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ON TRACK

Autonome et renseigné

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The Strategic Threat of Cyber Attack

Mission Creep and Evolving War Aims

Canada's Partnership in the Joint Strike Fighter Program

The NATO Training Mission - Afghanistan

Effective Military Leadership

Direct Communication: A Remarkable CF Success Story

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ON TRACK

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CONTENTS CONTENU

COVER PHOTO: Batisse XI, the regimental mascot of the Royal 22e Régiment and the Goat Major stand at attention during the Duke and Duchess of Cambridge's tour of the Citadel in Quebec City. Photo by: Sean Kilpatrick, Canadian Press PHOTO DE LA PAGE COUVERTURE: Batisse XI, bouc régimentaire du Royal 22e Régiment; et le maître-chevrier, se tiennent au garde à vous durant la visite à la Citadelle de Québec du Duc et de la Duchesse de Cambridge.

From the Executive Director

This summer edition of ON TRACK features articles of current interest in the areas of, among others, cyber security, Afghanistan, Canada's joint strike fighter project, capital acquisition, military leadership, communications, long-wave theory, mission creep, supply chain risk management, the government's National Shipbuilding Procurement Strategy, war art, and a book review.

Colonel (Ret) Alain M. Pellerin, OMM, CD

With the reports of recent cyber attacks, cyber security concerns are becoming more evident. General (Ret'd) Paul Manson provides an overview of the issue in '*The Strategic Threat of Cyber Attack*'. General (Ret'd) Manson is a member of the CDA Institute's Board of Directors.

As Canada's Deputy Commander Joint Task Force Afghanistan International Security and Assistance Force, Lieutenant-General Stuart Beare provides us with an overview of the NATO Training Mission in Afghanistan - where we were, where we are today and the challenges that are to be faced by Canada and its allies in training Afghan forces to take responsibility and leadership for security by 2014, in *The NATO Training Mission - Afghanistan*.

Retired Canadian diplomat Louis Delvoie argues that the West's military interventions in Kosovo, Afghanistan, Iraq and Libya have all suffered from the problem of mission creep. In *Mission Creep and Evolving War Aims,* he writes that new objectives have been added incrementally to the initial war aims, resulting in difficulties on implementation and the constant prolongation of the missions.

The federal government's decision last summer to acquire the F-35 Lightning II Joint Strike Fighter has resulted in intense media attention and the polarization of viewpoints regarding the suitability of the aircraft, its cost, and whether it should be acquired at all. Lieutenant-General (Ret'd) George Macdonald writes, in *Canada's Partnership in the Joint Strike Fighter Program*, how Canada became involved in the program and points out that Canadian companies can compete well and have proven so with the success that they have achieved in the F-35 program to date. Lieutenant-General (Ret'd) Macdonald is a member of the CDA Institute's Board of Directors.

In *Canada's Joint Strike Fighter Purchase: Parsing the Numbers*, Dave Perry identifies the various costs that

Mot du Directeur exécutif

Cette édition d'été de *ON TRACK* présente des articles d'intérêt actuel dans les domaines suivants, entre autres : la cybersécurité, l'Afghanistan, le projet conjoint d'avion de combat du Canada, les acquisitions d'immobilisations, le leadership militaire, les communications, la théorie des ondes kilométriques, le changement d'orientation de mission, la gestion des risques de la chaîne d'approvisionnement, la Stratégie nationale d'approvisionnement en matière de construction navale, l'art de la guerre et un compte rendu de lecture.

Avec les rapports de récentes cyberattaques, les préoccupations concernant la cybersécurité prennent une évidence croissante. Le Général (ret) Paul Manson nous donne un aperçu d'ensemble de la question dans l'article *The Strategic Threat of Cyber Attack*. Le Général (ret) Manson est membre du conseil d'administration de l'Institut de la CAD.

En tant que commandant adjoint canadien de la Force opérationnelle interarmées Afghanistan au quartier général de la Force internationale d'assistance et de sécurité, le Lieutenant-général Stuart Beare nous donne un aperçu de la mission d'entraînement de l'OTAN en Afghanistan – où nous avons été, où nous sommes aujourd'hui, et les défis auxquels le Canada et ses alliés devront faire face dans l'entraînement des forces afghanes pour qu'elles puissent assumer la responsabilité et le leadership de la sécurité d'ici 2014 ; c'est l'objet de l'article *The NATO Training Mission - Afghanistan*.

Le diplomate canadien à la retraite Louis Delvoie soutient que les interventions militaires de l'Ouest au Kosovo, en Afghanistan, en Iraq et en Lybie ont toutes souffert du problème de changement d'orientation de mission. Dans *Mission Creep and Evolving War Aims* il écrit que de nouveaux objectifs ont été ajoutés, à la pièce, aux objectifs de guerre initiaux, ce qui a causé des difficultés de mise en oeuvre et une perpétuelle prolongation des missions.

