior Editor

LETTERS TO THE EDITOR

To the Editor:

Sir:

In your Editor's Message (Spring 2010) you stated that Captain Peter Tees of the Royal Canadian Artillery was the last Canadian to be awarded the Distinguished Flying Cross (DFC). I believe this has changed. Flight Lieutenant (Flt Lt) Chris Hasler of the Royal Air Force (RAF) was awarded the DFC on May 23, 2007, for his flying as a Chinook helicopter pilot in Afghanistan. Though not serving in the Canadian Air Force, Flt Lt Hasler is the most recent Canadian to receive the DFC.

Flt Lt Hasler was born in Jasper, Alberta, and raised in Halifax, Nova Scotia. He applied to the Canadian Forces after high school and was turned down. He then studied at Mount Allison University before being accepted to the RAF as a Commonwealth citizen.

Flt Lt Hasler was awarded the DFC for two missions. The first was a medical evacuation (MEDEVAC) on July 7, 2006, when he successfully landed his Chinook in a small courtyard surrounded on three sides by buildings while under fire. The area was only large enough to allow him to touch down his rear wheels while the front end hovered above a nearby roof. The second mission involved Flt Lt Hasler carrying out a night insertion under small arms and rocket-propelled grenade fire on July 14, 2006.

The CBC News website has a few articles about Flt Lt Hasler such as this one: <http://www.cbc.ca/world/story/2007/05/23/pilot-award.html> (accessed June 30, 2010).

Sincerely,

Second Lieutenant Andrew Newton

Editor's Response:

Second Lieutenant Newton:

What the Major meant to say.... You are quite right, a number of Canadians serving in other Commonwealth air forces have been awarded various decorations, including the DFC. Flight Lieutenant Hasler is an excellent example of outstanding courage and dedication of whom we should be proud, regardless of the uniform. So, what the Major meant to say was the "last serving member of the Canadian military to be awarded a DFC." Thank you for reminding me that I need to be more precise when I write. Good luck with your course.

Bill

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For further information please contact the Senior Editor at: William.March@forces.gc.ca



FOULED DECK¹

THE PURSUIT OF AN AUGMENTED
AIRCRAFT CARRIER CAPABILITY
FOR THE ROYAL CANADIAN NAVY

PART 2, 1956-64

BY MICHAEL WHITBY



This is the second in a series of two articles. Part 1² looked at the reasons behind failed efforts to expand the Royal Canadian Navy's (RCN) carrier capability in the 1945–55 period. This part considers the search for alternatives to its carrier force structure over the 1956–64 timeframe caused by perceptions of the limited capability of HMCS BONAVENTURE as well as changes to Canadian naval strategy.

REACTING TO THE MISSILE-FIRING SUBMARINE

Of the twentieth century maritime powers, the Soviet Union and its previous incarnations had embraced submarines as consistently and enthusiastically as any other. At the outbreak of the First World War, for example, the Tsarist navy had a force of some 48 submarines, and in June 1941, the Union of Soviet Socialist Republics (USSR) had 213 in commission.³ At the end of the Second World War, the Soviets had not only captured examples of the newest Type XXI and XXIII fast schnorkel boats from the Germans, but they had also taken possession of some of the shipyards where they had been built and had detained many of the engineers who had overseen their design and construction. Like the Royal Navy (RN) and the United States Navy (USN), they incorporated this technology into their own designs, which began coming out of the yards with staggering intensity. A 1954 British intelligence summary shared with the RCN and USN reported that the Soviets were building some 60 ocean-going boats a year and estimated they would have a total of 500 submarines within two years.⁴ Although such intelligence reports are now recognized as exaggerated, at the time they had to be taken seriously.

Although Soviet submarines had traditionally been assigned a coastal defence role, in the mid-1950s there were increasing signs that they would assume a blue-water role.⁵ Moreover, the North Atlantic Treaty Organization (NATO) became aware that the Soviets had developed the Project AV611 diesel submarine—"Zulus"

to NATO—that was capable of launching SS-1b SCUD-A missiles that could hit targets from 200 miles.⁶ In the two-phase war NATO then foresaw under MC-48, it was predicted in Phase I, all out nuclear war, that Soviet missile boats (SSG) would attempt to gain the upper hand through attacks against shore targets such as industrial and population centres as well as critical military installations, particularly the bases housing Strategic Air Command (SAC).⁷ During Phase II, the "broken back" or conventional war, Soviet submarines would attack NATO shipping lanes across the North Atlantic in an attempt to win command of the seas.⁸ By utilizing seagoing platforms equipped with long-range sonar and sea- and shore-based antisubmarine warfare (ASW) aircraft backed up by the new sound surveillance system (SOSUS) chains, NATO navies were fairly confident of their ability to counter schnorkel boats engaged in traditional anti-shiping operations. Missile boats were another matter. Although they went to sea later and in smaller numbers than predicted, their existence complicated the ASW problem since it was critical to destroy the submarine before it achieved a firing position. Moreover, there was intelligence that the Soviets were building nuclear boats, and it could only be a matter of time before they married that capability to cruise and ballistic missiles.⁹ Against these threats, NATO expected to fight "a come as you are war" in response to a surprise attack; there would be no opportunity to build up forces subsequent to the outbreak of any conflict. You would fight with what you had.

Despite the strength of their submarine forces, the Soviets were hampered by a position of geographic weakness. To access the North Atlantic shipping lanes from their main bases in North Russia, Soviet submarines first had to make a long passage along predictable routes and then pass through restricted choke points like the Greenland-Iceland-United Kingdom (GIUK) gap. To take advantage of this strategic weakness, NATO planned to bottle up the Soviets



NATO sub-area. From these areas, they would work with the SOSUS system and the Royal Canadian Air Force's (RCAF) shore-based aircraft to intercept Soviet missile boats before they could reach their firing positions. The most important consequence of this plan, which lay at the cutting edge of naval thinking within NATO, was that throughout Phase I the Canadian carrier task group, the most capable element in the navy, would maintain a defensive posture in home waters.

This restrictive role for the carrier provoked strong protest from Captain G. C. Edwards and Commander H. J. Hunter, Director of Naval Aviation (DNA) and Deputy DNA respectively—the only naval aviators on the Warfare Study Group. They argued that shore-based aircraft were more than capable of defending inshore waters during Phase I and that it

through a forward ASW strategy. Carrier strike forces would attack Soviet submarine bases while air and sea assets would conduct barrier operations across obvious choke points, notably the GIUK gap. Under the Supreme Allied Commander Atlantic's (SACLANT) original war plans, the Royal Canadian Navy ASW carrier task group was designated to deploy to the Eastern Atlantic (EASTLANT) immediately upon the outbreak of hostilities; however, the threat of the missile-firing submarine caused the RCN to reconsider its role. A small select committee named the 1956 Naval Warfare Study Group was formed at Naval Service Headquarters (NSHQ) to study the new scenario. Working under tight security, they proposed a fundamental change to Canadian naval strategy, one that has only recently been fully appreciated by historians.¹⁰ Instead of deploying to EASTLANT at the outbreak of war, they recommended the carrier task group be positioned in the Northwest Atlantic in what was designated the "harassment" and "combat" areas about 200–300 miles offshore in the Canadian

would be a more economical use of forces to deploy the carrier in the "Greater Atlantic" to support SACLANT's strike force, to reinforce the GIUK gap barrier or to protect shipping. Flexibility and mobility had long been recognized as the key attributes of carrier task groups, and tying the RCN's group to Canadian waters would nullify that capability. Despite stating their case cogently and with great vehemence, they lost the debate. Although the Warfare Study Group's final report emphasized the critical importance of naval air to their strategy (as seen in Part 1, to the point of recommending that MAGNIFICENT be retained permanently as a second carrier), the concept that the RCN's carrier be tied to the anti-SSG role in Canadian waters during Phase I eventually became official policy. However, that decision was extremely contentious—and not just among the naval aviation fraternity—and disagreement over the strategy of concentrating the RCN's naval air assets in Canadian waters became the vehicle of the most comprehensive attempt to obtain a second carrier

in the form of an ESSEX class CVS (aircraft carrier, ASW).

HMCS VANCOUVER: THE CARRIER THAT NEVER WAS

The opportunity to reopen the second carrier debate was assisted by yet another attack on the viability of naval aviation. In July 1956, the departmental Estimates Screening Committee—popularly known as the “screaming” committee for the loud vocal sparring over who would lose what—“criticized the strength of the supporting units of the RCN Air Component.” The Deputy Minister for National Defence, F. R. Miller, voiced concern that “the Naval Program shows that there is a considerable number of units and aircraft to support the twenty front line aircraft in BONAVENTURE.”¹¹ Miller also questioned the need for six aircraft on the west coast as well as the RCN’s reserve air training program. As a result of these criticisms, Vice-Admiral DeWolf formed the Ad Hoc Committee on Naval Aviation with the mandate to investigate the minimum number of first- and second-line aircraft needed to support the RCN’s essential requirements as well as to suggest “any comments concerning the RCN air component which would effect further efficiency or economy.”¹² From all appearances, the committee operated in a guarded fashion. The investigation did not go through the normal staff process, and the committee consisted of just three officers: Commodore A. H. G. Storrs, the Assistant Chief of Naval Staff (Warfare); Captain E. T. G. Madgwick, the Director of Naval Personnel (Men); and Commander J. E. Koring, Naval Coordinator. None were naval aviators, and even though Storrs had commanded both the Naval Air Station (NAS) Her

Majesty’s Canadian Ship (HMCS) Shearwater as well as MAGNIFICENT and had a reputation for being “air-minded,”¹³ it is surprising that the senior staff officers responsible for naval aviation, the Assistant Chief of the Naval Staff (Air) [ACNS (Air)], Commodore H. P.

Sears (RN) or the Director of Naval Aviation, Captain G. C. Edwards were excluded. DeWolf often kept tight rein over sensitive policy discussions, and he may have kept a lid on this investigation to prevent rumours of cuts from circulating through the naval aviation community.



The Storrs committee’s investigation was limited by the fact that they were to consider air strength solely within the immediate 1957–58

period. In the final report, Storrs noted, “We have not allowed for any possible future extension of naval aviation responsibilities.”¹⁴ Most notable in this regard was the concept of the ASW helicopter / small ship marriage. At the time the report was being prepared, helicopter landing trials were conducted onboard the frigate HMCS BUCKINGHAM, and the RCN’s operational helicopter squadron, HS-50, was evaluating the possibility of conducting ASW operations in coordination with escorts. Nonetheless, the committee answered the first part of their mandate by recommending the disposal of some 99 aircraft, mainly at the training and reserve levels. Against that, they proposed the procurement of 10 ASW helicopters.¹⁵ Storrs noted that although at first sight these cuts were “considerable,” most of the reductions were directed at the navy’s reserve squadrons. In an era of “come as you are” warfare that could be accepted, and over the next few years, the naval reserve was decimated at all levels as part of the relentless search for savings.

The Storrs committee had also been asked to comment on ways to “effect further efficiency or economy”¹⁶ in the air component.



USS ESSEX (L) and HMCS BONAVENTURE. CF Photo.

They took advantage of this opening to propose radical changes to the air branch, which in their mind would better prepare the RCN to meet its operational commitments. The core of their proposal was for a two-carrier navy. BONAVENTURE was to be utilized as a specialized ASW carrier. The second, larger ship (which by its description could only be an ESSEX class carrier) would have a balanced air component that would enable it to operate in the face of any threat that the RCN could expect to encounter. Considering that the committee was asked to rationalize naval air, submitting a proposal for an expanded, more robust aviation component was a bold step. That audacity, the forcefulness of their argument and the fact that the report's authors were not members of the naval aviation community, all indicated a distinct level of unease about the direction of the RCN, in particular the trend towards restricting its ASW carrier task group to Canadian waters.

The Storrs committee thought the problem was BONAVENTURE, still yet to join the fleet. The recent proposals by the Warfare Study Group had not yet worked through the system to alter the RCN's commitment to SACLANT, which still had the ASW task group of BONAVENTURE and six escorts committed to EASTLANT at the outbreak of war. Storrs's report warned that "Soviet aircraft

are capable of threatening the sea-lines of communication in the EASTLANT area by reconnaissance over a large area of the North Atlantic in co-operation with submarines and, possibly, surface raiders and by direct attack on shipping."¹⁷ Not only must an ASW carrier group be capable of a "reasonable measure of air defence against these forms of air threat" when operating outside the range of shore-based fighters, measured at 100 miles, but the EASTLANT operational plan stated that "A/S [attack/ASW] carrier groups operating in the vicinity of shipping may be required to provide some measure of fighter protection"¹⁸ to convoys. Consequently, BONAVENTURE "must be armed with the most satisfactory balance of ASW and fighter aircraft to give the best possible ASW effectiveness with a reasonable measure of fighter defence."¹⁹ There lay the rub. BONAVENTURE, the report continued, "is a very small carrier and the number of large modern aircraft that she can carry is limited."²⁰ They calculated what they called "the mixed bag" that would provide the carrier "the best capability to deal with average [operational] conditions as she may find them...anywhere in the North Atlantic."²¹ Adequate ASW coverage required the carrier to have two-to-four CS2F Tracker aircraft aloft continuously, and to meet that commitment over the duration of a normal twelve-day mission, a minimum of twelve Trackers were required.²²



Tracker. CF Photo

That left room for eight F2H3 Banshees, which the committee thought would be inadequate to provide “sensible” fighter defence against the current Soviet air threat. BONAVENTURE’s radar could provide early warning and direction to a range of 100 miles. “Without AEW [airborne early warning] aircraft or picket ships, the only way that a high flying enemy aircraft of the TU 4 type can be intercepted before it reaches weapon release point, provided that this is not more than 20 miles away, is by maintaining a CAP [combat air patrol]. At this range the [CAP] aircraft will have two minutes to effect an interception. If weapon release point is more than 20 miles away, or if the enemy aircraft is a jet of significantly higher performance than [sic] the TU 4 (for example, the IL 28), interception cannot be made at all without AEW aircraft or picket ships.”²³ Since the Soviet cruise missiles then entering service had a range of 35–90 nautical

miles, without picket or AEW support to extend BONAVENTURE’s radar range, an RCN carrier group would be wide open to attack.²⁴

In the ferocious Second World War battles off Okinawa, Allied radar picket ships had proved vulnerable in their isolation, and the Japanese learned to punch a hole in the air defence system by taking them out in the early stages of attack. It could be expected that the Soviets would employ similar tactics. Moreover, the picket destroyers utilized by the RN and USN required extensive modifications, and a small navy like the RCN could neither spare the ships for such a force let alone afford the conversions.²⁵ AEW aircraft were a more practical solution, and the RCN already had that capability in the form of eight TBM3W2 Avenger “Guppy” AEW aircraft that were acquired in 1952.²⁶ The Storrs committee wanted to upgrade this capability by acquiring



Banshee. CF Photo

eight Grumman WF2 Tracers, the AEW version of the Tracker. This, combined with a suitable number of interceptors, would provide the air defence required for EASTLANT operations. Since BONAVENTURE could not support this capability, another carrier was needed. One solution was to acquire another light fleet carrier, but the committee dismissed this alternative. BONAVENTURE could only handle Banshees at a margin and would be unable to operate the next generation of modern naval fighters. More importantly, the two specialized carriers would have to operate as a pair, one providing air defence, the other ASW, which would make the force “unwieldy and inflexible.”²⁷ Instead, the committee wanted two carriers, one of them a larger CVS, so that the RCN could deploy two independent ASW carrier groups.²⁸

The Storrs committee developed an intriguing operational concept for the two-carrier force. The larger carrier would be an ESSEX class with an air group of 20 Trackers, 12 Banshees, 8 Tracer AEW aircraft and 8 HSS ASW helicopters. HMCS VANCOUVER, as they brashly dubbed her, would thus “comprise a ‘package’ trade protection or A/S carrier [capable of] operating anywhere in the Atlantic with a good anti-submarine [sic] ‘punch’ and self sufficient in air defence.”²⁹ Storrs was fully aware of the conclusions of the Warfare Study Group, and in line with those decisions, he proposed BONAVENTURE be utilized solely as an ASW carrier that would primarily operate in the CANLANT (Canadian Atlantic) to counter Soviet missile launching submarines. His committee foresaw using BONAVENTURE as a “shuttle” carrier whereby additional Tracker aircraft would operate from airfields in Eastern Canada and use the carrier only for refuelling and rearming. This imaginative concept, a variation of the shuttle bombing tactics utilized by the Japanese in the Pacific war, would greatly enhance the capability of the carrier to the point that 24 aircraft could be continuously on patrol in any particular area.³⁰ In conjunction with the RCAF’s effort, this would enable

Canada’s maritime defence forces to achieve the degree of saturation considered necessary to counter missile-launching submarines. In the meantime, VANCOUVER would satisfy the RCN’s EASTLANT commitment and, if required, could later be reinforced by BONAVENTURE.

This two-carrier concept would have unquestionably enhanced the RCN’s capability as well as preserved its capacity as a blue-water navy. But Storrs had brought the idea into the report under the mandate to “effect further efficiency or economy.” How could that be accomplished by adding another carrier at a time when the navy’s budget was shrinking? The Storrs committee thought the increased aviation commitment could be met by an increase of just 34 pilots and 28 aircraft.³¹ The report made no reference to the cost of the carrier, or to the additions and adjustments to infrastructure and personnel structure required to operate a second, larger ship. They did admit, however, “to implement this proposal and remain within the present financial and manpower commitments it would be necessary to make corresponding reductions in other areas.”³² The reduction they visualized was to the navy’s escort force, which would entail a major change to the RCN’s force structure.

