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The Canadian Armed Forces 431 Squadron Snowbirds air demonstration team, flying one of their signature Concorde formations over the Strait of Georgia. Demonstrating a high level of professionalism, teamwork, excellence, discipline and dedication, this year has marked the Squadron's 50th season.
DND photo CX2010-0144-10 by Sergeant Robert Bottrill

Listening to the Chief of the Defence Staff: The 'Blurred' Boundaries of Military and Defence Advice

Barriers to Women in the Canadian Armed Forces

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How to Contact Us

Canadian Military Journal
PO Box 17000, Station Forces
Kingston, Ontario
CANADA, K7K 7B4
E-mail: cmj.rmc@forces.gc.ca

The Big Four and Cyber Espionage: How China, Russia, Iran and North Korea Spy Online

Swarming, Expendable, Unmanned Aerial Air Vehicles as a Warfighting Capability

"Our Main Duty in Berlin Having Been Fulfilled": The Canadian Berlin Battalion on Parade in the Fallen Capital, 21 July 1945

NOTE TO READERS

As a bilingual journal, readers should take note that where citations are translated from their original language, the abbreviation [TOQ] at the end of the note, which stands for "translation of original quote", indicates to the readers that the original citation can be found in the published version of the Journal in the other official language.

EDITOR'S CORNER

Welcome to the Autumn 2020 edition of the *Canadian Military Journal*, and to paraphrase the immortal words of Elton John, (and dating myself), "We're still standin'," and still 'up, and running and undaunted' in a continuation of this time of some very significant and unique global challenges.

Leading with some happy news, the Royal Canadian Air Force's 431 Air Demonstration Squadron Snowbirds are back in the air after being grounded for three months following the tragic crash at Kamloops, British Columbia in May. The CT-114 *Tutor* jets will now be flown back to their home base at Moose Jaw Saskatchewan, and while there will be no more team displays for the rest of the calendar year, the plan is for them to return in force for the 2021 season, albeit with some minimum height and airspeed restrictions to their airshow profiles designed to provide more reaction time in the event of an in-flight emergency.

Yet another eclectic issue this time out, led by a distinguished retired senior officer who has mentored our most senior commanders, and is an acknowledged expert in strategic command and civil-military relations, Major-General Daniel Gosselin. Daniel breaks new ground here with a very evocative analysis of the role and responsibilities of the Chief of the Defence Staff and the Deputy Minister of National Defence with respect to civil-military relations in providing military and defence advice to the government of the day. Next, a previous contributor, James Pierotti, takes a critical look at the status of women in the Canadian military, including historical barriers/ limitations to employment, and the barriers that remain today. He is followed by intelligence officer Patrick Diotte, who contends that malicious cyber activity has permeated through all levels of society, but very specifically against the West, from China, Russia, Iran and North Korea. Patrick, in turn, is followed by a familiar Australian submitter, Gary Martinic, who provides an interesting technological analysis of the utility of *swarming* expendable Unmanned Aerial Vehicles (UAVs) on today's battlefield. Finally, in our historical section, another former contributor to the *Canadian Military Journal* Steven Bright offers a very interesting and little-known chronicling of an aspect of Canadian military participation during the Second World War, namely, a victory parade in the German capital, Berlin, held during the summer of 1945.

Two opinion pieces this time out, starting with a reaffirmation of support for Canada's most recent Defence Policy, *Strong, Secure, and Engaged*. Then, a compelling argument for the preservation of Canada's armouries, making the point that the higher-authority stance on the issue is at odds with reservists, who believe that the fate of their armouries is challenged, because it assumes that the Regular Force "…can speak to the Reserve's organizational culture and its symbiotic connection to the armoury." On a different theme this time out, our own resident Defence Commentator, Professor Martin Shadwick, tables an interesting comparison between the recently-released defence policy for the Australian Armed Forces and Canada's *Strong, Secure, and Engaged*.

Finally, we close with a book review essay dealing with a trio of historical studies, and a sole book review relevant from a historical perspective to what is happening in our COVID-19 world.

Until the next time.

David L. Bashow
Editor-in-Chief
Canadian Military Journal

DND photo by Corporal David Veldman

The Northern Lights shimmer above HMCS *Glace Bay* during Operation *Nanook 2020* on August 18, 2020.

The Canadian Press/Sean Kilpatrick

Prime Minister Justin Trudeau, left to right, Minister of National Defence Harjit S. Sajjaan, Chief of Defence Staff (CDS) General Jonathan Vance, and Deputy Minister of National Defence Jody Thomas hold a press conference at the National Press Theatre in Ottawa, Wednesday, 8 January 2020.

Listening to the Chief of the Defence Staff: The 'Blurred' Boundaries of Military and Defence Advice[1]

by Daniel Gosselin

Major-General (Ret'd) Daniel Gosselin, CMM, CD, *holds graduate degrees in engineering, public administration, and war studies. He served with General Hillier's Transformation Team, as Director General International Security Policy in the ADM (Policy) Group at NDHQ, as senior strategic advisor to two Chiefs of the Defence Staff, and as the Team Leader of the CDS Initiatives Group between 2015 and 2017. He was a senior mentor on the National Security Programme for several years, and he teaches strategic command and civil-military relations at the Canadian Forces College.*

Introduction[2]

A few weeks after taking over as Chief of the Defence Staff (CDS) in July 2015, General Jonathan Vance was asked during his first public roundtable in Ottawa what kind of advice he would give the government on Canada's defence policy. A federal election had just been called, and rumours of a change of government were already in the air. In his characteristic style, the answer was direct and crystal clear: "When I will give military advice to the government, it will be in confidence, and not in a public forum like today." The simplicity of this statement reflected in many ways the importance he was placing on his responsibilities as the senior military advisor to the Canadian government. Moreover, Vance would not be an activist CDS, and his military advice would be offered in confidence to ministers, Cabinet and the prime minister.[3]

In statutory law, customs and traditions, the CDS occupies a unique position of expertise and authority in the structure of the Canadian government, and as a result, he is an important national actor shaping and influencing the making of defence and security policies through this professional military advice. The role of military advice is of crucial importance in Canada, both for the long-term institutional repercussions for the Canadian Armed Forces (CAF) and for the use of the military, either as one of the dimensions of Canada's foreign policy, or as a force of last resort in Canada. Military advice is unique, not only

APFootage/Alamy Stock Photo M6D26G

US Marine Corps General Joe Dunford, centre right, Chairman of the Joint Chiefs of Staff, poses for a photo with Ms. Jody Thomas, Canadian Deputy Minister of National Defence, Harjit S. Sajjan, Minister of National Defence, and General Jonathan Vance, Chief of Defence Staff, prior to discussions in the Canadian Parliament buildings, Ottawa, 28 February 2018.

because of the weight that is attached to the expert judgement of the CDS, but chiefly because of the potential consequences of any government decision that the military is ordered to implement, particularly military operations. Today's uncertain and volatile post-9/11 environment and the complex nature of military operations make the government more reliant than ever upon the professional military expertise of the CDS for defence and security policy making. What constitutes military advice, how this advice is formulated by the CDS, and how it is handled inside the machinery of government and listened to by politicians is at the core of civil-military relations in Canada.

"Remarkably, there is no current academic or professional literature explaining the role of the CDS in providing military advice to government."

The *National Defence Act* (NDA) is silent on the role of the CDS in providing military advice to the government. There is also no mention of this responsibility in the Queen's Regulations & Orders, the regulations governing the CAF issued by the Minister of National Defence (MND). The NDA stipulates that the CDS has direct responsibility for the command, control and administration of the CAF.[4] The responsibility to provide military advice to the government falls to the CDS as a result of being a commissioned officer appointed by the Governor-in-Council (on the advice of the prime minister) to the senior military position in Canada. This responsibility is granted under the authority of the Crown.[5] In keeping with those responsibilities, the CDS advises the MND and Cabinet, and the Prime Minister directly when matters warrant it.

Remarkably, there is no current academic or professional literature in Canada explaining the role of the CDS in providing military advice to government. Even the CAF doctrine is silent on this topic.[6] Unlike in the United States, where the literature is abundant and rich, the gap on this subject reflects the scarcity of studies and analyses on uniquely Canadian civil-military relations. The few studies of Canadian national defence and military affairs have overlooked this important dimension. Presented in two consecutive parts, this article therefore offers a discussion and analysis of the provision of professional military advice by

the CDS in Canada. It aims to explain what constitutes military advice and to outline how this advice is formulated, processed and tested to reach the MND, Cabinet and the Prime Minister.

This first part examines the *evolution of the spheres of responsibilities* for the CDS and the Deputy Minister (DM) of National Defence, starting from the creation of the position of CDS in 1964. It is only through an understanding of the responsibilities and accountabilities of the CDS and the DM that one can fully grasp their respective spheres of advice to government. As this first part demonstrates, the spheres of advice of the CDS and DM have been shaped over the years by significant events, by evolving ideas about how Canadian defence should be organized, governed and managed, and by changing priorities of the government. Because the advisory roles of the CDS and the DM in the National Defence diarchy have never been delineated in statutes, what constitutes *military* advice (provided by the CDS) and *defence* advice (provided by the DM) has varied over the years, contributing to institutional ambiguity, frustration and friction, particularly at the highest levels of National Defence Headquarters (NDHQ). This first part concludes with a clarification of what is military, defence and policy advice to government.

The second part of the article examines the *politics* of military advice in Canada. It describes the manner by which the CDS and his senior officers formulate and provide military advice and explores, as senior military officers learn to navigate the complex world of government politics, the many challenges that can arise in the dialogue and interactions between the military professional experts and the political echelon.[7] The concluding segment of the article offers suggestions for senior military officers to adopt when engaging at the political-bureaucratic-military nexus to ensure that the military advice of the CDS is indeed considered.

This study draws from a combination of experience, scholarship and interviews. Because the professional and academic scholarship regarding the role of the CDS and on military advice in Canada is very limited, it would have been difficult if not irresponsible to attempt this analysis without interviewing officials who have and are involved in providing military and defence advice to government. To strengthen the research for this article, I have conducted a series of interviews with past and current ministers and deputy ministers of National Defence, Chiefs of Defence, and other senior officers and officials in government. For many of those officials, confidentiality was the price for their frankness, and I have therefore agreed not to acknowledge a military or civilian official without their consent.

A review of the evolution responsibilities, authorities and accountabilities of the CDS and DM can inevitably lead to a discussion with respect to the organization, structure and governance of NDHQ, including the role of the position of the Vice-Chief of the Defence Staff (VCDS).[8] A comprehensive analysis of the evolution of NDHQ is clearly beyond the scope of this article. That being said, because CDSs and DMs have continually sought to adapt NDHQ to make it more responsive to their responsibilities and accountabilities, some key aspects of NDHQ governance are necessarily discussed.

The CDS and Military Advice: A Roller Coaster Ride

The two domains of military advice and defence advice, provided respectively by the CDS and the DM, are tied to their responsibilities, accountabilities and professional expertise. This first section reviews this untidy evolution since the early-1960s, mainly through key inflection points that have been decisive in shaping it.

A brief note on personalities is necessary before embarking on this review. In a CDS-DM diarchy saddled with much ambiguity, the occasional confusion and even conflict, but mainly cooperation and compromise, it is obvious that how each CDS and DM understood their role and mandate in this diarchy, and how each delineated their own respective sphere of military and defence advice influenced considerably their interests, priorities, actions and decisions. Personalities do matter. However, in analyzing the evolution of the responsibilities of the CDS and the DM over the

DND photo CFC66-11-3

The Honourable Paul Hellyer, Canada's Minister of National Defence, 1963-1967.

years, I have identified the major turning points based on the documentary evidence available, leaving aside, for the most part, the unique personalities of the individuals who were in those positions at the time.

To fully understand the role of the CDS in providing military advice to government, it is necessary to go back to 1964 when the Liberal government of Lester B. Pearson replaced the positions of the Chairman of the Chiefs of Staff Committee (COSC), and chiefs of the naval staff, general staff, and air staff by a single new position designated as the Chief of the Defence Staff (CDS). As the government's professional military advisors, the Committee was collectively responsible for advising "…on matters of defence policy, strategic appreciations, estimates of the risks of war, and other inter-service plans and proposals."[9]

DND photo RE66-1426

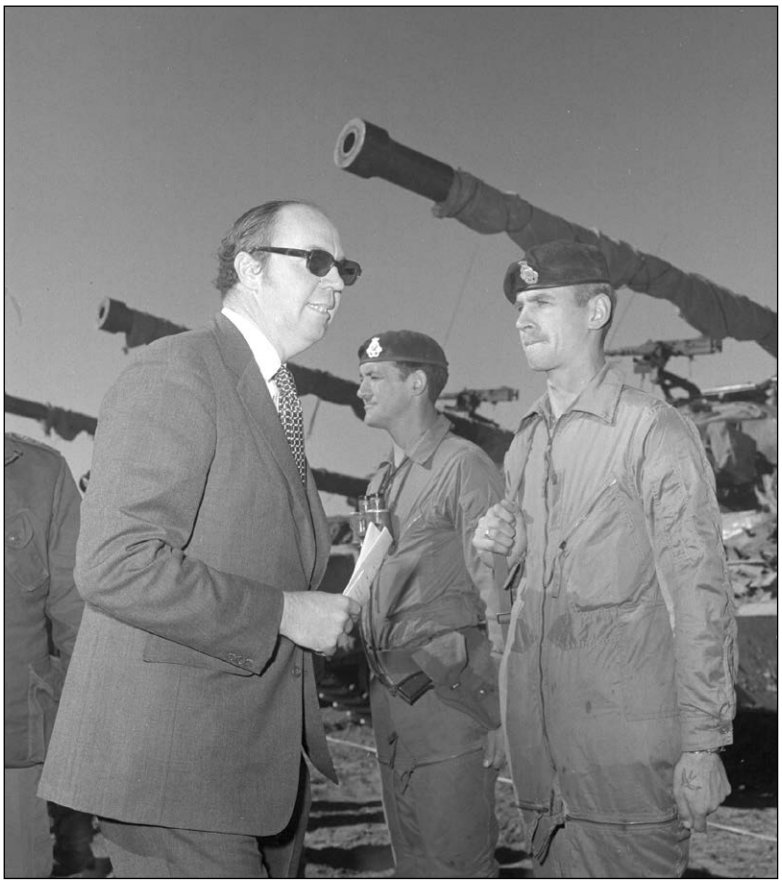
Canada's first Chief of Defence Staff (CDS) after unification, Air Chief Marshal Frank Miller, who served as CDS from 1964 to 1966.

With the creation of the position of CDS in 1964 – and later unification of the three services into the CAF in 1968, MND Paul Hellyer did not seek to limit the scope of military advice provided by his senior officers, but he wanted to have a military establishment that would cease to continually resolve problems, provide advice and develop policies from a single service perspective. The COSC provided a collective forum of experts to discuss issues, before the Chairman would provide the Committee's advice to the Minister and Cabinet. Hellyer knew well that expert military advice "...tied to individuals, such as service chiefs who have independent institutional interests," would always be posing a threat to the unified national strategy and structure that he wanted to create.[10] Outlining the new defence organization in the House of Commons, he stated that by adopting "...the complete integration of the forces at the top of the command structure," the advice coming to the minister would now be "streamlined."[11] Hellyer reasoned that a single unified command structure, supported by a more robust integrated joint staff in a Canadian Forces Headquarters (CFHQ) to control all aspects of planning and operations, would look at issues from a national perspective and formulate unified national solutions to Canadian defence problems.[12]

"During the parliamentary investigations of Bill C-90 to amend the NDA and create the position of CDS, three main concerns were raised by those who objected to the idea."

During the parliamentary investigations of Bill C-90 to amend the NDA and create the position of CDS, three main concerns were raised by those who objected to the idea. First was the question that the MND would now have to rely upon the expertise of a single military advisor. A CDS could simply not acquire sufficient skills, knowledge and expertise to advise with competence on operational and military technical matters outside of his own service expertise, argued some witnesses to the Defence Committee. This aspect also raised the concern of potential favouritism of incumbent CDSs towards their own services when providing advice to the government. Finally, one influential defence critic feared that the Chief would become a "Supremo," more powerful than any previous military officer in Canada, even to the point of overpowering the Minister.[13] Hellyer summarily dismissed all those fears. His solution to the concerns raised was to create a reconstructed Defence Council to provide a forum for "military, bureaucratic and scientific advice" to the minister.[14]

Through the establishment of the position of the position of CDS, and the creation of CFHQ, which was replacing three separate service headquarters, Hellyer also wanted a strong civil staff group in the department to assist him with the control and management of the military.[15] A year earlier, the Royal Commission on Government Organization had recommended that the Deputy Minister be given greater responsibilities, including "…assisting and advising the Minister in the discharge of his responsibilities for the control and management of the Armed Forces." The Commission had downplayed military experience and expertise, arguing that civilians should be employed



DND photo IH71-152

MND Donald Macdonald meets the troops during Exercise *Mobile Warrior '71*.

DND photo ISC77-1192

Prime Minister Pierre Trudeau inspects officer cadets at the 25th anniversary of the Collège militaire royal (CMR) de Saint-Jean in 1977.

"...even in such fundamentally military staff functions as those dealing with plans and operations."[16] Echoing the recommendations of the Commission, Hellyer considered this civilian group, outside the military chain of command and led by the DM, as essential "...for analyzing and reviewing military requirements and the use of resources made available for defence … and capable of reviewing and advising on defence estimates and programs."[17] A strong Deputy Minister group was central to enable the Minister to challenge the military, particularly in broader defence areas outside of unique professional military expertise.

On 15 August 1964, the changes to the NDA took effect, with the new CDS, Air Chief Marshal Frank Miller, charged with the "control and administration" of the CAF. The NDA did not define those two terms, and there was no specific mention made of the advisory responsibilities of the CDS or the DM, a situation that remains to this day.

By December 1967, when Hellyer left the defence portfolio, little had changed in the role of the DM to provide advice to the Minister. Confronted with a crisis of civil-military relations with his generals and admirals over much of his tenure because of his initiative to unify the three services, Hellyer had quickly backed away from his commitment to give the DM greater responsibility on defence issues, thus limiting the senior civilian in the Department of National Defence (DND) to provide advice on resources, manpower, material, financial and audit matters arising from his legal responsibilities.[18] The military sphere of advice that was within the purview of the CDS therefore remained quite broad, and included advice with respect to defence and military policies, intelligence and strategic assessments, operations and plans, procurement, and military organization and personnel.

The situation changed dramatically in 1972 when the independent Management Review Group (MRG), mandated by Minister Donald Macdonald, identified serious defence management problems that demanded action, including greater civil servant involvement in the administration and management of DND.[19] The government's solution was to create NDHQ, merging CFHQ with the Department headquarters, and to change the alignment of responsibilities between civilian and military officials. This radical step to strengthen the role of the DM and to shift important responsibilities away from the military was also driven by a need for the government and the Minister to exercise a more effective oversight, monitoring, and control of the military.

It is clear that in accepting many of the recommendations of the MRG, the government wanted the DM to become the senior defence advisor to the Minister on all Departmental affairs, including to "... be explicitly responsible for directing the development of Departmental policies and their recommendation

to the Minister, to ensure that departmental policies reflected the intent of the Government."[20] To meet these new responsibilities, two new Assistant Deputy Ministers (ADM) were created, ADM (Policy) and ADM (Materiel).

The new ADM (Policy) was intended to be a senior civilian public servant with "extensive experience in planning and coordination in the context of the activities of the Federal Government as a whole" and who would also be responsible to undertake strategic plans necessary for the formulation of defence policy. In its report, the MRG stressed that the nature of the threats to national security – the prime concern of defence policy, is changing rapidly, and therefore "...at the strategic level there is no such thing as a 'purely military' requirement."[21]

In essence, the CDS and the military were being criticized for presenting strategic analyses to the government that failed to provide alternative perspectives, policies and objectives beyond the traditional military factors. The Cold War and the threat of nuclear war were rapidly eroding the influence of the military in strategic planning and the national policy process. In 1969, when the government decided to re-order defence priorities and to withdraw forces from Europe, the military and the Department were barely consulted, and mainly regarding how to best implement the withdrawal.[22] Prime Minister Pierre Trudeau was not interested in the military and he did not really care for the Department's point of view or its line of reasoning. The government did not trust its military advisors, finding them either incompetent or merely outdated.[23] Minister Macdonald found military advice "...unhelpful, if not antagonistic," and directed the preparation of the 1971 White Paper without military advice.[24]

"The impact of these changes upon the spheres of responsibilities of the CDS and the DM for the provision of advice to the Minister and the government would be quite significant for the CAF and DND."

The decision to create NDHQ was clearly aimed at wrestling the development of defence policy away from the CDS, and at providing a focal point with the DM for liaising with other departments and the central management agencies of government. The creation of the Policy and Materiel groups, in addition to the strengthening of the Finance and Personnel groups, immediately realigned the responsibilities and accountabilities of civilian officials and military officers in Defence. In implementing many of the key recommendations of the MRG, the government wanted to make a distinction between pure military advice – mainly operational matters of the CAF – and other types of defence advice dealing with defence policy and management, including all its strategic planning, financial, materiel and procurement dimensions.

The impact of these changes upon the spheres of responsibilities of the CDS and the DM for the provision of advice to the Minister and the government would be quite significant for the CAF and DND. Dr. Douglas Bland, one of the few Canadian academics who contributed significantly over the years to an understanding of the public administration of Canadian defence policy, reasoned that instead of taking the opportunity to make the senior military officers more politically informed by intellectually broadening the military culture to develop the skills to engage and partner on national security and defence policy making, MND Macdonald opted to sideline the generals and admirals to improve defence management.[25] It would take an event such the terrorist attacks of 11 September 2001 in the United States three decades later, and the arrival of General Rick Hillier as CDS in 2005, to trigger a more fulsome re-examination of those domains of military, defence and policy advice.

Throughout the 1970s and 1980s, detractors of NDHQ complained that the changing role of civilians and military officers had led to a blurring of the responsibilities of civilian officials and military officers, as well as to increased civilianization and bureaucratization at defence.[26] They blamed not only senior public servants but also senior officers who acquiesced with the gradual process of civilianization of the armed forces.[27] The Task Force on Review of Unification of the Canadian Forces

DND photo IH80-57

Minister of National Defence Gilles Lamontagne inspects the Canadian Forces Stadacona Band at the CP-140 *Aurora* acceptance ceremony in 1980.

The Canadian Press/Tom Hanson

Chief of Defence Staff General John de Chastelain addresses the Canadian Airborne Regiment during their disbandment parade at CFB Petawawa, 5 March 1995.

in 1979-1980, and its subsequent review by the next government, concluded as well that "...there had been insufficient sea, land and air environment expertise available to senior decision makers" in Ottawa.[28] In short, as the Task Force reported, the headquarters was not responsive to operational matters and the Minister was thus deprived of environmental expert advice. The concerns that had been expressed in 1964 that the office of the CDS would not be able to represent fully the views of the entire armed forces seemed to be prescient.[29] To address the issue, MND Gilles Lamontagne directed in September 1980 that the three environmental commanders would become members of the Defence Council and the Defence Management Committee.[30]

The institutional ambiguity that arose with the integration of the civilian and military staff had heightened the conflict and friction between the two elements of the headquarters.[31] Admiral Robert Falls, CDS between 1977 and 1980, complained that this new NDHQ arrangement provided public servants with "…a degree of authority over military affairs without responsibility for military accountability or performance."[32] No doubt that the "…clouding of the lines of responsibilities and accountability" inside the defence headquarters, as another CDS characterized the dysfunctional dynamic at play, was affecting how the CDS and the DM viewed their respective roles as military and defence advisor to the government.[33]

It was not only senior military officers that were unsatisfied with how NDHQ was functioning.[34] In 1981, C.R. (Buzz) Nixon, who had been DM at DND for six years by then, expressed his frustration during a presentation to the CF Staff College aimed at explaining his role in the administration of defence policy. Having heard so much criticism of NDHQ during the unification studies of 1979-1980, Nixon presented a slide showing the division of responsibilities between the CDS and the DM, highlighting areas that he considered exclusive to the CDS (courts martial, promotions and discipline), and exclusive to the DM (alter ego of minister, financial, and government interface). But it is "…in those areas that are shown as mixed that the *ultimate* responsibility is not well understood," admitted Nixon. He concluded that "…the distinction between the Department and the Canadian Forces and between the Deputy Minister and the Chief of the Defence Staff was blurred" in 1972 with the creation of NDHQ. Nixon also acknowledged the uniqueness of the diarchal advisory positions of the CDS and the DM, stating that on questions of operations, the DM acts as the advisor to the CDS, and vice versa on Departmental matters.[35]

The end of the Cold War and the events of the 1990s, especially the investigations, inquiries and studies triggered by the Somalia Affair, reawakened the debate about the integrated NDHQ, and in particular, the respective roles of the CDS and DM in providing advice to the MND, Cabinet and the prime minister. As early as September 1994, while testifying to a Special Joint Committee of the Senate and House of Commons which was looking into a new defence policy, DM Robert Fowler had tabled a document titled "The Organization of Canadian Defence," which outlined in significant detail the responsibilities of the DM and

DND photo ISC93-10208

Robert Fowler (far left), Deputy Minister of National Defence, prepares to depart Canadian Joint Force Headquarters for Mogadishu Airport, Somalia, in 1993.

DND photo MJC97-721

Minister of National Defence Douglas Young making a NATO announcement in 1997.

the CDS and the role of NDHQ.[36] Approved for release by the Minister, the document certainly represented at the time the most comprehensive description of the scope of military and defence advisory responsibilities of the CDS and DM.

The Somalia Commission of Inquiry of 1995-1997, which had been primarily focused upon examining matters related to the deployment and employment of the Canadian military in Somalia, also expressed a strong interest in the "actions, decisions, responsibilities and accountabilities" of the CDS and the DM.[37] Both General John de Chastelain and Robert Fowler, respectively the CDS and the DM at the time of decision to deploy the Canadian Airborne Regiment to Somalia, were questioned extensively on their role in providing advice to government. In their final report, the commissioners implied that senior civilian public servants (i.e., DM Fowler) had intruded in military affairs and operational issues, undermining the role of the CDS.[38] The Somalia Commission, finding the NDA "…arcane in some respects," recommended that the authorities and responsibilities of the CDS and DM be clarified in law.[39]

Anticipating a highly critical Somalia Commission report, three months before the inquiry report was even tabled in the House of Commons, MND Douglas Young released in March 1997 his own *Report to the Prime Minister on the Leadership and Management of the Canadian Forces* to address issues of leadership, discipline, command and management that were plaguing the Canadian military (Young Report). Because many "...Canadian defence commentators [had] cast doubt on the utility of integrated civilian-military structure [NDHQ] and called for its dismantlement," even suggesting that the existing structure had contributed in a "...dilution of military advice to government,"

dpa picture alliance/Alamy Stock Photo D3B6RH

Clouds of smoke rise over Manhattan as the twin towers of the World Trade Center (WTC) in New York City collapse, 11 September 2001. All told, 2,823 people were killed when Islamic terrorists crashed into the WTC aboard two hijacked aircraft, together with 189 dead in a collateral Pentagon attack, and the 44 souls on board a further airliner that crashed during yet another terrorist attack on the same day.

Young addressed this critical issue head-on. Writing his report to the Prime Minister, he stated:[40]

> The claim that the current system prevents the Chief of the Defence Staff from presenting unfiltered military advice to the Government is not accurate. The Chief of the Defence Staff enjoys unfettered access to me and, when matters warrant, to you, Prime Minister. Moreover, he attends Cabinet at your invitation whenever important military issues are discussed. Indeed, the Government makes decisions affecting military operations with the benefit of the military advice provided by the Chief of the Defence Staff.[41]

To make it perfectly clear, Young directed that military advice conveyed to the Minister and the Cabinet be clearly identified as such in all appropriate documents, such as Memorandums to Cabinet, a practice that continues to this day.

Acknowledging some validity to the concerns raised with regard to the "...blurring of the military and civilian accountabilities" at NDHQ,[42] Young provided, with one of the documents accompanying his report, the most lucid clarifications ever produced with respect to the authorities, responsibilities and accountabilities of the CDS and DM.[43] In explaining one of the roles of NDHQ, the Minister basically divided advice to the minister and the government in three distinct categories: advice on "Canadian Forces matters," advice on "defence issues," and advice "related to government priorities, policies and programs."[44]

Although the document stated that it was intended as "Guidance for Members of the Canadian Forces and Employees of the Department of National Defence," by issuing it under his authority as Minister, and as an accompanying document to his report to the Prime Minister, Young had clearly delineated the responsibilities and advisory roles of the CDS and the DM. Still, despite all the debates between 1994 and 1997 regarding the roles of the CDS and DM, the government did not consider it necessary to amend the NDA.

"General Ray Henault had been in the position of CDS for just over two months when the 9/11 events occurred."

General Ray Henault had been in the position of CDS for just over two months when the 9/11 events occurred. The CAF officer corps of 2001, particularly senior officers like Henault, was a confident group. They were the product of the many stabilization missions of the post-Cold War environment of the 1990s, having been involved in high-tempo operations around the world, and they were rapidly regaining the confidence lost with the Somalia Affair. In the aftermath of the terrorist attacks, the Liberal government of Jean Chrétien committed to support the U.S. in the war against terrorism, and the rapid deployment in 2001-2002 of special operations forces (SOF), air, sea and land military capabilities to conflict zones in Afghanistan and in the Middle East. The 9/11 attacks in the U.S. heightened awareness and concerns regarding the threat of international terrorism and immediately increased the government priority given to CAF operations and to many

DND photo KA2003-A306D by Master Corporal Brian Walsh

Prime Minister Jean Chrétien reviews an Honour Guard from the Canadian Contingent to the International Security Assistance Force (ISAF) in Kabul, Afghanistan, 18 October 2003.

DND photo IS2005-2040a by Sergeant Frank Hudec

The Canadian Ambassador to Afghanistan, Christopher Alexander (right), welcomes Canada's Chief of the Defence Staff, General Rick Hillier, to Kabul International Airport, 4 February 2005.

DND photo BK2004-0098-06a

Chief of the Defence Staff General Ray Henault (centre left), and Minister of National Defence Bill Graham (centre right), pictured attending a change of command parade for Brigadier-General Stuart Beare, (right), Commander Multi-National Task Force North West in Bosnia, 1 September 2004.

departmental activities. Not surprisingly, the status and power of senior military advisors with expertise in modern conflicts and with present-day experience was enhanced.

Assessing the situation in 2004, Bland and military historian Dr. Sean Maloney characterized the change that was taking place in NDHQ and in Ottawa as follows: "Today, the CDS and his senior officers often, but not always, trump the deputy minister and senior public-service policy managers, turning the tables a little on those who had set it in 1972."[45] The arrival of General Rick Hillier as the new CDS in 2005 would turn the tables even more, bringing a new era of civil-military relations in Canada.[46]

Prime Minister Paul Martin committed in 2004 to pursue a more vigorous defence stance for Canada to differentiate himself from the foreign and defence policies of his predecessor. To achieve this objective, he selected Hillier as the CDS to transform the Canadian military.[47] When asked in the fall 2004 by the Prime Minister to develop the defence section of the new International Policy Statement, MND Bill Graham acknowledged that he could write the foreign policy dimension since he was just coming out of the Minister of Foreign Affairs portfolio. But he quickly admitted to the Prime Minister that "…for a military review to be meaningful, it had to be written by somebody that really understands the organizational structure, the personnel requirements, and the equipment that will be necessary to do the job.…I would be foolish to go in there and just dicker around as an amateur."[48]

The government provided Hillier the opportunity to be the architect of a new defence policy, giving him unprecedented influence and control in the writing of the policy statement, one that favoured the CDS's perspectives, force structure objectives, and procurement goals. In doing so, they dramatically changed the role and influence of the CDS in government.[49] The contrast with 1971 could not be more striking. MND Macdonald, distrusting the military, had picked one of his political staff members, a recently minted PhD graduate, to produce a new defence policy, while Graham was relying upon a senior military army officer who had served with the U.S. Army and had just commanded NATO's International Security Assistance Force in Afghanistan. The environment and context between 1971 and 2005 were clearly different, demanding radically different strategies. Military expertise was now at a premium.