The committee’s ideas were first aired at the 19 September 1956 meeting of the Policy and Projects Co-ordinating Committee (PPCC), which screened proposals going up to Naval Board. Storrs observed that “the Committee had again and again noted that, while the RCN has been growing steadily in numbers of personnel and service units, Naval Aviation, even though rearming with new aircraft, had not grown proportionately, and in the opinion of the Committee there was a serious imbalance.”³³ Moreover, Storrs emphasized that present plans for the composition of the RCN did not reflect “the growing power of Aviation in Maritime Warfare.”³⁴ In support he cited an operational research report that showed “that under certain circumstances 2 S2F aircraft were more effective in the A/S role than two

ST. LAURENT class escorts.”³⁵ If that was the case, significant savings might be accrued by replacing ships with aircraft. When the report went to Naval Board, its members “noted” the comments with regard to air defence and instructed the appropriate divisions of the naval staff to investigate the operational deficiencies raised by the Storrs committee.³⁶

With that opening, the Director of Naval Aviation, Captain G. C. Edwards put more flesh on the bones of the argument that aircraft presented a more economical use of force than ships in modern ASW and that the navy could accrue savings by reducing its number of escorts and acquiring an ESSEX class CVS. Citing the same operational research report as Storrs, Edwards argued that by adding a second carrier and reducing the number of Prestonian-class frigates earmarked for assignment to SACLANT, “the RCN contribution to NATO would be greatly enhanced.”³⁷ Edwards argued that although “in the past aircraft had been the weak link in the ship-aircraft A/S team,” the situation was being reversed. The advent of detection technologies such as SOSUS, explosive echo ranging (known as JULIE), very low frequency passive sonar (known as JEZEBEL) and magnetic anomaly sensors (MAD) had increased maritime patrol aircraft’s ability to detect modern submarines. In addition, they were the best method for delivering the low yield nuclear ASW weapons that were being developed and the only platform capable of delivering high yield nuclear weapons. Moreover, the development of nuclear submarines meant that escorts had lost their speed advantage over the submarine. Playing with various mixes of surface-escort ships, carriers, helicopters and shore based aircraft “within existing personnel and financial ceilings,”³⁸ Edwards explained that operational research scientists had calculated that “by changing the composition of the fleet by reducing the number of escorts and adding the additional carrier the effectiveness of Canadian maritime forces operating in the East Coast Combat Area during the Phase I would be increased by approximately 30%.”³⁹ Furthermore, a two-carrier navy built

around the ESSEX class carrier would satisfy air defence requirements and increase the navy’s flexibility during Phase II operations by enabling participation in operations against surface forces, targets ashore or in support of land forces.⁴⁰

Edwards predicted that the “major objection” to the two-carrier proposal would come from the RCAF, which would argue that shore-based aviation was more economical than carrier-based aviation. That might be true of the current short-ranged missile threat, he admitted, but the situation would change once the Soviets developed longer-ranged missiles that could be launched from further out into the North Atlantic, which was forecast for the early 1960s. In support, he cited a British report that determined that shore-based aircraft were more economical than carrier-based only out to 400 miles from land. Contemporary operational research in Canada, he added, had confirmed those results by comparing the capabilities of the carrier-based CS2F with the RCAF’s new CL28 Argus.⁴¹

Although Edward’s study was persuasive, as was that of the Storrs Committee, he had made a fundamental miscalculation. Capability of shore-based versus carrier-based aircraft aside, the major objection to the two-carrier proposal came from within the RCN itself. In fact, the proposal to acquire an ESSEX class carrier appears to have received little, if any, serious consideration within the senior ranks of the navy. The problem lay with the shortage of modern escorts. Except for the new ST LAURENTS just coming into service, the bulk of the navy’s fleet consisted of Second World War-era frigates and destroyers. Although many of those ships had been modernized, they were still only marginally capable of modern ASW and needed replacement. Vice-Admiral DeWolf was then engaged in a difficult battle to convince the Chiefs of Staff Committee and the government to support the navy’s escort replacement program, and at a time of reduced budgets he would be reluctant to introduce another major ship program into the mix. Also, to make room

for the carrier would have required deep cuts in the escort force, which would have been unacceptable to a Canadian government that was content with the shape of its NATO commitment, and to SACLAN, which had enough carriers but needed all the escorts it could get. Finally, the RCN was investigating other methods to boost its ASW capability.

The helicopter-escort marriage—forced in no small part by the return of MAGNIFICENT to the RN and the fact that BONAVENTURE could not support both fixed- and rotary-winged ASW aircraft in adequate numbers—was proving successful in trials and looked to be a force multiplier of considerable potential. It was also becoming apparent that submarines might prove to be the most effective anti-submarine platform of all. The RCN had already initiated studies into the feasibility of nuclear propulsion, and within the year launched a comprehensive study into acquiring nuclear submarines. Any attempt to get a second carrier would muddy these waters considerably.⁴²

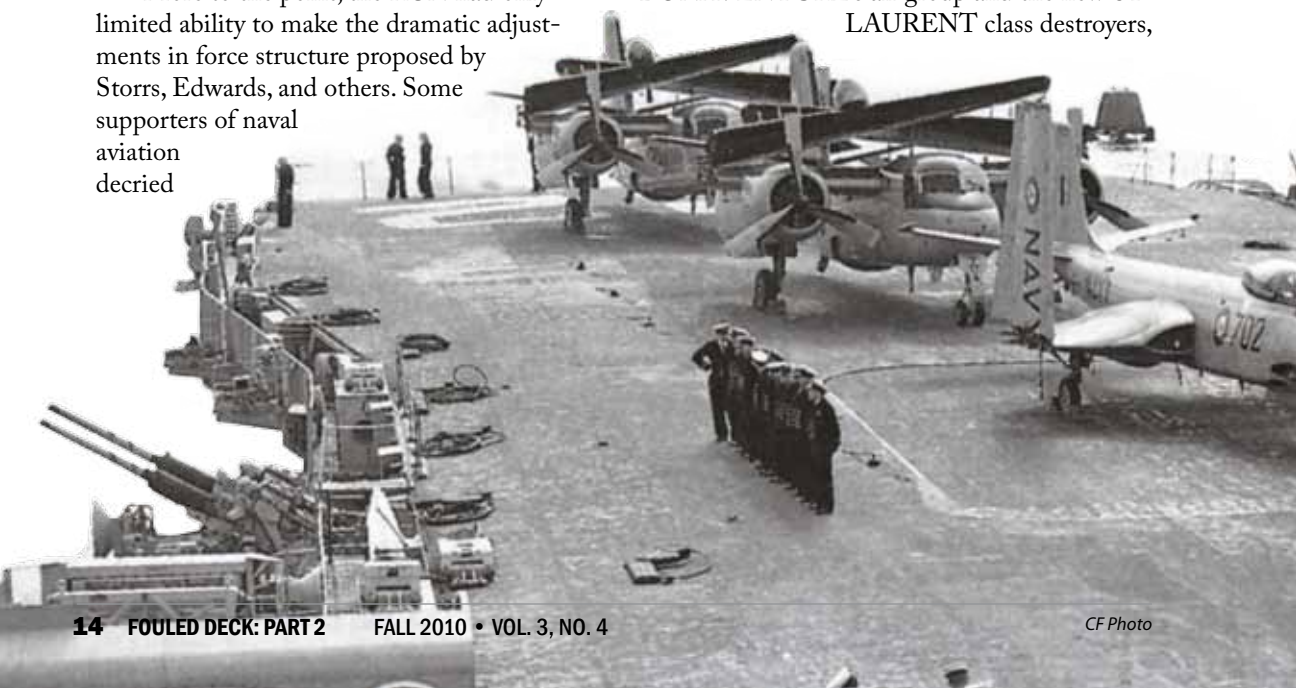
More to the point, the RCN had only limited ability to make the dramatic adjustments in force structure proposed by Storrs, Edwards, and others. Some supporters of naval aviation decied

the “small ship” mentality that gripped the senior members of the naval staff, but one wonders if they did not suffer from precisely the same type of limited thinking of which they often accused “fish-heads.” The navy had a range of missions to perform, many of which, like convoy escort and, ironically, providing

screens for carriers, could only be satisfied by ocean-going escorts. Certainly, an increased air component would have been welcomed but not at the cost of cutting ships that were required for numerous tasks on both coasts. It is difficult for small navies to maintain balanced forces, and with the restrictive budget situation in the mid-1950s it was even a challenge for the RCN to

maintain even balanced ASW forces. The acquisition of an ESSEX class carrier would have skewed that balance and forced the navy to shift resources into areas like aviation personnel and infrastructure to the detriment of other capabilities, realities that Storrs and Edwards seem to have recognized but never engaged. ESSEXes were major warships with large, 3,000-sailor crews, and the RCN would have been forced to drastically alter manning and training schemes to operate such a ship.⁴³ With BONAVENTURE's air group and the new ST LAURENT class destroyers,

**Whether we like it
or not, we are bound to
have to face up to the
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weapons system**



the RCN could deploy a modern ASW carrier task group and with the budget under pressure, that would have to be enough. When Storrs presented his findings to Naval Board, DeWolf thanked them for their work and shelved the report.⁴⁴ HMCS VANCOUVER, in the form of an ESSEX class carrier, never got under way.

What of air defence, which was the main thrust of the recommendation for the second, larger carrier? Senior officers were aware of the problems posed by BONAVENTURE's limited capability in that area. Indeed, earlier in 1956 when Naval Board had searched for reductions, they considered cutting the Banshee force entirely, because "there had been some thought that we may be trying to do too much with one carrier."⁴⁵ Why keep fighters that would rarely be embarked for their primary fleet air defence role anyway?⁴⁶ They ultimately rejected the idea of cutting the fighter force, and in 1957 launched a study to find a replacement fighter for the Banshees. Of the sixteen modern fighters investigated in the aptly named "Project HOLY GRAIL," nine were beyond BONAVENTURE's operating capacity, and only three presented realistic options.⁴⁷ Ultimately, the Naval Board chose to extend the life of the Banshees, and gambled that new guided missile technology being developed in the United States (US) and Britain could handle fleet air defence.⁴⁸ When the Banshees came to the end of the line in the early-1960s, Naval Board approved the Douglas A4 Skyhawk as a replacement, but the program was quickly cancelled.

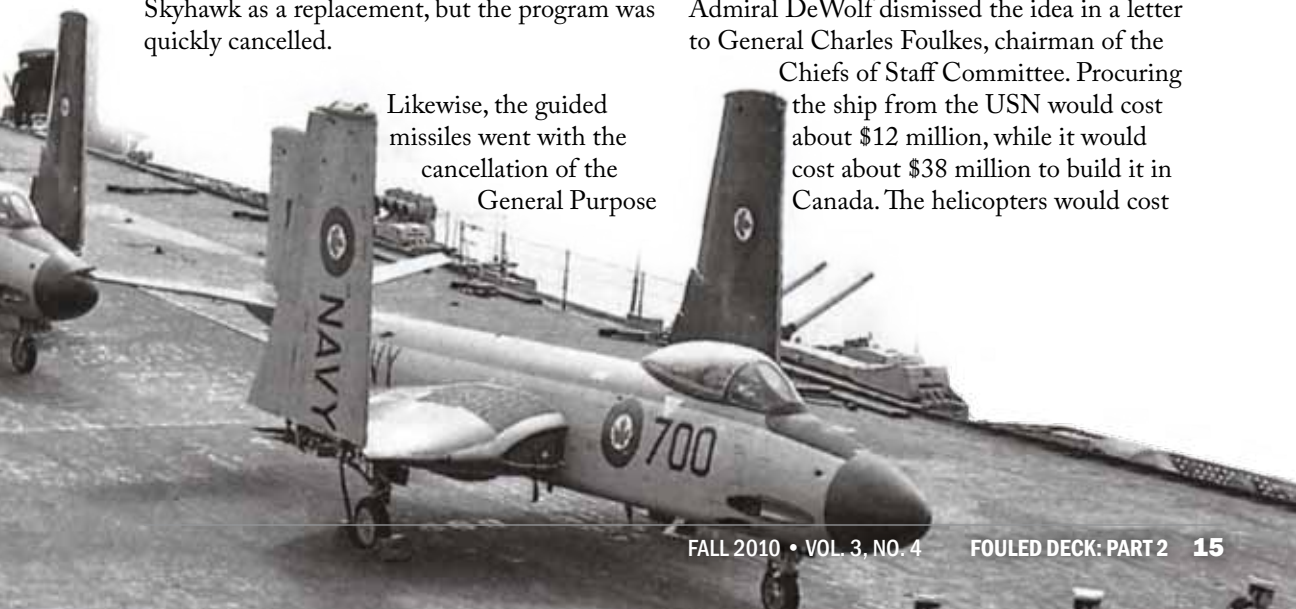
Likewise, the guided missiles went with the cancellation of the General Purpose

Frigate project in 1964, with the result that until the early 1970s, when the new DDH 280s were commissioned with Sea Sparrow, the navy would have to largely depend upon impotent Second World War era guns and direction systems for air defence or stay under the air umbrella of their allies.

GRASPING AT STRAWS

Efforts to acquire a second carrier diminished once BONAVENTURE commissioned in January 1957, but the desire to augment the RCN's carrier force never completely disappeared. In November 1958, SACLANT requested that an ASW helicopter carrier be added to the RCN's force goals. The impetus for that almost certainly came from Captain A. B. F. Fraser-Harris, RCN, who was then serving as Director Annual Review at SACLANT HQ in Norfolk. Formerly commanding officer of NAS Dartmouth, Director of Naval Aviation at Naval Service Headquarters and the last captain of MAGNIFICENT, Fraser-Harris was an experienced naval aviator and the most outspoken advocate of the cause within the RCN. He was blunt in his criticism of the "small ship" navy mindset and had pushed hard to retain MAGNIFICENT as a helicopter carrier. Fraser-Harris was a maverick—a self-admitted one—and it would not surprise his contemporaries that he would attempt to push the second-carrier concept through by the SACLANT back door route.⁴⁹ Vice-Admiral DeWolf dismissed the idea in a letter to General Charles Foulkes, chairman of the

Chiefs of Staff Committee. Procuring the ship from the USN would cost about \$12 million, while it would cost about \$38 million to build it in Canada. The helicopters would cost



\$32 million and annual operating costs would amount to another \$3.8 million. In a familiar refrain DeWolf informed Foulkes that a second carrier was beyond the RCN's means.⁵⁰

The next serious discussion for a second carrier arose from proposals for an additional carrier with mixed troop lift and anti-submarine capabilities. This combination arose from the Mobile Force concept introduced by the Minister of National Defence Paul Hellyer in the mid-1960s. Echoing ideas formulated by the 1961 Ad Hoc Committee on Naval Objectives, better known as the Brock Report, Hellyer wanted the RCN to adopt an expeditionary force role along with its ASW specialization—the RCN had proved it could conduct limited operations of that type when MAGNIFICENT took the UNEF contingent to Suez in 1956 and in 1964 when BONAVENTURE transported peacekeeping forces to Cyprus. In early 1964 the RCN investigated the procurement of an IWO JIMA class amphibious assault ship (LPH) to carry helicopters for both troop lift and ASW operations. Concerns were expressed about the type's ability to survive the harsh North Atlantic environment, but it was deemed capable of carrying out both tasks comfortably, albeit at reduced capability when in combination.⁵¹ In 1964 sights shifted to a bigger target when senior officers learned of RCAF investigations into acquiring A4 Skyhawks, F4 Phantoms or VSTOL strike aircraft, all of which had carrier capability. They resurrected the old dream of acquiring an ESSEX, and launched a comprehensive investigation of those ships available from the USN, the state of their modernization, and likely cost.⁵² In the end, plans for neither the IWO JIMA or ESSEX reached fruition. Nor did a 1967 proposal for a comprehensive sea-going fighter capability based on a large carrier that was reminiscent of the Storrs committee report ten years earlier.

In 1950, Captain J. V. Brock had warned of the need to build up naval aviation through the addition of a second carrier so that the air branch would not be vulnerable to cuts.

Commodore A. B. F. Fraser-Harris echoed those remarks in 1963 referring to “the present all eggs in one basket difficulty.”⁵³ BONAVENTURE was due for a major refit and with prophetic accuracy Fraser-Harris warned of the consequences. “I can foresee that the impending refit of BONAVENTURE will undoubtedly rekindle interest in vexing questions as to whether the RCN should continue to operate an aircraft carrier or aircraft carriers. Whether we like it or not, we are bound to have to face up to the re-justification of this weapons system, both within the Navy and with the Minister, Treasury Board etc.”⁵⁴ That indeed turned out to be the case. Although BONAVENTURE's costly and well-publicized refit was not the sole reason the carrier was decommissioned in 1970 when she still had plenty of life and value left—the decision was based upon budgetary concerns, inter-service rivalry and the fact that other navies, particularly the USN, were abandoning the CVS concept—it was the point when the slope became slippery indeed.

SUMMING UP

A historian once observed it was difficult for small navies to be revolutionary, but the process to augment carrier capability in Canada demonstrates how it can be extremely challenging for them to be even evolutionary.⁵⁵ Limited funding and support causes a greater degree of conservatism and practicality than exists in larger, more affluent navies. Moreover, any decision to expand one capability usually requires reductions in other areas. Senior RCN naval officers embraced naval aviation but not to the extent that they would give up the tenants of their traditional small ship, destroyer navy to enhance the air branch. Moreover, they were wary of the RCAF, which was a powerful force in Ottawa. Stuart Soward argues that these officers demonstrated a lack of vision but that ignores the realities of Canadian defence.⁵⁶ As just one example, should the navy have followed the Storrs committee's proposal to acquire an ESSEX class carrier at a time when submarines were increasingly being seen as the most effective ASW platform? Although

DeWolf failed to win the procurement of nuclear submarines, he did lay the groundwork for the establishment of a Canadian submarine service and the eventual acquisition of conventional submarines. When that is considered in conjunction with the development of concepts such as variable depth sonar and the destroyer/helicopter marriage during the same period, it can be argued that Canadian naval leaders in the period under consideration did well to field a balanced ASW force, based on air, surface, and sub-surface platforms.⁵⁷

Canadian naval analyst Jim Boutilier once observed that “big ships are costly and politically contentious;” Canadian naval history has demonstrated that the acquisition process for major warships such as aircraft carriers, cruisers, support ships and nuclear submarines is indeed tortuous.⁵⁸ Perhaps the most realistic proposal for a second carrier was the plan to retain MAGNIFICENT as a helicopter carrier after BONAVENTURE commissioned. Since the two cruisers were destined for reserve status this could have been accomplished with minimal impact to infrastructure and force structure, and would have enhanced the RCN’s

ASW capability. The decision not to follow that course was largely political. Canadian government leaders were comfortable with the size, shape and mission of the navy in the 1950s, and it was not in their tradition, nor to their advantage, to alter that in any significant way. Given the realities of Canadian defence, the timing has to be absolutely right for major projects such as the acquisition of a second carrier, or for that matter, even one. The RCN took advantage of such an opportunity to establish a naval aviation capability in the first place, but circumstances prevented the service from “growing” the capability to its full potential. As Brock, Storrs, Fraser-Harris and others recognized, that left naval aviation vulnerable, and because there was no redundancy in the form of a second carrier, when BONAVENTURE was retired in 1970 the navy’s seagoing, fixed-wing capability disappeared completely. The navy was forced to make do with less but that is a theme that runs throughout its history. Despite the fact the RCN’s naval aviation component could not be augmented to the degree some wanted and never achieved redundancy, the naval leadership probably achieved the most realistic balance possible in the Canadian context. ■

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List of Abbreviations

| | | | |
|----------|-------------------------------------|---------|--|
| ACNS | Assistant Chief of the Naval Staff | NATO | North Atlantic Treaty Organization |
| AEW | airborne early warning | NSHQ | Naval Service Headquarters |
| ASW | antisubmarine warfare | PPCC | policy and projects co-ordinating committee |
| CANLANT | Canadian Atlantic | RCAF | Royal Canadian Air Force |
| CAP | combat air patrol | RCN | Royal Canadian Navy |
| CNS | Chief of the Naval Staff | RN | Royal Navy |
| CVS | antisubmarine carrier | SAC | Strategic Air Command |
| DHH | Directorate of History and Heritage | SACLANT | Supreme Allied Commander Atlantic |
| DNA | Director of Naval Aviation | SOSUS | sound surveillance system |
| EASTLANT | Eastern Atlantic | SSBN | nuclear powered, ballistic missile submarine |
| GIUK | Greenland-Iceland-United Kingdom | SSG | missile submarine |
| HMCS | His/Her Majesty’s Canadian Ship | US | United States |
| MAD | magnetic anomaly sensor/detection | USN | United States Navy |
| NAS | naval air station | USSR | Union of Soviet Socialist Republics |

Notes

1. "Fouled deck" was the expression used by naval aviators when they could not land because their carrier's deck was in use. This paper is based upon a presentation given to the 2005 Air Force Heritage Conference, and relies upon ongoing research for the Official History of the RCN (1945-68). Although the author bears sole responsibility for the interpretations in this study, he would like to acknowledge the influence of research by other members of the post-war naval history team at the Directorate of History and Heritage, particularly Dr. Isabel Campbell's groundbreaking work on the RCN's 1956 Naval Warfare Study Group.

2. Michael Whitby, "Fouled Deck: The Pursuit of an Augmented Aircraft Carrier Capability for the Royal Canadian Navy, Part 1 1945-54," *The Canadian Air Force Journal* 3, no. 3 (Summer 2010): 8-20, http://trenton.mil.ca/lodger/CFAWC/eLibrary/Journal/Vol3-2010/Iss3-Summer/AF_JOURNAL-Vol3-2010-Iss3-Summer_e.pdf (accessed July 16, 2010).

3. Jan Breemer, *Soviet Submarines: Design, Development and Tactics* (Coulson, UK: Jane's, 1989), 20, 60.

4. RCN, *The Canadian Naval Intelligence Bulletin*, II, no. 8, 15 October 1954, 24. Directorate of History and Heritage (DHH), 91/128.

5. Intelligence reported that "an increasing number of Soviet submarines have been detected throughout the world" in the period 1953-55. *The Canadian Naval Intelligence Bulletin*, IV, no. 8, 2, December 1956-January 1957.

6. This capability was first outlined in the January 1956 edition of the *Canadian Naval Intelligence Bulletin*, III, no. 8, 3-4. For Soviet submarine development, see Norman Polmar and K. J. Moore, *Cold War Submarines: The Design and Construction of US and Soviet Submarines* (Washington: Brassey's Inc., 2004). The best study of ASW in this period is Owen R. Cote Jr, *The Third Battle: Innovation in the US Navy's Silent Cold War Struggle with Soviet Submarines* (Newport: Naval War College Newport Papers, 2003).

7. According to *The Canadian Naval Intelligence Bulletin*, in the US alone, 30 per cent of all industry and the general population lay within 130 miles of the coasts, as well as 16 SAC and other critical military bases. *The Canadian Naval Intelligence Bulletin*, III, no. 8, January 1956, 4.

8. For NATO defence plans see Gregory Pedlow (ed), *NATO Strategy Documents, 1949-1960* (Brussels: NATO, 1999).

9. Christopher Ford and David Rosenberg, *The Admirals' Advantage: US Navy Operational Intelligence in World War II and the Cold War* (Annapolis: Naval Institute Press, 2005), 76a and 31.

10. For the origins and thinking of the 1956 Naval Warfare Study Group see Dr. Isabel Campbell, "A Transformation in Thinking," in *People, Policy and Programmes: Proceedings of the 7th Maritime Command Historical Conference*, eds. Richard H. Gimblett and Richard O. Mayne (Winnipeg: Naval Heritage Press, 2008), 179-80.

11. Miller had an exemplary career in the RCAF culminating with the rank of air marshal and the appointment of Assistant Chief of Staff at SACEUR. He had retired in 1955 to become deputy minister (DM) of Department of National Defence, but later returned to uniform as Chairman of the Chiefs of Staff Committee and then became the first Chief of the Defence Staff (CDS). Throughout his time as DM and CDS, Miller proved a thorn in the side of the RCN questioning the validity or cost of many naval programs.

12. "Report of Ad Hoc Committee on Naval Aviation," 20 November 1956, 1. DHH, 81/520/1700-913.

13. For example, Stuart Soward selected Storrs to write the foreword to his two-volume study of Canadian naval aviation.

14. "Report of Ad Hoc Committee on Naval Aviation," 1.

15. The committee recommended the disposal of 25 Sea Furies, 45 Avengers, 6 Expeditors, 17 Harvards, 1 H04S, 3 HUPs and two Avenger AEW aircraft.

16. "Report of Ad Hoc Committee on Naval Aviation," Section I, "Composition of the RCN Air Component, 1957-58," 1.

17. Ibid., 3.

18. Ibid., 3.

19. Ibid. The report noted that under "remote special circumstances," the carrier would carry only fighter aircraft. This was probably a reference to a possible, but highly improbable, nuclear strike role for the RCN's

F2H-3 Banshees. VF-870 sometimes practiced the “slingshot” manoeuvre for delivering nuclear weapons. Admiral R. H. Falls to author.

20. Ibid., 4.

21. Ibid.

22. Ibid., 5.

23. Ibid.

24. The TU 4 was the Soviet “knock-off” of the Boeing B-29 bomber, and could carry the AS-1 air-to-surface missile, a subsonic, turbojet-powered, cruise missile with a range up to 97 nautical miles.

25. See Robert F. Sumrall, *Sumner-Gearing Class Destroyers: Their Design, Weapons, and Equipment*, (Annapolis: Naval Institute Press, 1995); and Norman Friedman, *British Destroyers and Frigates: The Second World War and After* (London: Chatham Publishing, 2006). In the mid-1950s the RCN rejected a proposal to use its destroyers to extend land-based radar networks because it could not spare the ships.

26. Leo Pettipas, *The Grumman Avenger in the Royal Canadian Navy*, (L. Pettipas, 1988), 67.

27. “Report of the Ad Hoc Committee on Naval Aviation App E: Proposal for Improved RCN Air Component,” 1.

28. Ibid.

29. Ibid.

30. Ibid., 3-4. At the outset of the Battle of the Philippine Sea in June 1944, instead of returning to their carriers after attacking USN landing forces, Japanese attack aircraft continued on to airfields in the Marianas to replenish before attacking again on route back to their carriers, effectively doubling their range and enabling their fleet to remain outside the immediate range of American carrier aircraft.

31. Ibid., App. “E”, 2.

32. Ibid.

33. PPCC minutes, 19 September 1956, 9. DHH, 79/246 Folder 3.

34. Ibid.

35. Ibid.

36. Naval Board minutes, 14 December 1956. Soward incorrectly suggests that the report was never discussed at Naval Board. Soward, “The Tragedy of Success,” 39.

37. Director of Naval Aviation, “The Future Composition of the RCN,” 3 December 1956, 1. DHH, 79/246 Folder 59. PRESTONIANS were modernized Second World War-era River-class frigates. Many considered them obsolete when it came to modern ASW against fast conventional or nuclear submarines.

38. Ibid., 3.

39. Ibid.

40. Ibid., 6.

41. Ibid.

42. For the competing warship projects in the mid-late-1950s see Michael Whitby, “Vice-Admiral Harry G. DeWolf: Pragmatic Navalist,” in *The Admirals: Canada's Senior Naval Leadership in the 20th Century*, eds. Michael Whitby, Richard H. Gimblett and Peter Hayoon (Hamilton: Dundurn Press, 2006), 226-35.

43. In August 1965, the USN offered one or more Essexes to the RN, but investigation by the Admiralty revealed problems with spares, stores, logistics and habitability that would have imposed an immense financial burden so the offer was rejected. These challenges would have impacted even harder upon the smaller RCN. See Richard Hill, *Lewin of Greenwich: The Unauthorized Biography of Admiral of the Fleet Lord Lewin* (London: Cassell and Co., 2000), 169-70.

44. Naval Board minutes, 14 December 1956.

45. Naval Board minutes, 5 October 1956.

46. Over the total number of months the RCN's two fighter squadrons operated Banshees, those from VF-870 were embarked in the carrier only 16 out of 82 months, or 19.5 per cent of the time, and those from VF-871 three out of 32 months, or .93 per cent. Reports of Proceedings VF 870 and VF 871, DHH, 81/520.

47. Report of Project "Holy Grail" Fighter Aircraft Evaluation, November 1957. The North American FJ-4B Fury and Douglas A4D Skyhawk both fell short of staff requirements but could be operated from BONAVENTURE, while the Northrop N-156F met requirements and "could probably" be operated from the carrier. The Northrop aircraft was procured as the CF-5 in the mid-1960s but was unable to operate from BONAVENTURE. See Jason M. Delaney, "RCN Jet Fighter Procurement, 1950-1964," in *People, Policy and Programmes*, Gimblett et al, eds., 251-265.

48. The RCN initially investigated the procurement of the American Tartar or the British Mauler guided missile systems for new construction escorts.

49. More than any other naval aviator Fraser-Harris continued to rail against the limited thinking and surface navy bias of RCN senior officers. Commodore A. B. F. Fraser-Harris, interview with author 24-25 April 2003.

50. CNS, "SACLANT Request for Two Carriers in the RCN," 6 November 1958. DHH, 79/246 Folder 59.

51. Naval Secretary "Assessment of LPH," 13 February 1964. Naval Member, Canadian Joint Staff, Memorandum to VCNS, 28 February 1964. DHH, 79/246 Folder 59. The first Iwo Jima class LPH entered service in 1961. They were about the same size of a light fleet carrier (overall length of 598 feet and 19,395 tons displacement) and could transport about 20 helicopters and 1700 soldiers.

52. "Extract from Minutes of a Special Meeting Held in ACNS(A&W)'s office at 1000, On Thursday, 18 June, 1964, to Discuss Future Naval Programmes"; Director Naval Air Requirements, "CVS Essex Class Procurement," 13 July 1964; Member, Canadian Joint Staff, "Essex Class Carrier: Estimated Cost of Procurement" ud, DHH, 79/246 Folder 59.

53. ACNS (A&W), "The Case for the Small Aircraft Carrier," 26 August 1963, 4. DHH, 79/246 Folder 59.

54. ACNS (A&W), "Operational Requirements for an Aircraft carrier in the RCN," 15 August 1963.

55. James Goldrick to author, 1989. The Australian navy was successful in building a two-carrier force in the post-war years but, unlike the RCN, did not have to operate within the confines of an ASW specialty or NATO commitment.

56. Soward, "The Tragedy of Success," 39.

57. For the success of submarines and Maritime patrol aircraft in the ASW role see Whitby, "Doin' the Biz': Canadian Submarine Patrol Operations Against Soviet SSBNs, 1983-87," in *Fortune Favours the Brave: Tales of Courage and Tenacity in Canadian Military History*, Bernd Horn, ed. (Toronto: Dundurn Press, 2009), 287-332.

58. J. Boutilier, "Get Big or Get Out: The Canadian and Australian Decisions to Abandon Aircraft Carriers," in *Reflections on the RAN*, eds. T. R. Frame, J. V. P. Goldrick and P. D. Jones (Kenthurst, NSW: Kangaroo Press, 1991), 385.



HONORARY RANKS

of the RCAF

By Major Mathias Joost, CD, MA



Many of the customs and traditions of today's Air Force originate with the Royal Canadian Air Force (RCAF). The tradition of appointing honorary officers is no exception, and in fact has been expanded upon. Today, almost every squadron and unit has an honorary officer, with incumbents being of widely diverse backgrounds.

The RCAF used honorary ranks for various reasons. There were those who served in the regular force, but because of their occupation were given honorary ranks. As an example, during the Second World War, chaplains were given honorary ranks, with some maintaining this status after the war. There were also those individuals who, because of their position, were given an honorary rank, although they were not members of the RCAF. Royalty and viceregal personages fell into this category. The RCAF also continued the Militia custom of appointing honorary officers for auxiliary squadrons and units as a means of maintaining ties with the local community, as well as honoring individuals who had performed meritoriously. These last two categories of honoraries were not members of the RCAF and did not have any command or control over members of the service.

The granting of honorary ranks in Canada goes back to a Militia circular of 9 February 1857, in which units were encouraged to appoint honorary members who could wear a uniform if they so desired. The Militia Act of 1855 was aimed at having the Militia perform the role of riot control and policing as required, in the absence of British regular forces that had been withdrawn from Canada East and West. These honorary officers were expected to rally the troops when the Militia was called upon.

It was not, however, until November 1895 that the first such appointment was made, when Lieutenant-Colonel, the Honorable J. K. Gibson was appointed Lieutenant-Colonel of the 13th Battalion of Infantry. A General Order of December

1898 provided criteria for such appointments, namely: "This distinction will be conferred only upon individuals who become eligible by reason of high standing in the state; by honourable and faithful service to the country of an exceptional nature, or by distinguished service in the field."¹ The example of appointing a distinguished officer as exemplified by Gibson, and the criteria of the Militia General Order were to provide the basis of the RCAF's appointments.

The King's Regulations and Orders (KR&Os) for the RCAF (1924) allowed for the appointment of honorary officers. The requirements were similar to that of the Militia General Order of December 1898, with the exception that the only ranks that could be bestowed were group captain and wing commander. The conditions for appointment were fairly rigid in one case and yet had some flexibility in another. On the one hand, an officer could be appointed to an honorary rank of group captain if the individual had held the rank of wing commander or exercised command as such, had 25 years of service as an officer in the RCAF, and had performed an exceptional service. On the other hand, either of the honorary ranks could be bestowed on an individual, whether the individual had served in the RCAF or not, if the Minister believed that granting such a rank would promote the general efficiency of the RCAF from an administrative or educational perspective.² In 1938, the regulations were amended to reflect what had been the practice over the previous seven years. Perhaps because of the fact that few officers had retired as wing commanders, that criterion was changed to include that an individual had to have been a squadron leader or commanded a wing or squadron for at least three years, and have had 20 years service as a squadron leader in the Permanent Force.³ A new category was added for honoraries—those appointed to the Non-Permanent Active Air Force. No previous service was required of them, and the position had a time limit of five years, although this could be renewed.⁴

It was not until 1931 that the RCAF availed itself of the opportunity to appoint honorary officers. Why it took that long is unknown; the Militia, under whose command the RCAF remained until 1938, had many honorary appointments by this time. More significantly, as the RCAF modeled itself after the Royal Air Force (RAF), the RAF had appointed honorary officers in 1919, while Australia had appointed an honorary squadron leader as early as 1928.⁵ These officers were appointed to the respective air forces and not to any particular squadron.

In the RCAF, the first four honoraries, appointed with seniority as of 1 April 1931, were: Group Captain J. S. Scott (honorary air commodore); Group Captain R. K. Mulock (honorary air commodore); Wing Commander W. A. Bishop (honorary group captain); and Squadron Leader D. R. MacLaren (honorary wing commander).⁶ In all four cases, the honorary rank was higher than their substantive rank on the Reserve List, the equivalent of today's Supplementary Holding Reserve (SHR). More importantly, two were air commodores, a rank that was not authorized by the KR&Os. The four officers were each appointed simply to the RCAF and not to any specific unit, while each was appointed on the basis of his distinguished service and the length of service. Interestingly, while three remained at their honorary rank, Bishop was twice promoted in the honorary structure, finally being appointed air marshal on 4 August 1938. During the Second World War, while on active service, he held the substantive rank of air commodore, but wore the uniform of his honorary rank, being referred to as air marshal in RCAF releases.

In keeping with the Militia practice, the first squadrons to have honoraries were from the Non-Permanent Auxiliary Air Force, the forerunner of today's Air Reserve. The squadrons chose notable public figures with wide-ranging backgrounds, beginning the tradition of eclecticism. These appointees ranged from First World War pilots to businessmen to publishers.⁷

The first appointee came from Vancouver, where No. 11 Squadron nominated K. G. Nairn, an accountant and First World War Royal Flying Corps (RFC) pilot with 205 Squadron, as the first Auxiliary honorary effective 14 November 1934.⁸ He enlisted during the Second World War as an accounting officer, was the first director of accounts and member of the Air Council for Accounts and Finance. He attained the rank of air vice-marshal, and was bestowed the Order of Bath for his efforts.