In addition to transforming the Canadian military and changing the CAF command structure, Hillier wanted to reform military governance at NDHQ to make the headquarters more agile and responsive to the new operational needs of the CAF.[50] The most significant change in military reorganization at NDHQ was the establishment of a strong unified Strategic Joint Staff (SJS) reporting

directly to the CDS. With Canada's engagement ramping up in early-2006 in high-intensity, high-risk military operations in Kandahar, Afghanistan, Hillier wanted a more robust unified staff to assist him to strategically command the CAF and to provide military advice to the government. The CDS intended for the new SJS to develop to the point of being able to initiate and conduct strategic military analyses and studies to influence national decision making.[51] Such thinking had largely disappeared with the creation of NDHQ in 1972.

Hillier even attempted, without success, to move the operations policy directorate from the ADM (Policy) group to the SJS. Under the Vice-Chief of the Defence Staff (VCDS) group, which reports to both the CDS and the DM, he also re-created the Chief of Force Development (CFD) organization, responsible to conduct future security studies and military capability analyses to be able to better shape future defence policies.[52] In sum, for all intents and purposes, within a year of taking over as CDS, Hillier had created an operations-focused military headquarters inside NDHQ, and, more significantly, had strengthened considerably the capacity of the CDS to provide military advice to government on a broad range of CAF and defence matters.

Two types of criticism, relevant to this study of military advice, were leveled at the CDS. Hillier's vision was clearly inspirational, but it was delivered with a forceful and convincing manner that did not encourage much discussion inside the CAF and DND. Many, particularly in the air force and navy, clearly saw an army-centric vision (particularly with the 'three-block war' metaphor). The concerns raised in 1964 that a strong CDS would favour his service above the broader CAF institutional interest seemed, to many observers, to be materializing with this transformation.[53]

Some critics also argued at the time that the key strategic governance changes inside NDHQ, when combined with Hillier's commanding personality and significant influence with Minister Graham and Prime Minister Martin, was eroding the traditional balance between the civilian and military staff and leading to the marginalization of the influence of senior public servants inside Defence.[54] NDHQ was being militarized, the reverse of what occurred between 1971 and the mid-1990s. Those fears were certainly valid, yet exaggerated somewhat. In fact, the passing of the *Federal Accountability Act* in late-2006 by the new Conservative government, aimed at improving transparency, oversight, and accountability in government, and the ensuing changes to the *Financial Administration Act*, which designated Deputy Ministers as 'accounting officers' for their department, considerably invigorated the status of the DM at Defence.[55]

As the Departmental accounting officer, the DM is responsible and accountable for all measures to organize resources in the Department, to deliver government programs in compliance with policies and procedures and to maintain effective systems of internal control in the Department.[56] With the emphasis upon accountability in government, the advisory role of the DM in areas of defence management, finances, procurement and audit became more exclusive and demanded greater specialized expertise.[57]

DND photo CK2008-0157-22 by Private Pamela Turney

During a visit to 4 Wing Cold Lake on 28 May 2008, Deputy Minister of National Defence Robert Fonberg (centre) poses in front of a 410 Squadron CF-18 with 410 Squadron pilots after a successful familiarization flight.

DND photo CX2005-002d by Private Vaughan Lightowler

Deputy Minister of National Defence Ward Elcock (right), visits 19 Wing CFB Comox, 20 July 2005.

Coincidentally, a few months after the *Federal Accountability Act* received royal assent, a new Deputy Minister, Robert Fonberg, arrived in May 2007 at Defence. Hillier had worked very well with the current DM, Ward Elcock, who had facilitated his efforts to develop and implement his transformation policies and initiatives. It is evident that Hillier did not work as well with Fonberg, who clearly had a more robust Departmental mandate. Frustrated with the way NDHQ was evolving, Hillier suggested in his memoirs that the separation of the CAF from DND (i.e., to break apart NDHQ and return to a pre-1972 construct) would be best in order to bring clarity to the military and civilian roles inside Defence.[58]

Notwithstanding Hillier's wishes, NDHQ was not dismantled, and it continues to function as an effective integrated civilian and military headquarters to this day. DMs Fonberg and his successor Richard Fadden took a page from Hillier's notebook and also initiated key changes at NDHQ to better position themselves to meet their new accountabilities and their role as senior Departmental policy advisor to the government. Changes they instituted, to name a few, included bringing in new Associate DMs on resource management and procurement, as well as establishing powerful new governance committees, including the Investment Resource Management Committee (IRMC) chaired by the DM, and a new Defence Executive Policy Committee co-chaired by the DM and the CDS.[59]

"Notwithstanding Hillier's wishes, NDHQ was not dismantled, and it continues to function as an effective integrated civilian and military headquarters to this day."

There can be no doubt that the high operational tempo that the CAF faced between 2001 and 2015, in particular the high-intensity war in Afghanistan, coupled with the implementation of the *Federal Accountability Act* and the sensationalized problems that surfaced with several major defence procurement programs, contributed to some polarization of issues under the CDS and the DM along military and civilian lines within NDHQ, while at the same time delineating more exclusive spheres of advice for the CDS and DM.[60] Ironically, this reality helped to reduce some of the ambiguity in the responsibilities and accountabilities of the CDS and DM, particularly in the shared advisory space, and to lessen some of the frustration and friction at the senior echelons of NDHQ. As one senior DND official remarked, through this period, each side gained greater understanding – and respect – for the responsibilities and accountabilities of the other principal in the CDS-DM diarchy.[61] It should therefore come as no surprise that the development of the 2017 defence policy, *Strong Secure Engaged*, was an excellent effort of collaboration between military and civilian officials in NDHQ, with both the CDS and DM personally and closely engaged throughout the entire process.[62]

The Policy, Public Service, Defence, and Military Advice Universes

As this historical review has highlighted, the responsibilities, specific accountabilities and advisory roles of the CDS and DM have never been defined in statutes, or even codified in practice. In 2014-2015, building from the most recent edition of Minister Young's *Authority, Responsibility and Accountability* (ARA) document, which had been revised in 1999,[63] a significant effort led by the VCDS was made at NDHQ to prepare a new document describing the responsibilities and accountabilities of the CDS and DM. The 50-page document was briefed to the CDS and DM, but never approved for release. Interestingly, the main concern raised at the time was that the document was too detailed and too precise, particularly since it was not supported by the necessary legal foundation in statutes and regulations.[64]

Ward Elcock, DM at Defence between 2004 and 2007, contends that "…some greyness is useful" in the unique CDS-DM diarchy, as it provides opportunities for flexibility and responsiveness, also allowing the CDS and DM to adapt the National Defence structure and its governance, particularly NDHQ, to meet changing government priorities.[65] Still, the lack of precision can lead to confusion, ambiguity and frustration among participants about the respective roles that the CDS and the DM should play in Canada's system of governance, including the spheres of advice for which they are "ultimately" responsible.

Commenting with respect to the complex governance structure of NDHQ, Rob Fonberg cautioned that "…when the military drifts into providing policy advice – whether intentionally or inadvertently – Ministers (and other senior officials) can be easily confused and misled." When the CDS or senior officers are speaking, "…Ministers properly expect that they will be listening to military advice."[66] The former DM did not define what constituted the military and policy advice spaces, but it was clear to him that there are two separate and distinct spheres of advice, with the military one controlled by the CDS, and the policy one owned by DM and public servants. Fonberg thought it was important to make this distinction, as he had observed during his tenure at Defence the significance and the serious implications of non-transparent intrusions by the CDS and the military into the advice space of the Deputy Minister. To prevent any adverse outcomes, the CDS and the military should "…stay in their swim lane and avoid as much as possible providing policy advice to decision makers."[67]

This debate certainly highlights the need to bring some precision to the discussion of military, defence, public service, and policy advice, to eliminate any ambiguities in terminology for the second part of this article. Clarifying what is "policy" and what is "advice" is a good starting point to do so.

Public policy can be defined as a course of action – or inaction – chosen by the government to address a given problem, issue or interrelated set of problems.[68] A policy is usually a clear goal, a set of decisions and/or direction, coming "from the considered election of one choice among competing compelling choices."[69] The Prime Minister and Ministers are responsible and accountable for making those policy decisions, based on advice they receive from multiple sources.

Advice to government has a special and legal meaning under the *Access to Information Act* (ATIA). "Advice or recommendations developed by or for a government institution or a minister of the Crown" is protected from public disclosure.[70] Advice, for the purposes of the ATIA, must contain more than mere opinion, in that advice constitutes a submission on a future course of action (i.e., a policy), which will ultimately be accepted or rejected by its recipient (i.e., a Minister or Cabinet).[71] Formal advice and recommendations are protected from disclosure to maintain the ability of the military and public servants to provide full and frank advice to politicians, while preserving their political neutrality. It is important to note that when senior military officers and public servants express a professional opinion in public, either to the media or in answering questions to parliamentary committees, their comments do not constitute advice to government. Advice is provided to ministers for decisions.

"Only the CDS can provide 'military advice to government,' although any public servant, or official, including the DM, *can* and *do* provide advice to ministers on military matters."

Building from the foregoing definitions, it follows therefore that military advice to government is not separate from policy advice, but rather, it is one of its constituents. It is concerned with CAF matters, including current and future force development, force structure and capabilities to meet Canada's defence policy, readiness, and current and potential future CAF operations, in Canada and abroad. As the senior military expert in Canada, the CDS is also expected to advise on the nature of modern warfare, particularly the complexities arising from the sophisticated unconventional warfare used by today's adversaries, and its implications for Canada's national security. Only the CDS can provide "military advice" to government, although any public servant or official, including the DM, *can* and *do* provide advice to ministers on military matters.

The *Guidance for Deputy Ministers*, issued by the Clerk of the Privy Council and intended to clarify how Deputy Ministers fulfill their role, states that in supporting a Minister, "the Deputy Minister is responsible for ensuring … sound *public service advice* on policy development and implementation, both within the Minister's portfolio and with respect to the government's overall policy and legislative agenda…. as well on management on the Minister's entire agenda."[72] The generic expression "policy advice" is used on the Deputy Minister of National Defence web page to characterize the defence advice provided to the Minister.[73] For the purpose of this article, "defence advice" is the advice provided by the DM DND. Adopting the divisions that MND Young used in his 1997 Report, defence advice can be simplistically divided into two essential components.[74] The first includes advice on defence policy and departmental management issues, such as human resources, defence programs, acquisition and procurement, finances, and audit. The second includes advice on how best to implement government priorities, policies and

programs at Defence, including how to achieve collaboration with other Departments.

Conclusion

In summary, there is a divide between the military and civil domains at National Defence that is unique, and that is not replicated elsewhere in government. Without clear boundaries enshrined in legislation, both the CDS and the DM are bound at times to tread into the other "swim lane." The "bifurcated defence system" that exists at National Defence certainly complicated matters for MND Graham. In his memoirs, he complained that the "division [between the CDS and DM] … proved a headache to manage when the two responsibilities overlapped and even clashed," forcing him to often "mediate between the conflicting advice" he was receiving.[75]

While there are domains of advice that are certainly more exclusive to both the CDS and the DM,[76] it remains that because of the nature and complexity of defence activities and operations, the large majority of issues that require a decision from the MND and the government will call for both military and defence advice. Since most CAF and Departmental issues overlap or are intricately linked, the shared space of CDS-DM advice is inevitably large, as expected in a diarchy, and it therefore makes sense for the DM and the CDS to synchronize their advice before engaging the political echelon.[77]

Even with acknowledging the exclusive responsibilities and accountabilities spaces of the CDS and DM within the diarchy, when the two individuals work issues of the shared – or *blurred* – space jointly and harmoniously, this cohesion can be a powerful advantage to Canadian defence, particularly regarding the quality, soundness and timeliness of the advice provided to the minister, Cabinet and the prime minister.[78] This aspect, and many others relating to the politics of military advice, will be discussed in greater detail in the second part of this article.

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NOTES

1. The 'blurred' expression to describe the shared responsibilities of the CDS and DM was used by former DM C.R. Nixon is a presentation to the CF College in 1981, and by Minister Douglas Young in his *Report to the Prime Minister on the Leadership and Management of the Canadian Forces* (Ottawa: DND, 1997), p. 29.
2. I am much grateful to Colonel Patrick Feuerherm and Major Michel Gosselin for their helpful comments in reviewing earlier versions of this article.
3. General Jonathan Vance, 2015 Conference of Defence Associate Institute roundtable, August 2015.
4. RSC 1985, c. N-5, *National Defence Act*, s18(1). The NDA does not specifically mention command, but Minister Young, in his 1997 *Report to the Prime Minister*, used the expression "command, control and administration" to describe the responsibilities of the CDS, p. 30. The 'command' authority and powers of the CDS come from the Crown Prerogative. See Philippe Lagassé, "The Crown's Powers of Command-in- Chief: Interpreting Section 15 of Canada's *Constitution Act, 1867*,"in *Review of Constitutional Studies* 18, No. 2 (2013), p. 214.
5. The responsibility and accountability to advise government by senior officials has long been recognized by conventions, precedents and practices in the Westminster system of government. In fact, there are very few officials in the Canadian government who have statutory responsibilities to provide advice to government. One of them is the Chief Public Health Officer, "…who shall provide the Minister and the President with public health advice that is developed on a scientific basis." See *Public Health Agency of Canada Act,* S.C. 2006, c5, s 7(1.1). At https://lois-laws.justice.gc.ca/eng/acts/P-29.5/page-1.html#h-401143.
6. Several discussions and also exchange of e-mails with Lieutenant-Colonel Erik Liebert, CDS Initiatives Group, 13-14 February 2020.
7. The word "politics" in the title and in this article is meant within the context of Graham Allison's classic model of bureaucratic politics, where outcomes are decided by politics as in "bargaining along regularized circuits among players positioned hierarchically within the government." Outcomes, being government policies and decisions are determined by power, expertise and influence. The use of the word "politics" is therefore not to suggest that Canadian military leaders use their influence to intervene in areas that would be construed as partisan politics (i.e., for the government to gain an electoral advantage). Graham Allison, *Essence of Decision: Explaining the Cuba Missile Crisis* (Boston: Little Brown, 1971), pp. 162-184.
8. Since the creation of NDHQ in 1972, the VCDS has always been acknowledged as reporting to both the CDS and the DM and considered the chief of staff of NDHQ. Individuals filling this position over the years have been critical to the good functioning of the CDS-DM diarchy. The evolution of the position of VCDS and its influence on the CDS-DM diarchy is beyond the scope of this article, but deserving of a separate study.
9. R.L. Raymont, *The Formulation of Canadian Defence Policy from 1945-1964* (Ottawa: Department of National Defence, 1981), Appendix A, pp. 19-27.
10. Bland, *Chiefs of Defence: Government and The Unified Command of the Canadian Armed Forces* (Toronto: CISS, 1995), p. 74. Bland has been a constant and ardent critic of the creation of NDHQ in 1972, arguing that the CF and Departmental headquarters should be separated to enhance authority and accountability. Therefore, some of his deductions and interpretations should be read with care, particularly those discussing the relationship between the CDS and the DM.
11. Paul Hellyer, *House of Commons Debates*, 8 May 1964, pp. 3065-3066.
12. Bland, *Chiefs of Defence,* pp. 87-88; also, Paul Hellyer, *Damn the Torpedoes: My Fight to Unify the Canadian Forces* (Toronto: McClelland & Stewart, 1990), pp. 32-38.
13. Bland, *The Administration of Defence Policy in Canada, 1947 to 1985* (Kingston: R.P. Frye & Co, 1987), pp.44-46.
14. Bland, *Chiefs of Defence*, p. 74.
15. On the evolution of the role of civilians in DND, see Daniel Gosselin, "Unelected, Unarmed Servants of the State," in *Canadian Military Journal* Vol. 14, No. 3 (Summer 2014), pp. 38-52.
16. Both quotes from Royal Commission on Government Organization, *Report 20: Department of National Defence* (Ottawa: Queen's Printers, January 1963), pp. 77-79.
17. Hellyer, *Debates,* 8 May 1964, p. 3068.
18. Bland, *Administration of Defence Policy*, p. 46. On the crisis of civil-military relations, see Daniel Gosselin, "The Storm over the Unification of the Armed Forces," in *The Insubordinate and the Non-Compliant: Case Studies of Canadian Mutiny and Disobedience, 1920 to Present*, Howard G. Coombs (ed.), (Toronto: Dundurn, 2007), pp. 309-343.
19. For the list of symptoms identified by the MRG, see *Management of Defence in Canada – Report in Brief* (DND: Ottawa, 1972), in Douglas L. Bland, ed., *Canada's National Defence, Volume 2 Defence Organization* (Kingston: Queen's University, School of Policy Studies, 1998), pp. 185-200.
20. *Ibid.*, p. 209.
21. *Ibid.*, p. 220.
22. *Ibid.*, p. 191.
23. J.L. Granatstein and Robert Bothwell, *Pirouette: Pierre Trudeau and Canadian Foreign Policy* (Toronto: University of Toronto Press, 1990): p. 236.
24. Bland, *Administration of Defence Policy*, pp. 209-215.
25. *Ibid.*, pp. 213-214.
26. Peter Kasurak, "Civilianization and the Military Ethos: Civil-Military Relations in Canada," in *Canadian Public Administration* Vol. 25, No. 1 (Spring 1982), pp. 108-129; and Bland, *Chiefs of Defence*, pp. 27-74, passim.
27. Bland, *Volume 2*, p. 249.
28. *Task Force on Review of Unification of the Canadian Forces*, Final Report (DND: Ottawa, 15 March 1980), in Bland, *Volume 2*, p. 304.
29. Bland, *Chiefs of Defence*, p. 107.

30. *Ibid.*, pp. 109-116; and Bland, *Volume 2*, pp. 343-350. There was already a functioning Armed Forces Council (AFC), led by the CDS, in which environmental commanders were members. The three positions were Commanders of Mobile Command, Air Command and Maritime Command.
31. Bland, *Chiefs of Defence*, pp. 160-165.
32. Admiral Falls, quoted in Bland, *Chiefs of Defence*, pp. 161-162.
33. Gerry Theriault, "Democratic Civil-Military Relations: A Canadian View," in Jim Hanson and Susan McNish, (eds.), *The Military in Modern Democratic Society* (Toronto: The Canadian Institute of Strategic Studies, 1996), pp. 9-10.
34. Bland, *Chiefs of Defence*, pps. 117-121 and 160-165.
35. C.R. Nixon, "Role of the Deputy Minister in the Department of National Defence," presentation to the CF Staff College, Toronto, 9 September 1981. Those other areas of the slide included: public service, departmental manager; audit, use of resources; policy; planning; training; operational plans; operation of CF; and internal direction. Emphasis added.
36. Robert Fowler, "The Organization of Canadian Defence" (DND: Ottawa, 1994), document prepared for the Special Joint Committee of the Senate and House of Commons.
37. Commission of Inquiry into the Deployment of Canadian Forces to Somalia (CIDCFS), in *Dishonoured Legacy: The Lessons of the Somalia Affair* (Ottawa: Public Works and Government Services Canada, 1997), Vol. 5, pp. 1431-1434.
38. *Ibid*., p. 1459.
39. *Ibid*., p. 1454, and pp. 1458-1460.
40. Young, *Report to the Prime Minister*, p. 29.
41. *Ibid.*
42. *Ibid.*, p. 30.
43. Douglas M. Young, "Authority, Responsibility, and Accountability: Guidance for Members of the Canadian Forces and Employees of the Department of National Defence." Document prepared for the *Report to the Prime Minister* (Ottawa: DND, 1997).
44. *Ibid,* p. 6.
45. Douglas L. Bland and Sean M. Maloney, *Campaigns for International Security: Canada's Defence Policy at the Turn of the Century* (Kingston: McGill-Queen's UP, 2004), pp. 149-150.
46. Philippe Lagassé and Joel J. Sokolsky, "A larger 'footprint' in Ottawa: General Hillier and Canada's shifting civil-military relationship, 2005–2008," in *Canadian Foreign Policy Journal* 15 (2), pp. 16-40.
47. Janice Stein and Eugene Lang, *The Unexpected War: Canada in Kandahar* (Toronto: Penguin, 2007), pp. 147-148.
48. Bill Graham, *The Call of the World: A Political Memoir* (Victoria: One Point Press, 2016), p. 354.
49. Stein and Lang, *The Unexpected War*, pp. 149-151; also "Too Few Hilliers: The General Goes Where Ottawa Mandarins Fear to Tread," in *The Walrus* 4 (April 2008), pp. 34-39.
50. See Daniel Gosselin and Craig Stone, "From Minister Hellyer to General Hillier," in *Canadian Military Journal*, Vol. 6, No. 4 (Winter 2005-2006), pp. 5-15.
51. In 1995, Bland had dreamed of this possibility. Bland, *Chiefs of Defence*, p. 124.
52. The author was working in the CF Transformation Team at the time. Of note, Hillier wanted to make CFD a three-star position reporting to him directly. The three environments (services) pushed back on this idea, and Hillier backed down.
53. See Lieutenant-General (Retired) Michael K. Jeffery, *Inside Canadian Transformation* (Kingston, CDA Press, 2009), pp. 48-50. In fairness to Hillier, he had articulated some of his ideas about transforming the Canadian military in a letter written when he was Chief of the Land Staff in 2003.
54. Lawrence Martin, "In Defence, the civilian side is on the slide," in *The Globe and Mail*, 7 September 2006, p. A21.
55. R.S.C., 1985, c. F-11, *Financial Administration Act*, s. 16(4). At https://laws-lois.justice.gc.ca/eng/acts/f-11/index.html.
56. *Ibid.*
57. Alan Gilmore, "The Canadian Accounting Officer: Has it Strengthened Parliament's Ability to Hold the Government to Account," Chapter 4 in Christopher Dunn, (ed)., *The Handbook of Canadian Public Administration* (Don Mills: Oxford UP, 2010), pp. 75-84.
58. General Rick Hillier, *A Soldier First: Bullets, Bureaucrats and the Politics of War* (Toronto: HarperCollins, 2009), p. 427.
59. In 2012-2013, ADM (Finance), who reports to the DM, and is also the Departmental Chief Financial Officer (CFO), attempted to move the Chief of Programme (CProg) organization under its group. CProg reports to the VCDS and is responsible for corporate strategies and for analyses on planning and resource allocations. The move was not supported by the CDS and the VCDS, and the DM backed down.
60. Confidential interviews.
61. Confidential interview.
62. Confidential interviews.
63. Department of National Defence, "Organization and Accountability: Guidance for Members of the Canadian Forces and Employees of the Department of National Defence" (Ottawa: DND, 1999).
64. The author was involved with the review of one of the versions of the ARA document. Also, confidential interview.
65. Ward Elcock, Conference of Defence Associations Institute roundtable on DND governance, Ottawa, 27 January 2017.
66. Robert Fonberg, *Ibid*. Also, exchange of e-mails with the author on 13-15 August 2020.
67. *Ibid.*
68. Leslie Pal, *Beyond Policy Analysis: Public Issue Management in Turbulent Times* (Toronto: Nelson, 2014), p. 2.
69. Glen Milne, *Making Policy: A Guide to How the Government Works* (Ottawa Milne, 2014), p. 18.
70. R.S.C., 1985, c. A-1, *Access to Information Act*, s. 21(1). At https://laws-lois.justice.gc.ca/eng/acts/a-1/fulltext.html.
71. Information Commissioner of Canada, *Investigator's Guide to Interpreting the Act, Section 21: Advice and Recommendations*, at https://www.oic-ci.gc.ca/en/investigators-guide-interpreting-act/section-21-advice-and-recommendations.
72. Government of Canada, Privy Council Office, "Guidance for Deputy Minister," online at https://www.canada.ca/en/privy-council/services/publications/guidance-deputy-ministers.html#TOC1_5. Emphasis added.
73. Government of Canada, National Defence, "Deputy Minister of National Defence," online at https://www.canada.ca/en/department-national-defence/corporate/organizational-structure/deputy-minister-national-defence.html.
74. Young, "Authority, Responsibility, and Accountability," p. 6.
75. Graham, *Call of the World*, pp. 351-352.
76. Former CDSs and DMs interviewed for this article confirmed this, although many had different perspective on what constituted these exclusive spaces.
77. On the need for synchronization, confidential interviews. It can be argued that if the areas of responsibilities and advice of the CDS and DM were clearly identified and exclusive, there would be no requirement for a CDS-DM diarchy. It is precisely because of this large, shared responsibility space that a diarchy is needed.
78. Confidential interviews.

DND photo IS01-2015-0005-058 by Sergeant Yannick Bédard

Master Seaman Rebecca Gallant, Port Inspection Diver from Fleet Diving Unit (Atlantic), stands on parade during the closing ceremonies for Phase 1 of Exercise *Tradewinds 15* in St. Kitts and Nevis, 9 June 2015.

Barriers to Women in the Canadian Armed Forces

by James Pierotti

Lieutenant-Colonel James Pierotti *is an Air Combat Systems Officer with 4,500 hours in the C-130* Hercules *in the tactical airlift, search and rescue, and air-to-air refueling roles. He is an author of Canadian search and rescue history, has commanded Joint Rescue Coordination Centre Victoria, and he currently teaches joint targeting at the NATO School Oberammergau in Germany.*

Introduction

On a sunny spring day in the 1980s, I came home from high school in a foul mood. We had been studying employment legislation and practice in Canada and we had analyzed an example of the Royal Canadian Mounted Police where a man and woman had been left competing for the last available new position. The woman had been selected despite scoring five percent less than the man on the exam, although still way above the grade needed for entry. Given the difficult employment climate of that time, I was incensed, not only for the man who failed to gain employment despite scoring better, but for my own chances of employment. The concern I had was that no matter how hard I worked or how well I scored, I could still fail to get a job after high school because hiring white males now might have come with barriers, and that seemed deeply unfair. My father helped me put the matter into better context, and more on that later, because the views of young men are deeply relevant to the issue of barriers in employment.

Barriers to employment are nothing new, but it is important to identify where these barriers exist for women in the Canadian Armed Forces (CAF), how they have affected military employment in the past, and how they affect women in the CAF today. The importance of women to the military will become crystal clear as one of the few areas of recruiting potential to increase the overall size of the CAF, and to meet Canadian Government policy. This article will outline the status of women in the Canadian military, and it will look at historical barriers to female employment in the CAF, starting with the Great Wars of the 20th Century, and moving into the 1950s. The rapid changes in the 1980s and beyond towards what may appear to be a removal of *all* barriers, will highlight the good work of the CAF in fixing poor policy over recent decades. Research will show that barriers have been harsh towards women, and it is a recent development that men and women appear to be treated equally in the military workplace. Moving along, this article will look at the barriers that remain. Some are obvious, some are not, but this article argues that significant barriers remain to female recruiting and retention in the CAF.

DND photo IS2013-2006-103 by Master Corporal Marc-Andre Gaudreault

Lieutenant Sharon Ong, a reservist combat engineer and a liaison officer for the Disaster Assistance Response Team (DART), assesses the needs of the local population during Operation *Renaissance* in Estancia, Philippines, 25 November 2013.

While men may see and experience barriers to their employment, the cautionary tale here will be that great progress towards the equal employment of women has not eliminated a male-dominated culture in the CAF that acts as a barrier to females in the military workplace. For the CAF to become an employer of choice, with diversity embraced, men must help solve the remaining problems. As the world remains a troubled place, and the CAF is needed to grow and keep Canada safe, all of us need to do what we can to remove barriers and grow the force with female participation to the levels demanded by our Government. This is not an issue that just affects women, but rather, it affects the entire Canadian military force.

Women in the Canadian Military

The current context of female employment, not just in Canada but worldwide, suggests that equality between men and women remains a dream for the future. Well-known diversity textbook authors Abramson and Moran write that worldwide, "…there remains a significant gap in female representation, compensation in the upper echelons of the global workforce, as well as having the same rights as men in all aspects."[1] In Canada, female employees make up 46 percent of the workforce even though they make up half of the population, and "female employees were found to be concentrated in entry-level to mid-level positions."[2] Despite legislation and societal expectation, the reality is that there are not the same employment opportunities for women as there is for men. In internal documentation, the CAF agrees, stating that "systemic barriers remain in place, making the military a less than desirable choice for the majority of young Canadian women."[3] Undeniably, there are factors limiting the full range of female employment, both globally and in Canada.

"The current context of female employment, not just in Canada but worldwide, suggests that equality between men and women remains a dream for the future."

That there is an insufficient number of women in the military is a matter of fact and an international concern. The United Nations mandates that, "for observer missions like the one in South Sudan, 15 percent of each country's staff officer and military observer positions must be filled by women."[4] One would think that this would not be an issue for the CAF, but in fact, Canada almost lost a 2018 mission to South Sudan because the force it planned on sending did not include a sufficient number of women for the deployment. This embarrassing situation was likely due to the small number of administrative positions within the Canadian contingent: areas where women are more prevalent.[5] As Canada has been very vocal about women's rights in the military and worldwide, this country needs to ensure that it also 'walks the walk' of women empowerment. The situation does highlight, however, that global standards are at play in

the representation of women for missions that represent Canada, and the CAF must meet these United Nations female-employment standards.

Within the CAF, one would think that pay and performance-based promotion are significant factors making the CAF an attractive employer, as promotion is based upon *merit* and pay is based upon *rank*. However, female employment in the CAF has stalled at roughly 15 percent since 2009[6] and the latest figures have female representation at 15.7 percent.[7] This low percentage is not the desired benchmark: the policy of the Chief of Defence Staff demands an increase of female representation in the CAF to 25 percent by 2026.[8] Serious effort, outlined in the next sections, has been made to increase the number of women in the military, but the needle of improvement has barely budged in a decade.

The 25 percent policy figure is not a random number, but a desired ratio between men and women for gender to significantly decrease as a concern in the military workplace. Canadian diversity authors Karen Davis and Brian McKee state that, for "….the status of women in armed forces to approach that of a minority population," meaning that they have a significant say in all aspects of the workplace, "the ratio has to be at least 65/35."[9] Another researcher, Professor Rosabeth Kanter, suggests that the actual critical mass needed for women in the military to have significant influence in the workplace is between 20 and 25 percent.[10] Without this mass of representation, "the problem of tokenism arises when the male/female ratio for personnel is below 85/15,"[11] and this means that the culture remains one wherein women are not fully accepted, and this can lead to ramifications, such as harassment. As will be discussed later, even 15 percent is not enough to fundamentally change female acceptance in the CAF for the better. This lack of acceptance will be explored in the barriers to women employment in the CAF's past, but what is important here is the research showing what female representation should be in a military organization to reduce the current problems surrounding token representation. A 'meeting in the middle' between the aforementioned researchers to increase female cultural acceptance is likely a significant reason behind the CAF's requirement for 25 percent female representation, and it is an important step towards equity.

There are two main other reasons for the desired amount of women representation: growing the force, and changing the culture to make the CAF more desirable as an employer for all Canadians. Growing the military force has been a required target of the current Liberal Government, and is complicated by recent years where thousands of personnel more per year left the military than the numbers entered the CAF between 2011 and 2016.[12] While retention is also a problem being scrutinized, it is possible that recruiting white males, the typical enrollees in the military, is already working at its peak in the current economic climate. New pools of potential employees may only be found by hiring diverse Canadians, but this has not been easy. Recruiting more women in particular has been challenging because the CAF set "… a goal of increasing the percentage of women by 1 percent every year," but unfortunately, "had not set specific targets for each occupation,"[13] meaning that no specific strategy is being utilized to make the increase happen. Despite the policy, recruiting efforts to date have not focused upon women, and as a result, the CAF is deemed unlikely to meet its goal of 25 percent female employment any

DND photo 20200201PRA0016D001 by Corporal Yongku Kang

Leading Seaman Molly Cameron, a Boatswain onboard HMCS *Glace Bay*, looks through the Pelorous during Operation *Projection-Africa*, 1 February 2020.

DND photo TM01-2018-0022-020 by Corporal Ken Beliwicz

Captain Jackie Ruis (right), and Captain Chris Ware, CH-147F *Chinook* helicopter pilots, prepare for flight during Operation *Presence-Mali*, from Camp Castor, Gao, Mali, 2 August 2018.

time soon.[14] Without increasing the number of women dramatically, it is unlikely that the CAF can meet its desired numbers of total military personnel.

One of the tools that has been used recently to help expand the numbers of new female recruits is a recruiting effort that closes some occupations to only female applicants. Employment-equity guidelines are behind the quotas, and in some weeks, the military periodically "closes some of its approximately 100 occupations or trades to any applicants but women."[15] The criticism of this effort is that the military might have created two tiers of recruiting, "one tier for white men and the other for women and visible minorities."[16] However, the rationale behind the program is to generate additional female recruits, since the males are likely to be accepted at some point later in the enrolment process.