In Regina, 20 Squadron selected J. C. Malone, barrister and city councillor, with an effective date of 13 January 1936. He enlisted in September 1939 as an administration officer and ended the war as a group captain. In both cases, Nairn and Malone were commissioned directly into the Permanent RCAF as officers, without having to start as aircraftmen.

James A. Richardson of Western Canada Airways was appointed to No. 12 Squadron in Winnipeg as of 1 December 1935. An interesting choice was made by 110 Squadron, Toronto, when they chose George C. McCullagh (1 November 1937), publisher of the *Globe and Mail*, as their honorary. McCullagh was known to be a political "independent," but was also well connected in the Toronto financial community, and, perhaps more importantly to 110 Squadron, he was a director of Maple Leaf Gardens. Montreal businessman V. M. Drury was even better connected when he was appointed to 115 Squadron (1 September 1938). Drury was President of Canadian Car and Foundry (which had an aircraft manufacturing plant in what is now Thunder Bay), and was associated with many financial institutions and transportation companies, including Canadian Airways. It appears that while Toronto's reservists went for hockey, those in Montreal went for money and future jobs in aviation.

Feats of aeronautical achievement were also recognized in the inter-war period. In November 1935, Herbert Hollick-Kenyon and J. H. Lymburner participated in American explorer Lincoln Ellsworth's Antarctic Expedition

as pilot and assistant pilot respectively. Hollick-Kenyon, with expedition leader Ellsworth, flew 3500 kilometres across Antarctica. For their efforts, Hollick-Kenyon was appointed an honorary air commodore and Lymburner an honorary group captain, both effective 1 June 1936. Lymburner returned to Antarctica in 1938 to join Ellsworth, this time as his chief pilot.

In the prelude to the Second World War, other honourees were appointed befitting their role. On 19 January 1939, A. W. Carter, a First World War ace who commanded the famous No. 10 Naval Squadron in the First World War, and was appointed a Member of the Order of the British Empire (M.B.E.) and awarded a Distinguished Service Cross (D.S.C.) for his efforts, was made an honorary squadron leader in the RCAF. He was President of the Victoria Flying Club, and was appointed in part with the task of setting up the first air cadet squadron, in association with 111 Squadron in Vancouver. He was then called to Ottawa where he helped create the Air Cadet League. He was appointed Officer of the Order of the British Empire (O.B.E.) after the Second World War.⁹

A similar honorary was V. E. (Victor) Doré, Quebec Superintendent of Public Instruction, who was appointed an honorary squadron leader from 1 September 1940. This was conferred upon him when he became special advisor and assistant to Squadron Leader Adelard Raymond, the Commanding Officer of No. 4 Manning Depot. Doré's role was to advise on the teaching of English to French-Canadian recruits.¹⁰ In both cases, the individuals did not command RCAF members, and they remained civilians; however, their honorary rank indicated the level of respect that they were to be accorded.

Doré's appointment highlights that during the Second World War not all the honorary appointments were, as one would expect, largely political. H. A. Jones, CMG (Companion of the Order of St. Michael and St. George), M.C.

(Military Cross), was an unusual appointee as he was a British citizen serving as the Director of Public Relations at the Air Ministry in the United Kingdom. A First World War veteran of the RFC and RAF, and co-author of the official history *The War in the Air, 1914-1918*, he was appointed 18 January 1944, apparently for his service to the RCAF Overseas. He did not enjoy the fruits of his collaboration with Canada, however, as he died on 28 March 1945 in an air crash en route to Canada and the British Commonwealth Training Plan (BCATP) closing ceremony at RCAF Station Uplands.

The only female appointee to the list of RCAF honourees was the wife of the Governor-General, the Earl of Athlone. Princess Alice was appointed as the Honorary Air Commandant of the RCAF's Women's Division. A suitable rank was required for which she received honorary air commodore status effective 2 July 1941. She was the only viceregal personage to appear in the general pages of the RCAF Officers' List.

There were two appointees who apparently fit the suit of political appointee. J. S. Duncan was a civil service mandarin who served as Deputy Minister for Air and Civil Aviation from April 1940 to January 1941. For this brief service he was appointed an honorary air commodore effective 1 February 1941. He was also well connected industrially, being President and Chairman of Massey Harris Ferguson. Wilfred Gagnon, one of C. D. Howe's "dollar-a-year" men, employed at the Department of Munitions and Supply where he played a major role in the wartime mobilization of industry, was also given an appointment, as an honorary wing commander backdated to 1 October 1938.¹¹ Gagnon was a director of Canadian National Railways, and as the railway held all the stock of Trans-Canada Airlines prior to the war, he was also a director of the airline.

The RCAF emerged from the war with seven honourees, including the long-serving

Hollick-Kenyon and Lymburner, and Drury, the only honorary of a squadron to remain on the list in April 1945. Considering the size of the RCAF during the war and the amount of civil-industrial support required for the air war effort, the fact that only five individuals were granted honorary appointments is interesting. Why there were so few is not explained in any noted documents.

It would not be until 1949 that the RCAF began again appointing honoraries. By this time most were for specific units, of whom all but two were appointed to the RCAF auxiliary squadrons and units. It was not only to flying squadrons to which honoraries were appointed, but also to medical units and to aircraft control and warning units. The honour of being the first would go to No. 1 Radar and Communications Unit—a non-flying unit.

After the war, the nature of the appointments was as varied as before the war. Frank Mackenzie Ross, a businessman and director of Trans-Canada Airlines, was appointed honorary group captain of 19 Wing Headquarters on 1 July 1954.¹² He was named British Columbia's Lieutenant-Governor on 3 October 1955. Serving in the 8th Battalion during the First World War and receiving an MC for his valour, he aided the Canadian Government in providing supplies to the British Admiralty during the Second World War, for which he was appointed to the CMG.

A similarly distinguished appointee was Thomas Ingledow, a distinguished British Columbia engineer and inventor, and First World War RAF pilot, who was appointed honorary wing commander of 19 Wing Headquarters on 1 January 1959. Why he was only a wing commander while his predecessor was a group captain is unknown; however, the RCAF corrected the oversight. One year later, following in the footsteps of Billy Bishop, he was promoted to honorary group captain. He retained this position until 1 April 1964, when the headquarters was disbanded as a result of RCAF budget cuts.

Academics were also honoured, such as Adrien Pouliot, Dean of Laval University, and Henry G. Thode, renowned chemist and President and Vice-Chancellor of McMaster University. During the Second World War, the latter was on leave from the university to work with the National Research Council. Lennox Bell, Dean of the Faculty of Medicine at the University of Manitoba and son of famed Winnipeg doctor Gordon Bell, was also an honorary. He served in the RCAF during the Second World War as a medical consultant attached to No. 2 Training Command.

Perhaps the most interesting honorary appointee after the war was Richard Loney, appointed honorary wing commander to the RCAF effective 17 July 1952. Loney was a retired Army major who had served in the Boer and First World War. Rejected by the Army for Second World War service because of his age, he was credited by the RCAF with recruiting “thousands of men and women for the Air Force” from all over Saskatchewan, and a further 300 post-war. At the age of 80 he was honoured for this service to the RCAF.¹³

In contrast to the non-flying units, auxiliary flying squadrons selected distinguished RCAF personnel as their honoraries. The longest history of honoraries after the war was from 418 Squadron, but only with two individuals. Air Vice-Marshal Ken Guthrie (Retired) was their honorary wing commander from 13 April 1950 to 9 September 1956, at which point the squadron's first post-war commanding officer, Group Captain D. R. Jacox (Retired) followed until 1964. The second longest history of honoraries goes to 401 Squadron with Group Captain G. R. McGregor (Retired) from 15 April 1950, Air Vice-Marshal A. L. James (Retired) from 15 July 1955, and then Air Vice-Marshal F. S. McGill (Retired) from 1 October 1961.

Air Vice-Marshal McGill has the distinction of being the only individual to be twice an honorary in the RCAF. He was first appointed on 1 February 1939 as honorary

wing commander to the RCAF on his retirement from active service. With the start of the war, McGill accepted active service and lost his honorary appointment. Interestingly, Billy Bishop retained his honorary rank in his listing on the RCAF Officers' List.

By February 1959, the RCAF had cancelled all honorary appointments for those individuals who were not associated with a unit. This ended the service of Hollick-Kenyon and Lymburner, the longest serving of the RCAF honoraries. This did not mean, however, that the RCAF was not prepared to appoint an honorary without association to a squadron. On 23 February 1959, J. A. D. McCurdy was appointed an honorary air commodore, only the third individual to be recognized by the RCAF for achievements in Canadian aviation. McCurdy remained an air commodore until his death on 25 June 1961.

The last RCAF honorary would be Air Marshal W. A. Curtis (Retired), appointed to 400 Squadron on 1 August 1964. He would only serve in this capacity for a short time as the RCAF disappeared as an organization not

much later. With the demise of the RCAF, these distinguished individuals also stopped being honoraries within the RCAF.

Throughout the period of the RCAF's existence, there were only 37 honoraries appointed to "promote the general efficiency of the RCAF from an administrative and educational perspective."¹⁴ They ranged from distinguished veterans to political appointees. Even among the academics and civilians, most had an aviation or military background.

The nature of the "general efficiency," that is, the reasons for their appointments, did vary. Jones and Loney were appointed on the basis of their service to the RCAF, although the case for Jones is less clear. Carter, Doré, and Rodgers also stand out as they were the lone squadron leaders; however, their rank was apparently required for status associated with their duties in the RCAF. There were two apparently political appointees, and one appointment, as honorary commandant, was in recognition of her status. Thus, the foundations for the current honorary system in the Air Force were clearly laid during the period of the RCAF. ■

| Name | Rank | Unit | Effective |
|--------------------|-----------------|---------|-----------|
| Bishop, W. A. | group captain | RCAF | 1-Apr-31 |
| Scott, J. S. | air commodore | RCAF | 1-Apr-31 |
| Mulock, R. H. | air commodore | RCAF | 1-Apr-31 |
| MacLaren, D. R. | wing commander | RCAF | 1-Apr-31 |
| Nairn, K. G. | wing commander | 11 Sqn | 14-Nov-34 |
| Richardson, J. A. | wing commander | 12 Sqn | 1-Dec-35 |
| Hollick-Kenyon, H. | air commodore | RCAF | 1-Jun-36 |
| Lymburner, J. H. | group captain | RCAF | 1-Jun-36 |
| McCullagh, G. C. | wing commander | 110 Sqn | 1-Nov-37 |
| Malone, J. C. | wing commander | 20 Sqn | 13-Jan-37 |
| Drury, V. M. | wing commander | 115 Sqn | 1-Sep-38 |
| Gagnon, W. | wing commander | RCAF | 1-Oct-38 |
| Carter, A. W. | squadron leader | RCAF | 19-Jan-39 |
| McGill, F. S. | wing commander | RCAF | 1-Feb-39 |
| Burden, H. J. | wing commander | RCAF | 1-Jul-39 |
| Rodgers, G. R. | squadron leader | RCAF | 18-Oct-39 |
| Dore, V. E. | squadron leader | RCAF | 1-Sep-40 |
| Duncan, J. S. | air commodore | RCAF | 1-Feb-41 |

| | | | |
|----------------------|----------------|--|-----------|
| Athlone, Countess of | air commodore | RCAF | 2-Jul-41 |
| Jones, H. A. | air commodore | RCAF | 18-Jan-44 |
| Langlois, J. A. | wing commander | 1 Radar and Communications Unit (R&CU) | 1-Oct-49 |
| Guthrie, K. M. | wing commander | 418 Sqn | 13-Apr-50 |
| McGregor, G. R. | wing commander | 401 Sqn | 15-Apr-50 |
| Asselin, J. O. | wing commander | 438 Sqn | 1-Apr-50 |
| Pouliot, A. | wing commander | 2452 Air Control and Warning Unit (ACWU) | 2-Apr-51 |
| Webster, E. T. | wing commander | 2450 ACWU | 28-Mar-52 |
| Loney, R. | wing commander | RCAF | 17-Jul-52 |
| Brewster, W. R. | wing commander | 4000 Air Movement Unit (AMU) | 1-Jul-53 |
| Ross, F. M. | group captain | 19 Wing HQ | 1-Jul-54 |
| James, A. L. | wing commander | 401 Sqn | 15-Jul-55 |
| Jacox, D. R. | wing commander | 418 Sqn | 10-Sep-56 |
| Bell, L. G. | wing commander | 4003 Medical Unit | 15-Aug-57 |
| Taylor, C. D. | air commodore | Primary Reserve | 20-Nov-58 |
| McCurdy, J. A. D. | air commodore | RCAF | 23-Feb-59 |
| Ingleadow, T. | air commodore | 19 Wing HQ | 1-Jan-59 |
| McGill, F. S. | wing commander | 401 Sqn | 1-Oct-61 |
| Thode, H. G. | wing commander | 4006 Medical Unit | 1-Aug-61 |
| Curtis, W. A. | wing commander | 400 Sqn | 1-Aug-64 |

Table 1 - Honorary Ranks in the RCAF

Major Mathias (Mat) Joost is a historian at the Directorate of History and Heritage (DHH). He joined the Canadian Forces in 1986, serving in the Navy and as a military police officer. Taking the Force Reduction Plan (FRP) in 1995, he went to South Korea where he taught English and met his future wife. Returning to Canada in 1998, he joined the Air Reserve, working in Winnipeg until joining DHH in 2003. Mat is currently working on a history of the Air Reserve and on Black Canadians in the RCAF.

List of Abbreviations

| | |
|--------|--|
| BCATP | British Commonwealth Training Plan |
| CD | Canadian decoration |
| CMG | Companion of the Order of Saint Michael and Saint George |
| D.S.C. | Distinguished Service Cross |
| DHH | Directorate of History and Heritage |
| KR&O | King's Regulations and Orders |
| M.B.E. | Member of the Order of the British Empire |
| MC | Military Cross |
| OBE | Officer of the Order of the British Empire |
| RAF | Royal Air Force |
| RCAF | Royal Canadian Air Force |
| RFC | Royal Flying Corps |
| SHR | Supplementary Holding Reserve |

Notes

1. Major P. E. Lansey, Directorate of History and Heritage (DHH), "The Origins of Honorary Ranks," unpublished draft paper.
2. King's Regulations and Orders for the Royal Canadian Air Force (1924), paragraphs 216E and 216F.
3. King's Regulations and Orders for the Royal Canadian Air Force (1939), paragraph 216E(a) and (b).
4. Ibid., paragraph 216.
5. In the case of the RAF, a transferee from the Royal Army Medical Corps was made a flight lieutenant with the honorary rank of squadron leader (Henry Beveridge Smith) and for Australia, Herbert John Louis Hinkler, a civilian aviator was appointed when he made the first solo flight from Britain to Australia in 1928. See Internet; www.carsonetree.talktalk.net/Smiths/smith.htm (accessed 30 July 2009) and www.ctie.monash.edu.au/hargrave/bert_hinkler_bio.html (accessed 30 July 2009). Similarly to Smith, future Australian Chief of the Air Staff Stanley James Goble received a permanent commission as a squadron leader and was appointed an honorary wing commander at the same time. See http://en.wikipedia.org/wiki/Stanley_Goble (accessed 30 July 2009).
6. The names and ranks of the honoraries are found in the various editions of the RCAF Officers' List.
7. The list of all RCAF honoraries is included as Table 1.
8. Note that in 1936, Non-Permanent Active Air Force squadrons had "100" added to their number to allow the Permanent Active Air Force to expand. Thus, 11 Squadron became 111 Squadron.
9. DHH Biography File, Carter, A. W., and "History of 'Canada's First' Air Cadet Squadron," www.cadets.ca/lhq/111air/contents-contenu.aspx?id=35373&linkidentifier=id&itemid=35373 (accessed 8 August 2009).
10. There was one other honorary squadron leader, G. R. Rodgers, who later enlisted as an administration officer in the RCAF during the Second World War.
11. The term "dollar-a-year man" refers to business executives brought into the government to work primarily in the Department of Munitions and Supply and the Wartime Prices and Trade Board. Their wages were paid by their companies while the government paid their living expenses.
12. Biographies of many of the notables can be found in the *Canadian Who's Who* for the appropriate year of appointment.
13. RCAF Directorate of Public Relations Press Release No. 8095, 15 Aug 52, DHH Biography file – Loney, R.
14. King's Regulations and Orders for the Royal Canadian Air Force (1924), paragraphs 216E and 216F.



CF Photo

THOUGHTS ON PROFESSIONALISM

By Brigadier-General Christopher Coates, OMM, MSM, CD

In the fall of 2009, the Canadian Forces Aerospace Warfare Centre commissioned a Leadership Lessons Learned project to interview Joint Task Force Afghanistan Air Wing commanders and record their observations on concepts and practices of leadership as they relate to running an air wing in combat. As the researcher/interviewer for the first of these interviews I developed a set of questions based on recent air force leadership writings and conducted two interviews with then Colonel Christopher Coates. In the process of these interviews two things became apparent to me: that his views needed, most certainly, to be shared with a wider audience, and that he would make the perfect guest speaker to talk to my fourth year ethics and professionalism class at Royal Military College (RMC). The following paragraphs are based on his remarks to the class, and they capture the essence of his more detailed interview comments.

*Dr. Randall Wakelam
History Department, RMC*

WHAT DOES IT MEAN TO BE A CANADIAN MILITARY PROFESSIONAL?

I was recently asked to speak to a small group of students taking a course in Ethics at the Royal Military College. I had been asked to lead off the session with my views on what it means to be a military professional. I found the response to the question not quite what I expected it to be.

I have a wide range of experiences, from training and exercises to operations domestic and deployed; from subunit to unit to headquarters at the tactical, operational, and strategic levels. I have worked with various Air Force communities and operated extensively alongside our Army and to some degree with our special operations forces. My experience with our Navy is limited, but perhaps those with connections to that element will discover that my remarks apply nonetheless.

With that particular breadth of experience, what stands out for me is that our military is very much composed of a variety of people, with a variety of personality traits and a variety of characters. Off the top, I would find it hard to find a single, all-encompassing definition of what it means to be a Canadian military professional. Certainly, everyone seems to have a notion of the qualities of a military professional. One might think those qualities to consist of the following:

Bravery. In a military at war it seems that bravery would be essential to face threats and dangers, and to maintain the confidence of other members of the group.

Intelligence. To participate in the complex, modern operational environment would require a relatively intelligent person.

Discipline. The controlled application of military force is fundamentally dependent upon well disciplined military units. It follows then that the members of the military should be highly disciplined in their approach.

Dedication. The demands of military life are stressful at all levels and a member needs dedication to keep going when the going gets tough.

Strength. Given that many military tasks are physically demanding, soldiers, sailors, airmen or airwomen would be effective only if they have sufficient physical strength.

Good communications. In a dynamic, stressful operational environment, often acting with a high degree of independence, military professionals have to be able to listen carefully to instructions and feedback, and to monitor their situation, passing on information in a timely and effective manner.

Hardworking. Hardworking professionals seem more likely to inspire their colleagues to achieve challenging objectives, and function effectively in that environment of independence, mentioned above.

Team player. To promote the morale of their group, military professionals need to contribute to their unit's welfare and accomplishments.

Common values (or at least the values of the nation). As the military acts on behalf of the nation, members of the Forces need to ensure that their actions are consistent with the desires of the nation. Common values will facilitate this sometimes difficult requirement.

Trustworthy. Soldiers, sailors, airmen or airwomen need to be able to enjoy the trust of their team, especially in challenging circumstances where lives are on the line, such as in combat.

Respectful. A professional who shows respect for the other members of the unit is more likely to receive their support, especially in difficult times.

WHATEVER WE DO WE DO IN A GROUP

And in the current day and time, perhaps one might also consider:

Caring. A professional with an element of compassion may be more successful in military operations that are focussed on assisting populations in trouble, such as those that are victims of natural disaster or those caught in the midst of a conflict.

Sense of humour. A good sense of humour might assist the military professional to deal with certain stressful situations, and contribute effectively to unit well-being.

Service before self. The members of Generation Y (approximately, those born in the era 1975–1985) typically place value on peer acceptance, and as such the exigencies of military service might be somewhat in conflict with their normal beliefs. In their circumstances, the need to value service to country before self may merit special consideration.

Violent (dare I say). The recent involvement of the Canadian Forces in combat operations against a ruthless enemy might lead some to believe that our military members need to be sufficiently comfortable in violent situations in order to deal with difficult combat conditions.

Surely you have your own thoughts about these and other characteristics of Canadian military professionals that might make this list.

Well, in my experience, I think I could identify more than a few very successful Canadian military professionals who are not strong in some of those qualities mentioned above. A great number have some of the qualities, with the rare individual having many of those listed. But then there are others who might be more successful as military professionals even though they have fewer of the qualities mentioned. In fact, I would propose that most are missing a few or several of these qualities or elements of

character. So what is it that makes a military professional in the Canadian context?

No one in our Canadian Forces (CF) works or acts as an individual. Whatever we do we do in a group or groups. In the group, the strengths of one compensate for the weaknesses of the others. Perhaps it is this balancing of strengths and weaknesses in the group that makes the collective largely successful. In the CF some groups are actually selected to offset the strengths and weaknesses of its members, while in other groups in our Forces the balancing seems to be a more natural, subtle process that simply evolves over time. In my view, then, what it means to be a military professional is someone who works well in a group. I would go so far as to say it is someone who works very well in a group.

So if being someone who works well in a group is a primary attribute of being a military professional in the Canadian context, are there any commonalities or truisms associated with that? In my experience, someone who works well in a group, and is therefore a successful military professional, has two fundamental character traits: honesty, and, putting the interests of the group before their own interests.

Honesty is essential to the ability of members of the CF to be valuable contributors to a group, and in that sense a military professional. First and foremost it means honesty to themselves. It might not mean the sort of honesty that is honest to a fault, but it certainly means being honest when it matters. (And yes, this has the potential to be the subject of another lengthy debate, especially when addressing an ethics class.) The necessary honesty is perhaps well illustrated by the kind of honesty displayed by the character Maria in the movie *The Sound of Music*. Military professionals must always be absolutely honest with themselves, and with their superior. And military professionals are absolutely not people who resort to deceit as a way of accomplishing objectives within the group.

PUTTING THE INTERESTS OF THE GROUP BEFORE ONE'S OWN INTERESTS

The other quality essential to working well within a group, and thus being a true military professional, is that of putting the interests of the group before one's own interests. This is something that the military professional always does. Most certainly this applies to putting the interests of the immediate group first, although the interests of the larger group may not always be respected in the same way. Again, I am relating to common traits that I have seen among Canadian military professionals, rather than trying to argue for what should or should not be. In that context, the military professional might not put the interests of the CF or the national interest before their own, but certainly that individual always puts the interests of the immediate group first and foremost. In my experience, a prime example of this might be with the Reserves, where the individual may have decided for personal reasons to pursue a different life path and not necessarily put the interests of the CF before their own, but once involved in a task, mission, or operation that same individual unquestionably, and indistinguishably, places the interests of their immediate group before their own interests. Within that context, the Reservist is no different from a member of the Regular Force and is every bit as much a military professional.

In addition, I have seen cases where individuals are no longer able to put the interests of the group before their own, and this causes a conflict within them that was only resolved by leaving the Regular Force. Some made a successful transition to the Reserve Force (where it is possible to continue to serve, but with an ability to take on other pursuits as well), while others sought other avenues. The true military professionals recognized the requirement to put the interests of the group before their own, or felt compelled to leave.

So, while I have identified one characteristic and two traits that are common to Canadian military professionals, I should add that this fits the widest spectrum of our Forces. That is, the widest spectrum in terms of ranks and classifications. If one narrows the group, I find that so

too can one narrow the definition of the characteristics of military professionals within that group. In my view, as rank and responsibility increase, then certain characteristics become more common. This is the case for both officers and the senior non-commissioned members. But at all ranks, and in all classifications, and from the very beginning, my experience is that honesty and putting the interests of the group before one's own interests are an absolute necessity. In fact, I believe it would be possible to argue that our recruit and basic schools teach, train, and select for the ability to work in a group. And to some degree, if candidates are able to work well in a group, regardless of what other limitations exist, they may have the potential to become military professionals.¹ The other skills, the skills that constitute the member's chosen military occupation, are taught later, not at recruit or basic schools.

In reflecting on my conclusion that a Canadian military professional could really be distilled to a concept as simple as someone who works well in a group, I have wondered if the same could be said for other militaries. I thought of my experiences with our various allies, while training, in schools and in the field, and operating, from Germany to Bosnia, from NORAD to Afghanistan. I thought of their militaries, some larger, some smaller. And in many cases, I believe it was possible to identify what appeared to be defining characteristics for them other than simply the ability to work in a group. As such, I found myself satisfied that my thoughts were well justified in the Canadian context, since I imagine that if there was some defining Canadian characteristic I would have found it, like I did for the others.

So, although it may not bear the romantic hallmarks associated with such traits as bravery or endurance, strength, or discipline, in my experience, the ability to work well in a group, even very well in a group, is a legitimate response to the question: "What does it mean to be a Canadian military professional?" The traits of honesty and putting the interests of one's immediate group before one's own interests

are the two fundamental characteristics that are necessary in this regard. After working alongside Canadian military professionals in a great variety of situations it is perhaps less

than a surprise that such a straightforward notion could be at the base of our marvellous success. ■

Brigadier-General Christopher Coates has flown helicopters in the scout role, and utility helicopters in both tactical and special operations. Having commanded at squadron and wing and served on operations staffs at all levels, Brigadier-General Coates has deployed on operations as a Forward Air Controller, an aviation unit commander, and was recently the first commander of the JTF-Afghanistan Air Wing. Brigadier-General Coates is appointed the Deputy Commander Continental NORAD Region at Tyndall Air Force Base, Florida.

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

List of Abbreviations

| | |
|-----|------------------------|
| CF | Canadian Forces |
| JTF | Joint Task Force |
| RAF | Royal Air Force |
| RMC | Royal Military College |

Notes

1. The author fully appreciates that our recruit schools exercise pass/fail judgment on candidates for a variety of skills; however, I believe it is safe to say that the ability to work effectively in a group is a uniquely critical skill selected for at our basic schools. Without this skill, without honesty and the ability to put the interests of the group first the candidate would not be permitted to complete the course.

Valour Remembered

The Story of Alan Arnett McLeod, VC



CF Photo

By Chief Warrant Officer
J. W. (Bill) Dalke, MMM, CD

As Canadians queued for vaccinations in Fall 2009, read their newspapers, and listened intently to the televised medical updates from the World Health Organization about the H1N1 flu virus, reference was frequently made to the 1918 Spanish Flu epidemic. That event claimed millions of lives across the world. This is the story of one of those victims, a valiant Canadian pilot who had been awarded Britain's highest honour for an act of heroism in the air during the First World War. Having survived this event against all odds, this young hero fell ill to the Spanish Flu just as the war was ending. As a result, his name is virtually unknown today except in military aviation history circles or near the community he grew up in. Or is it?

INTRODUCTION

At the outset of the First World War (WWI) in 1914, many who went off to war in the early days thought that the conflict would be over by Christmas. How wrong they were. Christmas would come and go four times before "The Great War" would end. This event saw the dawn of military aviation. In the skies, the use of aircraft progressed from being a novelty to a necessity. He who controlled the airspace above the battlefield held the advantage on the ground. What began as a curious tool for reconnaissance progressed to being the army's eyes in the skies, able to record the positions and movements of ground troops as well as communicate this information in real time to effectively direct artillery fire. Of course, such actions could not be allowed to continue without resistance. In order to prevent enemy aircraft from doing the same, pilots began to mount guns on their aircraft. In a short time, fighter aircraft came into being, with the goals of protecting their own bombing and reconnaissance aircraft while preventing the enemy from using similar strategy. The skies of World War One were deadly, and the early aircraft designs themselves were equally dangerous. It took an incredible amount of courage and daring to face the enemy in the skies. Three Canadian airmen in that conflict were awarded the Victoria Cross (VC), the highest decoration for gallantry in the face of the enemy that could be awarded. Presented here is the story of Alan Arnett McLeod, the youngest Canadian airman to have been awarded the Victoria Cross, and his own forgotten valour.

BACKGROUND

Alan Arnett (nicknamed "Bus", "Buster" or "Babe") McLeod was born in Stonewall, a community just north of Winnipeg, Manitoba, on April 20, 1899. He was the son of a country doctor, Dr. Alexander N. McLeod, who had come from Scotland in the employ of the Hudson's Bay Company. His mother, Margaret, was also of Scottish background, and associated with the Selkirk Settlers brought by Lord Selkirk to settle along the Red River.¹ Alan McLeod lived the life of an ordinary schoolboy, although with some notable exceptions. In January, 1909, *The Stonewall Argus* newspaper noted:

Master Alan McLeod was observed to perform a feat the other day which called for some endurance and some nerve on the part of so young a lad. It also gave evidence of his kindly disposition. A dog passed along the street and was seen to have a trap on its foot. A gentleman tried to catch it, but did not succeed. Alan started after it and after following it for nearly half a mile and coming up with it several times succeeded in stopping it and removing the trap. He let the dog go and returned the trap to the constable. Asked how the dog behaved he explained that it showed its teeth at first, but he got it to understand after a little. Not the least praiseworthy feature was his seeming unconsciousness that he had done anything but what any boy would do.²

This story revealed aspects of young McLeod's character that would also be evident in the events leading up to his being awarded the Victoria Cross.

He showed an interest in the military while quite young. McLeod was big for his age, and as a result, was successful in June of 1913 in joining a detachment of men undergoing summer training with the 34th Fort Garry Horse at Fort Sewell. His enthusiasm was evident, and having grown up around horses, he had the necessary riding ability to follow the cavalry curriculum without difficulty.

When war was declared, McLeod's interest shifted to aerial adventure, and he attempted to join the cadet wing of the Royal Flying Corps in Toronto. A birth certificate was demanded, and once presented, he was informed that his application could not be considered until his eighteenth birthday. It is not recorded how patient he was, but wait he did until receiving notification just a few days before his birthday that he was to report on April 23, 1917, for commencement of training. His last day of school was his eighteenth birthday. The principal, a Mr. Burford, ensured that special recognition was given and the day had a holiday atmosphere, with a farewell party and gift presentation.³ He left the next day to commence his training at Long Branch, Deseronto.

TRAINING AND OPERATIONS

After successful initial training, he took his first flight on June 4 in a Curtiss JN4. His very first flight in this dual-control machine was for a duration of only ten minutes. His flying continued over the next three days, and on June 7, he was able to take over the controls once the pilot instructor had taken it to a safe height. His first solo flight was made on June 9 after a grand total of only two hours and fifty-five minutes of instruction. By June 16, he had moved to Camp Borden for advanced instruction. Training was no picnic, though, as he noted in a letter home on June 19, 1917:

I arrived at Camp Borden yesterday. It is an awful hole. I guess I'll get used to it

but it's lonely here, just a mass of sand and tents...we are sleeping in tents without floors, there are lots of us in a tent, we have no dressers or wash stands, we have to walk about ¼ mile to the building to get washed...we have to get up at 3:45 a.m. and there is no time to spare till noon and we just have 2 hours for dinner, then in the afternoon after dinner, we work till 4:30 then have a lunch and fly till 8:15, then we have supper and after supper, there are lectures from 9-10:30, then we go to bed. We have lots of drill and have to polish our buttons and boots or get Cain. We can have a week-end pass once a month...I just hate this place.⁴

However, as training progressed, McLeod settled in and demonstrated his natural flying abilities. By July 31, he had qualified as a pilot.

Prior to departure overseas, McLeod was given leave. He returned to Stonewall, departing there on August 15 for Montreal where he boarded the *Metagama* on August 20 bound for England. The transit was far from uneventful. McLeod experienced the submarine threat and the *Metagama* had to be put into a safe harbour in Ireland for a few days. Arriving in England on September 1, he attended a short refresher course at Winchester and then was posted to 82 Squadron at Waddington in Lincolnshire. This squadron was equipped with the heavy Armstrong Whitworth FK8 two-seater bomber reconnaissance tractor biplane. This aircraft, one of the lesser known types of the war, was somewhat ungainly in appearance, and described by McLeod as "having the aerodynamics of a cow."⁵ There for only a short time, McLeod was excited to learn in September that the squadron was to proceed to France. Alas, though, his age once again got in the way. Upon a review of records, his commanding officer found that he was only eighteen and informed him that he would have to wait until he was nineteen before going on active service. As a result, he was transferred to 51 Squadron. This was a Home Defence squadron flying "Fees," the FE2b (Royal Aircraft Factory Farman Experimental 2b

two-seater pusher biplane). There, for the next two months, he flew the black-painted fighters over the skies of London at night in search of German Zeppelins and Gotha bomber aircraft. Night flying was in its infancy, and lacking the technology that serves to safeguard such flying today, in 1917 there was always the constant risk of collision in the air (either with the enemy or another British machine). He was once shot down over the great city but managed to land the aircraft safely, considering the event an amusing occurrence rather than a dangerous event. His enthusiasm was evident, and having come to the attention of his commander, some strings were pulled and he finally found himself being sent to the front. Being first sent to the Pilot's Pool at St. Omer, he was quickly posted to No. 2 Squadron at Hesdigneul, reporting on November 29.

When the commanding officer saw him, he reacted by saying, "What is this, a nursery? This kid can't be more than fifteen."⁶ McLeod was sent to B flight where Lieutenant (Lt) Higgins, the senior observer in the squadron, evaluated him. McLeod's first flight in France was on December 2, 1917. A few days later he flew with Lt Higgins as his observer over enemy lines doing artillery spotting, and McLeod adequately demonstrated his aptitude for flying. His duties, while flying the Armstrong Whitworth FK8 (nicknamed "Big Ack"), were photography, night bombing, and artillery cooperation, and he quickly proved himself to be a first-class pilot. Artillery cooperation involved ranging a specific group of guns by flying steadily over enemy positions and reporting where the rounds landed and the corrections to be made to put them onto target. This was particularly dangerous for the pilot, who was a loitering target for enemy anti-aircraft guns or small arms fire if at low level, plus a tempting one for any enemy fighter aircraft. McLeod was not too concerned about the latter, and despite the lumbering aircraft he flew, frequently turned to attack enemy aircraft when they appeared, perhaps believing that a good offense is the best defence. Once, a German Albatros fighter got onto his tail and McLeod was annoyed to find that his observer was

not returning fire with his gun. Much yelling and signalling ensued, resulting in McLeod understanding that the gun was jammed. He somehow managed to outmanoeuvre and escape the German, and upon landing, he examined the gun, only to find that the safety catch had not been released. One could reasonably presume that the observer's ineptitude would have angered McLeod considerably, but, instead, he laughed about the observer's carelessness and often regaled others with this story that he considered a very fine joke.

McLeod started his new year offensively with a flight on January 3, 1918, the first clear day in a week. Visiting the town of La Bassée in Flanders, he spotted a concentration of German troops and attacked them.