"Research is clear that a 'glass barrier' exists to reaching senior echelons of leadership, both globally and in Canada."

Another tool attempted was the Women in Force Program, "to give women an opportunity to learn about military life before they decide to join."[17] This program, like some other attempts, has not made a marked difference in the increase of female representation. "Out of the 120 available spots, 98 people" entered the program, "but as of April 2018, only nine had enrolled or were in the process of enrolling."[18] This tool did not have a return on the investment that allowed the program to continue beyond one effort. These tools were worth trying, but they have not generated a substantial change to recruiting more women in the military.

If recruiting more women does not work, then increasing retention is required. Starting in 2016, a program was initiated to allow "…previously serving female members who released from the CAF in the last five years" to return to the military without the normal complete re-enrolment.[19] Another program was the Recruiting and Diversity Task Force, which was created in 2017 and was "dedicated to developing, planning, and executing activities aimed at increasing diversity group levels."[20] However, as of September 2018, the CAF remains 3,500 short of its authorized strength of 71,500 Regular Force personnel to this day.[21] Both recruiting and retention efforts have so far failed to make a sizeable increase in female representation in the military.

A key factor of this problem is the clear lack of female representation at the highest levels of military leadership in Canada. Research is clear that a "glass barrier" exists to reaching senior echelons of leadership, both globally and in Canada.[22] Our society wants this to change as 66 percent of Canadian respondents to polls say that barriers that stop women aspiring to senior

DND/Library and Archives Canada photo PA-001305

A Canadian VAD ambulance driver serving at the front during the First World War.

positions in government and politics must be removed.[23] Polls in 2019 are equally clear that 35 percent of all Canadians believe that the top gender issue in this country is the lack of equal pay between men and women.[24] An important aspect of equal pay is the number of women at the upper echelons of command. As of January 2018, there were 130 generals and admirals in the CAF,[25] and only 10 of them were women.[26] The math tells us that women make up only 7.7 percent of the general officer and admiral corps, which is half of what their representation should be, based upon 15.7 percent women in the current force. This obvious lack of female command representation is publicly visible, and it will need to change for women to believe that promotion is, in fact, based upon merit, and for the public to visualize the CAF as a fair employer.

To sum up the status of women in the Canadian military at present, their representation is currently at 15.7 percent, with a desired level of 25 percent, in order to grow the force and affect culture change. There has been little-to-no improvement in the levels of female representation over the last decade despite numerous attempts to do so, and the number of female leaders is too low to promote merit as an equally-used promotion tool. This problem needs to be rectified for the CAF to reach its overall goal of Regular Force military personnel, and to improve the culture of the military to one that better represents the diversity of Canada. To understand how we arrived at this state, it is critically important to understand the past.

Barriers in the Past

Past barriers to female employment in the CAF are fact, but there has been massive change over the last 125 years that has the CAF now positioned as a solid and well-respected employer of Canadian women. Indeed, the United States has looked to Canada as a positive role model, due to the removal of barriers to women in combat positions in 1989, which took the United States until 2013 to do so.[27] A quick march through Canadian military history will outline *how* and *when* those barriers were removed.

Looking into Canadian history, women were not allowed in the military force at all until 1898, when nurses started supporting the Yukon Field Force.[28] Then, women supporting the military

DND/Library and Archives Canada photo PA-142415/Lieutenant F. Roy Kemp

Leading WREN June Whiting, Women's Royal Canadian Naval Service (WRCNS), disembarking at Liverpool, England, April 1945.

as nurses increased to 2,800 strong during the First World War. During the Second World War, some "…50,000 Canadian women eventually enlisted in the three services" and expanded their roles beyond administration and support.[29] However, women were not allowed military employment in the aftermath of the Second World War, despite their clear success at helping win the war. Up until 1950, women were not allowed in the military.

The CAF has come a long way in living memory. In 1951, enrolment was once again opened to women, although their employment was restricted to traditional roles in medicine, communication, logistics, and administration.[30] Of interest, attitudes towards women in the military had already started to change, likely due to the reality of women assisting in dangerous roles throughout the Second World War. A good example of this change in attitude occurred in the Royal Canadian Air Force (RCAF), when seven women nursing sisters serving at locations with rescue units volunteered to serve as search and rescue specialists, known affectionately as Parabelles.[31] They were brought on board due to serious retention issues within the search and rescue community in the early-1950s, when the military focus was upon increasing the fighting force to support the Korean War.

These nursing sisters did very physically-demanding rescue work in one of the most difficult RCAF occupations, *decades before* women were allowed to serve in operational roles.[32] Nursing Sister Grace Woodman was the first of these women to conduct an operational search and rescue mission, and this is her description of what transpired:

> I became entangled in branches about 125 feet above ground and because my harness was a little large for me, I slipped out of it and found myself hanging upside down by one leg! … I then gradually eased myself out of my awkward position. With the aid of a 100 ft length of nylon rope, carried for this purpose, I began the slow descent to the ground. Unfortunately, my gloves had fallen to the ground, and during the slippery descent, I suffered severe rope burns to my hands.[33]

Woodman bravely completed her mission and rescued her patient. She and the other Parabelles proved outstanding, but the program failed because a barrier imposed at the time was that women were no longer eligible to serve once they were married. The Parabelles all married and left between 1954 and 1957, and the program was discontinued, due to the expense of training replacements.[34] The positive part of the program was yet more proof of female capability in physically-demanding military roles.

Despite the lack of progress with the marriage barrier, women increased to more than 5,000 strong by 1955, as enrolment supported the Korean War effort.[35] However, and for reasons that are unclear, female enrolment was restricted in 1965 to 1,500 women total in all three services, which limited female representation to 1.5 percent of the CAF's total strength.[36] This apparently-random barrier did not last long; as the Royal Commission on the Status of Women made six recommendations in 1970 specifically aimed at removing barriers, such as the 1,500 women limit, the release of women after the birth of a child, the inability of women to attend Canadian military colleges, and the restrictions on trades

DND photo ZK-273

Three servicewomen marching in front of Parliament in Ottawa during the Second World War.

and occupations women could enter.[37] More significant change occurred after the Charter of Rights and Freedoms was signed in 1982, and the CAF knew then that they would eventually have to open combat trades and occupations to women.[38] In 1989, all military occupations except for submarine employment were opened to women, and in 2001 that last employment opportunity was opened.[39] All obvious barriers were removed, 38 years after the rule was overturned that limited any women from being employed by the CAF.

It is important to know that the United States was on a similar track of change. The two militaries have been very closely connected, and attitudes towards women in the military were very similar. The United States created legislation in 1948, restricting female participation to 2 percent of the armed forces, the highest rank they could achieve was Lieutenant-Colonel/Commander, and they could not participate in combat trades.[40] In the 1970s, some barriers were removed and female representation in the military increased to 5 percent of overall membership by 1976, 10 percent iby1985, and 15 percent by 2004.[41] The United States military is currently manned at 16 percent female representation, a very similar situation to Canada.[42] The removal of barriers has occurred mostly in tandem in Canada and the United States, but not all barriers are obvious, and not all of them proved easy to remove.

In 2004, Davis and McKee published research that disputed the ongoing assumption that women could not "meet the physical and mental riggers of combat."[43] Despite the Charter of Rights and Freedoms, despite direction from Government, and despite societal expectations, there were still lingering doubts that women could do the same work as men. This was most evident in the Special Forces. Even though combat trades had been opened to women in 1989, there were still no women in special operations forces as of 2004.[44] There were deep internal biases that resisted the fact that "…the distinct differences between men and women are largely irrelevant to meeting the demands of military performance."[45] The subtle barrier was that standards of special operations entry were so high that they practically limited women from participating in elite units, such as Joint Task Force 2 (JTF2), and it was an open question "…whether the standards applied reflect the *actual* requirement."[46] These types of barriers are harder to find, and harder still to eradicate, in a culture dominated by men for so long. It was not helpful that offices within the CAF that were established to help solve these problems found themselves often struggling for funding.[47] Proof of female capability and the elimination of legislative barriers was not enough.

"It is important to know that the United States was on a similar track of change."

In 2006, however, much of the concern regarding women in combat was put to rest with Captain Nichola Goddard in Afghanistan. She was a combat arms professional, "…supported by her team of three men, the well-regarded 26-year-old had just executed high explosive and illumination fire missions in support of Canadian troop manoeuvres against a known enemy — the first time a Canadian soldier had done so since the Korean War more than 50 years earlier."[48] During this mission, tragically, random shrapnel to the back of her head killed her instantly. Stereotypically, it was not so much her b*ravery and sacrifice* that was announced in the House of Commons the next day, but her *gender*.[49] Our society is so fascinated by women in the military, that there is a constant and unyielding glare of a spotlight upon women that prove themselves in uniformed service, and that does not help break down barriers. Focusing upon gender continues to make it a current issue today that may well act as a deterrent to some women from entering this area of employment.

Without question, significant progress with respect to female employment has been made within living memory. Parents of currently-serving personnel can remember times when women were not allowed within the CAF, or severe restrictions were placed upon their ability to serve. By 1989, the legal barriers were mostly removed; and women serving in the military increased from 1.5 percent of the establishment in 1971, to 11.4 percent by 2001. Although there remained subtle barriers that still placed restrictions on their service, research and societal change was easing those barriers as well. The CAF was becoming a large employer of women in all occupations of the military.

Barriers in the Present

Despite all the progress, the CAF is still not the safe and desirable employer of women that it wishes it could be. There are other issues and barriers that will be briefly addressed, but the main ongoing concern is the fear of sexual violence that has been rocking the CAF since 2014. This is not just a Canadian issue, as "…women worldwide ages 15 through 44 are more likely to die or be maimed by male violence than because of cancer, malaria, and traffic accidents combined."[50] However, in Canada, this violence is a barrier that insidiously damages the CAF culture, and it endures to this day, despite many measures to make corrections.

Beyond the disturbing violence, harassment remains a problem in Canada, even after the Canadian Human Rights Act of 1985, and when a policy to improve behaviour was created in 2001 and updated in 2012, due to the "importance of demonstrating human dignity within professional relationships."[51] Clearly, policy has been insufficient, and both harassment and sexual misconduct in the CAF became a major news story in 2014.[52] A subsequent report ordered by the CAF found that roughly four-in-five "…members of the Regular Force saw, heard, or were personally targeted by sexualized behaviour in the military workplace," and a shocking 27.3 percent of women "…have been victims of sexual assault at least once since joining the CAF."[53] Operation *Honour* was created by the Chief of Defence Staff in 2015 to combat these problems, but even after four years of intensive efforts, instances of problematic behaviour continue to surface.[54]

Less shocking, but no less troubling, is the amount of workplace harassment that has gone unreported. An example provided by the Senate of Canada is, "…a situation in which female military members entered meeting rooms and saw, written on whiteboards, highly offensive comments and unacceptable words that were clearly aimed at women."[55] This highlights the continuance of a male-dominated culture within

DND photo AT2011-0021-12a by Master Corporal Rory Wilson

A female officer who has excelled as a general officer… Lieutenant-General Christine Whitecross (pictured here as a major-general) in 2011 after being decorated for her distinguished service with ISAF in Afghanistan.

the military that will continue to act as a barrier to more female recruitment as long as this culture remains. However, there are other issues that are hidden by the headlines of inappropriate and illegal behaviour.

The Privy Council Office has identified five key reasons why women are reluctant to join, "relocation, leave without pay, childcare support, the ability to release, and attitudes towards women."[56] The attitude towards women in the military is clearly still an issue, and has been already outlined, but one particular reason bears a little more scrutiny. It can be argued that the other four issues outlined affect men and women both, but those issues are not viewed in the same way by both genders. In particular, childcare support is an issue that women very likely view differently than men. Men are not nearly as likely as women to raise children by themselves, and our society continues to look to women for child-rearing. The military is typically unsympathetic to single parents, and requires them to deploy regardless,

DND photo KW11-2019-0070-17 by Corporal Ryan Moulton

And yet another… Major-General Jennie Carignan officially assumes command of the NATO mission Iraq (NMI) from Major-General Dany Fortin at a Transfer of Authority ceremony held in Baghdad, Iraq, 26 November 2019.

DND photo HS2011-E024-005 by Corporal Chris Ringius

Lieutenant (Navy) Teri Mullins, a Maritime Surface and Sub-Surface (MARSS) Officer aboard HMCS *Charlottetown*, utilizes a sextant to determine the ship's current location on a map. Although rarely used, MARSS Officers are still required to operate sextants in case of emergencies if their Global Positioning Satellite (GPS) systems are inoperable.

with at least one woman in the Royal Canadian Navy alleging that, "…the navy was forcing her to choose between her child and a military career."[57] Until the military can force itself to be more flexible in dealing with these types of problems, issues such as child care will likely continue to act as a barrier to greater female enrolment. Solving these types of problems will require greater sensitivity from male leaders and better understanding of women's employment preferences.

One statistic that looks like a barrier that may not be so is the percentage of women at the general and admiral officer level. It was noted earlier that the CAF has 15.7 percent women in its ranks but only 7.7 percent at the most senior ranks. However, it takes roughly 30 years to create generals and admirals, so it is relevant that the number of women in the military was on the rise after 1989, and settled at roughly 12 percent in the 1990s.[58] Assuming that there were less than 10 percent women in the military circa 1990, when women joined who are now reaching the highest ranks, the discrepancy of the number of women at these ranks now is considerably less than it first appears. These numbers represent a two-to-three percent discrepancy of women in the military at the time, to those occupying the highest ranks presently, but the number of promotions was close to the female representation level as they rose through the ranks. The evidence in the United States military is similar, where "…female general officers and admirals increased from 1.2% … in 1994 to 7.3% in 2011."[59] However, the ratio of men to women at these ranks needs to change, and *soon*, or the message of merit-based promotion will not stand up to public scrutiny. Importantly, the small number of women making institutional decisions today means that their voices are few enough that long-term internal change is going to be very difficult until women become a much larger presence in the CAF.

We know that this change will be difficult because a decade ago, Canadian sociologist Dr. Lynn Gouliquer wrote a thesis on women in the CAF, and as part of her conclusion was the following statement with respect to the inability of women to make changes internally:

> Through … laws and their accompanying ideology, the military renders the likelihood for internal critics nearly nonexistent, and the possibility for change to occur almost nil. As a result, the military context makes it extremely difficult for servicewomen to identify the commonality and negative aspects of their experiences.[60]

Sadly, little has changed over the last ten years, and the majority of decisions surrounding the increase of female representation and the underlying policies, are, with near-certainly, still made by men. Men are going to have to speak for women if it continues to be a challenge for women to influence positive change because of the restrictions around criticism of the organization.

Criticism is warranted. The Senate has made it clear that the CAF needs to move beyond harassment "…prevention and complaints handling in order to change the organization's culture more deeply"[61] and recent reporting shows that the CAF is aware that it needs to increase its efforts if it wants to meet its organizational goal of 25 percent female representation.[62] Recruiting must focus upon specific occupations, and more understanding is needed by male leaders at the highest levels for these goals to be met. The present situation in the CAF is that there are still barriers to female employment: they are just no longer *legislative*. The barriers are subtle, and they maintain a male-dominant culture despite 'top-down' direction to change.

"Sadly, little has changed over the last ten years, and the majority of decisions surrounding the increase of female representation and the underlying policies are, with near-certainty still made by men."

Summary

Returning to the story from the 1980s, my father told me that regulations and practice have favoured men over women for as long as we have history. The only way that we, as a society, can really achieve fairness is if the pendulum of favouritism swings in favour of women so that eventually it can come to rest in the middle, and young men must let it happen. His wisdom of thirty years ago, arguably ahead of his time, is reflected in current beliefs today. Two-thirds of the global population of recent polling "…believe that women won't achieve equality in their country unless men take actions to support women's rights too."[63] In the CAF, where at least 84 percent of the personnel are men, the reality is that men are going to have to make changes to the military culture and welcome women. We must all actively encourage the pendulum of favouritism to swing towards women serving in the military to better reflect the country and the society the military serves.

US Air Force photo/Justin Connaher, 160724-F-LX370-019

Canadian Army Major Chelsea Anne Braybrook, Commander of Bravo Company, 1st Battalion, Princess Patricia's Canadian Light Infantry, walks past her *Coyote* Armoured Vehicle near Fort Greely, Alaska, during *Arctic Anvil*, a joint multinational exercise, 24 July 2016.

DND photo KA2003-D067D by Corporal Doug Farmer

During Operation *Athena*, Bombardier Marie Robert, serving with an Unmanned Aerial Vehicle (UAV) Troop in Petawawa, Ontario, guides a *Sperwer* UAV as it is hoisted onto the catapult ramp prior to launch.

Remember that the goal of 25 percent women representation is based upon research, and not some random number. A lot of the cultural issues in the military today are based upon the fact that female employment still fits within the 'token' category, meaning that they are not wholeheartedly accepted. As the current 15.7 percent has not made a noticeable change to the culture, the goal of 25 percent is absolutely required to create an environment where there is sufficient representation of women to have noticeable influence at the senior levels of leadership. For the CAF to overcome some of its recent image problems, men must make changes to the culture that will eliminate harassment in the workplace and encourage flexible work arrangements for all personnel across the military. The men leading and shaping the CAF must make this a priority because we are already struggling to maintain the size of the force demanded by the Government.

DND photo IS06-2019-0020-002 by Master Corporal PJ Letourneau

Petty Officer 2nd Class Stewart carries the Eagle Staff, 4 June 2019, during the unveiling of a monument dedicated to the Canadians who fought and died during the Second World War, at the commemoration of the 75th anniversary of D-Day and the Battle of Normandy, Chambois, France.

It has been argued that legislative barriers have been cleared away since the late-1950s, and were eliminated altogether in 2001. However, it has also been demonstrated that artificially- high physical barriers to some occupations have been tolerated despite the proof of female capabilities in times of conflict throughout recent history. Through a *covert* lack of acceptance and *overt* sexual discrimination, the legislative changes have not been enough to make meaningful change to the CAF culture. Operation *Honour* is likely to succeed in due course, but there is still much to be done to encourage female representation, and to finally establish a military that looks like Canada. To accomplish this goal, there needs to be significantly-more female generals and admirals. There needs to be much more female representation in the CAF. There needs to be more flexibility included in work arrangements so that women, and men, can better achieve work-life balance. The barriers can be hard to see, but they are still there, and they are negatively affecting the public standing and military performance of the CAF. Removing these remaining barriers to women in the Canadian military will achieve equity in the workplace and their removal is in the best interests of everyone involved.

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MediaPunch Inc/Alamy Stock Photo HXTJ75

On 30 March 2017, Kevin Mandia, Chief Executive Officer of FireEye, makes his opening statement as he testifies before the US Senate Select Committee on Intelligence that was conducting an open hearing entitled "Disinformation: A Primer in Russian Active Measures and Influence Campaign".

The Big Four and Cyber Espionage: How China, Russia, Iran and North Korea Spy Online

by Patrick Diotte

Captain Patrick Diotte *is an intelligence officer currently serving as the G2 Plans at 2 Canadian Mechanized Brigade Group Headquarters. He is also completing a Master's degree in War Studies through the Royal Military College of Canada.*

> "*Countries behave online the same way they do in the rest of their policies – they deploy similar tactics and pursue similar interests. They all spy, and they all have unique flavours.*"[1]
>
> - John P. Carlin, former US assistant Attorney General for National Security in *Dawn of the Code War*.

Introduction

Malicious cyber activity is a growing threat that has permeated through all levels of society – it is arguably the most significant threat facing the West today. Annually, the US Director of National Intelligence (DNI) presents a worldwide threat assessment to Congress that lists threats in order of concern. The 2007 report, as presented by then-DNI John D. Negroponte, identified terrorism as the number one threat facing the US, and precluded any mention of cyber.[2] Within three years, the report acknowledged the "far-reaching impact of the cyber threat" as the top threat.[3] In fact, since 2010, cyber has remained at the top of the DNI's list. On cyber, the 2019 report highlights that " … US adversaries and strategic competitors will increasingly use cyber capabilities – including cyber espionage, attack and influence – to seek political economic and military advantage over the United States and its allies and partners."[4] The document further identifies China, Russia, Iran, and North Korea as "…increasingly [using] cyber operations to threaten both minds and machines in an expanding number of ways – to steal information, to influence our citizens, or to disrupt critical infrastructure."[5] This article will focus upon cyber espionage and its use as an intelligence collection tool by state entities, specifically by the Big Four threat actors – China, Russia, Iran and North Korea.

The article asserts that the use of cyber espionage by the Big Four is congruent to each country's individual geopolitical interests and historical approaches to intelligence and warfare. Specifically, China has become a pre-eminent actor in cyber-space, and its actions have reflected its primary strategic goals: economic hegemony and security. Russia has taken a different approach, and considers its cyber espionage capability as a key element within its broader information warfare (INFOWAR) objectives targeting its near abroad and beyond. Similar to its use of proxies, Iran has used cyber espionage to project regional power, for state control, and as a retaliatory tool. Last, North Korea views cyber-based spying as a means to enable regime survival and to disrupt regional foes, particularly the US and South Korea.

First, this article will offer a definition for cyber espionage, and then briefly explore its history. Next, it will examine each of the Big Four threat actors individually, and analyze the use and targets of cyber espionage as a tool for intelligence collection. The bulk of up-to-date and relevant literature on the topic is classified. As such, the scope of this article is confined by the limited literature available through open source means. It is further limited by word count - as such, it is not an exhaustive study of cyber espionage, but rather, a broader look at its use for intelligence collection and as a tool of state power.

"Cyber espionage can be carried out through various means, and targets can range anywhere from a multinational food corporation to one of the largest and most influential political parties in the world."

What is Cyber Espionage?

MI5, the British Security Intelligence Service, defines espionage as "the process of obtaining information that is not normally publicly available, using human sources (agents) or technical means (like hacking into computer systems). It may also involve seeking to influence decision-makers and opinion-formers to benefit the interests of a foreign power."[6] As a form of spying, cyber espionage is the use of computer operations "for intelligence and data collection from target or adversary computer systems."[7] In his book on cyber conflict, Dr. Michael Warner, the Historian for US Cyber Command, draws clear parallels between broader cyberspace operations and traditional human espionage. For instance, Warner points out that "an implant can sit in a computer for weeks, months or years, collecting secrets great and small," and like catching a spy, the finding of such implant "evokes mingled satisfaction and fear."[8] Further, in discussing the far-reaching impacts of cyber-espionage, Warner notes that espionage has made "the jump from the proverbial dark alleys to cyberspace virtually intact," and that the main difference is "the scale that can be exploited in the latter."[9]

Cyber espionage can be carried out through various means, and targets can range anywhere from a multinational food corporation to one of the largest and most influential political parties in the world. These types of malicious activities fall under the broader umbrella of computer network operations (CNO). CNOs have been defined by the US Joint Chiefs of Staff as being used to "attack, deceive, degrade, disrupt, deny, exploit, and defend electronic information and infrastructure."[10] There are three main mechanisms for CNOs, and in turn, cyber-espionage: malicious software, unauthorized remote intrusions and Denial-of-Service (DoS) attacks.[11]

In his paper on cyber espionage and electronic surveillance, William C. Banks, Director of the Institute for National Security and Counterterrorism at Syracuse University, highlights economic espionage as a pertinent subset of cyber spying. Economic espionage, that is, when "…a state attempts to acquire secrets held by foreign companies," has dominated recent discussions regarding the topic, particularly with the ongoing case involving the Chinese telecommunications giant Huawei.[12] Conversely, cyber espionage can also be used as a tool for mass disruption, as was the case when the Russians obtained and released a discrediting phone conversation between then-US ambassador to Ukraine Geoffrey Pyatt and State Department spokesperson Victoria Nuland in 2014. The leak had lasting implications with respect to the Ukraine crisis. As will be examined in the following paragraphs, in the past years, the Big Four have developed robust cyber espionage capabilities that continue to pose a significant threat to the West.

China

China has used cyber espionage to advance one of its preeminent strategic goals: economic hegemony and security. This section will examine China's use of cyber spying to obtain information aimed at providing both the government and private industry an economic advantage. Further, it will briefly explore measures adopted by China in an attempt to maintain deniability in cyber space.

Nigel Inkster, Director of Transnational Threats and Political Risks at the International Institute for Strategic Studies, outlines in his book that intelligence has played a central role in Chinese policy and strategy since the era of the Warring States (circa 475-221 BCE).[13] However, China's historic espionage activities were largely aimed at managing relations with bordering nomadic tribes, and due to this tendency to look inward, the practice of foreign-intelligence collection was not a major feature of its culture of intelligence until recently.[14] The first significant case of Chinese cyber espionage occurred in 2003 when US defence networks were targeted for national security information – the event became known as Titan Rain. The Titan Rain attacks were groundbreaking – completed in 20 minutes and in a single day, they successfully attacked high-profile targets, including NASA, US Army Information Systems Engineering Command, the Defense Information Systems Agency, the Naval Ocean Systems Center and the US Army Space and Strategic Defense Installation.[15]

The US first publicly confronted China with allegations of cyber espionage and theft on 8 June 2013, and they alleged that Chinese efforts were aimed at collecting intelligence on US diplomatic, economic and defence sectors.[16] Two days earlier, on 6 June, *The Washington Post* and *The Guardian* reported on the US National Security Agency (NSA) and Britain's Government

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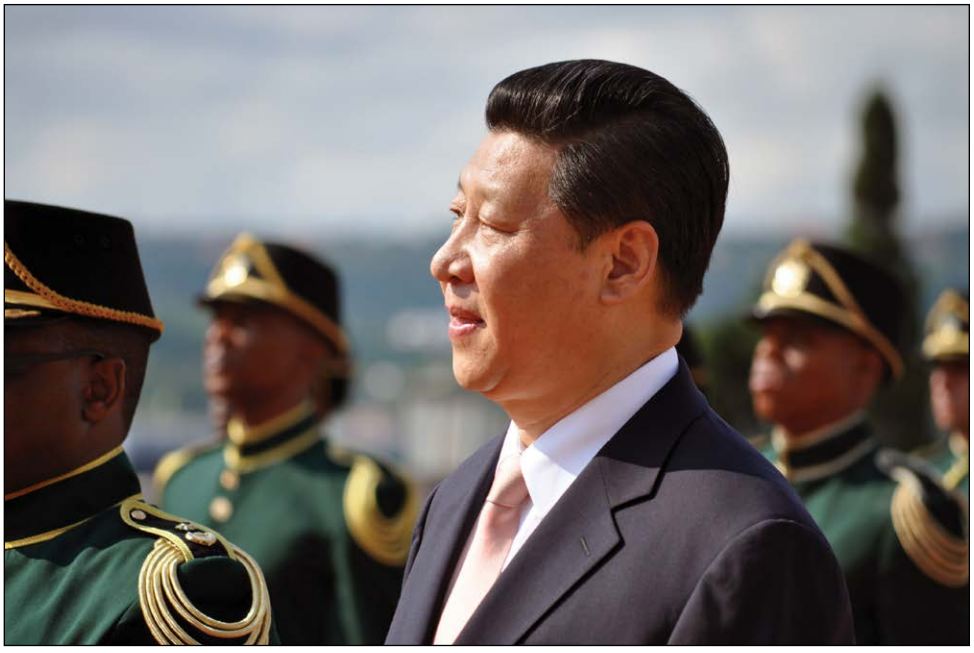
Beijing, China at the Imperial City North Gate.

Communication Headquarter's (GCHQ) highly classified program known as PRISM. Through this program, the NSA was collecting telephone records of millions of American citizens under the auspices of national security. When President Barrack Obama brought up Chinese cyber theft at the summit, President Xi Jinping took out a copy of *The Guardian* and rebutted any claims of wrongdoings and reinforced the double-standard.[17] Nevertheless, as headlines have shown in recent years, China continues to pursue a highly aggressive cyber espionage agenda largely aimed at the financial sector and private industry, but also one fixed upon obtaining data from government and other sectors.



Frans Sellø Waga Machate/Alamy Stock Photo D6CJR8

Chinese President Xi Jinping.

In pursuit of innovation and economic security, Beijing has employed a full array of cyber capabilities, particularly cyber and industrial espionage. Today, accounts of Chinese cyber espionage are reoccurring more than ever – Inkster notes that a key driver has been China's desire to catch up with the developed world in transformative science and technology.[18] As noted in Zack Cooper's report for the Foundation for Defence of Democracies, "the drive for indigenous innovation has motivated Beijing since the onset of market-oriented reforms in the late 1970s."[19] Despite significant growth and advances in manufacturing, the Chinese Communist Party (CCP) has

issued a number of initiatives that many claim are blueprints for technology theft – such as the 2010 National Medium and Long Term Plan for Development of Science and Technology (MLP), and the Made in China 2025 enterprises.[20] In 2017, the Pentagon stated that China has conducted "an intensive campaign to obtain foreign technology through imports, foreign direct investments, industrial and cyberespionage and establishment of foreign R&D centers."[21] Five years earlier, in a study of cyber intrusion, conducted in cooperation with other private and government organizations, Verizon analyzed 47,000 security incidents that resulted in 621 confirmed data disclosures, and at least 44 million compromised records – 96% of cases were attributable to threat actors in Beijing.[22]

China is estimated to be responsible for 50 to 80 percent of cross border intellectual property theft worldwide and over 90 percent of cyber-enabled economic espionage in the US.[23] A 2018 White House report highlights that the cost of trade secret theft from China alone ranges between $180 billion and $540 billion annually for the US.[24] General Keith Alexander, former head of NSA and US Cyber Command, famously noted that China's cyber espionage activities accounted for "the greatest transfer of wealth in history."[25] A comparative examination reveals that targets of high-end attacks align with the priorities of the CCP's successive Five Year Plan. That said, as was the case in China's intelligence collection efforts prior to the Internet Age, parts of the country's cyber espionage efforts are being undertaken by outside entities – a fact that has enabled China's top leadership to deny accusations of commercial cyber espionage and intellectual property theft.[26] Further, China's intelligence laws provide the capability to compel private companies, such as Huawei, to assist with state intelligence efforts. In fact, Article 7 of China's 2017 Intelligence Law obliges organizations and citizens to "support, assist and cooperate with intelligence work."[27]

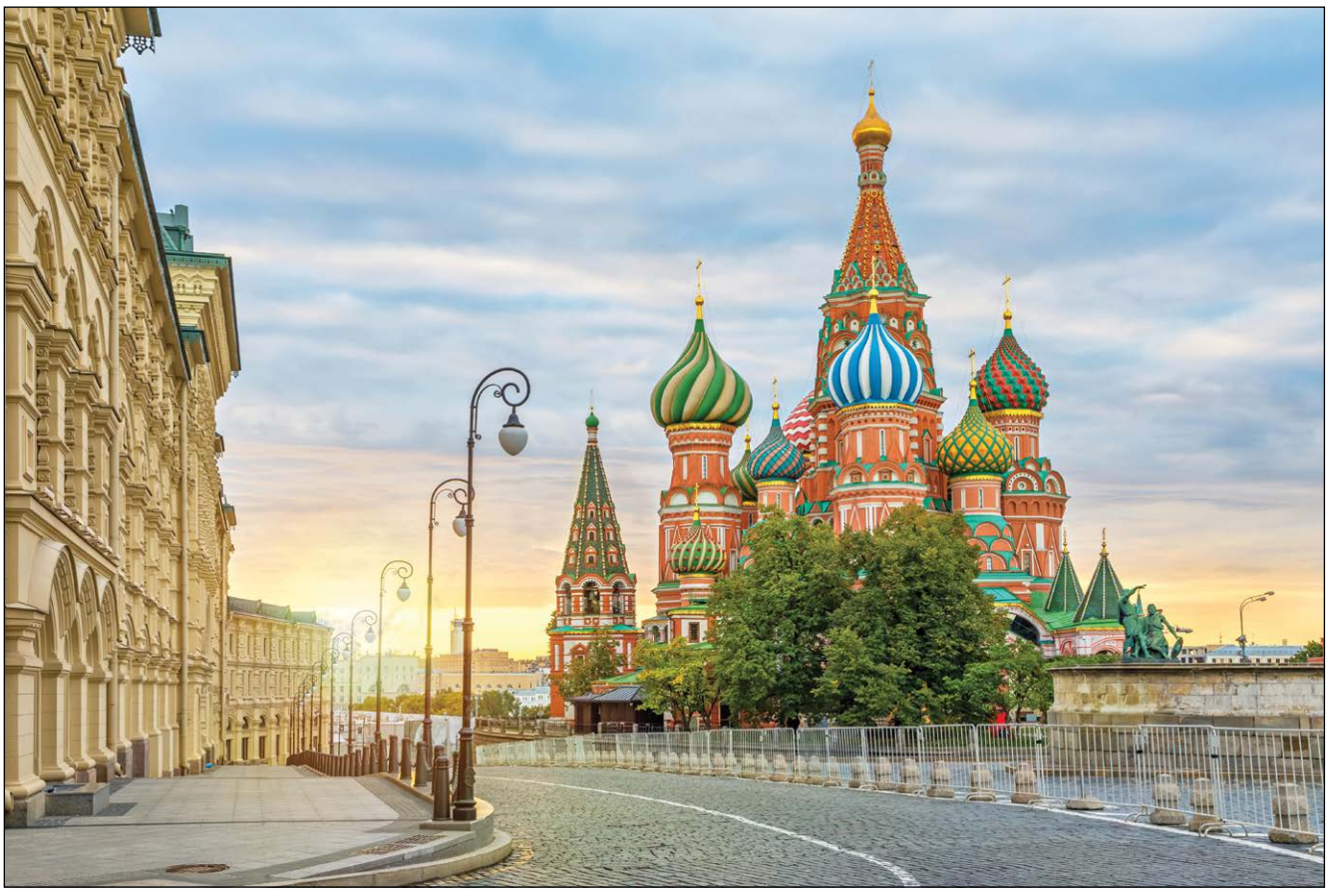
Despite the 2015 US-China Cyber Agreement, claims of Chinese hacking continue.[28] According to the US-China Economic and Security Review Commission 2016 Annual Report to Congress:

> *"Although the number of incidents of Chinese cyber espionage detected by* FireEye *[a US cybersecurity firm] has declined, this likely reflects a shift within China away from prolific amateur attacks toward more centralized, professionalized, and sophisticated attacks by a smaller number of actors, rather than a trend toward the cessation of Chinese cyber espionage."*

To sum up, it is evident that China's use of cyber espionage is consistent with one of its primary strategic objectives: economic hegemony and security. Although tools of state power are undoubtedly utilized, China continues to utilize foreign entities and private corporations as a means to collect intelligence through cyber espionage. This approach has given Beijing greater flexibility, and has provided the CPC with plausible deniability – an assertion that has come under increasing scrutiny over past years.