He received a Mention in Dispatches for his efforts of January 14, when McLeod and his observer, Northampton Englishman Lt Reginald Key, attacked a German observation balloon. Attacking balloons was considered extremely dangerous business. They were frequently well protected by a ring of anti-aircraft guns that were very adept at firing on enemy aircraft. These guns had an advantage in knowing the height of their balloon and as a result were always able to determine the exact height of the attacking enemy aircraft, thereby making even the most experienced pilots think twice before attacking a balloon and braving the wall of lead that rose to meet them. McLeod, dodging this way and that to avoid the grey bursts of exploding anti-aircraft shells, climbed above the balloon and then dove down from above towards it, just as a fighter would. Pulling up level with the "gas bag," his observer raked it with machine gun fire. It burst into flames and began to fall to earth. As they turned to leave, they were set on by three Albatros scouts. Skilful flying enabled McLeod to avoid their attacks while manoeuvring the aircraft into a favourable position for his gunner, Lt Key, who succeeded in sending one down on fire. The remaining two fled.

Two days later, McLeod and Key were again near La Bassée directing an artillery

shoot. An annoyingly accurate anti-aircraft battery and small arms fire from nearby buildings were making this duty extremely difficult. McLeod, despite the heavy fire, dived on the guns, raking them with machine gun fire, dropped bombs on them to keep them silenced, attacked a column of troops nearby before resuming the shoot and returning to his aerodrome. The guns that McLeod had destroyed had been a considerable annoyance in the area, and for his efforts McLeod was granted two weeks leave in London. Commencing his leave on January 27, McLeod probably thought that he was safer than in France. During his second night in London, a German bomb destroyed a building near the Savoy Hotel where he was staying, killing 49 people and injuring 147.⁷

Shortly after returning to the front, McLeod's observer was transferred to another squadron. Key, who would survive the war and later move to Toronto, wrote of his experiences with McLeod: "Alan would take on anything, and I was willing to go anywhere with him. He was the finest pilot I have ever flown with, devoid of fear, and always merry and bright. We were in many scraps together and often after getting out of a very tight corner by sheer piloting, with six or seven Huns on our tail, he would turn to me and laugh out loud."⁸

McLeod's new observer was Lt Arthur William Hammond. Hammond had already

been decorated for bravery and wore the ribbon of the Military Cross on his uniform. On March 27, 1918, they were flying together during the event that ultimately resulted in the award of the Victoria Cross to McLeod and a Bar to the Military Cross to Hammond.

VALOUR DISPLAYED

A German offensive had resulted in orders for the squadron to fly south and attack German troop concentrations near Bapaume. McLeod and Hammond, like other squadron members, were in the air day and night, attacking with bullets and bombs. On the morning of March 27, 1918, they took off with six other machines but became separated while flying in thick fog. Unable to determine their position, McLeod eventually returned and landed at the aerodrome of 43 Squadron. Landing heavily due to the full load of bombs, they cracked their tail skid and had to wait as another one was delivered and replaced. Upon taking off again, McLeod headed for the target area near Albert, and was just about to bomb a German gun battery when he was attacked by German fighters from Baron von Richthofen's Flying Circus, a deadly unit so-named for their brightly painted aircraft. Perhaps the official citation for the award of the Victoria Cross to Second Lieutenant (2Lt) Alan Arnett McLeod, Royal Air Force, gazetted on May 1, 1918, explains the subsequent events most eloquently:

Whilst flying with his observer, Lieutenant A.W. Hammond, M.C., attacking hostile formations by bombs and machine gun fire, he was assailed at a height of 5,000 feet by eight enemy triplanes which dived on him from all directions, firing from their front guns. By skilful manoeuvring he enabled his observer to fire bursts at each machine in turn, shooting three of them down out of control. By this time Lieut. McLeod had received five wounds, and whilst continuing the engagement a bullet penetrated his petrol tank and set the machine on fire.

He then climbed out on to the left bottom wing, controlling his machine from the side of the fuselage and by side-shipping [sic] steeply kept the flames to one side, thus enabling the observer to continue firing until the ground was reached.

The observer had been wounded six times when the machine crashed in "No Man's Land" and 2nd. Lt. McLeod, notwithstanding his own wounds, dragged him away from the burning wreckage at great personal risk [from] heavy-machine gun fire from the enemy's lines. This very gallant pilot was again wounded by a bomb whilst engaged in this act of rescue, but he persevered until he had placed Lt Hammond in comparative safety, before falling himself from exhaustion and loss of blood.



McLeod Memorial Painting by George Tanner

Their rescuers were members of a South African infantry regiment. One of Hammond's legs was broken and would later have to be amputated. McLeod had five wounds, not including those received from the bomb after the engagement. "The journey to medical attention more sophisticated than a Field Dressing Station was long and painful, made both by motor ambulance and on hand-borne [sic] stretchers to Amiens."⁹

It was a German pilot, Lt Hans Kirschstein, from Jasta 10 of Von Richthofen's JG1, whose attack from astern and below had ruptured the fuel tanks.¹⁰ He was eventually credited with 27 aerial victories and decorated with Germany's highest honour of WWI, the *Pour le Mérite*, also known as the "Blue Max." He was killed while flying as a passenger in July 1918.

As for Lt Hammond, he later immigrated to Canada, settling in Winnipeg and working for the Great-West Life Assurance Company. He served with the RCAF in Canada during the Second World War and died in Victoria, British Columbia, in 1959.



Photo: DND / Library and Archives Canada

McLeod's father sailed to England to be with his son as he recuperated from his injuries. He also attended the investiture of the Victoria Cross at Buckingham Palace on September 4, when King George V, upon viewing the smiling young airman supporting himself at attention with the aid of two canes, congratulated him on his "brave deed" and stated, "I am proud to know you."¹¹ Fellow pilot Billy Bishop, the first Canadian airman to be awarded the Victoria Cross, hosted a champagne dinner at the

Savoy Hotel afterwards, together with Arthur Richardson, who had been the first to be awarded the same decoration in the Boer War.¹²

THE REST OF THE STORY

Alan McLeod and his father left England when he was well enough to travel, arriving in Winnipeg on September 30, 1918. Thousands of Winnipeg citizens and hundreds from Stonewall were there to provide a fitting reception for their hero. Stonewall even declared a civic holiday in his honour. McLeod appreciated the welcome, but was very modest in his comments, not wishing people to be "thinking that I'm suffering from a swelled head instead of wounds."¹³

The nineteen-year-old, who had received word that he would be promoted to Captain, was looking forward to returning to the front once he'd recuperated. However, he contracted the flu in October, which weakened him and led to pneumonia. He died at 9 o'clock in the evening of November 6, 1918, at the Winnipeg General Hospital. In the end, Spanish Influenza had done what the enemy could not do.

The funeral was held on Saturday, November 9. Thousands lined the street as he was borne on a gun carriage draped in the Union Jack. His cortege travelled along Main Street to the Kildonan Presbyterian Cemetery where he was buried with full military honours. Pallbearers were six officers of the Royal Air Force. A guard of honour consisted of 100 officers and men of the First Depot battalion and 50 men of the Engineering and Construction unit. The firing party were troopers of the Fort Garry Horse, as was the bugler who played the Last Post. Although his death had been front page news in the *Manitoba Free Press* of November 7, the coverage of his funeral was relegated to page 10 (the front page instead announcing: "Huns Quit; War Is Over").¹⁴

In 1967, McLeod's medals and personal letters were donated to the Canadian War Museum by his sister, Mrs. Helen Annetts. His Victoria Cross and two accompanying service

Canadian Daily Record, 17/12/18.

SIX MORE CANADIANS WIN V.C., BRINGING THE TOTAL TO 55.

CANADIAN DAILY RECORD

ISSUED BY THE CANADIAN WAR RECORDS OFFICE TO ALL UNITS OF THE OVERSEAS MILITARY FORCES OF CANADA.

No. 508

TUESDAY, DECEMBER 17, 1918

FUNERAL OF LT. A. McLEOD, ONE OF CANADA'S V.C. AIRMEN.



Photo: Veterans Affairs Canada

medals are currently on loan and proudly displayed in the Bishop Building, Headquarters of 1 Canadian Air Division in Winnipeg.

Although not as well known as the other two Canadians who won the VC in the air during WWI (Bishop and Barker), McLeod's name has not been completely forgotten. His name can be seen on many military bases across Canada where streets, buildings, conference rooms, and even an air annex museum bear

his name. Most recently, No. 301 Royal Canadian Air Cadet Squadron ("Alan McLeod, VC" Squadron) was officially re-formed in Stonewall in May 2009. Originally created on July 20, 1943, it was disbanded

in March 1948. Sponsored by the Stonewall Legion Branch 52, they currently boast over 40 cadets and have incorporated McLeod's Victoria Cross medal and aircraft into their Squadron crest design. The Latin motto



accompanying it translates to "Victory favours those who take pains."

Alan McLeod's bravery during a world conflict that took an estimated 15 million lives was recognized by the award of the Victoria Cross, the highest decoration for gallantry. Having survived this terrible conflict, he came home only to contract Spanish Influenza, from which, as with an estimated 30,000 to 50,000 other Canadians¹⁵ and an incredible estimated 20–50 million people worldwide, he died.

Canada now has its own Victoria Cross. No longer will the British one be issued to Canadians. The new, distinct Canadian medal has been created, forged with a combination of the original British gunmetal, an 1867 Confederation medal, and metals from all the regions of Canada. Instead of "For Valour," the Latin words "Pro Valore" appear. Although there has not yet been a single award of the Canadian Victoria Cross, we can be assured that if anyone does perform a deed worthy of such recognition, they will not be forgotten. As we say every November 11th, "We will remember them." ■



Photo: Government of Canada

Chief Warrant Officer (CWO) J. W. (Bill) Dalke is the Division Chief Warrant Officer for 2 Canadian Air Division. He was the first Air Force representative to attend Royal Military College on the Knowledge Acquisition Program, and served as the 16 Wing CWO prior to his current appointment. He has an avid interest in aviation history and has previously been published in the *Canadian Military Journal*.

List of Abbreviations

| | | | |
|--------|---------------------------------------|-----|-----------------|
| 2nd Lt | second lieutenant | VC | Victoria Cross |
| Lt | lieutenant | WWI | First World War |
| MMM | Member of the Order of Military Merit | | |

Notes

1. George A. Drew, *Canada's Fighting Airmen* (Toronto: MacLean Publishing, 1930), 216.
2. Ibid., 216.
3. Ibid., 217.
4. C. W. Hunt, *Dancing In the Sky* (Toronto: Dundurn Press, 2009), 78-79.
5. Arthur Bishop, *Our Bravest and Our Best* (Toronto: McGraw-Hill Ryerson, 1995), 91.
6. Ibid., 91.
7. Drew, 223.
8. Ibid., 223.
9. Peter G. Cooksley, *The Air VCs* (Trowbridge: Sutton Publishing, 1996), 127.
10. Ralph Barker, *A Brief History of the Royal Flying Corps in World War I* (London: Robinson, 2002), 455.
11. Bishop, 90.
12. Ibid., 93.
13. Ibid., 94.
14. "Last Respects Paid Lieut. Alan McLeod," *Manitoba Free Press* (11 November 1918), 10.
15. Hunt, 260.



Photo: Courtesy of author

Image: Veterans Affairs Canada

2nd / Lieut by Leod a.a.

Name **McLEOD A.A.** *Alan Arnett* Reg.No. Rank **2nd.Lt.**
 Batt'n **R.A.F.** Former Unit
 Date & Place of Birth **Stonewall, Manitoba 1900.**
 Date & Place of Enlistment **Toronto 1917**
 Trade or Profession
 Sailed from Canada Unit
 Arrival United Kingdom
 Departed for France Unit
 Casualty Date
 Nature of
 Evacuated
 Appointed to Commission Date Rank
 Honours & Awards **Victoria Cross 1-5-18 LG.30663**

Reference "Canada" 11-5-18 Page 153.
 Present Location

Next of Kin **Dr. A.N. McLeod (Father)**
Stonewall, Manitoba.

Portrait painted by

Official Account of Deed for which Award was made.

Whilst flying with his observer (Lt.A.W. Hammond, MC.), attacking hostile formations by bombs and machine-gun fire, he assailed at a height of 5,000 feet by eight enemy triplanes, which dived at him from all directions, firing from their front guns. By skilful manoeuvring he enabled his observer to fire bursts at each machine in turn, shooting three of them down out of control. By this time Lieut. McLeod had received five wounds, and whilst continuing the engagement a bullet penetrated his petrol tank and set the machine on fire.

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YOU HAVE
TO BE

MENTAL

TO BE A

Fighter Pilot

By Lieutenant-Colonel Brian Murray, CD

As modern fighter information gathering technologies improve, the capability of the pilot to sort through, understand, prioritize, and react to critical information becomes increasingly important for mission success and survival. Some fighter pilots use the “bucket” analogy to describe this cognitive ability. The term “bucket” describes pilots’ thinking capacity and/or their overall capacity to absorb information and use it to complete mission tasks. When their bucket is full, pilots might fail to detect new information and/or stop doing lower priority mission sub-tasks. They are in effect cognitively overwhelmed, having reached either the quantitative limit of their thinking capacity (processing limit), or they have used up all of their “attention resources” (processing fuel) that can be applied to understand sensed information and make decisions. Both of these situations are commonly referred to as being “maxed out.”

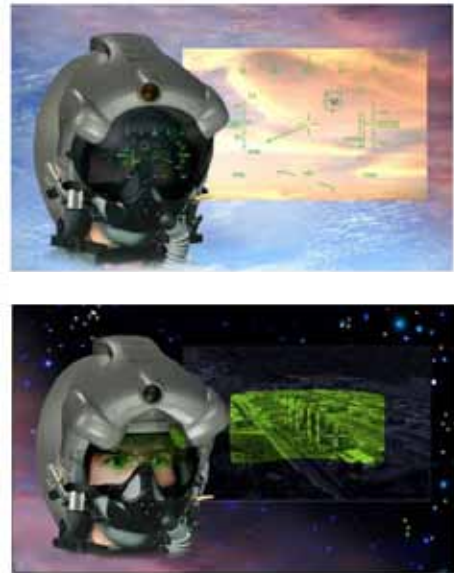
This article describes the amount and types of information fighter pilots are exposed to during a mission, how the information is processed in the pilot’s bucket, the effects of stress on the pilot’s cognitive performance, and the ways in which information processing and cognitive performance can be improved through training.

THE FIGHTER MISSION INFORMATION ENVIRONMENT

During a mission, the fighter pilot requires and is provided continuous information from a variety of sources. A study done using United States (US) Air Force, Navy, and Marine fighter pilots entitled *A Survey of Situation Awareness Requirements in Air-to-Air Combat Fighters* identified 143 elements of information the pilots deemed very important and 86 elements deemed somewhat important for safe and tactically effective operations in the air-to-air role.¹ These bits of information included items such as own-ship, flight, friendly, and threat aircraft information, relative positions and velocities of those aircraft, sensor search volumes and status,

weapons status, electronic emission indications, geographic location, command and control directions, friendly or threat missile status and targets, and environmental conditions, with many sub-elements in each of these categories.

The first step pilots take to acquire this myriad of information is the sensing of data or stimuli predominantly through the sense of sight, by looking outside the cockpit and inside at their instruments and displays, and through the sense of sound (radio communications and audio warnings). For this data to become information, it has to be recognized by the brain.



Images courtesy of the US Government and www.jsf.mil

Figure 1: Joint Strike Fighter (JSF) Helmet Display²

ATTENTION RESOURCES

Before looking at the cognitive process beyond sensing data, it is important to recognize one of the factors that limits a human’s ability to think effectively, which is the availability of attention resources. Attention resources are the finite amount of cognitive fuel or thinking horsepower available to complete the mental tasks at hand. They are necessary to fuel the perception and comprehension processes needed to turn sensed data into information, information into knowledge

(understood information), and knowledge into action. Attention resources are used to accomplish productive cognitive tasks (described below), or they can be robbed and consumed by unproductive stress or distraction.

PERCEIVING INFORMATION

Sensing data is only the beginning. For the data to become information, it must be perceived and processed by the pilot. Perception is the association of meaning to sensory stimulation and involves signal detection and selection.³ The amount of energy a signal has or how much the signal has changed compared to the detection threshold of the pilot's senses determines if it will be noticed (detected).

The other aspect of perception is selection, which is sometimes referred to as perceptual attention. Selection looks at "the fundamental limits on humans' ability to process information and how these limits are affected by experience and processing strategies."⁴ Modern fighters like the F18 often display large amounts of information, and pilot training is required to develop the "what-to-look-at-when" skill. Inexperienced pilots are often overwhelmed by cockpit displays because they are unsure of what specific information they need for the situation they are in and where to precisely

access the information: instruments, displays, or outside the cockpit. Instead, they may know habitually where roughly to look, but they have to scan or search over a broad set of information to find the nugget they need. Experienced fighter pilots know precisely what they are looking for before they look, and only scrutinize the part of the display that provides that bit of information. Wickens suggests there are four considerations affecting when a pilot focuses on a particular display: relevance of information, memory, anticipation of future events, and stress.⁵

UNDERSTANDING INFORMATION—CREATING KNOWLEDGE

Data that is sensed and perceived as information must then be processed or evaluated to determine the information's usefulness and if an action is required. It is important to know how information is processed, decisions are made, how the system can be overloaded, and how the system's efficiency can be maximized. Wickens and Flach⁶ provide a model of information processing that represents what goes on in the bucket. (Figure 2)

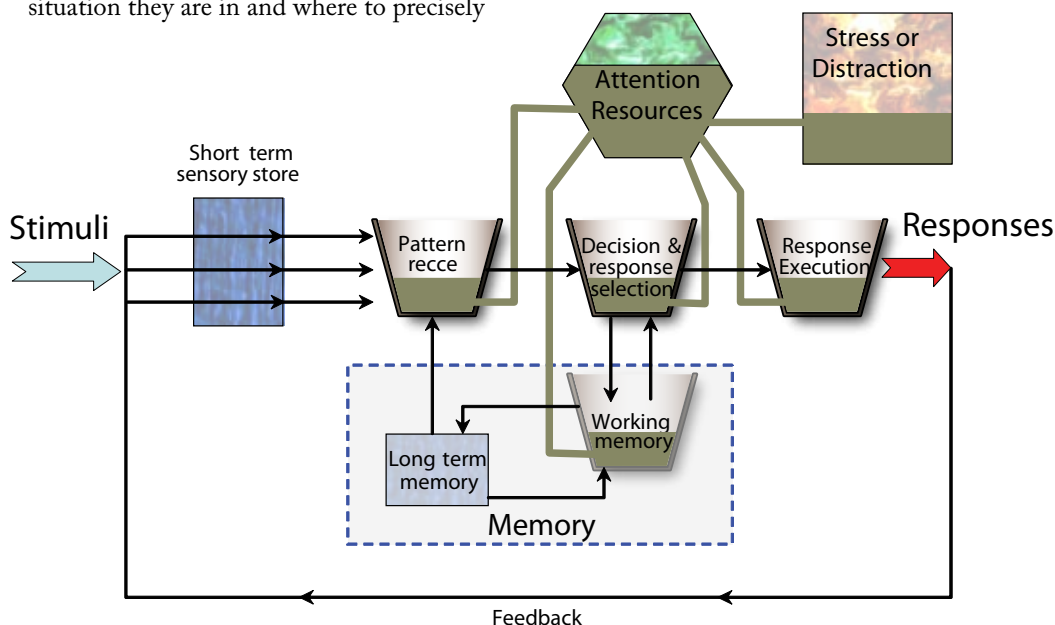


Figure 2: Wickens and Flach model of information processing [modified].⁷

The short-term sensory store contains all the sensed data, but no meaning has been applied to these stimuli. Pattern recognition or perception then occurs, and drawing on the pilot's experience (long-term memory), data is recognized as having specific meaning. If a flood of data or stimuli exceeds the capacity of the pattern recognition function, that bucket would be full of attention resources (operating at a limited capacity), and this high demand would limit attention resources available to service other thinking tasks or buckets. The size of the pattern recognition bucket would represent the finite capability of pattern recognition function, and additional data or stimuli trying to get through that bucket would become noise (sensed but not perceived). The product of the pattern recognition process is information (data whose meaning and importance is recognized). Knowledge is then derived in the decision and response selection stage, where bits of information are compared and considered in the current contextual circumstances. From this stage, two paths can be taken: immediate response or storage for future consideration.

PILOT DECISION MAKING

If the information warrants an immediate response, the pilot may react by triggering a specific motor response. If the information is not complete enough to be fully understood, or an immediate response is not necessary, it may be passed to the pilot's working memory for future use. This often occurs when pilots are building situation awareness (SA) prior to committing to an engagement. Own-ship radar, other fighter radar, link displays, or command and control agencies may indicate the position of a group of bogey aircraft (unknown identification), but further information like identification, specific number and type of aircraft (fighters, transports, helicopters) might be required before action is warranted against them. In this case, information must be stored in working memory and will be combined with future information and experience-based past information (long-term memory) to formulate a decision and response.

Klein and colleagues have proposed the "recognition-primed decision [RPD] model," which is somewhat applicable to fighter pilot decision making. This model says that humans will apply their memory of previously experienced situations to interpret a current situation and when confronting a new situation, they will cognitively start with the closest, recognized experience from their past and modify from there.⁸ This model proposes three levels of decisions:

1. Matching – simple mapping of a recognized situation to a prescribed decision (like applying a rote bold faced or red page checklist procedure to an emergency situation);
2. Diagnosing – iterative probing of the environment until the situation is recognized, followed by a triggering of the prescribed decisions (like SA building or satisfying commit criteria); and
3. Evaluating – mapping of a recognized situation to a set of prescribed decisions, followed by selection of the most appropriate decision through a mental simulation (like deciding the best course of action when weather or threats affect the planned route or target area).⁹

Many psychologists support the theory that analytical or evaluating decision making strategies are not particularly suited for high demand, time pressured conditions common in military operations.¹⁰ Fighter pilots tend to employ what Janis and Mann termed "hypervigilant decision making" strategies, which involve consideration of limited alternatives, non-systematic information search, accelerated evaluation of data, and rapid closure. Johnston, Driskell and Salas tested the hypothesis that hypervigilant decision making was more effective in time-pressured situations than analytical decision making strategies, and their results supported their hypothesis.¹¹ Fighter

pilots use “what-if” based contingency planning prior to flying a training or combat mission, to think through possible mission scenarios and to develop a limited number of viable pre-planned options to prepare themselves for airborne decision making. This allows them to employ matching, diagnostic, and hypervigilant decision making techniques in flight.

COGNITION, THE OODA LOOP, BUCKETS, AND MULTI-TASKING

The basic Wickens and Flach cognition model already presented completely supports Boyd’s OODA loop theory (Observe – Orient – Decide – Act) that describes a mental process that can be used to defeat an adversary (Figure 3). Boyd’s OODA loop theory, although originally derived in the tactical fighter combat construct, has seen broad application in both military and business strategy development. Both Wickens¹² and Boyd also recognized that the cognitive process acts in parallel, allowing an individual to manage and react to multiple stimuli concurrently, enabling

multi-tasking. In this parallel cognitive process, in which each task puts cumulative demands on the pilot’s processing and attention resources, the number of buckets that can be either over-saturated with stimuli or starved of attention resources multiplies significantly.

STRESS

All of this cognitive activity occurs under the stress of the mission. An examination of the effects of stress on pilot information processing and decision making is important to appreciate the overall information processing demands on a fighter pilot. The U.S. Navy commissioned a seven-year study on Tactical Decision Making Under Stress (TADMUS), in response to the July 1989 shooting down of an Iranian civilian airliner by the USS *Vincennes*. The TADMUS study, which included contributions from the Naval Air Warfare Center, provided the following definition of stress, which can be applied to fighter aviation as well as naval warfare: “a process by which certain environmental demands... evoke an appraisal process in which perceived demand exceeds resources and results in undesirable

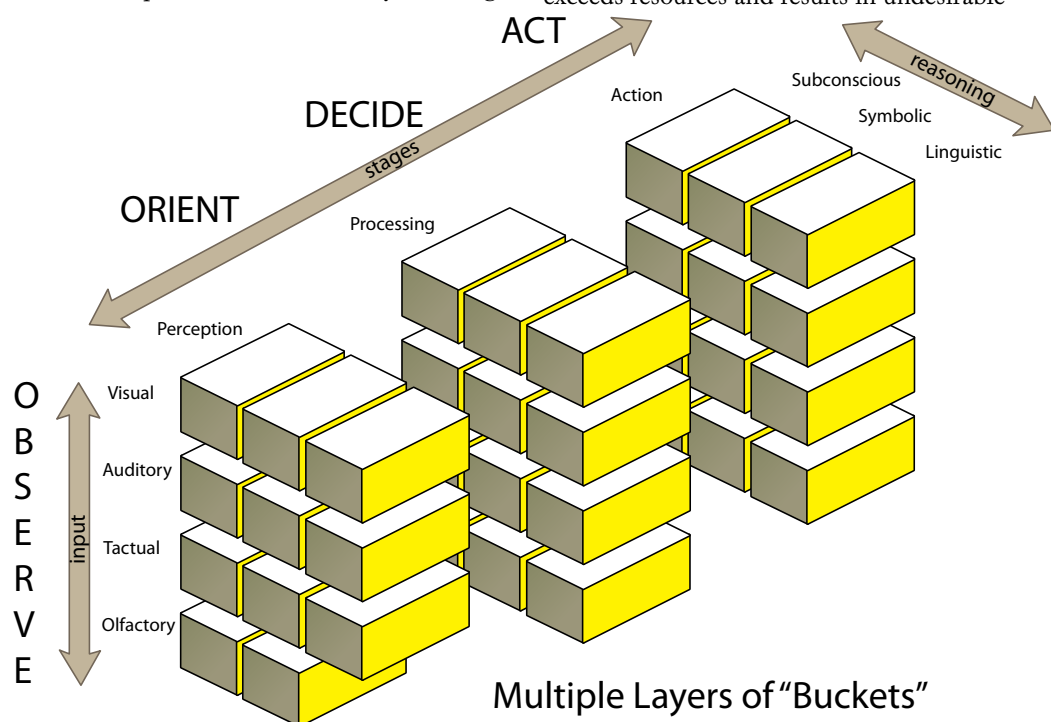


Figure 3: Wickens Multiple Resource Model and Boyd's OODA Loop [Modified]¹³

physiological, psychological, behavioral, or social outcomes.”¹⁴

THE EFFECT OF STRESS ON THE BUCKET

In Figure 2, we can see that stressors reduce the availability of attention resources to service the other buckets in the model of information processing. The “Stress or Distraction” block/bucket in Figure 2 represents the drain on attention resources caused by extremely high workload, performance pressure, threat, emotions, physical environment stress (heat, cold, G-force, etc.), or other conditions that distract from cognitive task accomplishment. Using this model, it can be seen that stress/distraction robs the available energy from the system, degrading the other functions across the board. As stress decreases, more attention resources are available to fuel cognitive tasks. The stress modified model, like all models, is not intended to define how the mind works; instead, it assists us in conceptualizing factors which improve or degrade information processing and decision making under stress.

EQUIPMENT AND TRAINING

Equipment and training play significant roles in improving pilot performance. Glass cockpits, displays which merge the information from a variety of sensors into one simplified picture, visor mounted display systems,

Possible stressors in the modern operational environment (which read like a fighter pilot’s job description) were identified as:

- *multiple information sources*
- *incomplete, conflicting information*
- *rapidly changing, evolving scenarios*
- *requirement for team coordination*
- *adverse physical conditions*
- *performance pressure*
- *time pressure*
- *high work/information load*
- *auditory overload/interference*
- *threat*

panoramic night vision devices, and directional sound all promise to increase pilots’ SA while reducing their workload. Systems which filter out unnecessary information, automatically complete the pattern recognition process, and present the information in a distinct and noticeable manner will allow pilots to allocate more of their cognitive resources to decision making. Battlespace management and information tools like data links will decrease the requirement for pilots to use their working memory to build SA, and will dramatically decrease auditory command and control requirements. Smart cockpit displays, which provide information prioritized to the situation

as determined by the aircraft mode and active threat indications, could make important information more obvious to the pilot, reducing the “knowing where to look” skill requirement that is normally acquired only with experience. In other words, the information perception process, consisting of detection and selection can, to a great extent, be automated.



Figure 4: JSF Cockpit with Panoramic Display

Fighter pilot training and experience are critical determinants of performance in flight. For fighter pilot training to be effective at increasing the human, cognitive component of the weapon system, it must address two inter-related elements: skills acquisition / retention training and stress training.¹⁵

SKILLS ACQUISITION / RETENTION TRAINING

Skills acquisition and retention training are necessary for effective aircraft and weapon system operation, but they also contribute to pilots' information processing efficiency and their ability to counter stress. Events which demand consistent, procedural pilot responses like emergency procedures, threat reactions, radar sorting techniques, or in-flight combat checks will not tax the pilot's working memory, decision making, or response execution functionality in flight, if they are learned well. The use of repetitive drills is a common practice in military training. Psychologists refer to this as “overlearning” or “automating” a process. Geen stated that “automated processing of information occurs as tasks become well rehearsed

and performance becomes routinized or more automatic. Automated tasks require less active attentional capacity and are less subject to disruption by increased attentional demands.”¹⁶ In the bucket model, this means that quicker pattern recognition and more matching type decision making occurs, requiring less attention resources, and decreasing the vulnerability to attention resource robbing stress. Minimalist training policies that do not enable overlearning through repetition do not provide adequate skill acquisition/retention or anti-stress training for fighter pilots.

To improve mission execution, pilots often employ pre-flight training strategies to assist them in anticipating or visualizing in-flight situations, responses, and procedures, much in the same way that athletes or drivers mentally prepare to run a race course. Pilots will use a more efficient information search process if they know what events will take place in the near future.

This is often referred to as “staying ahead of the aircraft.” Pre-mission mental rehearsal, a visualization technique often referred to as “chair flying,” can improve the efficiency of the pilot's scan of cockpit displays and the outside environment in flight. The effect of adhering to a well rehearsed mental timeline will be that pilots will direct their attention to the appropriate sources of information at the appropriate time, follow the correct procedures on the first attempt, and not waste attention resources searching for information or switches.

STRESS EXPOSURE TRAINING

Stress Exposure Training (SET) is not formalized in the fighter pilot community, but aspects of it are ingrained in fighter pilot training. The three training objectives of SET are to convey knowledge of the stress environment, to emphasize anti-stress skill development, and to build confidence in the operator's ability to perform.¹⁷

The purposes of conveying knowledge of the stress environment are to decrease the

unproductive distractions caused by false expectations and novel sensations or experiences, and to allow the pilot to identify and avoid likely performance errors in the stress environment. Pilots effectively do this in the context of formal flight safety discussions, but tend not to have education programs aimed specifically at the impact of stress on tactical or combat operations.

Anti-stress skill development training is extremely important to fighter training and combat operations. Overlearning, visualization (chair flying), and rehearsal (briefing “what ifs”) are examples of anti-stress techniques that fighter pilots commonly employ to enable quick and calm decision making in flight. Pilots use these techniques to prepare for missions, but tend not to recognize them as anti-stress techniques that will improve their information processing and in-flight cognitive performance.

The last stage of SET is the application and practice of anti-stress training and skills in an operational environment (or as close as possible), to build operator confidence. As Driskell and Johnston observed, “One crucial aspect of maintaining effective performance in a stressful environment is providing practice and exercise of tasks under operation conditions similar to those likely to be encountered in the real-world setting.”¹⁸ Major fighter training events like the Red Flag series of exercises are designed to closely mimic combat missions and provide fighter pilots with crucial SET, including inoculation against stress, and confidence building. Simulators can also be used to stress pilots in training, but they are not good at providing the ultimate stressor that

actual flight training can—the threat of life-ending real consequences to incorrect action or inaction.

Combat readiness depends on reaching the goal of demonstrated performance under near-real combat conditions. As Clausewitz stated, “It is immensely important that no soldier... should wait for war to expose him to those aspects of active service that amaze and confuse him when he first comes across them. If he has met them even once before, they will begin to be familiar to him.”¹⁹

CONCLUSION

Fighter pilots enjoy the challenge of fighter aviation. Those challenges include attaining and maintaining the ability to operate at a high level of cognitive capacity and efficiency under adverse and dynamic physical conditions. The information processing demands on a fighter pilot have a direct impact on the pilot’s performance, and the man-machine weapon system’s ability to accomplish the mission. A huge amount of information must be correctly sensed, perceived, considered, and applied by the pilot continuously throughout a mission. The pilot must be sufficiently trained to complete his required mission and aircraft-control tasks while countering the potential performance degrading effects of stress. Advances in equipment and displays may simplify and streamline the presentation of information to pilots, but they will always be responsible for the use of that information in flight. The fighter pilot must strive to have the biggest, most efficient cognitive bucket possible, and the training to minimize the attention resource robbing effects of stress. ■

Lieutenant-Colonel Brian “Mur” Murray has completed operational tours on the CH136 Kiowa and CF18 Hornet, accumulating over 4000 hours of helicopter and fighter flying time since joining the Canadian Forces in 1985. His career highlights include deploying to Italy in 1999 for Operation ALLIED FORCE, and acting as officer in charge of the Fighter Weapons Instructor Course in 2000 and 2001, deputy commanding officer of 410 Tactical Fighter (Operation Training) Squadron in 2002 and 4 Wing Cold Lake Standards Officer in 2003. In 2009, after completing a tour as the Analysis and Lessons Learned Branch Head in the Canadian Forces Aerospace Warfare Centre, Lieutenant-Colonel Murray became the Canadian Forces Liaison Officer to the Royal Australian Air Force Air Power Development Centre in Canberra, Australia.



Image courtesy of the US Government and www.jsf.mil

List of Abbreviations

| | | | |
|-------------|-------------------------------------|---------------|--|
| JSF | joint strike fighter | SET | Stress Exposure Training |
| OODA | observe, orient, decide, act | TADMUS | Tactical Decision Making Under Stress |
| RPD | recognition-primed decision | US | United States |
| SA | situation awareness | | |

Notes

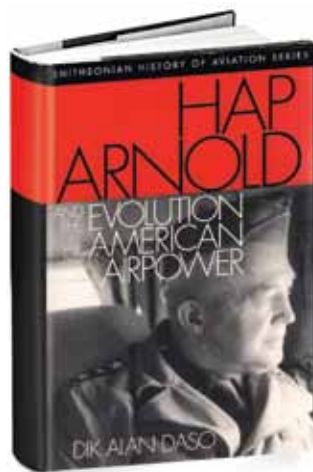
1. M. R. Endsley, "A Survey of Situation Awareness Requirements in Air-to-Air Combat Fighters," *The International Journal of Aviation Psychology* 3 (Lawrence Erlbaum Associates, Inc., 1993), 115, 168.
2. The F-35 Lightning II, <http://www.jsf.mil/index.htm> (accessed June 22, 2010).
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7. Ibid.
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9. Ibid., 19.
10. J. A. Cannon-Bowers and E. Salas, eds., *Making Decisions Under Stress: Implications for Individual and Team Training* (Washington, DC: American Psychological Association, 1998), 205.
11. Ibid., 206.
12. C. D. Wickens, "Processing Resources in Attention" in *Varieties of Attention*, eds. R. Parasuraman and D. R. Davies (New York: Academic Press, 1984), 63–102, <http://en.wikipedia.org/wiki/Workload> (accessed June 22, 2010).
13. Ibid.
14. Cannon-Bowers and Salas, 19.
15. Ibid., 192.
16. Ibid., 203.
17. Ibid., 194.
18. Ibid., 212.
19. Ibid., 208.

BOOK REVIEWS

HAP ARNOLD AND THE EVOLUTION OF AMERICAN AIRPOWER

BY DIK ALAN DASO

WASHINGTON:
SMITHSONIAN INSTITUTE PRESS, 2001
314 PAGES ISBN 1-56098-949-1



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

This book, part of the Smithsonian History of Aviation Series, is a past winner of the American Institute of Aeronautics and Astronautics History Manuscript Award.