Russia

The first known cyber espionage operation engineered by Moscow against the US dates back to 1986. A hacker



Sergey Dzyuba/Alamy Stock Photo H2HDD0

Saint Basil Cathedral at sunrise in Moscow, Russia.

called 'Hunter' was caught trying to break into computer systems at the Anniston Army Depot in Alabama to extract information from the US Army Redstone Rocket test site on US missile tests related to President Reagan's Strategic Defense Initiative, nicknamed 'Star Wars.'[29] Since then, the Russians have developed significant capabilities in the information domain, and cyber espionage has played an important role in acquiring information to feed Moscow's strategic priorities across the globe. Russia considers cyber espionage as a subcomponent of its broader INFOWAR objectives and geopolitical goals in its near-abroad and beyond.

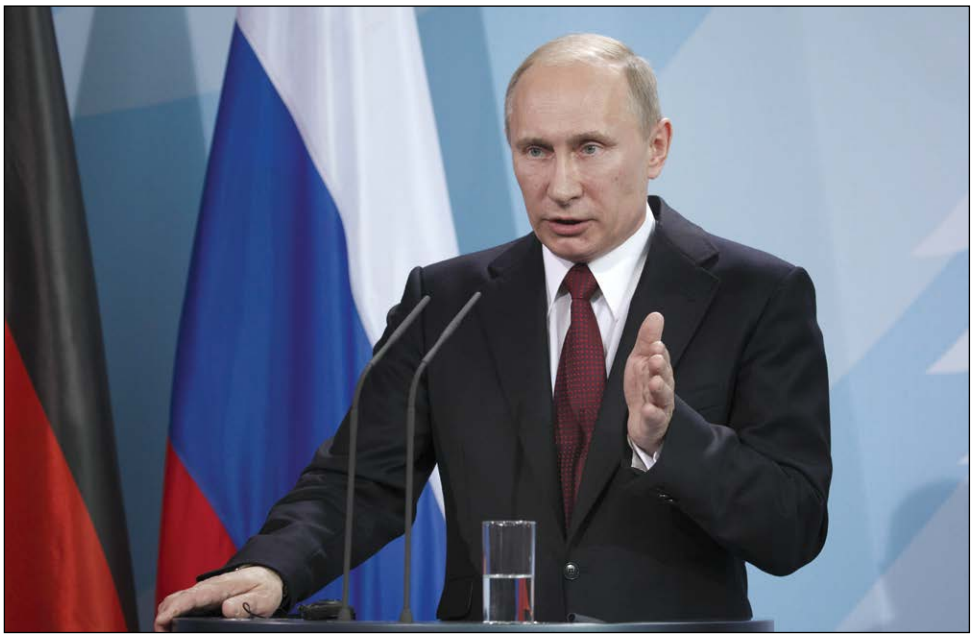
"Except when referring to Western interpretations, the Russians generally do not use the terms cyber or cyberwarfare."

Except when referring to Western interpretations, the Russians generally do not use the terms cyber or cyberwarfare. Rather, they tend to conceptualize it within the broader rubric of INFOWAR by referring to it as *informatsionnaya* voyna, or informatization. The holistic concept of informatization, as employed by Russian military theorists, includes computer network operations (CNE), electronic warfare (EW), psychological operations (PSYOPS) and information operations (INFO OPS).[30] On Russia's hybrid warfare strategy, Chief of the General Staff of the Russian Federation Armed Forces Valery Gerasimov noted:

> *"In [the] twenty-first century we have seen a tendency toward blurring the lines between the states of war and peace. Wars no longer declared and, having begun, proceed according to an unfamiliar template."*[31]

The use of proxy groups to collect intelligence through cyber espionage has been a signature element of Russian President Vladimir Putin's *modus operandi* in recent years. A 2014 FireEye report on the cyber espionage group Advanced Persistent Threat (APT) 28, a suspected Russian-backed entity, concludes that, unlike Chinese groups, it does not "appear to conduct widespread intelligence property theft for economic gain."[32] In fact, the cyber security firm claims that APT 28 is likely comprised of a skilled team of developers and operators "…collecting intelligence on defence and geopolitical issues – intelligence that would only be useful to a government."[33] The report further notes that the group's targets align with the interests of the Russian government – the Caucasus, Eastern European governments and militaries and specific security organizations. For instance, APT28 collected intelligence about Georgia's security and political dynamics by targeting officials working for the Ministry of Internal Affairs and the Ministry of Defence during the 2008 war.[34]

Further, cyber espionage has been central to Putin's strategy in Ukraine. As noted by FireEye's Jen Weedon, Russia's broader computer network operations are "tools to be integrated into broader efforts to maintain political and military dominance in a given theatre and, more broadly, in the domestic and global courts of public opinion."[35] Among a myriad of other entities collecting intelligence through cyber directly and indirectly for Moscow, APT 29 is reportedly one of the more sophisticated and highly capable groups. It is known to target entities to steal intelligence closely linked to Russian geopolitical interests and priorities.[36] Recent targets have included western governments, international security and legal institutions, think tanks and educational institutions. APT 29 uses different methods, such as obtaining commands via images containing hidden and encrypted data, against high-value networks, not only to steal information, but also to maintain persistent access to the victim's environment.[37]



Sueddeutsche Zeitung Photo/Alamy Stock Photo DYW266

Russian President Vladimir Putin.

Russia's cyber espionage activities go beyond targeting former Soviet bloc states. To cite a few examples, Norway, Denmark, the Netherlands and Italy have accused Russia of advanced cyber espionage. German intelligence officials have also accused the Russians of hacking into government computer networks, as well as those of national energy firms. As noted in a study on Russian cyber strategies written for the European Union Institute for Security Studies, "the most serious risk that emanates from these activities is not so much the theft or loss of digital information but rather the fact that it can be manipulated." Moreover, "manipulation of such data compromises its integrity – the validity of the information can no longer be

trusted."[38] Further to this point, the data obtained through Russian cyber espionage often feeds the compromised material released ahead of important political or sporting events. For instance, in the midst of an investigation into its own athletes in 2016, Russian hackers released the medical records of Western athletes stolen from the World Anti-Doping Agency.[39] The Kremlin is unique in this sense – no other major cyber player seeks to integrate, to such a great extent, information stolen through cyber espionage into targeted INFOWAR campaigns to influence, disrupt or discredit high profile entities – no case study illustrates this better than Russia's attacks on the 2016 US Presidential election.

A declassified version of a highly classified DNI assessments states in plain terms that "Russia's intelligence services conducted cyber operations against targets associated with the 2016 US presidential election, including targets associated with both major US political parties."[40] The report further describes that Russian intelligence services "collected against the US primary campaigns, think tanks, and lobbying groups they viewed as likely to shape future US policies."[41] First hacked in 2015, the Russians maintained access to DNC networks until at least 2016. In fact, the General Staff Main Intelligence Directorate (GRU), Moscow's military intelligence organization, likely had access to personal e-mail accounts of Democratic Party officials and political figures, which they used to extract large volumes of data from the DNC.[42] Russian interference in the 2016 election is a case in point that demonstrates the intent to use cyber espionage as a tool within the broader context of Putin's ongoing INFOWAR campaign against the West.

To sum up, the ways in which Moscow has used APTs and other means to conduct targeted cyber espionage efforts against its near abroad and beyond demonstrates its tendency to consider cyber and cyber enabled spying as a tool within its broader and more focused INFOWAR toolbox.

Iran

As a central tool of its statecraft, Tehran has used cyberespionage similar to its use of proxies to project regional power, for state control, and as a retaliatory tool, particularly against the US, Israel and Saudi Arabia. Industrial computer security firm MalCrawler conducted an experiment in 2016 where it created an elaborate network to observe the actions and assess the intentions of malicious cyber entities – it concluded that hackers from different countries exhibited different behaviours. Russians penetrated systems, "mapping them and implanting hard-to-find backdoor access for potential future use." Chinese-based hackers maintained a database of "anything that looked like novel technical information." In contrast, Iranian hackers sought to do "as much damage as possible."[43]

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Tehran, Iran skyline with snowcapped Alborz mountains beyond.

Kremlin Pool/Alamy Stock Photo F73A07

Iranian President Hassan Rouhani during a joint press conference.

A Carnegie report on Iranian cyber capabilities highlights that "perhaps more than any government in the world, the Islamic Republic of Iran has been the target of uniquely destructive cyber attacks by the United States and its allies."[44] Among attacks against Iran, Stuxnet stands out as the most publicized and the most destructive. Stuxnet, a sophisticated computer worm developed through the alleged US-Israeli *Olympic Games* project and first discovered in 2010, infected the control system of Iran's nuclear enrichment plant at Natanz and temporarily disabled 1,000 of the 5,000 centrifuges there, effectively stalling the Islamic Republic's nuclear program by one year.[45] In response, Iran accelerated its pursuit of offensive cyber capabilities, including intelligence collection through cyber espionage.[46] In fact, shortly after Stuxnet was revealed, Iran launched a series of cyber attacks against Saudi Arabia and the US with "…the aim of destroying data and manipulating machinery such as oil pipelines."[47] Iran's primary target was Saudi Aramco, a Saudi-based hydrocarbon giant, and the attack spread to 30,000 workstations. Despite the attack being contained because of the closed network, in 2012, US Secretary of Defense Leon Panetta would go on to declare it to be "…the most destructive cyber assault the private sector has seen to date."[48] In recent years, Tehran has demonstrated significant capabilities as a threat actor in cyber space but little attention has been paid to its growing cyber espionage efforts. In a paper written on Iranian cyber espionage, American cybersecurity authority Jason Spataro highlights that Tehran's "… notoriety for destructive cyberattacks has overshadowed its vast cyber espionage campaigns, the likes of which currently spans nearly every industry sector and extends well beyond regional conflicts in the Middle East."[49]

"Among attacks against Iran, Stuxnet stands out as the most publicized and the most destructive."

In 2015, before the House Permanent Select Committee on Intelligence, then-DNI James Clapper testified on Iran, and stated that the Islamic Republic "views its cyber program as one of many tools for carrying out asymmetric but proportional retaliation against political foes."[50] Offensive cyber operations, including web-based espionage, have become core tools of Iranian statecraft – they provide Tehran "less risky opportunities to gather information and retaliate against perceive enemies at home and abroad."[51] For instance, at the direction of the Iranian Republic Guard Corps (IRGC), between 2013 and 2017, Iranian hackers infiltrated hundreds of universities, companies and government agencies in the US and around the world. In total, it is estimated that they stole more than 30 terabytes of academic data and intellectual property.[52] However, successful cases of Iranian intrusions into US and European governmental infrastructure are rare – government department networks are typically hardened beyond the capabilities of Iranian threat actors. Through spear phishing attempts at personal emails and social media accounts of US government employees, Tehran has sought softer US targets that often contain useful and highly private materials.[53] For instance, Iranians attempted to compromise the personal emails of members of the American delegation during the nuclear negotiations. They further focused their efforts on Obama's former staff, Republican members of Congress, supporters of Donald Trump's campaign, and conservative media organizations following the 2016 US presidential election.[54]

Tehran has also used cyber espionage to gather intelligence about its often politically unstable neighbors. Among targets of Iranian cyber spying efforts have been Afghanistan's National Radio, Ministry of Education and government networks, and fake social media profiles and spearfishing campaigns have targeted Iraqi engineers within telecommunications networks and political elites.[55] Many of Iran's current regional engagements via proxy forces have been linked to cyber espionage efforts. For instance, in 2015, the Israeli cybersecurity firm ClearSky found that 11 percent of targets of one Iranian credential theft campaign, named Rocket Kitten, were connected to Yemen – in fact, recent Tehran-linked attempts are known to have targeted prominent critics of the Houthis.[56]

Among the series of suspected cyber espionage groups linked to Iran, the Ajax Security Team has attracted much attention since it has evolved into a more sophisticated and stealthier malware-based espionage entity following the discovery of Stuxnet. Operation *Saffron Rose* was the name given to the team's targeted campaigns against companies in the defence industrial base (DIB) within the US, as well as local Iranian users of anti-censorship technologies that bypass Iran's internet filtering system.[57] The Ajax Security Team is known to employ a variety of methods to collect intelligence on its targets, including spear phishing and credential phishing. A 2013 FireEye report highlights that although the direct relationship between groups like the Ajax Security Team and the Iranian government are unconfirmed, "their activities appear to alight with Iranian government political objective."[58] Tehran is also known to use cyber spying as a tool for state control. In fact, the largest concentration of *Saffron Rose* victims is in Iran. FireEye assesses that attackers "disguised malware as anti-censorship tools in order to target the users of such tools inside Iran as well as Iranian dissidents outside the country."[59]

In conclusion, Iran continues to use cyber espionage as a tool largely congruent to its approach to internal and external affairs. Suppression of internal dissent, regional asymmetric war through proxies and retaliatory measures short-of-war are themes reflected both in Tehran's use of cyber spying and its broader strategic and geopolitical approach to the world.

North Korea

North Korea's approach to cyber can be summed up in Kim Jong Un's alleged words: "Cyber warfare, along with nuclear weapons and missiles, is an 'all-purpose sword' that guarantees our military's capability to strike relentlessly."[60] In April 2014, then-Commander of the United Nations Command and the Republic of Korea Combined Forces General Curtis M. Scaparrotti, offered the following assessment:

> *"North Korea employs computer hackers capable of conducting open-source intelligence collection, cyber-espionage, and disruptive cyber-attacks. Several attacks on South Korea's banking institutions over the past few years have been attributed to North Korea. Cyber warfare is an important asymmetric dimension of conflict that North Korea will probably continue to emphasize—in part because of its deniability and low relative costs."*[61]

This part of the article will examine the Democratic People's Republic of Korea's (DPRK) use of cyber espionage, and will demonstrate how it reflects its broader focus on regime survival and upon disrupting regional foes, particularly the US and South Korea.

The DPRK has one of the smallest internet presences in the world, with the bulk of its limited access being routed through

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Aerial view of Pyongyang, North Korea.

ITAR-TASS News/Alamy Stock Photo T5GH6R

North Korean leader Kim Jong Un.

China.[62] Internet usage is heavily monitored by the regime, and is largely limited to government and military officials. Despite such restrictions, North Korea's hacking competence has become as dreaded as its nuclear arsenal.[63] The Hermit Kingdom's cyber capabilities began proliferating in the late-2000s, when it started conducting cyber espionage against South Korea. The US Department of Defense highlights cyber as a primary means of North Korean intelligence collection efforts, with a focus upon three primary targets: South Korea, the US and Japan.[64]

The Republic of Korea (South Korea) has been contending with cyber threats from the DPRK for years. The best known and most destructive was the April 2013 attack known as Dark Seoul, and now known as Operation *Troy*. In his technical paper detailing the incident, David M. Martin explains that "…while the attack was initially believed to be the work of hacktivists, malware researchers discovered it was actually the outgrowth of a multi-year cyber-espionage campaign waged by the North Korean government."[65] The malware rendered tens of thousands of computers in the South Korean media and financial services sectors inoperable.[66] A white paper produced by the internet security giant McAfee concludes that both the Dark Seoul and other government attacks are connected to a secret, long term campaign to spy and disrupt South Korea's military and government activities.[67] In fact, the Dark Seoul attacks occurred at a time when American and South Korean military forces were conducting a major exercise. South Korean officials claim that the DPRK has conducted more than 6,000 cyberattacks between 2010 and 2017, costing nearly $650 billion in repairs and economic losses.[68] Operation *Troy* demonstrates North Korea's prolonged commitment to utilizing cyber to spy upon its main regional adversary, South Korea, in order to gain a military and economic advantage.

"The Republic of Korea (South Korea) has been contending with cyber threats from the DPRK for years."

A little over a year after the world witnessed Dark Seoul, an emboldened Pyongyang used similar destructive capabilities against a well-known US-based company. On the morning of 24 November 2014, a gang of hackers calling themselves "Guardians of Peace" hacked Sony Pictures' networks, effectively destroying three thousand computers and eight hundred servers. They also carted off more than one hundred terabytes of data – much of which was sent to tabloids and eventually to the mainstream press. This information included executive salaries, emails, digital copies of unreleased films, and the Social Security numbers of 47,000 actors, contractors and employees.[69] All of this, allegedly, was in response to Sony's planned release of an upcoming film, "The Interview," a comedy depicting a plot to assassinate Kim Jong Un. The FBI attributed the attacks to Pyongyang following technical analysis that revealed links to other malware attributed to the Hermit Kingdom's government. The Sony hack is a clear case, and it points to North Korea's use of cyber to collect sensitive information, which would later be disclosed as a retaliatory measure, in order to strike back in the face of a threat to the regime's credibility.

To sum up, as demonstrated in the Dark Seoul case study, cyber espionage *has* and *continues to provide* Pyongyang with critical intelligence on its adversaries. There is no doubt that one of Kim's primary geopolitical goals is the survival and the maintenance of the credibility of his regime. The Sony hacks clearly demonstrate the lengths to which the DPRK was willing to go, using cyber spying and attacks, in an attempt to maintain Kim's image. Similar to other Big Four actors, North Korea views its cyber espionage capabilities as a retaliatory tool, and one needed to ensure regime survival.

Conclusion

The evolution of the cyber domain has ushered in significant changes to every facet of society. The development of new capabilities in cyberspace has further changed the landscape of intelligence and the way in which it is conducted. Cyber has provided a medium for countries, particularly those discussed in this article, to collect information and conduct attacks without fear of significant repercussions – an unplanned immunity that is quickly disappearing. Arguably, it has altered the face of warfare entirely – countries are now in a perpetual state of direct competition through cyberspace. As John Carlin notes in his book, at the beginning of the Obama administration the US government never publicly accused a foreign nation of

B Christopher/Alamy Stock Photo F7FYKB

Assistant Attorney General for National Security John Carlin speaking on the Security and Cyber Threat Landscape.

cyber intrusions. Within eight years, the US publicly pointed fingers at what they considered the country's four major foreign threats online: Chinese hackers for industrial espionage, Iranian hackers for disruptive attacks, North Korea for hacking Sony and Russia for interfering with the 2016 Presidential election.[70] This article has identified clear parallels between the use of cyber espionage and the geopolitical interests and historical approaches to intelligence and warfare of the Big Four. Whether cyber spying is used as tool for intellectual property theft or as a means to collect intelligence on a foreign nuclear weapons program, one thing is certain: as the world becomes increasingly connected, the threat will continue to grow. Therefore, the onus is upon governments, industries, and individuals alike to work together to establish order and norms regulating the 'digital wild west' that is the cyber domain.

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NOTES

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Swarming, Expendable, Unmanned Aerial Vehicles as a Warfighting Capability

by Gary Martinic

Gary Martinic *works as a Team Leader in Technical Support Services at Western Sydney University. In his other role, he is a Flight Lieutenant (AAFC) at 3 Wing Headquarters, Australian Air Force Cadets, located at the Lidcombe Barracks. With a lifelong interest in military aviation and military history, he dedicates a great amount of his time to the supervision, training and mentoring of Air Force Cadets. Gary has a strong interest in unmanned weapons systems of air, land, and sea, and has written numerous articles for national and international defence journals and magazines.*

Introduction

Unmanned Aerial Vehicles (UAVs) have been employed for ISR (intelligence, surveillance & reconnaissance) missions for more than a century, and have been used for strike[1] missions[2] for more than a decade in modern theatres of conflict as effective light weapons platforms. While these robotic technologies have become relatively 'mainstream' today, there has been ongoing research and development (R&D) into the ability of their smaller variants to operate as a 'single unit' or swarm,[3] with the aim of improving their capabilities and performance with respect to adversary targeting. This 'evolution' has occurred primarily because of the tactical advantages that this new developing technology may be able to provide. For example, any military technology that can absorb multiple hits and keep going, from a warfare point of view has a major advantage over other systems, such as manned, and even lone unmanned aircraft, which can be destroyed by a single missile.[4] Additionally, the technology can be used in three ways by military forces: to attack, defend and to support functions such as ISR,[5] and it reduces the risk of loss of human life and expensive equipment in battle.[6]

The concept of fusing UAVs into swarms has seen two key developments stand out in particular:

- the ability to swarm shortly after being launched from either a pneumatic catapult from an aircraft, a ship or from a submarine; and
- making them inexpensive enough so as to make them 'expendable.'

Discussion

With Adolf Hitler's adoption of advanced tactics and technology, such as advances in communications through *Blitzkrieg* warfare, and weapons, such as the jet-powered Me-262 fighter and the V-1 'buzz bomb' and V-2 ballistic missile rockets fielded in the latter stages of the Second World War, the Allies were finding themselves constantly 'behind the curve' in the technology of war. And this changed the way that they planned to fight in the future.[8] Over the next 70 years, western military powers have sought to lead the way in aerospace and weapons research and development (R&D). Consequently, the US and other western powers made sure that they held a clear advantage with respect to tactics and technology, often a generation ahead of potential adversaries, by replacing the focus from *quantity* to *quality*, so that they could deter any adversary.[9] Today, this race to maintain military supremacy has been extended into R&D pertaining to unmanned weapons systems (UWS) with air,[10,11,12] land,[13,14,15] and sea applications.[16,17,18] Indeed, the world's most advanced militaries continue to develop Unmanned Weapons Systems because of the significant tactical advantages that they provide. While these robotic technologies have advanced significantly across all three environments, they arguably have been the most pronounced in the air, with unmanned combat aerial

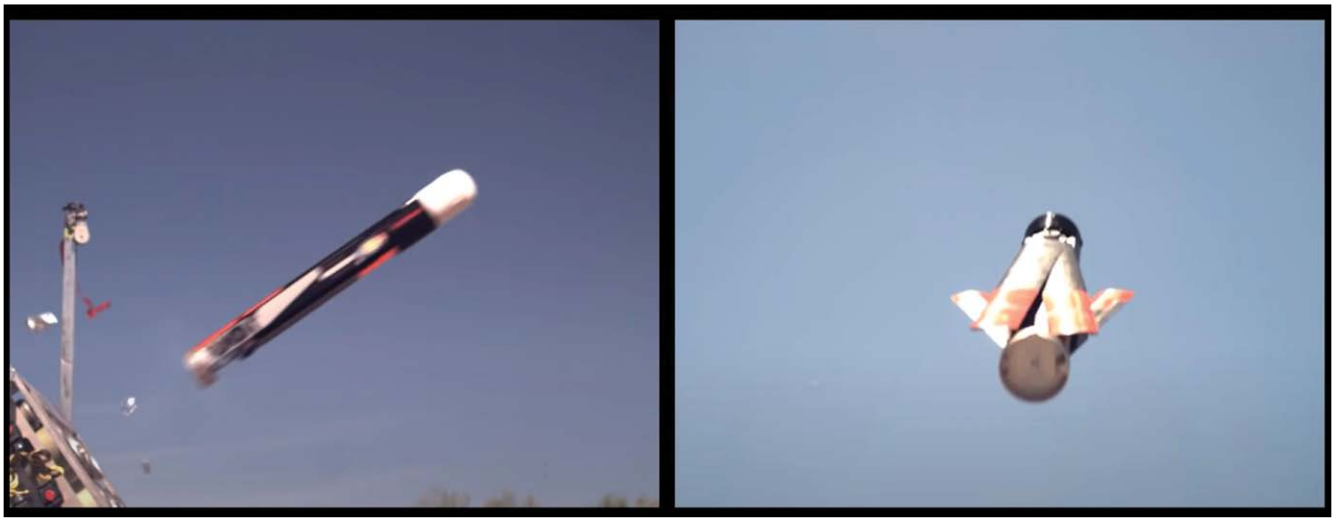
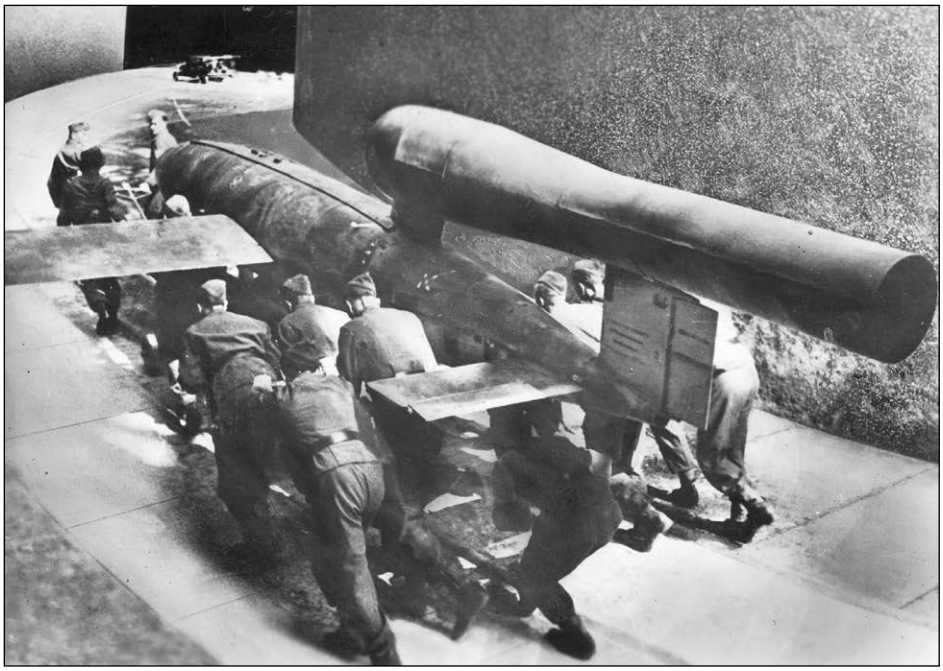


Photo courtesy of US Office of Naval Research

Figure 1 – Tube launching of a Raytheon *Coyote* small UAV.[7]



Sueddeutsche Zeitung Photo/Alamy Stock Photo CPMPHP

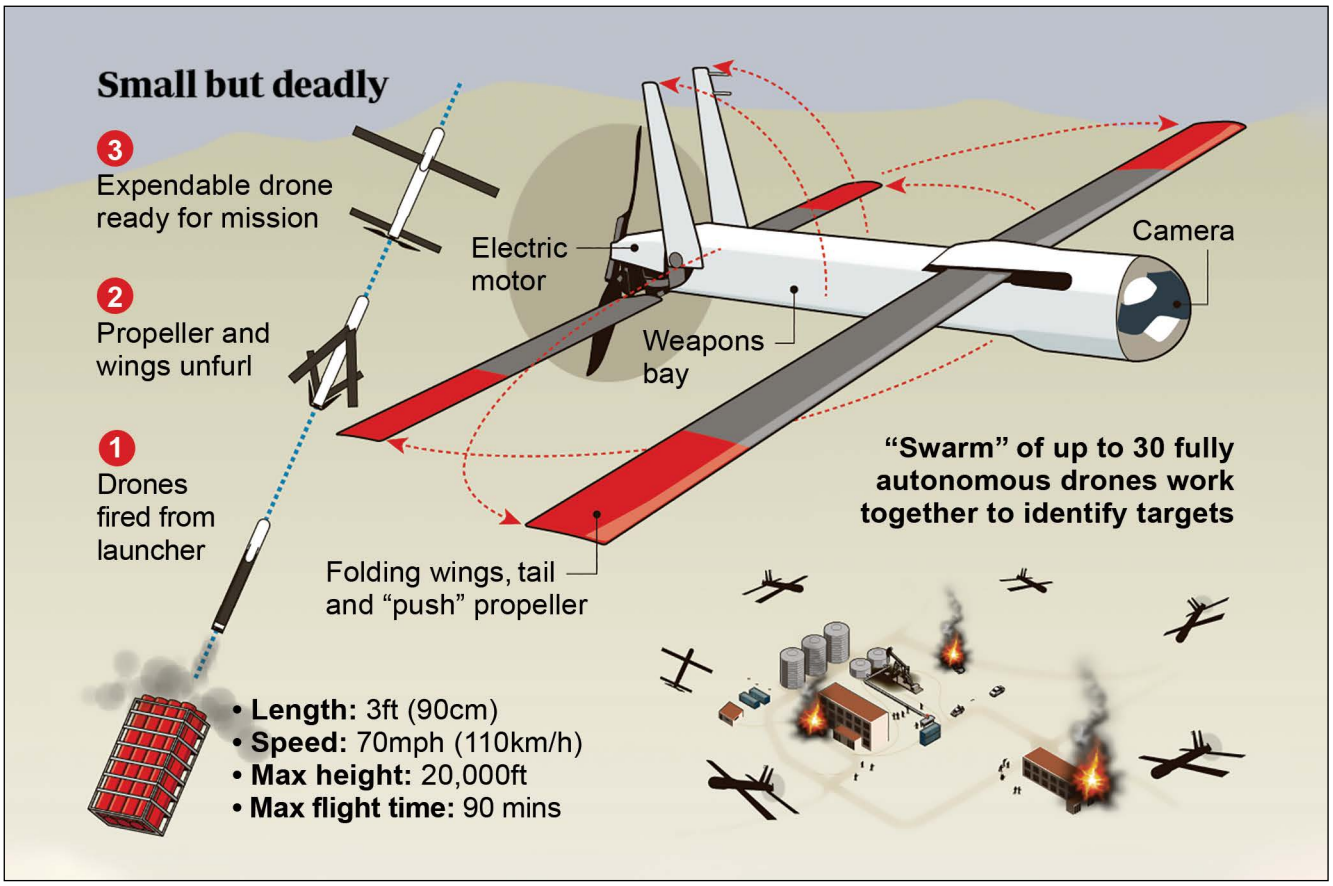
A German V-1 rocket prior to launch.

INTERFOTO/Alamy Stock Photo B3EHOJ

German V-2 rocket on a Mielier vehicle, circa 1943.

vehicles (UCAVs).[19] The logical extension of this technology is its applicability to UAV swarming, where, just as in nature, swarming systems have individual agents that interact with one another and their environment. These agents follow simple rules, but the collective interactions between the agents can lead to quite complicated and sophisticated collective behaviours, including emergent behaviours, and even intelligence aspects. For example, a swarm may stay in formation while changing direction several times.[20] In order for this to be achieved, individual units must be physically-homogenous with the same programming and the same sensors, which enables an autonomous swarm to communicate with each other, noting that the sensors are used to disguise swarm behaviour, which are often based upon environmental factors outside the swarm.[21]

Currently, medium-size UAVs are optimised for ISR and light strike operations in non-contested or relatively permissive environments. However, significant advances have been made in developing the next generation of smaller UAVs with the ability to swarm,[22] in order to attack specific military targets.[23] This has the added advantage that they waste enemy resources by drawing fire,[24] or alternatively, they could be equipped to jam enemy communications via on-board sensors. This generation of small UAVs has been developed to be modular, adaptable and inexpensive, given that the payload they carry determines the type of mission they can execute. Such small UAVs have been found to be a cheaper and more cost-effective all-round military technology when one compares the costs to, for example, the F35 Joint Strike Fighter programme, which has cost approximately 1.5 trillion US dollars, to date. With most naval anti-ship and air to ground missiles costing upwards of a million dollars each, the goal has been to cost-effectively produce an entire swarm of small UAVs costing less than a single missile. This goal has already been achieved with Raytheon's *Coyote* small folding wing UAV (see Figures 1 and 2), which cost around $15,000 USD per unit,[25] with the challenge being to reduce the costs even further to somewhere between $5,000-$7,000 USD per unit.[26] Indeed, UAVs of all classes have taken on offensive capabilities with the integration of adapted and purpose-built munitions, and look set to take on more roles as their capabilities are expanded and improved. For example, Defence Advanced Research Projects Agency (DARPA) are currently working on armed 'deploy and recover' UAVs, which can also be launched from a 'mothership,' as shown at Figure 3, and which are recovered post-mission.[27]

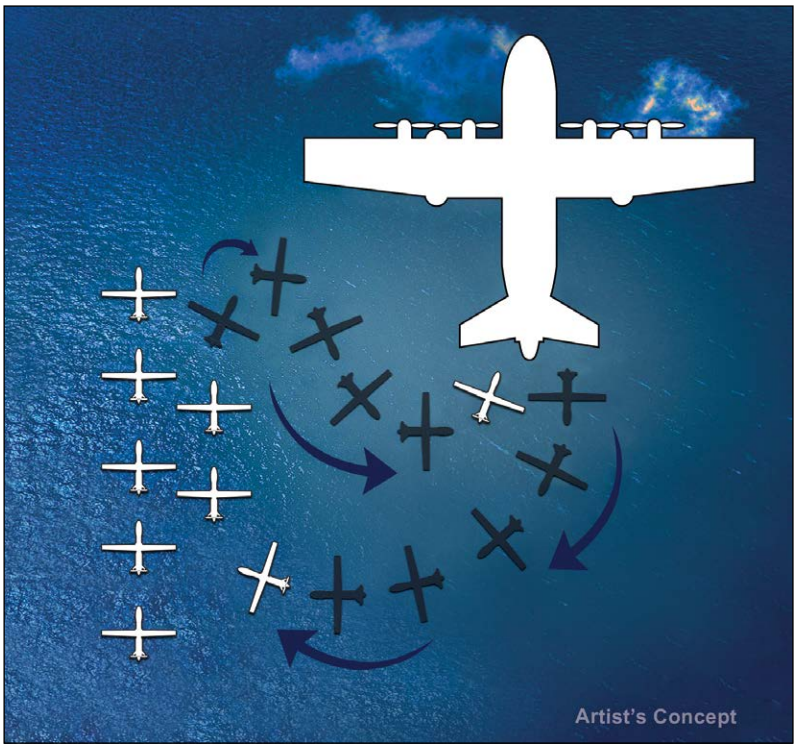


Redrawn figure from *Swarms of drones 'will think for themselves'* by Deborah Haynes.

Figure 2 – Cheap and expendable armed UAVs being tube-launched.[28]

A significant milestone in the future of air warfare was achieved in late-2016, when the US Navy successfully demonstrated that a flight of around 30 *Coyote* UAVs could be fused into operating as a single swarm, above the ocean, and at an undisclosed location.[29] The mission was intended to show that the swarm could be self-configuring, so that if one UAV was destroyed, others in the swarm could autonomously[30] change their behaviour and complete the mission. Thus, small UAV swarm systems, which are aware of each other's position and movements, have been an incredible advance, meaning that UAV swarms can be much harder to stop.

In these tests, the UAVs also demonstrated that they could position themselves autonomously, flying in formation without being directed where to go, which, as opposed to remotely controlled operation, represents a major evolutionary leap forward, since the swarm effectively displayed 'collaborative behaviour.'[32] The *Coyote* UAVs are a metre-long tube-launched, electrically-powered small UAV. Designed to be an expendable asset used for reconnaissance, this UAV has folding wings, so it can be fired from the tubes used for dropping sonobuoys on anti-submarine aircraft, or from a



Redrawn figure of DARPA Gremlins from www.defensemedianetwork.com

Figure 3 – Cheap and expendable armed UAVs being launched from an aircraft.[31]

DVIDS 747118/US Navy photograph by Lieutenant (JG) Jeffrey Prunera

The *Los Angeles* Class attack submarine USS *Providence* transits the Thames River as it departs Naval Submarine Base New London for a regularly-scheduled underway.

pneumatic launcher on a navy ship. Weighing around 6 kilograms, once launched, the *Coyote*'s wings flick out and it can fly for up to 1.5 hours on battery power, while at the same time beaming back video messages from 30 kilometres away.[33] *Coyote*s were also used by the US Office of Naval Research (ONR) in a programme known as 'Low-Cost UAV Swarming Technology' (LOCUST), which was designed to demonstrate whether autonomous, swarming small UAVs can overwhelm an adversary more cost-effectively than conventional weapons systems.[34]

The impressive thing about the LOCUST testing by ONR is that they launched 30 UAVs within 40 seconds, upon which the UAVs rapidly formed into a swarm, and then flew autonomously in formation to carry out the mission, communicating by using a low-power radio–frequency network, which enabled position sharing and other data.[35] As endurance is limited to 90 minutes of operation, rapid launch was crucial for the battery-powered UAVs, which were designed to be platform, payload and mission-agonistic.[1,15] The swarming mechanism used was a 'parent/child' relationship, in which one of the UAVs acts as the *lead*, and the other UAVs *follow*. However, the 'leader' can also be changed in case it is destroyed during the mission.[1] Interestingly, using certain electronic commands, the operator can redirect individual UAVs to perform other missions, and the swarm can also be broken up into smaller groups for alternative manoeuvres, or a single UAV might break formation[36] to get a closer look at a target, and then return to carry out an attack.[37] These scenarios indicate that a significant degree of formation control has been achieved, along with other vital data collected, which included how tight the formation could fly as a swarm, at what altitude, and what type of manoeuvres it could perform.[38]

In October 2016, the USN also successfully launched 103 miniature swarming drones from F/A-18 fighter jets, which was carried out at an undisclosed location.[39] Then, in early-2017, the USN carried out similar tests at the Naval Air Weapons Station China Lake Test Range Facility in California.[40] In both tests, Perdix micro-UAVs successfully demonstrated advanced swarming behaviours, such as '…collective decision making and adaptive formation flying.' These Perdix low-altitude micro-drones were not pre-programmed, synchronised individual units. They were a collective 'organism,' sharing one distributed brain for decision-making and adapting to each other like swarms in nature.[41] As every Perdix communicates and collaborates with every other Perdix, the swarm has no leader, and can gracefully adapt to drones entering or exiting the team.[42]

Previous successful demonstrations have included an airdrop from F-16 fighter jet flare canisters by the US Air Force Test Pilot School at Edwards Air Force Base in 2014.[43] The US Navy have also successfully launched X-wing-shaped small

drones vertically into the air, after being fired from the torpedo launch tube of a submerged US submarine, the USS *Providence*, in December 2013.[44]

While these demonstrations by ONR and others have been impressive, there are still hurdles needing to be overcome before these new capabilities become fully established. Firstly, autonomous 'sense-and-avoid' technologies in small UAVs are still in their early developmental stages, and solutions will need to be found, although as processors are getting more powerful and reliable, this issue is likely to be resolved via the use of deep learning and neural networks as technology advances.[45] This is important, because it's one thing to fly a swarm above open water, but then it's quite something else when that swarm needs to be flown above land where there are numerous obstacles to avoid, such as buildings, power lines and trees, let alone a land warfare scenario, where there may be adversary weaponry with which to contend.[46]

Secondly, there are two other issues in establishing trust with respect to completely-autonomous systems, which again, are likely to be overcome eventually as more tests are safely completed. Thirdly, there is the issue that a swarm's endurance is limited by the duration of its battery life. Again, a potential solution to this problem is to establish a 'hive' or base station, where individual UAVs can return for recharging while the rest continue with their mission.[47]

Lastly, public safety policies predominantly treat unmanned aircraft as if they are manned, meaning that they are highly regulated if they endanger public safety, or enter civilian airspace. The issue here being that policy makers will be more cautious as they are dealing with UAVs being operated fully autonomously, as opposed to being remotely piloted, which is still preferable from a flying safety standpoint.[48] It is important to compare the differences between the two systems at this juncture. An RPA is the acronym for a Remotely Piloted Aircraft, which is a form of an unmanned aerial system (earlier acronyms for this were UAS), which is non-autonomous in its capacities, the aircraft being subject to direct pilot control at all stages of flight despite operating remotely from that pilot.[49] Swarming UAVs are flocks or groups of small UAVs that can *move and act as a group* with only limited (semi-autonomous) or no (autonomous) human intervention.[50] These systems also differ in that RPAs usually have a much longer flight duration (or loiter times), whereas swarming UAVs, currently have a limited flight duration of up to 1.5 hours maximum (although R&D continues into methods which may keep them in the air for longer periods). Lastly, RPAs should be considered as a safety critical system, as they often fly in and out of civilian airspace. Some authorities consider the risks posed by swarming UAVs as being too great, and advise that those risks should be considered sooner rather than later before their destructive potential reaches maturity.[51] Swarming UAVs can be considered both *safety critical* and *mission critical* systems, although they are primarily a mission critical system (as indeed are weapons), and it is for this reason that they should not be released into civilian airspace other than for the purpose of an authorised military mission.[52] In this interesting new source, future human decision-making regarding complex military and safety critical systems is analysed in detail. It addresses the likely changes to weapons, cyber warfare and artificial intelligence (intelligent and autonomous systems) to emphasize that these new capabilities need to be thoroughly tested before being fielded, in order to ensure they are safe and operationally effective, while at the same time, mitigating unintended hazards and adverse effects. They also provide detailed explanations with respect to meaningful human control[53] during the Find, Fix, Track, Target, Engage, Assess (F2T2EA) 'kill chain,' with recommendations for ethically-aligned design of AI and autonomous weapons.

"Lastly, public safety policies predominantly treat unmanned aircraft as if they are manned, meaning that they are highly regulated if they endanger public safety, or enter civilian airspace."

The advantage of robotic swarms is that they are not limited to one particular military domain only,[54] as they will likely prove be equally effective across *all* domains, particularly when used in combination with the advanced tactics that they were designed to undertake, whether they may be *offensive* or *defensive* in nature. To this end, drone swarms could be used to blanket enemy areas with ISR assets, to jam enemy air defences, and to overwhelm enemy targets with firepower. They would likely be particularly useful in all phases of the F2T2EA targeting cycle, and as an alternative to precision-guided munitions (PGMs), because even the most advanced PGMs become useless if targets cannot be located and designated for attack.[55]

UAV swarming technologies and tactics bring significant changes to warfighting capabilities, including the ability for 'kamikaze-style' attacks to overwhelm adversarial assets, which can include neutralising enemy missile batteries, radar stations and other systems, or by rendering same sites vulnerable to attacks by more heavily-armed manned aircraft. They can also be deployed to conduct important ISR and other imagery missions deemed too heavily defended to be carried out by manned aircraft. UAV swarms can also be employed in defensive roles where they can protect larger navy ships, heavy armour and artillery, or large aircraft assets from attack by establishing defensive barriers. Indeed, LOCUST is part of an effort to develop autonomous technologies that can be applied across surface, undersea and air domains.[56]

Conclusions

The growing importance of unmanned vehicles stands as a testament to the evolution of military technology.[57] It is the author's view that UWS, including swarming UAVs, are the future of warfare. The ISR-gathering value of unmanned vehicles is well-demonstrated, as UAVs can remain on station over areas of interest sometimes for days at a time, making

them one of the most valuable persistent-surveillance platforms available.[58] As a weapons platform, UAVs with light missile armaments have taken out attacking forces, and have killed many terrorist leaders in the Middle East in precision surgical strikes.[59] Furthermore, unmanned vehicles help keep humans out of harm's way. As a result, battlefield casualties can be reduced, and UAVs cut down on the possibility that a human aircraft pilot will be shot down, taken captive and remain in the headlines for months, if not years.[60]

Research into swarming UAVs is one of the fastest and most promising areas of military R&D today, as swarms have essentially advanced the capabilities of UAVs even further. These has been possible mostly because of algorithms, in that their application is that which governs swarm behaviour, making communication and cooperation possible within the swarm. Essentially, UAV swarms are low-technology hardware knitted together with high-technology artificial intelligence (AI).[61] This combination will likely become a powerful weapon of the future, including both lethal and non-lethal applications, enabling essentially a light attack force to defeat more powerful and sophisticated opponents.[62] Such algorithms will enable UAVs and UAV swarms to conduct a much wider range of functions without needing human intervention, such as sensing, targeting, weapons adjustments and sensor payloads, range and capabilities.[63] Developments with respect to AI will better enable unmanned platforms to organise, interpret and integrate functions independently, such as ISR filtering, sensor manipulation, manoeuvring and navigation; hence emerging computer technology will better enable UAVs to make more decisions and to perform more functions by themselves.[64] The advent of swarm technology heralds a period that could reverse the trend of the past quarter of a century of US military dominance, which has seen the deployment of fewer but more advanced – and expensive- weapons platforms. The next generation of weapons may see sophisticated technology systems outdone by the sheer numbers of autonomous swarms[65].

"Just when the US achieves its goal in developing these new UAV swarming capabilities ready for acquisition and deployment as front-line weapons systems remains to be seen."

Just when the US achieves its goal in developing these new UAV swarming capabilities ready for acquisition and deployment as front-line weapons systems remains to be seen. The results so far have demonstrated that it is well on track to meeting research goals in the near-future, as it continues development and testing on a range of systems and levels of autonomy. The creativity and innovation of these projects represents an unprecedented paradigm shift in small UAV launch systems, strategy and tactics with the myriad modes of operation, and the technology certainly has the characteristics to be a 'game-changer' for the US and its Allies.

DVIDS 5356101//US Army photo by Pv2 James Newsome

The US Army 11th Armored Cavalry Regiment and the Threat Systems Management Office operate a swarm of 40 drones to test the rotational unit capabilities during the battle of Razish, National Training Center on May 8th, 2019. This exercise was the first of many held at the National Training Center.

NOTES

1. The ability to conduct a military bombing mission with pinpoint precision and efficacy. As per G. Martinic, 'Drones' or 'Smart' Unmanned Aerial Vehicles? in *Australian Defence Force Journal.* Issue 189, Nov/Dec 2012, p.1.
2. For an example of a precision surgical strike mission, see Associated Press, 'Abu Yahya al-Libi, al Qaeda deputy leader, killed in U.S. drone strike.' CBS News, 5 June 2012, at: http://cbsnews.com/8301-202_162-57447601/abu-yahya-al-libi-al-qaeda-deputy-leader-killed-in-u.s-drone-strike/
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18. E.C.Whitman, 'Unmanned underwater vehicles: beneath the wave of the future,' in *Undersea Warfare Magazine,* September 2013. Whitman reports that the LOCUST project manager had been working closely with the Georgia Technological Research Institute to develop the system in which individual UAVs could position themselves autonomously, while flying in formation without being directed explicitly where to go.
19. Martinic, 'Drones' or 'Smart' Unmanned Aerial Vehicles?
20. Lachow.
21. *Ibid.*
22. Aggregation refers to the UAV's ability to join the swarm, as per Hambling, p.2
23. *Ibid,* p.1.
24. *Ibid.*
25. N. Lee, Video: 'Watch the (US) Navy's LOCUST launcher fire a swarm of drones,' at *Business Insider Australia, 2017.*
26. G. Warwick, 'ONR: Swarming UAVs could overwhelm defences cost-effectively,' in *Aviation Week & Space Technology,* pp.1 and 2, 2015.
27. B. Stevenson, 'DARPA seeks information on manned UAV mothership,' in *Flighglobal.com*, November 2015, p.1.
28. Redrawn figure from Deborah Haynes Friday, Swarms of drones 'will think for themselves', in *The Times & Sunday Times*, 17 April 2015. Also sourced from pinterest.com. Accessed 16 November 2017.
29. Hambling, p.1.
30. *Autonomous* here indicates that once launched, the UAVs will perform a mission that was pre-programmed by humans. The swarm is not self-aware, and does not make decisions of its own (apart from navigation to stay on mission, etc).
31. Redrawn figure of DARPA Gremlins from www.defensemedianetwork.com. Accessed 19 November 2017.
32. Hambling, p.1
33. Note that Tenix had proposed the use of the ACR *Coyote* for release from AP-3C *Orion* aircraft sonobuoy tubes for an unsuccessful Capability Technology Demonstrator option in 2008 for eventual use with the P-8 *Poseidon*.
34. Lee.
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Potsdamer Platz, Berlin, Germany, 9 July 1945.

"Our Main Duty in Berlin Having Been Fulfilled": The Canadian Berlin Battalion on Parade in the Fallen Capital, 21 July 1945[1]

by Steven Bright

Starting his career in Ottawa in 1994, Steven Bright *worked in public affairs for many years before setting out on his own inn 2011. He writes digital content and speeches for a range of public and private sector clients, while also pursuing long-standing interests in military history. Based in Oakville, Ontario, Steven holds degrees from Western, McGill, and the Royal Military College of Canada.*

Introduction

Demonstrations of hard-fought victory and unconditional surrender, Allied parades in Europe following the Second World War sent clear messages that years of sacrifices had value. They were highly symbolic for participants and observers alike as combatants tried to recover from the costliest war in human history. What's more, the physical stamp of Allied boots on the fallen Nazi capital augured a future wherein Germany would become a different kind of battleground for decades to come.

The Canadian Berlin Battalion was constituted for the sole purpose of parading through that collapsed city while the white-hot rubble still smoldered. Some 2,141 days after the senior Dominion joined Britain in declaring war against Hitler's Germany, Canadians marched alongside the British in a show of unity and victory under the literal and metaphoric shadow of Berlin's Brandenburg Gate. Having fought their way from Normandy, up Italy and along the Scheldt estuary in Belgium, the troops of the Canadian Berlin Battalion represented 17,682[2] fallen comrades killed during hostilities.

This story, however, tends to sit in the shade of Canada's immediate post-war narratives that often focus upon reconstruction *at home* and building new institutions *abroad*. Canada's own prime minister largely ignored the Berlin Battalion, and Berliners themselves appear to know little about it. The Alliierten Museum in Berlin, for example, curates a collection that begins its story "with the German defeat in World War II."[3] Yet, they have no papers or artifacts relating to the Canadian Berlin Battalion. "It is a blindspot we have to research ourselves," wrote Bernd von Kostka, Curator of the Museum, "but it has not been done (yet)."[4] Based on war diaries, first-hand accounts, planning documents, and newspaper articles, this article takes an in-depth look at the context, the planning, and the experience of a parade in an effort to shed light on that blind spot by moving it from the shade of history.

Discussion

The first steps on what became the road to this parade were taken by two Canadian members of the combined RAF/RCAF Service Police Unit Section of the 2nd Tactical Air Force RAF.[5]

On 7 May 1945, Flight Lieutenant M.M. (Mike) Carmichael and Sergeant L.G. (Larry) Pincombe, members of 2nd TAF, were given a very important order. "I was called off a routine service police job and instructed to go to the airfield near our unit to wait for an escort job," recalled Carmichael, who was an ex-RCMP officer from Braeside, Ontario, a week later. Accompanied by Pincombe, formerly of the Saint John Police Force, the two Canadians were told to take a flight to Flensburg[6] to pick up "six important German officials for the purpose of signing the unconditional surrender agreement" in Berlin.[7]

They were scheduled to take off the next morning at 08:00 hours, but there was a slight hitch to the plan. "We found out that the German officers had been celebrating the previous night," Carmichael stoically reported, "and [they] had some difficulty getting ready in time." The hung-over Germans were no ordinary officers. They were Field-Marshal Wilhelm Kietel, Chief of the Armed Forces High Command,[8] Admiral Hans-Georg von Friedeburg, German Commander-in-Chief of the *Kriegsmarine*,[9] General Hans-Jürgen Stumpff, Chief of the General Staff of the *Luftwaffe*,[10] and their respective aides, all preparing themselves to endure the ignominy of signing documents that would officially end the Third Reich.

Leaving two hours late, Carmichael, Pincombe and their VIP charges landed further south, in the American sector, to meet RAF Air Chief Marshal Sir Arthur Tedder and some high-ranking American officers. Joined by a Russian aircraft escort, they all took off again for Berlin. Upon landing at Templehof airport, the flags of Britain, Russia and the U.S., held by three Russian officers, "…were floated in front of the guard of honour"[11] before the road vehicles drove off just after 14:00 hours on their way to the historic signing.

Carmichael was the first Canadian to step off the aircraft that day. He was thus the first Canadian to step into Berlin throughout the entire war, with Pincombe very close behind him. But they were far from the being last Canadians to walk in Hitler's collapsed capital. On 21 July, 1945, Canadian soldiers from across the country paraded down a very historic street in that fallen city. The Canadian Berlin Battalion, as their group was known, was put together to demonstrate Canada's unquestionable participation in the war that had just ended. It also signaled, in a more amorphous manner, an eagerness to play some role in the continent's future.[12]

In some ways, that future started on 11 December 1944, when Prime Minister William Lyon Mackenzie King's government first approved the participation of Canadian troops in the anticipated British Army occupation of Germany. This intention to participate was formally communicated to the British government on 12 January 1945 in a "Top Secret" memo that began by saying the Canadians had committed to participating "…in the occupation of Germany after that country has been defeated."[13]

"In some ways, that future started on 11 December 1944, when Prime Minister William Lyon Mackenzie King's government first approved the participation of Canadian troops in the expected British Army occupation of Germany."

The "Canadian Force," as it was originally called, was to consist of an occupational group organized on an infantry formation of approximately 25,000 men.[14] [By 11 July, 3rd Canadian Infantry Division, Canadian Army Occupation Force, (CAOF) was commanded by Major-General Chris Vokes in Bad Zwischenahn in northwest Germany, comprising a total strength of 853 officers and 16,983 other ranks.[15]] These plans, in turn, fell under the broader umbrella of detailed instructions for the occupation of Germany as laid out in Operation *Eclipse*. The overall objective of *Eclipse* was to "…ensure that once and for all no possible shadow of doubt shall be left in the mind of a single German that the military might of the Third Reich has been shattered."[16]

Plans evolved as Allied victory appeared to be increasingly likely. In March 1945, Field-Marshal Bernard Montgomery asked the Canadians if they would like to participate in the British portion of a proposed Allied garrison in Berlin. General Harry Crerar, General Officer Commanding (GOC) of the First Canadian Army, felt this was more of a political than a military decision. Lieutenant-General J.C. Murchie, Chief of the General Staff back in Ottawa, felt otherwise. As historian C.P. Stacey explained, Murchie said Canadians should participate in the occupation of Berlin. "…both on national grounds and to give Canadian troops satisfaction of having token detachment present at entry of enemy capital."[17] Therefore, a parade it would be, in addition to the CAOF.

The Allies, however, still had to win the war before they could parade victoriously in Berlin.[18] And those last weeks of hostilities, as the Allies closed in on the capital, were massively destructive. "We arrived over Berlin to find it covered in a smoky haze," Pincombe remarked in that radio broadcast of 15 May. "And it was still burning in some places. The city itself was almost completely ruined. Nothing much left except shells of buildings."[19] A story

published in *The Toronto Daily Star* on 9 May by Harold King, the Berlin-born, Paris-based bureau chief of Reuter's,[20] painted a similarly-grim picture of a city he once knew very well: "It is doubtful if one can speak of a Berlin any longer. Death has come to Berlin in an apocalyptic form. The piled-up ashes will weigh heavily on the wings of the German phoenix seeking rebirth."[21]

What Pincombe, King and many others observed first hand was the aftermath of a comprehensive pummeling by air and land. Of 13 major German cities bombed during the war, Berlin had received the highest share – more than 68,000 tons of Allied bombs, or almost 17% of the 419,808 tons of bombs dropped by Bomber Command and the United States Army Air Forces.[22] Devastation wrought by ground-based Russian troops storming in from the east was enormous in its own right. The Russians burst into Berlin on 21 April and pummeled it to the ground in only 12 days. The resulting carnage was widespread and rapacious.[23] An estimated 22,000 civilians inside Berlin died in the all-out battle, on top of approximately the same number of German military.[24] Some residents saw suicide as their only way out. In April, 3,881 suicides were recorded in Berlin, nearly twenty times the figure for March.[25]

"The fighting was over and the green shoots of peace slowly emerged from years of darkness."

The end, however, eventually arrived. On the evening of 4 May,[26] Montgomery, assisted by his Canadian aide-de camp, Lieutenant-Colonel Trumbell Warren,[27] held a solemn surrender ceremony inside a tent on Lüneburg Heath, east of Hamburg. Admiral Friedeburg signed for Germany, thus signaling the surrender of all German armed forces in Holland, northwest Germany and Denmark.[28] [A memo was sent that same evening to First Canadian Army saying, "…all offensive action will cease from receipt of this signal."[29]] Two further surrender ceremonies, one in Reims on 7 May, and the other just outside Berlin on 9 May,[30] well and truly marked the end of the war against Germany.

The fighting was over and the green shoots of peace slowly emerged from years of darkness. But before anyone managed to sort out the shape or vitality of that peace, soldiers on the ground still had to be accounted for, and eventually, be brought home. CBC Radio war correspondent Matthew Halton, in his dispatch of 5 May from Germany, verbally painted perhaps the best picture of what this very fresh news meant to Canadian soldiers in theatre:

> *"Today the sun rises as it hasn't risen for nearly six years and soldiers I've talked to don't quite know what to do about it. They shave and have breakfast. They clean their guns. They try to brush the mud off their clothes. They ask if there is any mail. After all, they've lived strange, dangerous lives. It's hard to believe that no shells will come screaming over. It's hard to believe that if they stand up in the open, nobody will shoot at them. Death has walked at their side. It's hard to believe for a day or two that the nightmare is over."*[31]

The Canadians chosen to go to Berlin were informed before the final surrender was even signed. On 6 May, "in the midst of all this confusion," wrote Corporal Kurt Loeb, author of much of the war diary of the Argyll and Sutherland Highlanders of Canada (Princess Louise's):[32]

> *"[a] rather sensational item was brought to us …. The Argylls had been chosen as one of three Infantry Battalions to represent the 1st Canadian Army in Berlin. No exact details of the move to the German capital were given, but we were advised that we would remain in Berlin for one month, together with the Fusiliers Mont-Royal and the Loyal Edmonton Regiment, the trio forming a new Brigade to be known as the "Canadian Berlin Brigade."*[33]

Their new Berlin-bound colleagues in the Loyal Edmonton's were more effusive about the breaking news and the peacetime adventures it represented.

> *"Everyone, particularly the officers, were more than thrilled by this news than by the capitulation of the enemy on our front for it has long been the ambition of many of us to march through BERLIN and the honour of representing the 1st Division was greatly appreciated by all ranks."*[34]

The initial Canadian plan, publicly announced on 13 May,[35] was to send a brigade-sized force to Berlin with broad representation by infantry, artillery, engineers, signalers, armoured, administrative and auxiliary units.[36] The original Order of Battle outlined 250 officers and 4,997 other ranks, with Brigadier J.D.B. Smith, CBE, DSO,[37] as the Officer Commanding.[38] Less than a month later, though, it was called off. On 8 June, Major A. A. Tucker of the Loyal Edmontons attended a conference "…at HQ Berlin Bde in the morning and returned about noon with information that the trip to Berlin for this Bn had been cancelled and we would re-join 2 Cdn Inf Bde shortly. This caused no surprise as it has been long felt by all ranks that the arrangements for the trip had become bogged down."[39]

> *The Argylls received the same information that day, and were equally unsurprised by news, "…which we had been expecting, subconsciously, for quite some time. Our proposed trip to Berlin was cancelled, the Berlin Brigade ceased to function, as such units would rejoin their respective Brigades and Divisions within two or three days."*[40]

Military plans *can* change, however, and often *did*. Within days, the Berlin expedition was back on, but with a significant downgrade to a battalion-sized presence to accommodate the limitations of Berlin's heavily damaged transportation infrastructure.[41] Bringing in thousands of parading Allied soldiers would overly tax an already- overwhelmed system. Given the circumstances, sending a battalion was deemed the better choice.[42] A composite battalion was therefore formed, with representation from the 1st, 2nd and 4th Canadian Divisions, the 3rd Division, having already been formed into the CAOF.

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Lieutenant-Colonel Albert Coffin, DSO, Commanding Officer of the Argyll and Sutherland Highlanders of Canada.

Library and Archives Canada ZK-1030-1

The Regimental Sergeant Major of the Argyll and Sutherland Highlanders during the Berlin deployment.

The Berlin Battalion was commanded by Lieutenant-Colonel A.F. Coffin. A pharmacist from Medicine Hat,[43] Coffin succeeded Lieutenant-Colonel Fred Wigle in the Argylls after Wigle had been killed[44] on 14 April, "…while organizing the defence of his tactical battalion headquarters against an attack of German infantrymen."[45] The Argylls were chosen to supply a headquarters company and a rifle company for the Battalion, and as of 21 June, it consisted of 42 officers and 894 other ranks for a total of 936 personnel. Of the officers, 15 were from the Argylls. However, Coffin's regiment was mathematically-outnumbered in terms of total strength. [See Table 1] Representatives from a variety of other services filled out the numbers.[46]

Contributing Regiment	Officers	% of Officers	Other Ranks	% of Other Ranks
Argyll and Sutherland Highlanders of Canada	15	35.7	230	25.7
Fusiliers Mont-Royal	12	28.5	320	35.8
Loyal Edmonton	10	24	258	28.9
3 CIC Brass Band	0	0	31	3.5
Canadian Provost Corp	1	2.3	9	1
Royal Canadian Corps of Signals	0	0	3	0.3
Royal Canadian Army Service Corps	0	0	32	3.6
Canadian Film and Photo Unit	1	2.3	3	0.3
Axillary Services	1	2.3	5	0.6
Canadian Dental Corps	1	2.3	2	0.2
Padre and Driver	1	2.3	1	0.1
TOTAL	**42**	**100**	**894**	**100**

Table 1: Composition of the Canadian Battalion in Berlin, 21 June 1945.

Author from data contained in the Argylls' War Diary, June 1945, Appendix 9.

Coffin had several issues to resolve in taking on his new responsibilities, the pace of his new troops among them. As reported in a Canadian Press story on 26 June, the Argylls "… prefer their own 110 steps to the minute, but the Loyal Edmontons are accustomed to 140." Meanwhile, the Fusiliers, "…who use 125, find the 110 pace slow."[47] These variable marching rates – an apt metaphor for challenges that Canada and all combatant countries faced in finding the proper pace and direction of post-war reconstruction – had to be sorted out, and it was sorted out. In the end, Coffin opted for the Fusiliers' 125-step pace, putting his new battalion on a united march for what would be their one-and-only ceremonial parade in front of the world's media in defeated Germany.

The battalion received instructions with respect to their move to Berlin at the end of June, and at 05:00 hours on 2 July, an advance party of 25 all ranks left Braunschweig, Germany, [having arrived there on 19 June from their base in Nijverdal, Netherlands]. The rest followed two days later. "Thus," wrote Loeb in the Argylls' war diary, "it was finally apparent that the Canadian Berlin Battalion would soon be able to live up to its name and start functioning in the very heart of Nazism and German or Prussian militarism."[48]

Coffin and the others entered Berlin on 4 July in time to see the Union Jack being unfurled over the Charlottenburger Chaussee (i.e., the road along which the Battalion would parade later that month), ",,, with about 2,500 German civilians mingled with English and Canadian soldiers." This unfurling, like the upcoming parade itself, held more important symbolic value than anything else. "In its simplicity," *The Maple Leaf* reported, "the flag-breaking ceremony, which had neither speeches nor a march-past, held a world of meaning for the beaten Berliners, just as its significance was not lost on the troops who helped bring down the Third Reich."[49]

"When first arriving in Berlin, members of the Battalion did not know exactly what they would be doing."