The author is a serving United States Air Force (USAF) pilot and the author of at least one other book on General Arnold. This book covers Arnold's career and puts great emphasis on the close relationship he had with the US scientific and industrial communities. As a diehard "artsman" I thought that this might put me off. Not a bit of it. The author's highly engaging style and strong use of archival material combined with secondary sources made this a highly worthwhile read, not only from the historical perspective, but also from the point of view of current discussions within the Canadian Forces (CF) involving distinctions between "Force Generators" and "Force Employers."

General Henry "Hap" Arnold (the only USAF officer ever to wear five stars) is best known as the Commanding General United States Army Air Force (USAAF) in the Second World War (WWII). One of the earliest pilots in the US military service, having learned to

fly from the Wright Brothers, he was denied the opportunity to serve in combat in the First World War (WWI), arriving in France only shortly before the Armistice. Indeed, by 1938, when he took command of the USAAF, he had not yet heard a shot fired in anger. His Great War years were spent largely in Washington, fighting the good fight, as it were, to ensure the survival and growth of the embryonic US Army Air Corps. In the post-war years, moving between command and staff appointments, he became a strong proponent of the offensive and strategic use of airpower. At one point this had career implications, as he became associated with airpower advocate Brigadier-General "Billy" Mitchell, who was eventually forced to leave the service, having criticized the administration once too often.

The author contends that what set Arnold apart from other leaders was his extensive experience and his realization of the importance of technology to the development of the Air Force, which he ultimately wished to see become its own service. This was a dream not fully realized until 1947, after Arnold had retired, though he had certainly set the conditions for this seminal event. During WWII, he was

admitted as a member of the US Joint Chiefs of Staff, and though technically subordinate to Army Chief of Staff General George Marshall, was permitted an independent voice in this exclusive group which set American strategic policy.

Arnold's links with the scientific community began as early as 1913, and continued throughout his career. Realizing that their cooperation was crucial to the development of military aviation, by the onset of WWI, he was personally acquainted with many of the leading aircraft designers in the United States. His potential was also recognized by his military superiors, and by 1917 he was promoted to colonel, at 31, the youngest holder of that rank in the US Army. With the Armistice, he, like many, reverted in rank, but nonetheless remained a key figure in the development of the US military aviation. In the lead-up to WWII, testifying before a US Government Commission, he was asked, "Could you straighten out the Air Corps if you were given the opportunity?" Arnold replied that he could, and the rest is history.

General Arnold's role in the USAAF in WWII was a combination of the functions that today would be called force generator and force employer. In one case he took the latter role to an extreme, taking personal command of the XXth Air Force (the B-29 bombers in the Pacific), in recognition that this was a truly strategic weapon. In doing so, he earned the ire of the US Navy and others who desired more of a say in how these assets were to be employed. I found interesting parallels with current discussions within the CF over the supposed separate roles for force generators and force employers, and how this might inform future CF transformation decisions.

Further, this book serves as a useful study in the exercise of command at the highest levels, and the personal cost it can bring: certainly Arnold could be a stern taskmaster, and he suffered several heart attacks during the war, possibly caused by stress. In addition, his

relationship with his wife came under increasing strain. That said, he was loyal to those he trusted, such as General Spaatz, who commanded the USAAF in Europe.

Finally, it can definitely be said that Arnold was a visionary. Even before the war's end, he gathered a team to examine what the post-war air force would look like. His thoughts on what we would call today (and which he expressed in 1937) "the vision thing," are worth quoting in full:

Remember that the seed comes first; if you are going to reap a harvest of aeronautical development, you must plant the seed called *experimental research*. Install aeronautical branches in your universities; encourage your young men to take up aeronautical engineering. It is a new field but it is likely to prove a very productive one indeed. Spend all the funds you can possibly make available on experimentation and research. Next do not visualize aviation merely as a collection of airplanes. It is broad and far reaching. It combines manufacture, schools, transportation, airdrome, building and management, air munitions and armaments, metallurgy, mills, mines, finance and banking, and finally public security-national defense.¹

Overall, I found this book to be a very well-written study of a key figure (perhaps *the key*) in the development of the modern USAF. Only rarely does the author digress into technical descriptions (such as narratives of almost critical stalls from which Arnold luckily survived), and I would have welcomed the author's assessment of Arnold's role in the initiation of the US Strategic Bombing Survey (USSBS) in which he relied heavily on civilians and scientists. These are small oversights in what is otherwise an excellent account for readers, particularly those at service chief level, or those engaged in transformation activities, or those to whom the question might be put someday, "Could you straighten out organization xx if you were given the opportunity?" ■

Colonel Peter J. Williams, an artillery officer, is Director Plans Western Hemisphere on the Strategic Joint Staff.

List of Abbreviations

| | | | |
|-------|------------------------------|-------|--|
| CF | Canadian Forces | USSBS | United States Strategic Bombing Survey |
| US | United States | WWI | First World War |
| USAAF | United States Army Air Force | WWII | Second World War |
| USAF | United States Air Force | | |

Notes

1. Dik Alan Daso, *Hap Arnold and the Evolution of American Airpower* (Washington: Smithsonian Institution Press, 2001), 146.



WHIRLWIND: THE AIR WAR AGAINST JAPAN 1942-1945

BY BARRETT TILLMAN

NEW YORK:
SIMON & SCHUSTER, 2010
316 PAGES ISBN 978-1-4165-8440-7

Review by Major William March, CD, MA

From time to time, I recommend books to be purchased for our library. Often the books I pick are based on recommendations from various sources, but sometimes I choose a title based on the subject, especially if it is a topic in which I am interested. Most of the time I am satisfied with my selections; however, every once in a while I make a poor choice (an Oops!) and end up wishing I could withdraw my original purchase recommendation. *Whirlwind: The Air War Against Japan 1942-1945* is a book that I should never have asked our staff to acquire.

Using a chronological approach, the author starts off by re-capping the 1942

Doolittle Raid against Japan to underline the geographical, technological, and logistical difficulties associated with attacking the Japanese home islands during the opening months of the Pacific war. He then brings the reader back to the basics by examining the theory, application, and morality of bombing campaigns before embarking on a “whirlwind” tour of the evolving campaigns on land and sea. The penultimate chapter of the book deals with the destruction of Hiroshima and Nagasaki via atomic bombs in August 1945. Tillman concludes with a chapter entitled “Legacy” that brings closure to some of the major themes examined throughout his work.

I wanted to like this book. It purported to cover the air war against Japan, an area of study in which I am very interested, and, in my opinion, is a subject that warrants as much attention as the aviation campaigns in Europe during the Second World War. According to the inside of the dust jacket, this book would “tell the complete, awe-inspiring story of the Allied air war against Japan—the most important strategic bombing campaign in history.”¹ Book-selling hyperbole aside, the author did not come anywhere near this ambitious goal. Instead, the book provides only the barest of overviews, with limited analysis, minimal context in terms of policy/politics, and almost no examinational depth in any of the chapters. This is especially true, although not unexpectedly so, when the author dealt with allies of the United States, and, to a lesser degree, with the forces of Imperial Japan.

Two other aspects of the book that I found disconcerting were the lack of a bibliography (although it could be argued that the necessary information is located in the endnotes) and a rather unique way of citing reference material. Normally, to indicate a quotation or to indicate an idea/theme from an outside source, a system of footnotes or endnotes is used. This normally means that a superscript number is inserted on or near the text to be cited and at the bottom of the page/end of the chapter or book, and a corresponding number brings the reader to the necessary citation. Tillman chose a different method. There is no indication in the text of the book that there are any citations within the book at all. Instead, all of his citations are endnotes where he identifies the citation by page number and the first few words of the quotation or idea/theme that he wishes to acknowledge came from an outside source.

I found this terribly confusing, and, lest I be unaware of a new, modern convention for dealing with citations, I queried our professional editors, and they were as surprised as I was with this approach.

Whirlwind has some good features as well. I did appreciate the author’s examination of the efforts it took to construct the various airfields in China and on the islands acquired via the costly, island-hopping campaign. It was also interesting to get a perspective from the “other side” in coping with the Allied aerial onslaught (for me this was the high point of the book). As an aside, there is even a Canadian element to this book in Lieutenant Robert Hampton Gray, a Royal Canadian Navy Volunteer Reserve pilot flying off HMS *Formidable*, and the action for which he won the Victoria Cross.²

Although *Whirlwind* was an easy read, I found it to be much like a river that is a mile wide and only an inch deep. It looks formidable when you begin to wade into it, yet leaves you with a sense of “is that all there is?” when you reach the other side. ■

Major William March, an Air Combat Systems Officer (ACSO), is the Academic Liaison Officer at the Canadian Forces Aerospace Warfare Centre. He has taught Canadian defence and air power history at the undergraduate level and is currently pursuing his doctorate in War Studies at the Royal Military College.

Notes

1. Author unknown, *Whirlwind: The Air War Against Japan 1942–1945* (New York: Simon & Schuster, 2010), inside dust jacket.

2. Ibid., 221–22.

The following is a reprint of an item originally printed as an *AFIILE Newsletter*. As such, it has been reprinted in its entirety with no additional editing.



AFIILE Newsletter

AIRFORCE INTEGRATED INFORMATION AND LEARNING ENVIRONMENT

Volume 1 / Issue 1 – May 2010

AFIILE Baseline Implementation

It has been a very busy last 18 months for the AFIILE team. Having just completed Phase 1 of the Project and about to embark on Phase 2 activities, it is worthwhile to reflect on what we have collectively achieved and where we can make adjustments for improvement.

During past the 18 months, the AFIILE team was successful in testing, installing, initially configuring, and obtaining deployment and operating approvals for the AFIILE suite of 4 software applications on the Defence Wide Area Network. These applications are intended to support a comprehensive set of requirements for Training Establishments and other Force Generation initiatives within the [Air Force] AF.

The AFIILE solution was deployed to 4 Lead Units, (403 and 404 [Squadrons] Sqns, [Aerospace and Telecommunications Engineering Support Squadron] ATESS and [Canadian Forces School of Aerospace Technology and Engineering] CFSATE) where Initial Cadre Training (ICT) and Mentoring were conducted on-site. Help Desk Services were initiated and progressively established.

In support of the initial implementation, the AFIILE [project management office] PMO, in conjunction with AF [technical training] Tech Trg, directed key change management and business transformation initiatives, including the development of an AFIILE Operating and Governance Model, Communication Packages, as well as a set of tools to assist AFIILE Lead Units in the production of local implementation plans to facilitate the realization of “quick wins” in the area of distance and/or electronic learning via AFIILE.

The AFIILE PMO, in conjunction with [Director Air Programmes] D Air Prog 7, also exercised AFIILE Option 2, a Content Generation contracting vehicle providing access to a vast selection of professional services. Four projects were supported through AFIILE Option 2 during the Baseline period and they are discussed in more details in the Content Generation Section of this newsletter.

Finally, AFIILE was successful in securing Departmental Approval and Ministerial Expenditure Authority for Phase 2 of the Project. This signifies that the project has the support, sponsorship and financing required to succeed in the establishment of Full Operating Capabilities planned for Phase 2 of the project.

We acknowledge that much remains to be done (see Lessons Learned and Phase 2 Sections). As a project team we are committed to a continuous and on-going cycle of engagement and improvement of the AFIILE application suite and its associated operating processes. We will begin by addressing the feedback we have heard from our Phase 1 Lead Units.

AFIILE - DLN Connection

As many are aware, there exists a close AFIILE - [Defence Learning Network] DLN linkage and interdependency. AFIILE has always been scoped to adopt the DLN delivered Learning Management Platform (LMP) and to migrate significant amounts of data and business process to that platform during Phase 3. Of note, based upon the AFIILE Phase 1 deployment successes, and consistent with Departmental [information management] IM Rationalization policies, the DLN project, with their project leadership endorsement, now plans to leverage as much of the AFIILE solution as is feasible and consistent with their project requirements (principally building on AFIILE software licensing, but also considering AFIILE training, configurations and operating processes). This is very good news and has significant potential to minimize AFIILE risks, expedite implementation of the DLN Project, and provide significant time and cost savings to DND and the Canadian Forces.

Courseware Development and Content Generation

The PMO, in conjunction with D Air Prog 7, supported the initiation of four separate tasks on AFIILE Option 2, the Content Generation and Conversion Procurement Vehicle, to develop courseware for AFIILE:

Task 1 – Tactical Aviation First Officer (TAFO) and Flight Engineer Course (FEC)

Distance Learning Courseware. This task provided specialized professional services such as Instructional Systems Designers, Instructional Developers and Media Artists. The services were deployed as part of an integrated project team lead by 1 Wing [Headquarters] HQ / 403 Sqn. The TAFO/FEC was very successful in producing a very high volume of quality courseware to be used immediately in support of a [Commander] Comd 1 Wing directed increased throughput at 403 Sqn. In addition, Task 1 delivered a report on in-house courseware development Lessons Learned.

Task 2 – Inventory and Importation of existing CF Learning Object Repository (LOR)

into AFIILE. Using the 10 [Flight Technical Training Squadron] FTTs LOR as a source of representative content, this task produced a set of decision tools and detailed process maps to be used by [training establishments] TEs that want to import large quantities of legacy content into the AFIILE [learning content management system] LCMS. This task produced a comprehensive set of decision flowcharts and instruction on how to import Word, [PowerPoint] PPT, [Shareable Content Object Reference Model] SCORM, media assets as well as other [Extensible Mark-up Language] XML type content that can be re-use or re-purposed inside AFIILE.

The output of this task provides consolidated knowledge on how to realize one of the main goals of AFIILE: bring all relevant AF e-Learning content into one shared space in an organized, discoverable state.

Task 3 – Electronic Performance Support System for Dash – 8 Engine Change. In response to a need from 402 Sqn, the AF Technician Performance Solution team produced a sophisticated Job – Aid aimed at substantially reducing the time it normally takes technicians to perform an engine change. This task produced a comprehensive set of procedures to be followed on-the-job by trained technicians. The procedures are enhanced with detailed 2D visual elements as well as 3D interactive models that provide demonstration, guided practice, and evaluation modes for technicians to virtually rehearse the tasks prior to execution on the aircraft.

Task 4 – Maintenance Manager Course. In this Task, the AF Technician Performance Solution team was able, in contrast to traditional page-turning type courseware, to design and develop immersive, virtual world-like training to communicate knowledge and develop the skills of the learner on content that is usually dry and lacklustre. This scenario-based training takes the learner through a series of real-life challenges and re-enforces sound problem solving and decision making strategies in the context of actual job performance. The produced courseware provides a new design framework and a paradigm shift in the way that we can envision e-learning in the AF.

What Is Happening Next?

AFIILE is currently in the planning stage of the AFIILE Extension. This 2nd Phase of the Project will:

- Consolidate the current AFIILE platform and services, and implement improvements based on Phase 1 Lessons Learned (LL)
- Make the AFIILE available to an additional 18 Units, including Major Crown Projects such as ACP-T, MHLH, and OTSP – Roll Out to commence in Fall 2010;
- Develop the Training Documentation Management capability of AFIILE;
- Enable access to AFIILE from the Internet; and
- Prepare the transition to the Enterprise Learning Management Platform (DLN) with a focus on interfaces with other ERPs and a Protected B solution

Lesson Learned (LL)

The AFIILE Phase 1 (Baseline) was purposefully designed to be a pilot phase, dedicated to a limited roll-out to a small number of representative units. The goal was to deploy a core capability to a limited number of users, assess the effectiveness of the toolset and approach prior to the full deployment of all AFIILE components and services to the entire AF IT & E community. Although we achieved some successes (highlighted above), there were a significant number of areas where the approach, level of resources and actual implementation of technologies and services fell short of the expectations and needs of the user community. The Integrated Project Team acknowledges that reality and has solid plans, currently underway, to address these important issues. Of note, we will focus on 3 important LL in this issue of the Newsletter.

Initial Cadre Training. The approach used during the Baseline Phase was predicated on traditional instructor-led, face-to-face instruction. Groups of students were presented with mostly procedures-based instruction on software centric tasks in a training environment not always configured like the production AFIILE. This approach was adopted due stringent schedule requirements and limited development resources. In the Follow-on Cadre Training (FCT) during Phase 2, we intend to use the AFIILE as the core delivery platform to train our users. Students will be able to register for self-paced, performance-based modular instruction through the AFIILE [learning management system] LMS and develop proficiency on scenario based instruction related to roles. They will also be able to track their progress

through the AFIILE LMS. Students will be supported at a distance, in real-time with the AFIILE virtual classroom Saba Centra software.

In addition to being more effective and efficient, this approach will go a long way in illustrating the full capability of the AFIILE to new users.

Software Configuration and Enhancements. Based upon user feedback, we conducted 2 workshops that focused on confirming and prioritizing functional and usability issues with the [resource management and scheduling] RMS and LMS components of AFIILE. In both cases, detailed action plans have been set in motion to address the issues through incremental releases of the AFIILE applications. Revisiting training and help files, configuration changes, and/or software enhancements are being implemented.

Help desk. In the first few months of operation, the AFIILE help desk services suffered from multi-tasked, non-dedicated resources with, in some cases, limited knowledge of the software platform. Help desk staff also operated without clear direction on client management and overall ticket resolution. This resulted in limited effectiveness and end user frustration. The AFIILE PMO and [CAE professional services] CAE PS have subsequently implemented energetic interventions to improve help desk services. Dedicated staffs have been identified and knowledge transfer sessions from Software vendor to help desk staff have been implemented on an ongoing basis. Clear customer / end user management practices are being implemented to ensure tickets are resolved and the initiator is kept abreast of steps being undertaken.

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Contact Info / Questions?

If you have any questions, comments, or articles you would like to see, please send us an e-mail to Maj. Forest, AFIILE

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