When first arriving in Berlin, members of the Battalion did not know exactly what they would be doing. However, it had been obvious to them for some time that they would have something to do with the Big Three conference to be held in Potsdam, just outside Berlin, as of 17 July. Writing in the Argylls' war diary, Loeb said, "…it was apparent that our role there [Berlin] would be in connection with the impending conference."[50] That connection, as soon became clear, was to fly the flag of victory in Berlin while the leaders of the United States, Britain, and the Soviet Union sorted out the new world order. As Loeb wrote many years later, the role of the "boys of summer" was "…purely symbolic, we had no specific military duties, and there were no incidents of German resistance or suicide missions."[51]

With time on their hands, many soldiers took to playing sports in Berlin's Olympic Stadium, host venue of the 1936 Olympic Summer Games. The stadium made famous by Jesse Owens only nine years earlier was the perfect venue for track and field events,[52] as well as baseball. The Canadians and Americans played several baseball games, each side winning a few games in that "monster stadium."[53]

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Canadian Berlin Battalion being reviewed at the flag hoisting ceremony, 6 July 1945.

But it was not all fun times… Parading was a serious business that demanded practice, especially since the Canadians would be marching with the 7th Armoured Division – the famous "Desert Rats" – in front of the likes of Churchill, Montgomery, American President Harry Truman, General Dwight Eisenhower and Marshal Zhukov. The Battalion joined a dress rehearsal on 13 July with 2,000 veterans and, "…417 freshly painted vehicles of all types" practicing for what was to come.[54] Not all went well, however, and the next two days were spent "correcting the faults" made during rehearsal.[55] The men were advised a few days later that the main Victory Parade was to be held on Saturday 21 July. Given ribbons to look particularly smart, the men of the Battalion were "…probably the first Canadians to parade anywhere wearing this war's campaign decorations."[56]

Library and Archives Canada/ZK-1024-2

Marshal Georgy Zhukov, wartime leader of some of the Red Army's most decisive battles, inspects the Canadian Berlin contingent.

Library and Archives Canada/ZK-1024-1

Field Marshal Bernard Montgomery and Soviet officers taking the salute at the Brandenburg Gate.

Parade day "… dawned cool and clear and the troops, in excellent spirits on the prospect of getting it over with," as the Loyal Edmonton war diarist dryly remarked.[57] However, like earlier rehearsals, not all went to plan. "For unknown reasons," Loeb wrote in the Argylls' diary, "the originally planned joint Allied parade did not take place." Instead, it was decided to hold separate parades for British, American and Russian troops, "each before their respective representatives in Berlin."[58] Thus, the Canadians would parade with only the Desert Rats.[59]

The morning's ceremonial proceedings began with a procession of 50 dignitaries on eight half-track vehicles driving past the assembled units "in nothing flat."[60] Churchill, Sir Allan Brooke, Montgomery and General Lewis Lyne[61] rode in the first half-track, the only vehicle carrying four VIPs. [The second through to the sixth half-tracks each carried six VIPs, with the last two carrying eight each.] The first non-British VIPs – Russian Colonel-General Alexander Gorbatov[62] and French General Geoffroi du Bois de Beauchesne[63] – rode together in the fifth vehicle. No Canadian VIPs

rode on those half-trucks, although Loeb pointed in his diary that, "…a multitude of red-tabbed British officers and not-so-fancy civilian representatives" were driven in the trucks along with senior officers.[64]

The march-past began at 10:00 hours. Walking six abreast, and moving along "… in speedy succession" expedited affairs in a parade that included 10,000 troops, an array of tanks, armoured cars, and self-propelled and tractor-drawn guns along a route of just over two kilometres, stretching from the Siegessaule to the end of the British zone in Berlin at the Brandenburg Gate.[65] Led by Brigadier J.M.K. Spurling, DSO, of the 7th Armoured Division,[66] the procession was 'bookended' by the 3rd Regiment of the Royal Horse Artillery, units of which marched first and last. The Pipe Band of the Canadian Battalion was 16th to go, followed immediately by their Berlin Battalion colleagues. Last, in 24th place, came the Motor Cyclists of the 3rd Regiment of the Royal Horse Artillery. Four bands, including the Pipe Band of the Canadian Berlin Battalion, brought musical accompaniment to the occasion, and they were joined in the march by three units from the Royal Air Force, and one from the Royal Navy.[67] It was all over by 11:10 hours...

Spectators eager to see and hear for themselves the sights, sounds, and symbols of Allied victory jammed both sides of the short route. Included among them was "…an assortment of American, British and Canadian newsreel-photographers," all of whom were "…trying to outdo one another in the originality of the shots obtained – for which purpose they were hanging from trees, sitting on their trucks or lying on their backs."[68] Churchill left almost immediately after the parade ended to speak with troops gathered at the newly-formed "Winston Club," where he referred to the parade as a reminder of "…a great many moving incidents of these last long fierce years." Hundreds of Germans cheered Churchill as he left, a scene that United Press correspondent Ronald Clark said was "the strangest thing [I] had seen since D-Day."[69] Members of the Canadian Battalion, job done, went back to their barracks, "…our main duty in Berlin having been fulfilled."[70]

"The men, given a day off after the parade, spent a few days preparing to leave the capital, and did so 27 July under the watchful eyes of thankful Berliners."

The men, given a day off after the parade,[71] spent a few days preparing to leave the capital, and they did so 27 July under the watchful eyes of thankful Berliners. Several locals gathered to watch the Canadians pull out, with one elderly German saying, "Canadians good, good," as the men left for Holland on their next, and, many hoped, their last step towards finally going back to Canada.[72] On returning to the Netherlands, members of the Battalion had stories aplenty to share with colleagues not chosen to parade in Berlin. "It was the best adventure I have ever had," the Fusiliers' war diary reported one of their returned soldiers as

Library and Archives Canada/ZK-1027-1

Marshal Zhukov and his senior staff meet with Canadians at the Brandenburg Gate.

saying. "The less lucky ones who had stayed behind spent the day questioning their friends on their Berlin adventure."[73]

Such enthusiasm was understandable. Members of the Berlin Battalion enjoyed the novelties and distractions of a major urban city – albeit one that barely survived the war – knowing firearms would not target them. Being held overnight in a Soviet prison for being out too late, a fate that befell a few members of the Battalion,[74] was about the extent of the risks they ran while living in Berlin for a few weeks. The parade was a highlight of their war experience, and one, they hoped, that marked the end of their life in Europe, and the start of their post-war life back home in Canada.

The same could not be said of the senior-most Allied military and political leaders charged with sorting out complexities stemming from winning the peace, as well as the war. Churchill's comments about "these last long fierce years" aside, he and his fellow Potsdam colleagues were more focused upon the tricky business of post-war statecraft to be done 35 kilometres away at the Cecilienhof Palace in Potsdam.

Field-Marshal Brooke, who referred to it as "Monty's victory parade," wrote in his diary that "…somehow it [the parade] left me cold."[75] Monty, meanwhile, made no reference to 'his' parade in his memoirs.[76] Nor did Churchill. Given the importance of the ongoing Potsdam Conference and the distractions of waiting for election results from back home,[77] for Churchill to neglect mentioning a 35-minute parade was perhaps not surprising. His post-war history dealing with that period focused upon the fifth meeting at Potsdam, during which the leaders debated at length with respect to Poland's borders. Meanwhile, back in Ottawa, Prime Minister William Lyon Mackenzie King seems to have largely ignored the parade altogether, having made no reference to it in his diary. In fact, the only reference to "Berlin" in his diaries for the entire month of July 1945 was those to Berlin, Ontario, the town in which he was born…[78]

Conclusion

The participation of the Canadian Berlin Battalion in that victory parade highlighted how thousands of Canadians abroad and back home had fought long, hard, and well throughout the war, and that Canada deserved a place of honour in a public display of Allied victory and German defeat. It also signaled that Canadians would be playing roles for years to come in the new battleground emerging from the rubble of six years of war.

It did not take long, as the Cold War was heating up that same summer of 1945… Indeed, at 20:30 hours on 5 September, only 46 days after the parade in Berlin, a Soviet cipher clerk named Igor Gouzenko walked out of the Soviet Embassy in Ottawa with 109 top-secret documents and into the offices of *The Ottawa Journal*. He was, as Jack Granatstein and David Stafford wrote, "…the man who started the Cold War."[79] Unbeknownst to them at the time, by parading east towards the Brandenburg Gate, members of the Canadian Berlin Battalion marched in victory in the exact opposite direction that many Berliners could only hope to run for freedom many years later.

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The Canadian Battalion marches past during the major parade in Berlin, 20 July 1945.

Library and Archives Canada/ZK-1027-5

Canadian and Soviet officers congregating at the Brandenburg Gate.

NOTES

1 The author would like to thank Dr. Andrew Burtch, Dr. J. Andrew Ross, Dr. Michael Bechthold and Dr. Robert Fraser for their thoughts on aspects of this article.

2 C.P. Stacey, *Six Years of War: The Army in Canada, Britain and the Pacific*, Ottawa: 1957, Appendix A, Table 2, p. 524.

3 "About us," at: www.alliiertenmuseum.de.

4 E-mail to author, 20 June 2019.

5 See Dr. David Ian Hall's "Creating the 2nd Tactical Air Force RAF: Inter-service and Anglo-Canadian Co-operation in the Second World War," in *Canadian Military Journal*, Vol. 3, No.4, Winter 2002-2003, pp. 39-45.

6 Flensburg in Germany near the Danish border was used during the war as an RAF advanced landing ground.

7 Stories recounted by Carmichael and Pincombe are found in a radio broadcast by Flight-Lieutenant Charles Hutchings on 15 May 1945. See "The First Canadian into Berlin," CBC Radio archives, at: www.cbc.ca/archives.

8 Keitel was tried and found guilty on four counts at the International Military Tribunal in Nuremberg. He was executed on 16 October 1946. *Wikipedia*, accessed 25 September 2019.

9 Friedeburg committed suicide on 23 May after becoming a POW of the British. *Wikipedia*, accessed 21 October 2019.

10 Stumpff was tried in Nuremberg and released by the British in 1947. *Wikipedia*, accessed 25 September 2019.

11 Matthew Halton, "Destruction of Berlin So Complete That City May Never Be Repaired," in *The Globe and Mail*, 10 May 1945.

12 See, for example, Jack Granatstein and R.D. Cuff's 1977 article, "Canada and the Marshall Plan, June-December 1947," in *Historical Papers/ Communications historiques*, 12 (1), pp. 196-213.

13 "The Canadian Army Occupation Force in Germany, May 1945 to June 1946", Report #174, Directorate of Heritage and History website, at: www.cmp-cpm.forces.gc.ca, p. 1.

14 "Letter to Under Secretary of State (U.K.) from Chief of Staff C.M.H.Q., 12 January, 1945, contained in "Appendix "B" in "The Canadian Army Occupation Force in Germany, May 1945 to June 1946", Report #174, Directorate of Heritage and History, at: www.cmp-cpm.forces.gc.ca.

15 They stayed in Germany for 10 months, with Vokes' headquarters turning over its responsibilities to the British 52nd (Lowland) Division on 15 May 1946. CAOF was officially disbanded on 20 June of that same year. See Stacey, *Victory Campaign*, pp. 621-622

16 "The Canadian Army Occupation Force in Germany, May 1945 to June 1946," pp. 1-16. .

17 C.P. Stacey, *Official History of the Canadian Army in the Second World War, Volume III, The Victory Campaign: The Operations in North-West Europe, 1944-1945*, Ottawa, 1960, pp. 620-621.

18 The quest to take Berlin followed a long and uncertain path. See Cornelius Ryan, *The Last Battle*, New York: Simon and Shuster, 1966, passim, and Michael Neiberg, *Potsdam: The End of World War II and the Remaking of Europe*, New York: Basic Books, 2015, pp. 42-44.

19 "The First Canadian into Berlin," 15 May 1945, CBC Radio Archives.

20 Born Harold Koenig in 1898, he later moved to London with his family and his father changed their surname to "King" at the outbreak of war in 1914. King died on 24 September 1990. See "Harold King, Reuters World War II Correspondent, Dies," Associated Press News, 25 September 1990.

21 Harold King, "If you would know war come to Berlin – Tedder," in *Toronto Daily Star*, 9 May 1945.

22 Numbers calculated by author based on Table 4.4 in Richard Overy, *The Bombers and the Bombed: Allied Air War Over Europe, 1940-1945*, London: Viking, 2013, p.301.

23 Rape by Russian soldiers of German girls and women was widespread in Berlin in April and May 1945. See Beevor, *Berlin*, pp. 406-420.

24 Peter Antil, *Berlin 1945: End of the Thousand Year Reich*, Oxford: Osprey Publishing, p. 85.
25 Niall Ferguson, *Kissinger,1923-1968: The Idealist*, New York: Penguin Press, 2015, p. 170.
26 The last Canadians killed during the war lost their lives that same day – 20 deaths out of 60 casualties on 4 May. An additional 10 casualties were reported the next day, three of them fatal. However, some of those reported as happening on 5 May have occurred on 4 May. See the asterisk footnote in Stacey, *Victory Campaign*, p. 611.
27 Born on 1 August 1915, Warren was the son of Captain Trumbell Warren of the 15th Battalion CEF, who died in the Second Battle of Ypres. Warren *fils*, who joined Montgomery's staff as a military aide in 1940, prepared the surrender documents on that day in May 1945. Warren died in Guelph, Ontario on 12 September 1999. Ed Butts, "Trumbull Warren was right-hand man to famed Second World War general," in *Guelph Mercury-Tribune*, 4 May 2017, plus emails from Butts to author.
28 Bernard Montgomery, *The Memoirs of Field-Marshal Montgomery*, Cleveland: The World Publishing Company, 1958, pp. 302-305.
29 Memo re-printed on page 11 of "The Canadian Army Occupation Force in Germany, May 1945 to June 1946", Report #174, written by Major C.E. Brissette, Directorate of Heritage and History website, at: www.cmp-cpm.forces.gc.ca/dhh-dhp.
30 At 00:15 on 9 May, Keitel, whom Matthew Halton described as "the Junker of the Junkers," "…fixed his monocle in his left eye, removed the glove off his right hand, and signed the document." Tedder and Field-Marshal Georgi Zhukov signed for the Grand Alliance, the defeated Germans left the room, and an all-night drinking party ensued. See Matthew Halton, "Destruction of Berlin so complete that city may never be repaired," in *The Globe and Mail*, 10 May 1945.
31 Matthew Halton, "German surrender: 'The time has come to be glad,'" 5 May 1945, at: www.cbc.ca/archives.
32 E-mail to author from Dr. Robert Fraser, 1 August 2019.
33 Argylls war diary, 6 May1945, Library and Archives Canada (LAC), RG24-C-3, vol. 15005, file no. 300, 1944/07-1945/11.
34 Loyal Edmonton Regiment war diary, 6 May 1945, LAC, RG24-C-3, vol. 15116, file no. 38, 1945/05-1945/08.
35 "Hamilton unit to participate in occupation," in *The Toronto Star*, 14 May 1945.
36 "Regiment has been chosen for important job in Berlin," in *Hamilton Spectator*, 15 May 1945.
37 Smith was Commander of 1st Canadian Infantry Brigade at the time (Stacey, Victory Campaign, p. 664), having previously commanded the 5th Canadian Armoured Brigade. See Douglas Delaney, *The Soldiers' General: Bert Hoffmeister at War*, Vancouver: UBC Press, 2005, p. 122. Smith went on to be post-war Commandant of RMC.
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39 Loyal Edmonton war diary, 8 June 1945.
40 Argylls' war diary, 8 June 1945.
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42 Argylls' war diary, 8 June, *op cit*. Robert Fraser, "Black Yesterdays: The Argylls' War," Hamilton: Argyll Regimental Foundation, 1996, p. 476.
43 William Boss, "Canadian Troops Await Order for March to Berlin," in *The Globe and Mail*, 3 July 1945.
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48 Argylls war diary, 30 June, op cit. *"Black Yesterdays," p. 480.*
49 Sergeant Ron Poulton, "Union Jack unfurled in shadow of famous Berlin Monument," in *The Maple Leaf*, 9 July 1945, Argylls' war diary, July 1945, Appendix 9.
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52 "Berlin Battalion Caper in Famed Olympic Stadium, in *The Maple Leaf*, 14 July 1945, Argylls war diary, July, 1945, Appendix 10.
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54 "Canadian Unit in Impressive Berlin Parade", *The Maple Leaf*, 14 July, 1945, Argylls war diary, July 1945, Appendix 11.
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57 Loyal Edmonton war diary, "Summary of Activities," 21 July 1945.
58 Argylls war diary, 21 July 1945.
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63 de Beauchesne served as Commandant of the French Sector from 11 July 1945 to 12 March 1946. *Wikipedia*, accessed 6 September 2019.
64 Argylls war diary, 21 July 1945.
65 "Churchill voices Empire's gratitude to men who gained victory – Hamilton represented," in *Hamilton Spectator*, 21 July 1945.
66 Spurling, a career officer, was in Hamburg on 3 May to accept the German surrender. One month later he led his brigade into Berlin as the first British formation to enter the German capital. See www.royalleicesterhireregiment.org.uk.
67 Argylls war diary, July 1945, Appendix 14.
68 Argylls war diary, 21 July 1945.
69 "Germans Cheer Churchill in Strange Aftermath to Victory Parade in Berlin", *The Maple Leaf*, 24 July, 1945, Argylls war diary, July 1945, Appendix 17.
70 Argylls war diary, 21 July,1945.
71 "Canadian Battalion to Leave Capital," in *The Maple Leaf*, 23 July 1945, Argylls war diary, July 1945, Appendix 18.
72 "German Tear Ducts Tapped in Farewell," in The Maple Leaf, 28 July 1945, Argylls war diary, July 1945, Appendix 19.
73 Fusiliers Mont-Royal war diary, 29 July 1945, LAC, RG24-C-#, vol. 15066, 1944/12-1945/09.
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Sustaining *Strong, Secure and Engaged* Funding: What the COVID-19 Pandemic Means for Defence Funding

by James A. Clarke

The risk of interstate conflict, including among great powers, is higher than at any time since the end of the Cold War.

– Daniel R. Coats, Director of National Intelligence

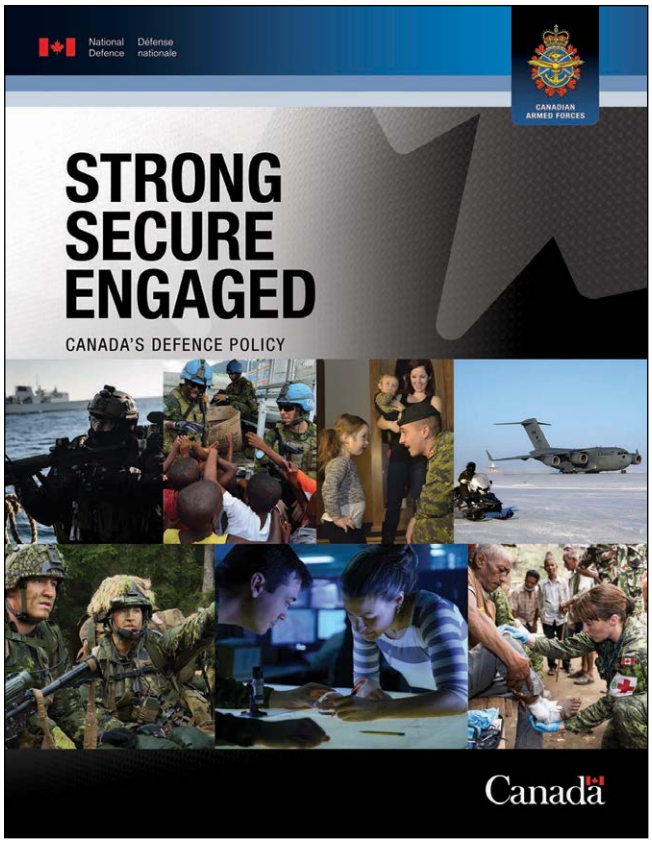
Introduction

The Government has no higher obligation than the safety and security of Canadian people. Our new strategic vision for defence reaffirms this overarching priority of the Canadian Armed Forces: defending Canada and protecting Canadians.

– Strong, Secure, Engaged: Canada's Defence Policy (p. 60)

COVID-19 has changed the world. Forever. In fact, a recent article on *The Economist* website very succinctly framed the long-term financial challenge: "…governments are writing millions of cheques to households and firms in order to help them survive lockdowns. At the same time, with factories, shops and offices shut, tax revenues are collapsing. Long after the covid-19 wards have emptied, countries will be living with the consequences."[1] That article concludes by portending that for future governments "Making budgets add up looks as if it will be a defining challenge of the post-covid world – one that today's politicians have not yet even started to confront."[2] The post-COVID reality will likely be the defining challenge for Canada's next government and, pending the duration and impact of the pandemic, governments beyond. As our governments develop fiscal plans to restore the economy, they must avoid the temptation of 'easy cuts' to Defence, often seen as a discretionary budget; an approach that worked during the debt crisis of the 1990s and the 2008 financial crisis. The world has changed – we can no longer seek a post-Cold War 'peace dividend,' nor can we rely on a disproportionate US defence investment to provide Canadian security. Canada must carry its weight and we need to be able to contribute in a world that is being redefined in terms of geopolitical power, ascending and resurgent aspirations and differing ideologies. One of the biggest challenges for future Canadian governments will be managing debt (COVID induced and other), revenue, and expenditures while sustaining economic growth and the quality of life Canadians have come to expect. All of this in what is arguably the most complex global security environment ever.

This brief article contends that continued investment in *Strong, Secure, Engaged* and other needed defence investments should remain central to any post-COVID economic recovery action contemplated by government. Through the lens of today's security environment, this article examines the strong correlation between security and economic prosperity. It will also show that an economic stimulus package can address the needs of the Department of National Defence, while providing the economic benefits needed to keep our economy growing, and finally, that investment in defence will reduce economic risk to Canada in an era of integrated infrastructure, integrated economies and shared security risks.



Government of Canada/National Defence

Some may argue that, much like during the debt crisis of the 1990s or global financial crisis of 2008, defence spending remains a discretionary activity. Unfortunately, the return to a period of Great Power Competition and an increasing reluctance of the United States to fulfill the role (and payment) as the world's policeman bring risk to any policy that would see Canada reduce its widely-touted commitment to a long-term increase in defence spending. Canada must stay the course on defence rejuvenation.

UPI/Alamy Stock Photo W0BD1J

Chrystia Freeland, then-Canada's Foreign Affairs Minister, meets Rex Tillerson the US Secretary of State, at the first session of the 2018 Foreign Ministers' meeting addressing Security and Stability on the Korean Peninsula, Vancouver, 16 January 2018.

Constructive Canada

> *Canadians' security and prosperity go hand-in-hand. Today, we are connected to – and affected by – everything that happens internationally, and we want to be part of solutions to complex global challenges. Canadians rightly expect our government and country to play a positive and constructive role.*
>
> – Chrystia Freeland (then-Minister of Foreign Affairs)

I freely admit that this section is underpinned by two assumptions. The first is that the above statement, in particular that Canadians expect Canada to be part of the solution to complex global challenges, is true. The second assumption is that the same statement is without caveats. I assume it means all the time: not when convenient, not when affordable or not only when we feel like it. I believe that *Strong, Secure, Engaged* is about giving the Canadian Armed Forces the tools needed to be at the leading edge of Canada's positive influence in the world.

It should come as no surprise that with increasing economic turmoil come increased security challenges. On the heels of the 2008 financial crisis, Canada's intelligence community hosted a series of workshops that sought to determine if there was a correlation between that economic upheaval and international security challenges. In particular, they noted, "Economic crises can produce security crises because they destroy the economic security of individuals and classes, upset power relationships which have supported stability [regional or global], or induce ideological revolution against the status quo."[3] Any COVID recovery plan must be mindful that an already complicated international security environment will likely become more complex and, without a sufficient domestic capability to ameliorate emerging crises around the globe, the economic conditions needed for a Canadian recovery could be compromised.

The study also noted some significant shifts in economic and political power, and while it was a review of the 2008 financial crisis, the observations are illustrative of the potential shifts that may occur during world-wide post-COVID recovery efforts. After 2008, the dominance of the United States decreased, and given the vastness of the COVID impact on the US, a similar decrease can also be expected. The authors remarked:

> *The attractiveness of the US economic model has been severely impaired and its political culture, which one expert emphasized has been characterized lately by "incivility and partisan bitterness", has lost much of its appeal. A decline in U.S. moral authority will have direct consequences for the potential of soft power.*[4]

Given the tremendous changes in US politics that accompanied both President Trump's election and his administration to date, these observations can only be amplified. The return to Great Power Competition that has changed the global security landscape since this study both complicates the COVID-19 economic response and highlights that Canada and other Western nations must be prepared to take a more active role, given an increasingly inward-looking United States. Should the West fail to collectively address the pending power vacuum, the door will open for other all-to-eager powers. In light of China's relatively small number of (reported) cases, it is reasonable to expect that they will be well-placed to accelerate their Belt and Road Initiative, either by staying that strategic course or, modifying their approach to one of opportunistic increased foreign aid to struggling and willing economies around the world.

In the 12 years since the 2008 financial crisis, much has changed. We are, once again, in a period of Great Power competition; several of our competitors seek to undermine the American-led liberal democratic world order that enables Canadian prosperity. However, unlike the last Great Power competition, the Cold War, we now face a more diverse threat and, for the first time in our history, a threat that can credibly attack North America without resorting to nuclear weapons. This is a reality for which the current Canadian Armed Forces are ill-prepared.

AB Forces News/Alamy Stock Photo MC5H9Y

Canada's Minister of National Defence Harjit Sajjan, and NATO Secretary-General Jens Stoltenberg participate in a joint Q & A at NORAD and US Northern Command Headquarters in Colorado Springs, April 2018.

NORAD Public Affairs

Today's threat environment is more complex than ever before. Ballistic missiles, hypersonic glide vehicles, the ongoing development of nuclear-powered cruise missiles, and exceedingly long-range air, land, surface and subsurface launched low radar cross-section cruise missiles complicate the defence of Canada and North America. Much of the civilian infrastructure we take for granted, whether economic, power generation, transportation or the facilities needed to project power abroad, is held at risk and can be attacked with surgical precision. We have lost the security that came with geographic isolation, a luxury we enjoyed since Confederation. Decelerating or cutting *Strong, Secure, Engaged* investments will prolong our period at risk and leave Canada increasingly vulnerable to the nefarious influence, either through covert or overt actions, of adversaries.

A constructive Canada is a nation that continues its tradition of contributing to global peace and security, is one that protects human rights the world over and is a nation that serves as a beacon of freedom and prosperity to the rest of the world. To do this, Canada must safeguard the security on which our prosperity depends and fulfill its commitment to invest in the Armed Forces.

A Canadian Tradition

> *Whatever the economic conditions, over the long term, the federal government has generally had a tendency to increase its expenditure faster than revenue, even during good economic times. Over the* [first] *150 years of Confederation, nominal federal government revenue has grown at an average annual rate of 7.6% while expenditure has grown at 8.3%. Moreover, expenditure has exceeded revenue – that is a deficit has been incurred – nearly 75% of the time.*
>
> – Livio Di Matteo in A Federal Fiscal History: Canada, 1867 – 2017

Debt and deficit spending is nothing new to Canada, the Canadian government, or Canadians. In fact, Canada is a nation that was born into debt. As part of the fiscal solutions at Confederation, the federal government took over the overwhelming majority of existing provincial debt. National debt at Canada's birth was 72.1 million dollars or, 18.6 percent of GDP.[5] While debt continues to grow and should not be ignored, deficit financing will undoubtedly continue and, when owned by the nation, national debt is unlike household debt. What is most important is not the *value* of the debt, but rather, the cost of *servicing* the debt. While interest rates are low, debt is cheap.[6] In fact, "most economists worry less that governments will borrow recklessly, than that they will be too timid because of an irrational fear of rising public debt. Inadequate fiscal support today risks pushing the economy into a spiral of decline."[7] So, how can Canada approach the looming COVID induced financial crisis?

In general, governments will have three broad choices on how to finance debt: 1. pay back the debt through taxation; 2. decide not to pay back the debt (or only pay back a portion); or 3. be patient and allow the economy to grow so that debt decreases relative to the GDP.[8] Of course, any solution will likely be a combination of increased taxation and growing the economy, much like Canada did after the Second World War. In 1945, Canada's National Debt was 15.7 billion dollars or nearly 100% of GDP. By the end of the post-Second World War economic boom in 1973, the debt had more than tripled to 48.7 billion dollars, but was only approximately 20% of GDP.[9] We have been here before; we successfully managed staggering post Second World War debt through economic growth. While there were many factors beyond Canada's control that aided economic growth, there are still indicators that federal investment in defence can, once again, help keep our economy moving during recovery.

A 2009 study by the Canadian Association of Defence and Security Industries found that the expected economic impact from Canada's planned recapitalization of the Royal Canadian Navy and Canadian Coast Guard fleets will, including in-service support contracts, be approximately 1.6 billion dollars per annum over 30 years. Using an independent report, they also concluded that this will translate into approximately 10,000 full time jobs.[10] Defence investments provide real jobs and bring real capabilities needed to secure Canada's prosperity into the future.

After the economic boom that followed the Second World War ended, Canada was slow to respond, leading to the debt crisis of the 1990s. The Fraser Institute found that after the debt crisis, there was "little to show from the rising deficits, debt, and debt service costs … given that the spending fueled current consumption rather than capital spending."[11] With interest rates forecast to remain low for the foreseeable future; the need for new and renewed capabilities articulated in *Strong, Secure, Engaged*; the real economic benefits that come with defence investment; and the

World History Archive/Alamy Stock Photo EC82CF

Winston Churchill, Franklin D. Roosevelt, Mackenzie King and the Earl of Athlone are pictured at the Quebec Conference of 1943.

increasingly complex global security environment, Canada *can*, and *must*, stay the course on defence spending while managing the economic recovery action needed as a result of COVID spending.

A Reliable Canada

> *The Dominion of Canada is part of the sisterhood of the British Empire. I give you assurance that the people of the United States will not stand idly by if domination of Canadian soil is threatened by any other empire.*
>
> – President Franklin Delano Roosevelt
>
> *We, too, have our obligations as a good friendly neighbour, and one of these is to see that, at our own instance, our country is made as immune from attack or possible invasion as we can reasonably be expected to make it, and that, should the occasion ever arise, enemy forces should not be able to pursue their way either by land, sea or air to the United States across Canadian territory.*
>
> – Prime Minister William Lyon Mackenzie King

On the eve of the Second World War, the leaders of Canada and the United States made the above comments to reassure each other that the security of North America was a shared responsibility. A vision put into practice through the Permanent Joint Board of Defence, NORAD and a multitude of other bilateral agreements. Despite over 80 years of this shared responsibility, both nations are now, for the first time, facing adversaries that can attack North America below the nuclear threshold. This changes everything.

Of course, we have been vulnerable since the Soviet Union detonated their first atomic bomb in August 1949. We have lived under the cloud of possible nuclear annihilation for over 70 years. However, we knew that a nuclear attack on North America would be met in kind; Mutually Assured Destruction kept a fragile peace. What has changed is that adversaries now have the ability to conduct attacks below the threshold that would generate a nuclear response. An attack on North America is no longer a desperate, suicidal act, but rather, a valid strategy that could erode public will, fracture alliances, undermine power projection capability or create economic chaos. The consequences are less than a nuclear attack. However, the likelihood of a near-peer competitor conducting a conventional or non-kinetic attack is not only more likely, but is a widely publicized component of Russia's strategic thought. We are at risk of being attacked; our geography does not protect us, and Canada must share in the responsibility and cost of building the capabilities needed for this new reality. The real question is not whether Canada can afford this investment, but rather, can Canada afford *not* to invest?

I do not pose that question lightly. It is based upon two potential outcomes of an under-investment by Canada. First, the United States will not allow themselves to remain vulnerable: they will make the necessary investments for their defence. Today's threat from low radar cross section missiles that can be launched by land, sea or air provide little warning, and lend themselves to space-based and local sensors, as well as point defence systems. In short, Canada's geography is becoming less-important to the defence of the United States. If Canada is unwilling to commit to our mutual defence, why would the United States do so? Without a bilateral approach to the defence of North America, Canada will be left to either pay for its own defence – likely much more expensive, or, outsource its defence through reliance on treaties and allies, hardly the approach that Canadians would expect or accept.

Second, and related, is what is the risk to the Canada-US relationship (and Canada's economy) if Canada is viewed by the United States as a vulnerability. The North East Power failure of summer 2003 brought clear the level of integration of cross-border critical infrastructure: infrastructure that could be vulnerable to either cyber or kinetic attack on either side of the border. That power outage affected an area with approximately 50 million people, and is estimated to have cost the United States between 4 and 10 billion dollars.[12] Although that blackout was the result of a software 'bug,' nefarious cyber activity could have the same result. In fact, in recognition of this type of vulnerability, President Trump signed Executive Order 13920: Securing the United States Bulk Power Supply on May 1st of this year. The President signed the order because "…foreign adversaries are increasingly creating and exploiting vulnerabilities in the United States bulk-power system, which provides the electricity that supports our national defense, vital emergency services, critical infrastructure, economy and way of life."[13] The United States is already making itself and its infrastructure a harder target which will likely have two effects: 1. Decrease the likelihood of adversaries directly attacking (kinetic or non-kinetic) the United States; and 2. Increase the likelihood of attacking the United States indirectly through Canada. Any reduced, deferred or cancelled defence spending must be done with full awareness of this risk AND understanding of the economic impact to Canada if we *are*, or are *perceived to be*, a multi-billion dollar vulnerability to the US economy.

Despite the arguments above, it is inevitable that many in government will see defence spending as a discretionary activity. It worked in the 1990s, and it worked a decade later during the global financial crisis. The simple fact is, the world has changed. We now live in a world where other superpowers seek to undermine liberal democratic societies; we live in a world where the United States is increasingly reluctant to continue to pay a disproportionate security cost, and we live with a Canadian Armed Forces that has only recently overcome the legacy of the 'decade of darkness.' Canada's return to a solid fiscal foundation includes a robust economic relationship with the United States. A robust economic relationship with the United States includes a proportionately-shared responsibility for the defence of North America and the protection of our values around the world.

A Final Thought

In just the past five years – the 'blink of an eye' in strategic terms – China built islands in the South China Sea, put its Uighur population into detention camps, and promulgated its version of 5g technology globally. Russia waged globally-disruptive disinformation campaigns, as well as proxy wars in Syria and Ukraine. North Korea and the United States grew eerily close to an all-out confrontation over Pyongyang's burgeoning intercontinental ballistic missile capabilities. The Islamic State rose, and in the process, helped displace millions of Syrians and Iraqis before it collapsed – for the moment. Iran

DND photo by Corporal Justin Dreimanis

Canada's Chief of the Defence Staff, General Jonathan Vance, thanks soldiers of 4 Canadian Health Services Group and the other Canadian Forces members that collectively are part of Territorial Battle Group 1, and who recently came off shift at Eatonville Care Centre in Etobicoke, Ontario, for helping their communities during Operation *Laser*, the CAF COVID-19 response, 3 June 2020.

still wages hybrid war in the Middle East against the United States and its partners in the Gulf. The challenge of climate change looms. We do not know how these issues will play out, much less how they might intersect and interact with each other, nor how the ramifications of COVID-19 might shake everything to the ground.[14]

Given the complexity and rapid change we have witnessed to the global security environment in just the past few years, we have to ask ourselves, does Canada want to be part of the solution, or are we content to 'cheerlead' from the sidelines and accept the security and economic risk that comes with non-participation?

Commodore Jamie Clarke *is the Deputy Director of Strategy, Policy and Plans at NORAD and USNORTHCOM Headquarters in Colorado Springs. He is a Naval Warfare Officer who has commanded submarines, a frigate, and the Canadian Submarine Force. Along with an undergraduate degree in mathematics, he holds Masters Degrees from the University of New Brunswick (Engineering), and the Royal Military College of Canada (Defence Studies). He is also a graduate of the Joint Staff and Command Program at the Canadian Forces College, and the Naval Command College at the US Naval War College in Rhode Island.*

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Dr. Ian Spreadbury

The Princess of Wales Own Regiment (PWOR) Armoury and Headquarters, Kingston, Ontario.

Sacrificing Culture in the Name of Strategy: Why Militia Armouries Matter

by Dan A. Doran

The Armoury. This was a word I rarely heard and gave little thought to until transferring to the Canadian Militia after eight years of commissioned service in the Regular Force. The word, or its French equivalent *manège*, was rarely if ever used to describe the buildings of the 5e Régiment du génie de combat (5 RGC), or 2 Combat Engineer Regiment (2 CER) where I had served.

The structures that house Regular Force units, such as 5 RGC and 2 CER, are pragmatically designed with simple functional lines and no unique stylistic qualities – they are not built to make any architectural statement, but to provide an adequate work space for personnel that perform a specific function. They are not the original homes of the regiments they house, and will likely not be their last homes. Regular Force units go where they are told, which means periodically moving to a newer building on a base when the old one becomes unserviceable or obsolete.

Despite their transient nature, Regular Force units populate the walls of their buildings with their stories: memorial walls, portraits of former commanding officers and regimental sergeants-major, unique regimental artifacts from overseas operations, and so on. These give the halls of each unit's building cultural relevance despite being divorced from a traditional home which provides physical context and deeper meaning – as though Michelangelo's *Last Judgement* were removed and displayed anywhere other than the altar wall of the Sistine Chapel.

As my career as a reservist evolved, *The Armoury* became a word synonymous with my new Militia life. I grew to understand that the word has multiple meanings that develop as one grows up within a unit's traditional home. To young sappers, the armoury is a place that houses them during basic training, a place where they meet their compatriots and close friends at the Junior Ranks' Mess. A place where stories are shared for the first time in venerable surroundings, and old stories of halcyon days gone by are passed on to a younger generation by older members.

To these older members, the building becomes part of their identity, a second home where their second family resides. The armoury is a place where their career progression can be mapped to the offices they occupy in the same order as did those who came before them. The armoury is an inhabited monument to a regiment, a living museum and a vessel for the unit's history, culture, and identity.

To retired members, the armoury becomes a touch point that links the present and the past; a walk-in conversation piece by which the old can relate to the young through shared experiences within the same walls. The armoury provides a tangible and tactile embodiment of the collective values of a regimental family.

Unfortunately for reservists, these unique characteristics of the armoury do not translate easily to modern, pragmatic infrastructure considerations. Many of Canada's armouries date back to the post-Confederation period and are thus costly to maintain, let alone to modernize. These challenges are further compounded by heritage considerations being only one of four components that the office of the Assistant Deputy Minister – Infrastructure and Environment (ADM-IE) scrutinizes when evaluating military infrastructure for potential transfer or sale.[1] Superficially, this all makes good sense, ADM(IE) is accountable to Canadians, and thus, is empowered to make these decisions employing an approach that weighs numerous competing factors against each other in order to make a decision. The flaw in this approach when it comes to Militia armouries is that reservists rarely have a meaningful voice throughout the process, even when the fate of their armoury may lie in the balance. More often than not, the Regular Force acts as this voice, but this approach is inadequate, at least in part, because it assumes that the Regular Force can

speak to the Reserve's organizational culture and its symbiotic connection to *The Armoury*.

The Regular Force has every reason to believe it is acting in the best interest of the Reserves. They only have to review the *raison d'être* of the Militia, best summarized by Vice-Admiral (Ret'd) Bruce Donaldson, former Vice Chief of the Defence Staff:

> *"The first is operational. That is, they are trained and ready to respond in cases where disaster strikes within the community." [With the CAF] "…able to mobilize Reserves quickly in their communities and to have the relationships in place before a crisis, in order to enable the Reserves to react effectively in a crisis."*
>
> *"Secondly, the Reserve represents the Canadian Forces and its own regiments within communities."*
>
> *"Lastly, the Reserves provide a great example for youth, but also of citizenship, leadership, and commitment to country. They bring something to their communities that few other organizations do.*"[2]

These are operational roles and seen through the eyes of 'full-timers' make no specific reference to infrastructure – soldiers simply need a stepping off point, any structure should do. But where they miss the mark is in recognizing that Reserve operational capability is tied to human resource management strategy – the simple truth that without dedicated Reservists, none of these are achievable; the armoury creates dedication through connection and belonging, making for better operational outputs.

I have had the privilege of serving both in the Regular Force (8 years), and in the Militia (10 years), and believe I have come to understand a component of the cultural divide that explains, at least partly, the divergent views that exist when it comes to the importance of maintaining the historical architecture of Militia armouries. Moreover, I believe it is this: The life of a Regular Force officer is far more nomadic than the life of his Militia counterpart. At least anecdotally, these cultures and approaches to seeing one's professional (and personal) life are diametrically opposed. The former tends more to see working and living accommodations as transient – just another office or building. The latter sees both with a sense of permanence and pre-eminence and as such commits to them in a way that a Regular may not fully understand. This summarizes the opposing lenses through which the current architectural dilemma is visualized and communicated by each party.

The first challenge in making the case for preserving Militia armouries is tempering the dominance Regular Force voices have when these discussions occur. Through no fault of their own, these voices can do harm by speaking on an issue with incomplete contextual understanding of the intrinsic links between architecture, culture and identity within a Militia regiment. This is due to the very nature of the Regular Force officer career path that takes them from one end of the country to the other, and then some. The concept of spending 35 years within the same four armoury walls (more for many members who begin as cadets in those same armouries) and continuing to return for various social functions after retirement does not register – and why should it? There is no relatable narrative within their life experience, having been constantly on the move since the age of eighteen.

Once overcoming the first, the second challenge is to make the case for the importance of armouries in not just the unit context, but in the broader national sense, and the impact these armouries have upon Canadian culture and society. Therefore, it becomes imperative for ADM(IE) and the Canadian Armed Forces (CAF) to prioritize their preservation as working artifacts, since if they do not – no one else will.

Armouries represent far more than simply a means of housing Militia units; they represent an enduring "symbol of the state"[3] throughout the country. As such, they embody in many ways a public statement of collective identity that "…help to give value and significance to the activities of the state."[4] This is of particular importance in a country as large, and with as dispersed a population, as does Canada, where in many cases, the Militia armoury represents one of the only manifestations of the Federal government, other than the Postal Service.

Beyond state symbolism, in a purely pragmatic sense, these buildings tell the story of Canada's history. Many originate from the turn of the 20th Century, and they convey the aspirational nature of a young country's future in a rapidly shrinking world. They are the visual expressions of then-Prime Minister, Sir Wilfrid Laurier's proclamation "… that the twentieth century shall be the century of Canada."[5] Professor Desmond Morton, in his seminal work, *A Short History of Canada*, described Laurier as the 'architect'[6] of Canada's prosperity – this prosperity was intimately linked with infrastructure – both state and private. Whether it be Montreal's emblematic and iconic Sun Life building, or the façade of the Black Watch armoury on Bleury Street – these structures tell the story of the earliest days of the Dominion, when Canada first began to see past its imposed colonial identity.

The linking of architecture to identity is not new. "Buildings acquire meaning by virtue of their formal arrangement and by association. Architecture is and always has been used deliberately and unintentionally to define relationships among individuals, interest groups, cities, and nations."[7] Assertions such as these do not exclusively apply to imposing structures such as Toronto's Grand Central Station, but also to those that are quietly modest, such as the Hastings and Prince Edward Regiment's armoury in southeastern Ontario.

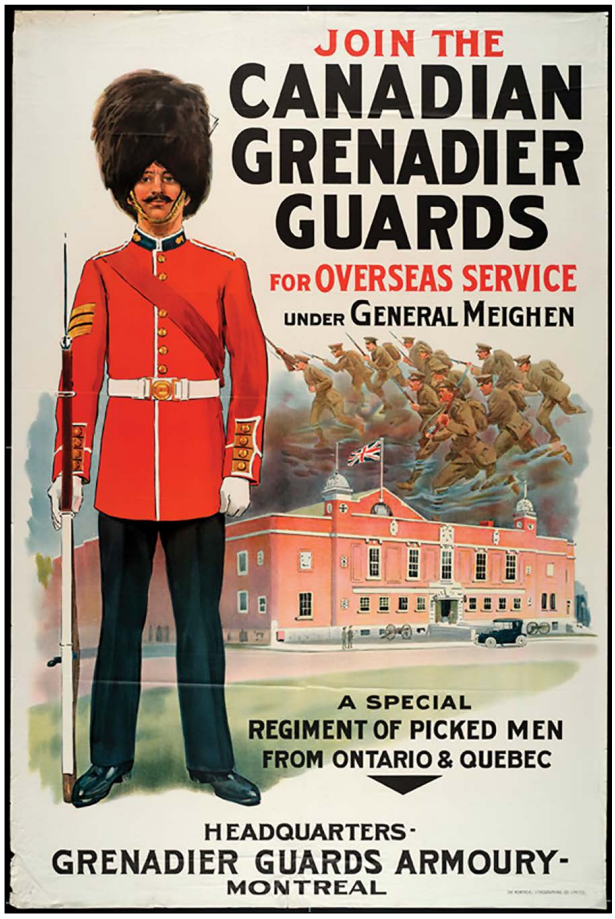
The Armoury of the 'Hasty P's' is testament to this relational narrative, and of its salience, described (although at times sardonically) by the distinguished Canadian author Farley Mowat in his book, *The Regiment*. His account of the history of the Hastings and Prince Edward Regiment, whose armoury is located in Picton – rests in a town that exemplifies the rural heart of Canada, and where the Militia and its armoury has played a meaningful role in times of conflict. He noted the resilience of his Militia regiment, that it was "…well for the country that the Militia units had so well endured the decades of neglect and national ill will. And it was doubly well that the spirit of the old Militia had so deeply permeated the affairs of men."[8] He also attested to the importance of the armoury, although 'tongue in cheek,' regarding its importance within the community "…when the townsfolk needed a space to hold a dance, a chicken social or some other great event in the course of country life."[9]

OneLook Productions Inc.

The Armoury of the Hastings and Prince Edward Regiment in Picton, Ontario.

Suffice to say, when it comes to historically-significant architecture, not all buildings are created equal – Militia armouries are not simply a backdrop to the events that happen within their walls, but "cognitive constructions in which identities (national, communal and individual) can be negotiated creatively across cultural boundaries."[10] The architectural design of turn of the century Militia armouries was intended to transcend simple aesthetic form and operative function – they had within them an "ethical function as a heuristic framework of thinking."[11] The designs were intended to enter into the thinking of the occupants and those living around them, and in doing so, to take on a significantly more impactful role than the actual building "in processes of cultural and national construction."[12]

There is another facet to these buildings, which was perhaps not considered in the years between the Korean War and the war in Afghanistan, and that is the role of Militia armouries as a balm for veterans coming back from conflict and needing touchstones in their life to assist them in dealing with their experiences. To many today, the armoury has "become through association a symbol for sanctuary"[13] for members who have served full-time in wars and missions overseas, and returned to their part-time lives as Reservists. This transition is traumatic in many of the same ways as for those in the Regular Force, but different in that there is an absence of a 'baked-in day-to-day' work network. When Reservists complete their Class C service, they return to their civilian roles in society where more than likely, they are the only serving member in their workplace – this creates an aloneness that transcends both work and home life, leaving the member highly emotionally vulnerable. The armoury represents a 'life preserver' for some of these members, as it holds all their memories of service, and, as importantly, the service stories of those who have gone before.



McGill University digital collection at https://digital.library.mcgill.ca/warposters/english/

Figure 1: First World War Poster, "Join the Canadian Grenadier Guards." CGG Armoury in background of recruiting poster, underscoring the importance of the building.

This becomes particularly relevant, given that only a modest percentage of members actually deploy, making it difficult for those that do so to relate their experiences to their fellow unit members. It is thus, in part, the armoury that helps the member find his-or-her place within the CAF, complemented by the handful of former members who continue to return to the unit for those same reasons. This combination becomes the intimate support structure for this subset of Militia service people.

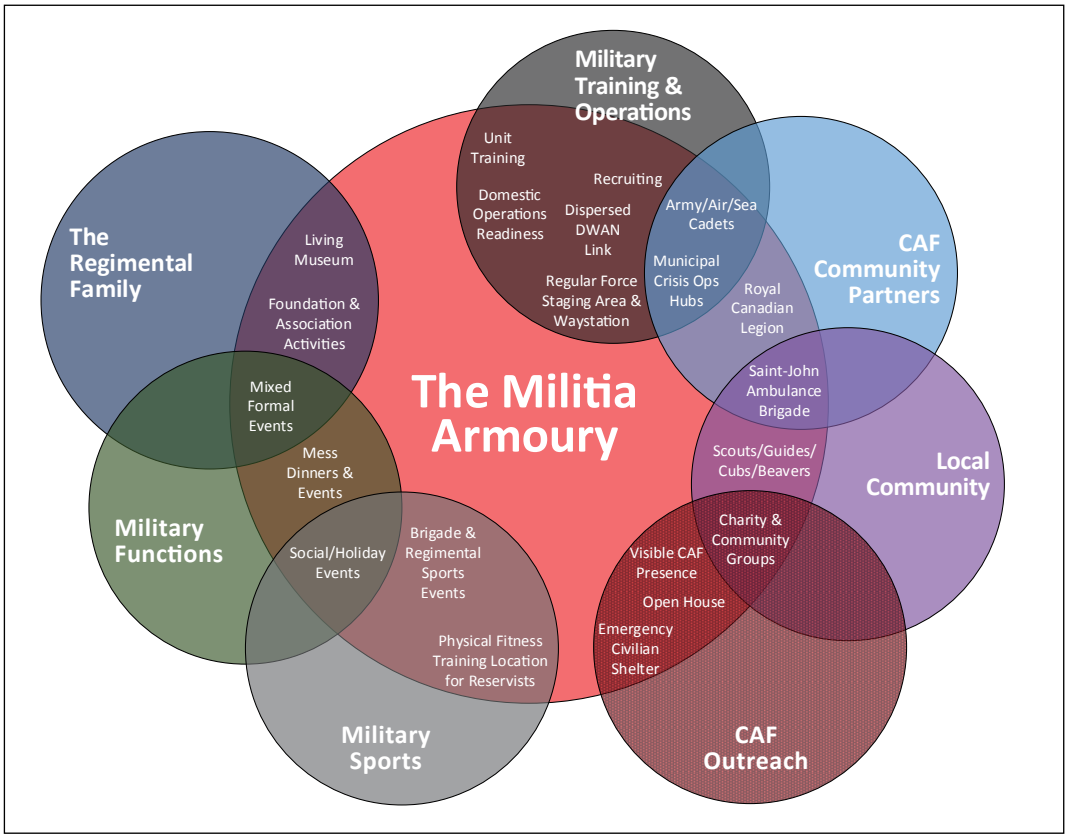


Figure 2: Illustration of the central role the armoury plays in various facets of the Militia and its surrounding community.

In the end, Reservists join, stay and release from the CAF for a multitude of reasons, but those who stay, do so mainly out a sense of belonging and connection to the idea of service to community and country. A significant part of that sentiment is tied to the armoury. This is why closing Militia armouries under the pretexts of improved efficiency through better distribution of manpower makes little sense. It assumes that reservists will simply move where the unit moves, embracing a new building as though nothing had changed. It assumes that reservists are resources that, as exemplified by service in the Regular Force, can be uprooted and moved without consequence.

At this point, I may be accused of being melodramatic – as these moves likely represent having troops move a little way down the road – extending (or potentially reducing) their commute by a few minutes – so what's the big deal?

The big deal is that in the Militia, identity is what retains people – an identity that is woven into a complex cultural fabric, the base of which is the *armoury*. This psychological effect is well-described by Dr. Francesca Lanz, Marie Curie Fellow at the School of Arts and Culture of Newcastle University:

> *Identities are formed by the correlation and interdependence between places and people. Once the interrelations break, a place loses its meaning and people lose their sense of belonging to that place. Places traditionally embody people's identity and are the solid background of people's actions and life, the prerequisite of the creation of cultures, skills, and economies. Place-identity refers to the construction of identity for and by the people(s) while referring to a place. It also constructs the identity of a place, based on its materiality: morphology, architectural forms, spaces, objects, artefacts, namely the material heritage that constitutes a territory.*[14]

This psycho-sociological element of the Militia organizational culture was most recently argued by C.P. Champion, in his informative and detailed work – *Relentless Struggle: Saving the Army Reserves (1995-2019)*. Therein, Champion describes the Regular Force ignorance of this dimension of Militia culture when discussing the undying strategy of the CAF to amalgamate Regiments in order to create fewer, larger units, all while reducing infrastructure and senior staff costs (i.e. fewer COs and RSMs).

In the defence of the Regular Force, the roots of this strategy are not malicious; they are ones that stem from a desire to improve operational efficiency through the creation of units that will, through larger numbers, have greater institutional depth, and thus, greater inherent deployability and reliability. This hypothesis would ring true, if not for the very distinguished management consultant, educator and author Peter Drucker's famously accurate and telling assertion that, "culture eats strategy for breakfast."[15]

Additionally, the cultural importance of armouries in the context of the Militia were reinforced through experiences, when armouries had, in fact, been amalgamated. What transpired was that this operationally-driven calculus did not work out as planned. This reality was well- summarized by Lieutenant-Colonel (Ret'd) Peter Hunter, former CO of the Governor General's Horse Guards (later its Honourary Lieutenant-Colonel) and Vice President of Corporate Affairs for Citibank[16] in his testimony to the 1995 Senate subcommittee on the restructuring of the Reserves:

> *History has taught us that amalgamating units is usually counter productive. Normally 'two plus two equals four.' When Militia units are amalgamated, most often, 'two plus two equals two.' Simply put, when two units are put together the resulting unit will initially experience large enrolment, which quickly drops to the size of one of the former units and ultimately stabilizes at that level.*[17]

This was further reinforced by Lieutenant-Colonel (Ret'd) Wynand Van Der Schee, a former Regular Force officer and former Commanding Officer of the King's Own Calgary Regiment at a Combat Information Systems Support presentation in 1998,[18] who noted:

> *It bordered on ludicrous…[to] believe that members of the disbanded 19th Alberta Dragoons, a regiment with a strong sense of identity reinforced by being the sole* ***occupants of a small armoury*** *(emphasis added) [Connaught Armoury] on the south side of Edmonton, would [having been disbanded] travel across the South Saskatchewan River to join The Loyal Edmonton Regiment in their armoury on the river flats or the 20th Field Artillery further north in Prince of Wales Armoury. In this game, one plus one usually equals about 1.2 or less.*[19]

So, in the end, both theory and practical experience appear to convey the same message to those willing to learn from the experts and the past respectively – armouries play a pivotal role in the maintenance and preservation of Militia organizational culture, which, in turn, contribute to both recruiting and retention within these units. These two objectives are directly connected to the overall health of the unit and its ultimate level of operational effectiveness, if it is called upon to do so for any reason. Unlike in the Regular Force, it is not operational need that drives infrastructure planning, but organizational culture – because reservists join and remain in the Militia for fundamentally different reasons than their Regular Force brethren.

And with ADM(IE) and the CAF remaining the stewards of these structures, the Militia can only rest on the hope that at some point, there will finally grow an understanding of these particular differences, and an acceptance of the Militia's needs when it comes to preserving its identity. This entails looking beyond the cold numbers of operational effectiveness and objective costs, and acknowledging both the intrinsic and extrinsic value of these edifices; which is to say, recognizing that the Militia's architectural heritage is an important part of its identity, and a testament to its history.[20] This will not be easy as this is usually the case when *two solitudes* require finding a mutual understanding to solve a core cultural misalignment.

To close, perhaps the best analogy would be to compare a Militia armoury to the production of single malt Scotch. An armoury performs the same task that bourbon oak barrels do in the aging of Scotch. In the same way that bourbon barrels impart delicious sweetness, scented vanilla, and golden honey flavors to maturing Scotch, so does the armoury impart a regiment's history, traditions, stories and culture to the young soldier – as does the unit museums, interior décor, architectural ornamentation, former members' associations, community events and a host of other little and seemingly-insignificant things.

The armoury remains the receptacle and home for all these people, events and stories. Losing the armoury rips away the ancient cask, leaving the contents to spread and evaporate over time until little if anything of its original content remains.

Major Dan A. Doran, MMM, CD, *a combat engineer, holds a Bachelor's Degree in Civil Engineering from the Royal Military College, a Master's Degree in Human Security and Peace Building from Royal Roads and an MBA from the John Molson School of Business. He has served overseas as the Deputy Task Force Engineer (OP ATHENA), a UN Military Observer (UNMIS) and the Force Project Lead (MONUSCO). He is currently a reservist and the DCO at 34 Combat Engineer Regiment, Montreal, Quebec. In his civilian life, Major Doran works as a Project Director for WSP Canada, an engineering consulting firm.*

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13. Nelson Goodman , *How Buildings Mean* (Goodman and Catherine Elgin, Reconceptions in Philosophy, Hackett, 1988), p. 33.
14. Francesca Lanz, *Perspective Re-Inhabiting. Thoughts on the Contribution of Interior Architecture to Adaptive Intervention: People, Places, and Identities* (Journal of Interior Design, 43(2), 2018), p. 6.
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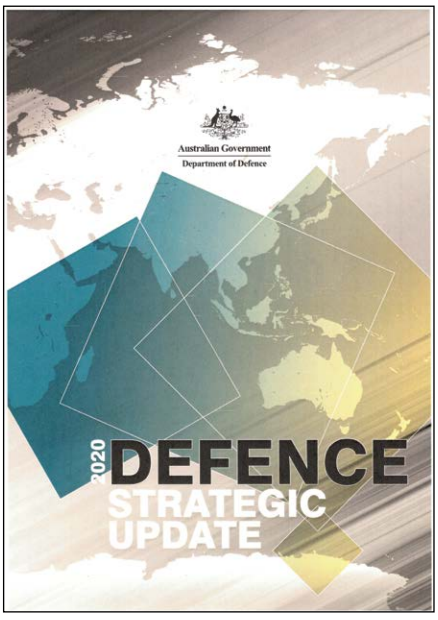
Two Royal Australian Air Force (RAAF) *Hawk* 127 Lead-In Fighters from 79 Squadron during Exercise *Western Phoenix*.

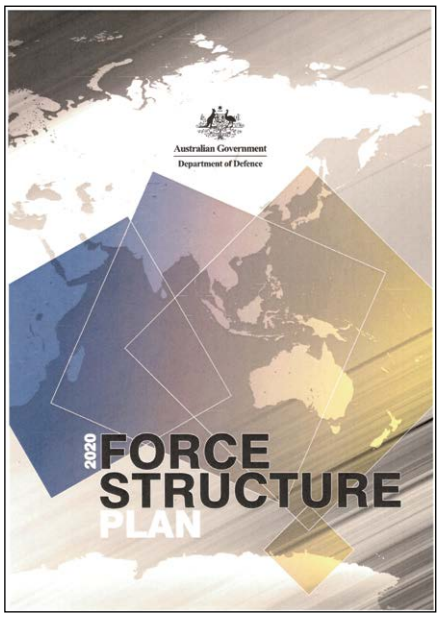
Australia's 2020 Defence Update: Lessons for Canada, and Snowbird Futures

by Martin Shadwick

At a time when most defence establishments are warily eyeing the prospect of cuts, potentially deep cuts, in their budgets and capabilities as governments around the globe grapple with the enormous expenditures incurred in responding to the medical, socio-economic, industrial and myriad other consequences of COVID-19, it is telling that the Government of Australia moved forward, mid-pandemic, with an ambitious scheme for the reshaping of Australia's defence strategy and, to a lesser extent, force structure. This is not to suggest that the new defence policy ignored COVID-19. On the contrary, the implications for Australian security of the pandemic, apparent or potential, are invoked on multiple occasions in the defence policy statement. Although "the trend towards a more competitive and contested region will not be fundamentally altered by the effects of the pandemic," it "is sharpening some aspects of strategic competition between the United States and China" and prompting "some countries" to utilize "the situation to secure greater influence." The pandemic "has also highlighted the importance" of secure defence-industrial supply chains.

Unveiled on 1 July 2020, the blunt 63-page *2020 Defence Strategic Update*—and its associated, hefty and profusely illustrated 123-page *2020 Force Structure Plan* (Canada's 2017 *Strong, Secure, Engaged* defence policy statement totalled 113 pages)—





sets out "the challenges in Australia's strategic environment and their implications for Defence planning. It provides a new strategic policy framework to ensure Australia is *able*—and is understood as *willing*—to deploy military power to shape our environment, deter actions against our interests, and when required, respond with military force."

While acknowledging the persistence of the "six drivers" identified in the *2016 Defence White Paper* "that would shape Australia's strategic environment" (i.e., "the roles of the United States and China, challenges to the stability of the rules-based global order, the enduring threat of terrorism, state fragility, the pace of military modernisation in our region, and the emergence of new, complex non-geographic threats"), the 2020 document argues that several of these drivers "have accelerated since 2016, and in some cases their impacts are posing new challenges." Australia "now faces an environment of increasing strategic competition, the introduction of more capable military systems enabled by technological change; and the increasingly aggressive use of diverse grey-zone tactics to coerce states under the threshold for a conventional military response." This security environment is "markedly different from the relatively more benign one of even four years ago, with greater potential for military miscalculation. This could conceivably include state-on-state conflict that could engage the Australian Defence Force (ADF) where Australia's interests are threatened. Accordingly, Defence must be better prepared for the prospect of high-intensity conflict."

The *2020 Defence Strategic Update* observes that "previous Defence planning has assumed a ten-year strategic warning time for a major conventional attack against Australia. This is no longer an appropriate basis for defence planning. Coercion, competition and grey-zone activities are occurring now. Growing regional military capabilities, and the speed at which they can be deployed, mean Australia can no longer rely on a timely warning ahead of conflict occurring. Reduced warning times mean defence plans can no longer assume Australia will have time to gradually adjust military capability and preparedness in response to emerging challenges. This includes the supply of specialised munitions and logistic requirements, such as fuel."

The 2020 strategic update posits that the implementation of the *2016 Defence White Paper*—an ambitious document in its own right—"has seen substantial progress in building a more potent, capable and agile Australian Defence Force" but cautions that "important adjustments to defence policy" are required "to respond to the rapid changes in the strategic environment.: The 2020 strategic update consequently "replaces the Strategic Defence Framework set out in the 2016 white paper with three new strategic objectives": (a) to shape Australia's strategic environment; (b) to deter actions against Australia's interests; and (c) to respond with credible military force, when required.

The "new objectives will guide all aspects of Defence's planning including force structure planning, force generation, international engagement and operations. To implement the new objectives, Defence will:

- prioritise our immediate region (the north-eastern Indian Ocean, through maritime and mainland South East Asia to Papua New Guinea and the South West Pacific) for the ADF's geographic focus;
- grow the ADF's self-reliance for delivering deterrent effects;
- expand Defence's capability to respond to grey-zone activities, working closely with other arms of Government;
- enhance the lethality of the ADF for the sorts of high-intensity operations that are most likely and highest priority in relation to Australia's security;
- maintain the ADF's ability to deploy forces globally where the Government chooses to do so, including in the context of US-led coalitions; and
- enhance Defence's capacity to support civil authorities in response to natural disasters and crises."

The shaping of Australia's strategic environment, the first of the troika of new strategic objectives, will position the country as "an active and assertive advocate for stability, security and sovereignty in our immediate region. Australia's partnerships "with regional countries have a long history but will need to be continually developed to support shared interests in the context of our evolving strategic environment. This will involve expanding our defence diplomacy, cooperation and capacity-building activities, including delivering security-related infrastructure." The update argues that "the capacity to conduct cooperative defence activities with countries in the region is fundamental to our ability to shape our strategic environment," and notes that, for defence planning, "shaping Australia's strategic environment includes preventing our operational access in the region from being constrained." The document notes that "the security arrangements, interoperability, intelligence sharing, and technological and industrial cooperation between Australia and the United States remains "critical" to Australia's national security, and that Australia will "continue to prioritise" engagement and defence relationships with "partners whose active roles in the region will be vital to regional security and stability, including Japan, India and Indonesia." Australia will also "increase investment in capabilities that support the ADF's awareness of our immediate region," including the expansion of the *Jindalee* over-the-horizon radar network to provide wide area surveillance of the country's eastern approaches.

To deter actions against Australia's interests, the update observes that Australia possesses "a highly effective, deployable and integrated military force" but cautions that "maintaining what is a capable, but largely defensive, force in the medium to long term will not best equip the ADF to deter attacks against Australia or its interests" in the contemporary strategic environment. The "nature of current and future threats—including coercion in the region, more capable and active regional military forces, and expanding anti-access and area denial capabilities—requires Defence to develop a different set of capabilities. These must be able to hold potential adversaries' forces and infrastructure at risk from a greater distance, and therefore influence their calculus of costs involved in threatening Australian interests." Only "the nuclear and conventional capabilities of the United States can offer effective deterrence against the possibility of nuclear threats against Australia," but "it is the Government's intent that Australia take greater responsibility for our own security. It is therefore essential that the ADF grow its self-reliant ability to deliver deterrent effects." Relevant assets will include "longer-range strike weapons, cyber capabilities and area denial systems."

Charlie Company's Return from Afghanistan ~ M113AS4 AOCs return fire during Exercise *Brolga Run*, Townsville Field Training Area, Queensland.

HMAS *Stuart* conducts a live firing exercise utilizing its Mount 51 – 5 inch gun during Exercise *Rim of the Pacific 2020* off the coast of Hawaii.

The final element of the troika, "responding with credible military force," observes that "the prospect of high-intensity conflict in the Indo-Pacific, while still unlikely, is now less remote. The ADF must be better prepared for such conflict if deterrence measures fail, or to support the United States and other partners where Australia's national interests are engaged." This "means it is vital that we continue to enhance the lethality and readiness of the ADF, as well as the logistic support required for high-intensity warfighting. In the event of a high-intensity conflict that engages the ADF, we need to have depth for sustaining key capabilities and materiel, especially munitions." The ADF "will also need to enhance its support to civil authorities in response to national and regional crises and natural disasters, such as pandemics, bushfires, floods or cyclones. This includes "detailed planning for the provision of logistic and other support for civil authorities during and after a disaster."

Building upon the *2016 Defence White Paper*—which "laid the foundation for the largest expansion of the Royal Australian Navy since the Second World War"—the 2020 strategic update pledges "additional investments" in anti-submarine warfare, sealift, border security operations, maritime patrol and reconnaissance, air warfare, sea control and undersea warfare capabilities and prioritizes the acquisition of "strike weapons to increase the ADF's maritime deterrence and long-range land strike capabilities." The total package is ambitious, embracing twelve *Attack*-class submarines, nine *Hunter*-class frigates (derived, like the Canadian Surface Combatant, from Britain's Type 26 frigate), twelve *Arafura*-class offshore patrol vessels, six evolved *Cape*-class patrol boats, two *Supply*-class replenishment ships, two multi-role sealift and replenishment vessels, a support and salvage vessel, up to eight new vessels for mine countermeasures and hydrographic duties, upgrades to the three newly-acquired *Hobart*-class destroyers, the "expanded acquisition of maritime tactical remotely piloted aerial systems" and a host of other projects.

In the air domain, Canberra's plan calls for "further enhancements" to some existing platforms and capabilities, including the F-35A *Lightning II* fighter, the EA-18G *Growler* electronic attack aircraft, the E-7A *Wedgetail* airborne early warning and control aircraft and the P-8A *Poseidon* maritime patrol aircraft. The plan also envisages "the acquisition of remotely operated and/or autonomous air vehicles and the development of advanced air-to-air and strike capabilities with improved range, speed and survivability, including potentially hypersonic weapons. The survivability of our deployed forces will be improved through new investments in an enhanced integrated air and missile defence system…" Additional intelligence, surveillance and reconnaissance (ISR) assets are projected. Air mobility acquisitions will in due course include an "expanded fleet of replacement aircraft" for the C-130J *Hercules* fleet. The plan also broaches a successor to the KC-30A tanker-transport. This is admittedly a longer-term proposition but mere mention of a successor to the RAAF's youthful KC-30As must generate angst in some RCAF quarters given the age of Canada's long-serving *Hercules* and *Polaris* tanker-transports. The plan also embraces a fully integrated air combat management system and numerous infrastructure projects.

The perceived requirements to "increase the land force's combat power, and give the Government more options to deploy the ADF in the more competitive environment Australia now faces, and is expected to face in to the future" and to "enhance the ADF's ability to support the nation in times of domestic crisis and to respond into the region for humanitarian assistance or stability operations" also generate a lengthy list of capital requirements. Ongoing and new procurement initiatives include the *Boxer* reconnaissance vehicle, an infantry fighting vehicle to replace the M113AS4 armoured personnel carrier, upgrades—and an eventual successor—to the M1 *Abrams* main battle tank, two regiments of new self-propelled howitzers, the enhancement or replacement of the M777 lightweight towed howitzer and the expansion of earlier plans for a long-range rocket artillery and missile system. Also envisaged are new armoured combat engineering vehicles, new medium and heavy trucks, a fleet of "future autonomous vehicles", several large amphibious vessels, a fleet of inshore/riverine patrol craft, a replacement for the *Tiger* armed reconnaissance helicopter from the mid-2020s, procurement of a special operations rotary-wing capability, "remotely piloted aerial systems" and a plethora of smaller projects. The latter include small arms and heavy weapon systems, night vision equipment, personal ballistic protection and load carrying equipment and enhanced medical capabilities.

Rounding out the package are a host of additional projects including joint command, control and communications projects, joint electronic warfare and defensive and offensive cyber capabilities, increasing "the range and quantity of weapon stocks," a variety of defence-industrial initiatives and additional or upgraded infrastructure. A "significantly" increased investment in the ADF's space capabilities will include a network of satellites to provide "an independent and sovereign communications capability."

The *2020 Defence Strategic Update* reports that "the Government is on track to meet its commitment to growing the Defence budget to two percent of Australia's Gross Domestic Product…in 2020-2021, providing $42.2 billion of funding to Defence…in 2020-2021." This funding "will grow over the next ten years to $73.7 billion by 2029-2030. The total funding of $575 billion over the decade includes around $270 billion in capability investment, compared to $195 billion in capability investment for the decade to 2025-2026, when the *2016 Defence White Paper* was released." Significantly, the defence budget "has been decoupled from GDP forecasts to avoid the need for adjusting Defence's plans in response to future fluctuations in GDP."

Although allowances must be made for the three-year gap between the appearance of *Strong, Secure, Engaged* in 2017 and the arrival of the symbiotic *Defence Strategic Update* and *Force Structure Plan* in 2020—and three years of heightened tension in the global geo-strategic environment—it is no less true for being obvious that there are significant differences between the handling of some issues in the Canadian and Australian policy documents, and in the broader security and defence philosophies and strategic cultures of Ottawa and Canberra. For example, in marked contrast to *Strong, Secure, Engaged*—but in harmony with the broader thrust of Australian defence policy—the Australian documents devoted considerable attention to defence-industrial, defence-industrial preparedness, defence-scientific—and readiness and sustainability—issues. The handling of "people" issues also differed markedly, with *Strong, Secure, Engaged* devoting extensive and prominent (i.e., chapter one) attention to quality of life, diversity and inclusion and cultural change while their Australian counterparts focused more narrowly on matters of recruitment and retention and projected personnel increases. Perhaps somewhat surprisingly, *Strong, Secure, Engaged* paid far more attention to reserve forces than the Australian documents. Less surprisingly, the Canadian document devoted far more attention to peacekeeping and peace support operations.

If the Canadian and Australian approaches to security and defence are compared more broadly, the Australian approach would appear to reflect a markedly greater willingness to expend national treasure on the armed forces (although some Canadian naysayers will no doubt argue that the Australians are unlikely to fully implement their full 2020 agenda, particularly given COVID-19, and that, in any event, much of the projected capital spending is comparatively long term), a long-standing and growing streak of self-reliance, a much more blunt, *realpolitik* approach to the risks posed by a deteriorating geo-strategic environment (albeit one heavily shaped by Australia's presence in a particularly challenging region) and a more holistic approach to defence, foreign, industrial and science policy. The Australian documents retained the commitment to maintain three well-rounded, combat-capable

services. *Strong, Secure, Engaged* did, too—albeit, perhaps, with question marks over certain aspects of army recapitalization—but Canadians should not be unduly sanguine on this point. As the late Brian MacDonald—for decades one of Canada's most respected defence commentators—cautioned on multiple occasions, there was an ongoing, post-Cold War risk that fiscal limitations and political machinations might leave Canada with one or two full-scope services and one or two less useable and less combat-capable (even constabulary-style) services.

Canberra's robust reaffirmation of self-reliance is potentially instructive, at least in a modified form, given the worrisome dilemmas generated by the contemporary international environment. As Thomas Axworthy, the Public Policy Chair at the University of Toronto's Massey College and the late Greg Donaghy—then the Director of the Bill Graham Centre for Contemporary International History at the University of Toronto's Trinity College—noted in the *Globe and Mail* of 16 January 2020, "for the first time in our history, Canada is virtually alone in the world, creating unprecedented challenges for our foreign policy. We need to get more serious about our diplomacy than ever before. The hard, big-ticket items are obvious: Increase defence spending to 2 per cent of GDP to meet our North Atlantic Treaty Organization obligations and bolster foreign aid to much more than the current paltry 0.26 per cent of GDP." These are most intriguing recommendations but, as John Ibbitson of the *Globe and Mail* noted on 18 July 2020, "an approach toward foreign policy that places a greater emphasis on self-reliance would be expensive, requiring major new investments to beef up defence in the Arctic" and, one might add, elsewhere. "But with the deficit approaching the full capacity of federal spending, where will the money come from and how can taxpayers be persuaded to provide it?" How, indeed?

Snowbird Futures

The loss of two Snowbird CT-114 *Tutors* in the past year, the first on 13 October 2019 near Atlanta, Georgia, and the second, in Kamloops, B.C., on 17 May 2020—which tragically claimed the life of Captain Jennifer Casey, the team's Public Affairs Officer, and seriously injured the pilot—have not surprisingly rekindled long-simmering debates over the age and adequacy of the long-serving Canadair CT-114 *Tutor* in the air demonstration role, the scope and schedule of the *Tutor* modernization and life extension project and, in the longer term, the options for re-equipping the Snowbirds. Looming in the background is the much broader and thornier question of whether Canada should even continue to field a Snowbird-style military air demonstration team. For many Canadians, both inside and outside of the armed forces, the answer is affirmatively and robustly self-evident; others, mindful of the potential financial implications—particularly those associated, directly or indirectly, with the acquisition of a *Tutor* replacement—and/or a variegated assortment of other concerns, remain far from convinced. In the middle, perhaps, are those who are amenable to a comparatively low-cost *Tutor* modernization and life extension, but wary of the type of long-term commitment to the Snowbirds that the acquisition of a replacement for the *Tutor* would entail.

DND photo CX2010-0144-27 by Sergeant Robert Bottrill

The Snowbirds fly in Big Arrow formation over the Strait of Georgia.

USAF photo 170930-F-BQ566-443 by Airman First Class Alexander Cook

The Snowbirds take their act 'out of country' to the 2017 Breitling Huntington Beach Air Show, Huntington Beach, California, 30 September 2017.

Although its appearance belies its age, there is no denying that the *Tutor*—taken on strength by the RCAF as a basic jet trainer in 1963, and the mount of the Snowbirds since 1971—is 'long in the tooth.' That said, it—like the Snowbirds—is economical to operate and arguably continues to provide solid value for money in terms of public relations (for the Canadian Armed Forces as whole and not simply the RCAF) and military recruiting (again, for the Canadian Armed Forces as whole and not simply would-be aircrew). It can be argued as well that the Snowbirds remain an enduring coast-to-coast-to-coast national symbol in a country that at times appears to suffer from a dearth of such symbols—civilian or military—and, on the international level, effective ambassadors for Canada and an internationally-respected strategic media asset. The international profile of the Snowbirds is, indeed, quite remarkable, given that the team has never performed outside of North America. At the operational level, the *Tutor's* modest size and speed continue to render it an effective air demonstration platform. By this logic—and given that a successor to the *Tutor*, even if ultimately approved by Ottawa, will not arrive anytime soon—the case for an expedited life extension and modernization project that would address safety systems (i.e., the ejection seat and associated sub-systems), avionics (particularly navigation and communications) and other areas of concern is strong and compelling.

An eventual outright replacement for the *Tutor*, however, would present challenges of a very different order, partly because of the much higher direct or indirect financial cost and the concomitantly much more intense media, public, political and other scrutiny, partly because Canada has not previously acquired an aircraft type specifically for air demonstration purposes. The F-86 *Sabres* of the Golden Hawks and the *Tutors* of the Golden Centennaires and the Snowbirds were drawn from the existing, and already paid for, aircraft inventory, and partly because of the need to determine how a *Tutor* replacement could fit—or not fit—into the nascent Future Aircrew Training (FAcT) project (i.e., the intended successor to a variety of outsourced and in-house aircrew training). Acquiring sufficient aircraft to meet the training requirements of FAcT and the air demonstration needs of the Snowbirds would bring a number of standardization and other benefits, not least, the ability to rotate aircraft between the training and air demonstration roles—as was originally the case with the Snowbirds, and is currently the case, for example, with the Pilatus PC-21s of the Royal Australian Air Force. If, however, contractor personnel maintain both the training- and air demonstration-assigned aircraft, how would the re-equipped Snowbirds demonstrate the oft-cited professionalism and teamwork of military aircrew and military groundcrew? Also worthy of consideration would be the reaction of the public to Snowbird aircraft that are *privately* and not *Government-owned*. This is not meant to suggest that an eventual successor to the *Tutor* is a 'non-starter.' It is meant to suggest, however, that multiple challenges are looming, and that supporters of the Snowbirds will need to be responsive, innovative and forward-looking in pursuing a successor to the stalwart *Tutor*.

Martin Shadwick *has taught Canadian Defence Policy at York University for many years. He is a former editor of* Canadian Defence Quarterly, *and he is the resident Defence Commentator for the* Canadian Military Journal.

A Trio of European Histories

A Short History of England

by Simon Jenkins

London: Profile Book Ltd., 2011
297 pages, £9.99
ISBN: 978-1788160896

The Shortest History of Europe

by John Hirst

Australia: Black Inc., 2009
193 pages, £7.99
ISBN: 978-1-908699-06-0

The Shortest History of Germany

by James Hawes

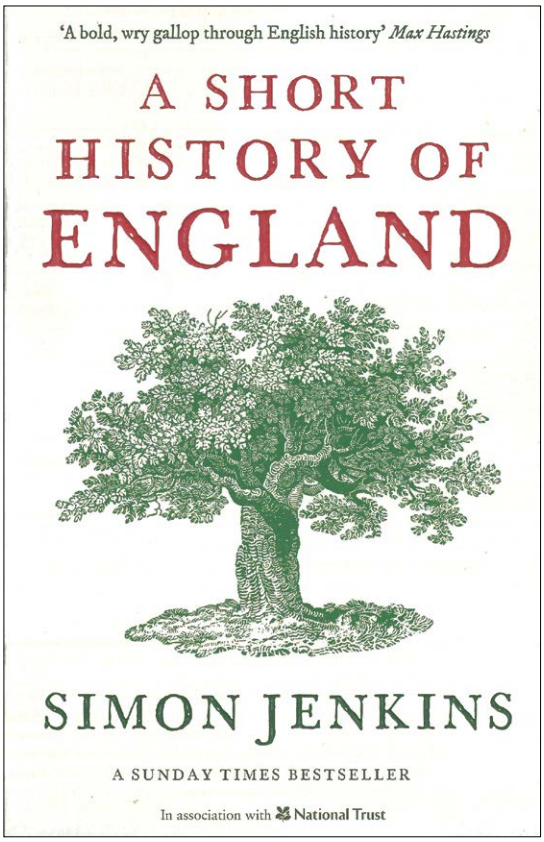
Great Britain: Old Street Publishing Ltd., 2017
227 pages, £8.99
ISBN: 978-1-91040-073-9

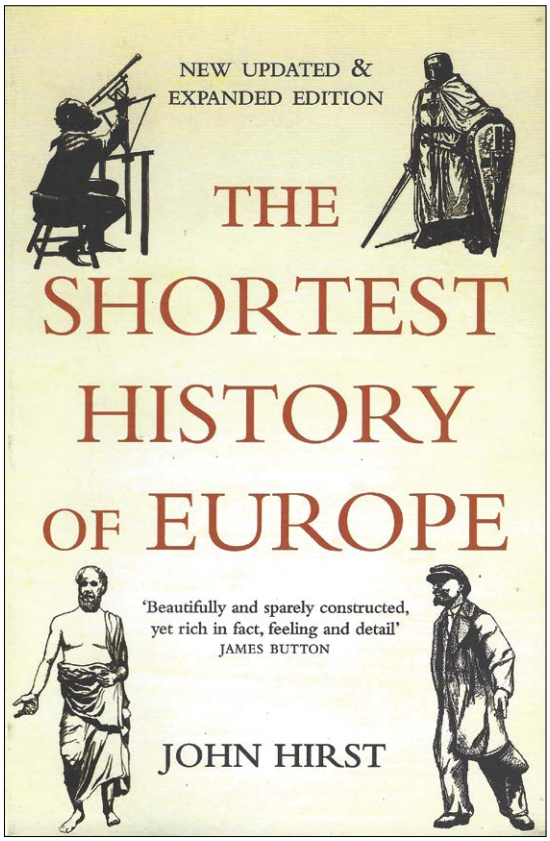
Reviewed by James Pierotti

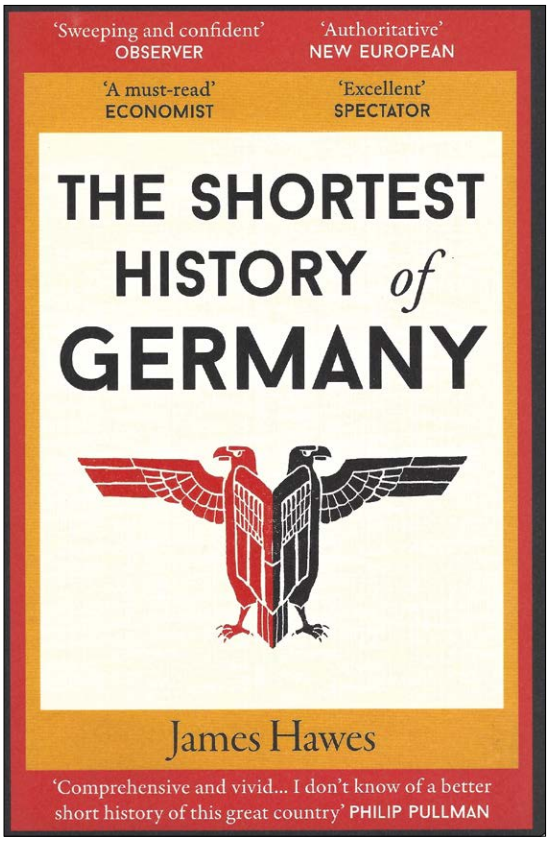
Good history can help make sense of the present. In today's seemingly chaotic world of nationalistic concerns, such as Brexit and its fallout for the European Union, history can be the first place we look to make sense of the underlying factors and how we got here. Because I wished to understand Europe better, and as there seems to be so little time for reading, I chose the shortest versions of European histories I could find. The books I read are, *A Short History of England* by Simon Jenkins, *The Shortest History of Europe* by John Hirst, and *The Shortest History of Germany* by James Hawes. Are these three books helpful to make sense of the past in order to better understand the present? Yes and no.

Simon Jenkens is a former editor of *The Times*, and he has written two other books on England. His detailed history of England is a 'mind-numbing' list of people, places, and facts that was a challenge to follow without a big map, and an already robust grasp of English history, neither of which I had on hand. The book was difficult to follow and less relevant than I had hoped, as over half of it covers the years from 1300 to 1850, both fascinating and gruesome, but difficult to relate to the present. Although the author's frequent use of large and complex words can be a challenge, the overall writing is excellent, and it can provide a good historical overview for those interested in England's past.

His conclusion is that the hero of British history is the parliament of the United Kingdom. There is no doubt in my military mind that the British form of parliament has been a gift to the rest of the world, but his conclusion does not feel relevant in a world where Brexit has dragged on for years, and the British parliament appears tied up in anger and rhetoric. However, Jenkins asks one to take a wider view, and to consider that, "…throughout history, England's constitution has been forced to change only when its rulers have been deaf to the cries of the people, or at least to the march of events."[1] He leaves us with hope that the current struggles of the United Kingdom can be overcome by using similar manners as were applied to previous crises.







The methodology and messaging within John Hirst's European history, by contrast, is easy to understand and more relevant to the present. Hirst is an Australian historian and social commentator, who taught at La Trobe University from 1968 until his retirement in 2006. The brilliance of this book is its simplicity and its somewhat-repetitive structure that takes you more and more into the depth of how Europe became the societal entity we know it as today. If you aim to understand how Europe became important to the world, this is an outstanding read. After presenting you with a basic understanding of ancient Europe and the forces at work in medieval times, he takes the reader on a journey of invasions, forms of government, emperors and popes, languages, the people, and two world wars. Here is a taste of the journey upon which he embarks us: "…the twin forces of science and progress on the one hand and emotion and liberation of the other are still very strong. Sometimes they can reinforce each other; sometimes they are opposed to each other."[2] He does not aim to make a case for Europe's importance today, but one can certainly sense the fascinating history behind the formation of the European Union, and the tensions that exist among the largest countries in Europe.

Perhaps the most eye opening of the three books is the history of Germany by James Hawes, a best-selling British novelist, an expert in creative writing, and the holder of a Ph.D. in German literature. His expertise and writing skills are immediately apparent in this exciting and simple-to-understand history of the last two thousand years of the German people. Although short and without a lot of details, it still manages to convey the key people and moments in Germany's past that does a great job of explaining why Germany remains a relevant global power today.

Hawes presents German history like this: The Romans created the Germans, and then the Germans took over Rome. The Germans restored Rome before the brutal final battle of Germany. In the end, Germany went two ways, with Western Germany disunited and Eastern Germany becoming a unified block that created havoc for the west. The only problem I had with the book is that Hawes makes the case that the east and west German divide not only resulted in two world wars, but remains relevant to German politics today, and that, "Western Germany should stop wasting money trying to please a region that will never be pleased."[3] He could be right, but it does not seem overly important, since the politics of Germany seem to appear very stable at present, at least, to this outsider. Ignoring the concerns of half of the country does not seem to be an effective real-world solution.

Should you read all three of these books? I would suggest bypassing the history of England as being too dense and difficult for someone who wants to use history as a way to understand the world today. The European history, however, is recommended as a delightful way to put Europe into context, and to understand how the two world wars came about. John Hirst provides a useful overview and an excellent introduction to another recommendation: the highly- worthwhile *The Shortest History of Germany*. This book does a fantastic job of tying the history of Germany to the present, even if its main argument is somewhat questionable. I will close with some of James Hawes' elegant words on the past and present, which I urge one to read for oneself: "Germany is the sole hope for Europe. It must now act, and it must now be embraced, as what it was always meant to be: a mighty land at the very heart of the West."[4]

Lieutenant-Colonel James Pierotti *is an Air Combat Systems Officer with 4,500 hours in the C-130 Hercules in the tactical airlift, search and rescue, and air-to-air refueling roles. He is an author of Canadian search and rescue history, has commanded Joint Rescue Coordination Centre Victoria, and he currently teaches joint targeting at the NATO School Oberammergau in Germany.*

NOTES

1. Simon Jenkins, *A Short History of England*, p. 293.
2. John Hirst, *The Shortest History of Europe*, p. 43.
3. James Hawes, *The Shortest History of Germany*, p. 227.
4. *Ibid*., p. 226.

The Great Influenza: The Story of the Deadliest Pandemic in History

by John M. Barry

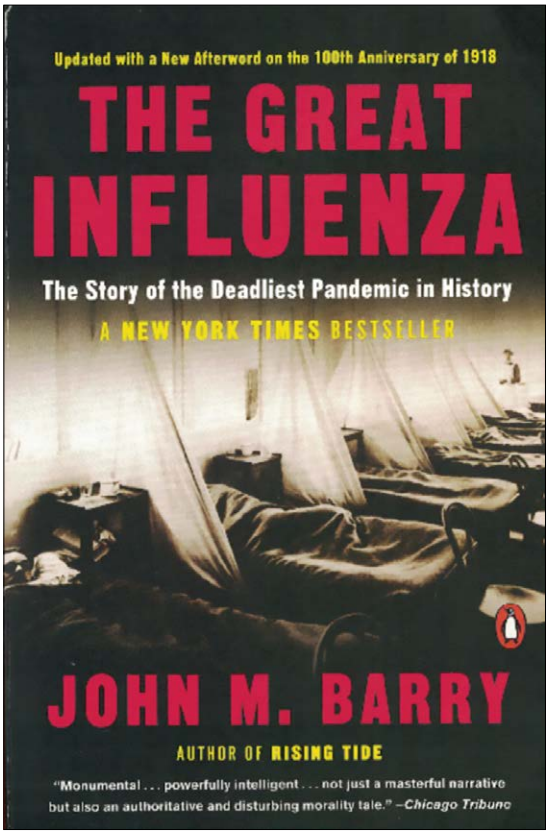
New York: Penguin Books, 2018

546 Pages, 27 Plates: $25.00

ISBN 978-0-14-303649-4

Reviewed by Mark Tunnicliffe

Normally, one likes to review a recently published book – to bring to the attention of potential readers something of interest that has just come on to the market. Barry's book on the so-called Spanish Flu epidemic of 1918 is not exactly new, as it was first published in 2004. However, the events of the past decade have maintained an interest in it, and the author's research into the background of that pandemic have driven him to update it on several occasions. This particular update, published in 2018, was energised, not only by the centennial anniversary of the deadliest pandemic in history, but also by outbreaks of a number of serious viruses between 2003 and 2017, which held the potential for similar damage. What also makes the book particularly compelling at this time (this review was written in May 2020) is the COVID-19 pandemic, unforeseen at the time of Barry's last update. Collectively, this is what makes his observations and recommendations that much more relevant.



COVID-19, the disease caused by the Severe Acute Respiratory Syndrome (SARS) Coronavirus-2, is not an influenza, but it appears to kill often in the same way. This either occurs through the Acute Respiratory Distress Syndrome, caused by an over-reaction by the immune system known as a "cytokine storm," or attacks by opportunistic infections, such as pneumonia on a weakened pulmonary system, as was the case with the H1N1 Spanish Flu virus of 1918. Both viruses seem to be particularly easily transmitted among humans, and have a relatively high mortality rate. The Spanish Flu also had an unusually high mortality rate in young adults, often causing death within 12 to 48 hours from the onset of symptoms, which was eventually thought to be a result of their more highly-developed and sensitive immune systems.

Barry is not a physician – he received an MA in History from the University of Rochester, and started a career as a high school sports coach. However, he got interested in writing, and initially published articles on coaching. His initial foray into a full-length book was political – examining the functioning of the US Congress. He then broached a medical topic, co-authoring a work on immunotherapy in cancer in concert with a leading physician. Gathering steam, he then reverted to the political realm with a study of the response to the Mississippi Flood of 1927. The overall theme of this current book, namely, that of looking at the American societal response to a major national challenge, was his initial motivation for writing the book, and the influenza pandemic was simply intended as a vehicle for exploring this topic. However, like the virus itself, the influenza theme took on a life of its own, and it dominates the narrative.

Thus, while the pandemic of 1918 was a worldwide event, this is largely an exposition dealing with the US experience of it. While the initial intent was to examine a society under stress, Barry found that he could not adequately explore this particular exemplar without going into the medical and historical background – elements which, of necessity, largely dominate his narrative. First, the selection of an American point of view was natural, given the initial objective of the writer's project, but also because the disease may have had a US origin, and its spread was also accelerated by the US army's initial refusal to listen to medical advice. This, according to Barry, lead to its probable incubation and the dissemination of the disease to Europe. On the positive side, much of the initial campaign to understand, research and contain the contagion was undertaken by US army doctors.

Barry therefore commences his account by looking at the state of American medical practice at the beginning of the 20th Century, noting that, unlike the leading institutions in Europe, it was still in the 'snake oil and diploma mill stage' of development, with the physician's profession often held in contempt by American society. However, some practitioners sought more advanced theoretical training in Europe, particularly in Germany, and a concomitant nucleus established a medical research capability in the US, initially at the newly established Johns Hopkins University in Baltimore. As an aside, one of the four founding physicians of this facility was the McGill-trained Sir William Osler – the foremost clinician of the early-20th Century. Consequently, the first half of Barry's account was necessarily focussed upon individuals, training, and the development of medical research in America. This in turn leads to a rather in-depth discussion of the influenza virus, the immune system, and related issues, such as pneumonia and bacteriology. Barry handles the latter topic well, although his discussion requires the reader to pay attention, and perhaps to make frequent use of the well laid-out index for reference. It

is not until well into the account that the author is able to look at the impact of the disease upon society. His discussion starts, as the disease did, with the tightly-packed American military – in overcrowded barracks, and then in troopships – and the consequent impact of ignoring medical advice.

This situation spilled over into civilian society. The Wilson government, according to Barry, largely ignored the epidemic, and indeed, put a clamp on press reporting and information dissemination that eventually lead to fear and distrust within the civilian population. Corrupt city politicians, particularly in Philadelphia and New York, compounded the problem, leading, for example, to one of the deadliest parades in history. The 27 September 1918 Liberty loan parade, involving more than 100,000 spectators, was aggressively promoted by civic authorities against the grave misgivings of medical personnel, and newspapers stayed silent on the issue. Two days afterward, the death rate from Spanish Flu in the civilian population started to accelerate dramatically, and within ten days, hundreds of thousands were infected, and hundreds were dying each day. Such was the cost of curbing the freedom of information. This story was repeated all over the nation with a few exceptions, such as in San Francisco, where authorities had apparently learned from the great earthquake a decade earlier to be open and candid with their citizens. Mortality rates in native populations, particularly the Inuit in Alaska, were very high. Barry also notes that this phenomenon was perhaps even worse in Labrador.

Barry's account has been described as a bit of a detective novel, with doctors and researchers feverishly rushing to find the cause for the disease, and subsequently, a serum or vaccine to counter it. However, unlike such tales, it did not have a storybook ending – or perhaps not an expected one at any rate. The lethal second phase of the pandemic in late-1918 was followed by a somewhat milder phase in 1919 and 1920, and it petered out as the virus mutated still further, and failed to find a critical mass of susceptible victims. However, the research did not stop with the end of the pandemic, since the puzzle had not been solved, but it proved to be more problematic than expected. Buoyed by earlier successes against cholera and diphtheria, specialists continued to search for a bacterial origin for the pandemic, but it was not until 1933 that Sir Christopher Andrewes and coworkers at Britain's National Institute for Medical Research finally identified the particular virus as the causative agent, although they built upon foundational work accomplished by American researchers. One of those American workers, Canadian-born Oswald Avery (from Halifax, not Montreal, as Barry states) continued to plug away at the implications of some of the results of this work, and in so doing, probably made one of the most significant bio-medical findings of the 20th Century. In a series of elegant experiments conducted in 1940, he demonstrated that it was DNA and *not a protein* that was the repository of genetic material. Indeed, medical research with respect to the 1918 pandemic is still revealing new insights. Within the past year, a University of Montreal researcher published germane results, noting a particularly high mortality rate among 28-year-olds, suggesting that the Russian Flu epidemic of 1890 may have over-sensitized the developing immune systems of individuals born that year – a hypothesis still under investigation. Sometimes in science, what you actually find is not what you were initially seeking.

To some extent, this may also be true of Barry's work. He started to study the impact of a major stressor upon American society, and ended up by being seen (and employed) as a lay expert on the management of pandemics. His project took a lot longer than he anticipated, and, well-supported by its 40 pages of source endnotes and 21 pages of references, was extensively researched. It is not surprising, also, that this book has been updated in light of the Avian Flu, Nile Virus, Ebola Virus and SARS epidemics of the past decade. And now, COVID-19... The pictures that accompany the narrative – overloaded hospitals, soldiers marching in masks, mass graves and pathetic government notice boards – could have been taken yesterday...

Have we learned anything from all this? Perhaps one of the more chilling comments can be found in the afterward where, in his comments with respect to the 2003 SARS epidemic, Barry notes with some relief that we now have the World Health Organization (WHO) to promote cooperation in epidemic control, although its effectiveness depends upon the cooperation of national governments. He then observed that in the case of SARS, "…the world was put at risk by China, which initially lied and hid the disease. China's candour had improved significantly, but China is not still fully transparent."

Commander (Ret'd) Mark Tunnicliffe *enjoyed a long and distinguished career in the Royal Canadian Navy. He has also been a frequent contributor to the* Canadian Military Journal.