La décision prise par le gouvernement fédéral, l'été dernier, de faire l'acquisition de l'avion d'attaque interarmées F-35 *Lightning II* a soulevé une intense attention des médias et amené la polarisation des points de vue concernant l'appropriation de l'avion à l'usage souhaité, son coût et la question de savoir si on devrait même en faire l'acquisition. Dans *Canada's Partnership in the Joint Strike Fighter Program*, le Lieutenant-général (ret) George Macdonald raconte la façon dont le Canada en est venu à participer au programme et fait remarquer que les entreprises canadiennes peuvent faire bonne figure dans la compétition et qu'elles l'ont prouvé avec le succès qu'elles ont eu dans le programme F-35 jusqu'à maintenant. Le Lieutenant-Général (ret) Macdonald est membre du conseil d'administration de l'Institut de la CAD.

Dans *Canada's Joint Strike Fighter Purchase: Parsing the Numbers*, Dave Perry identifie les divers coûts en cause

are involved in the purchase of 65 F-35 fighters. His article provides some clarity regarding the JSF costs by comparing three cost estimates. Dave is a doctoral candidate in Political Science at Carleton University and a defence analyst with the CDA Institute.

In his article, *Supply Chain Risk Management: from Micro to Macro in Defence Procurements*, Paul Hillier examines supply chain risk management practices in the Canadian defence establishment, and examines various options for more effectively procuring necessary technologies with least risk. Paul is currently working on his M.A. in Political Studies at Queen's University.

Dr. Alan Okros notes that there are significant differences in how leadership is practiced across the Canadian Forces (CF). In *Effective Military Leadership*, he expands on the present understandings of CF leadership by considering the use of leader power and understanding differences across services. Dr. Okros is a Professor at Canadian Forces College, Toronto.

Our newest member of the CDA Institute's Board of Directors, Colonel (Ret'd) Brett Boudreau weighs in with some reflections on Thomas Caldwell's article from the last issue of *ON TRACK*, in which Mr. Caldwell expressed the view that the Canadian population does not hear enough from the soldiers, sailors and air personnel of the CF about their activities and work. In *Direct Communication: A Remarkable CF Success Story*, Colonel (Ret'd) Boudreau argues that the current high standing of CF members with the Canadian population is a direct result of CF personnel being front and centre in a decade-long media campaign that is the envy of other federal government departments.

In the Autumn 2005 issue of *ON TRACK*, Colonel (Ret'd) Howard Marsh applied long-wave theory as an analytical tool to cyclical socio-economic behaviour, with some success. Encouraged by this, he has found other discernible cyclical patterns that synchronize with major historical events. In *Long Waves Revisited*, Colonel (Ret'd) Marsh explores Grand Jubilee, an ancient Hebraic celebration that occurs every 490th year. Colonel (Ret'd) Marsh is a former Senior Defence Analyst with the CDA Institute.

They fought for freedom is the title of an article that was co-authored by Paul Chapin, Don Macnamara, Brian MacDonald and John Scott Cowan, and published in a recent edition of the *Ottawa Citizen*. The article outlines what Canada's engagement in the war in Afghanistan has accomplished. With the kind permission of the *Ottawa Citizen* we are pleased to reprint this acknowledgement of Canadian success in Afghanistan in *ON TRACK*.

Another reprint we have included in *ON TRACK*, courtesy of *Frontline Defence*, is an opinion article, *NSPS – let's not forget the Payload*, written by Dr. Jim Carruthers. He proposes that it is time to consider a National Ship Payload

dans l'achat de 65 avions de combat F-35. Son article jette quelque éclairage sur les coûts de l'avion de combat interarmées en comparant trois estimations de coûts. Dave est candidat au doctorat en sciences politiques à l'Université Carleton et analyste de la défense à l'Institut de la CAD.

Dans son article intitulé *Supply Chain Risk Management: from Micro to Macro in Defence Procurements*', Paul Hillier examine les pratiques de gestion des risques de la chaîne d'approvisionnement dans l'établissement de la défense du Canada, ainsi que les diverses options qui permettraient de faire plus efficacement, et à moindre risque, l'acquisition des technologies nécessaires. Paul travaille présentement à sa maîtrise en études politiques à l'Université Queen's.

M. Alan Okros note qu'il y a des différences importantes dans la façon dont le leadership est pratiqué à travers les Forces canadiennes. Dans l'article *Effective Military Leadership*, il élabore sur la compréhension actuelle du leadership dans les FC en considérant l'utilisation du pouvoir de leader et en essayant de comprendre les différences qui traversent les services. M. Okros est professeur au Collège des Forces canadiennes, à Toronto.

Notre tout nouveau membre du conseil d'administration de l'Institut de la CAD, le Colonel (ret) Brett Boudreau, apporte sa contribution avec quelques réflexions sur l'article de Thomas Caldwell paru dans le dernier numéro de *ON TRACK*, dans lequel M. Caldwell exprimait le point de vue que la population canadienne n'entend pas suffisamment les soldats, les marins et les gens de l'air des FC parler de leurs activités et de leur travail. Dans son article *Direct Communication: A Remarkable CF Success Story*', le Colonel (ret) Boudreau soutient que la haute opinion que la population canadien a présentement des membres des FC est un résultat direct du fait que les membres des FC ont été au centre d'une campagne médiatique d'une dizaine d'année, qui fait l'envie d'autres ministères du gouvernement fédéral.

Dans le numéro de l'automne 2005 de *ON TRACK*, le Colonel (ret) Howard Marsh appliquait, avec un certain succès, la théorie des ondes kilométriques comme outil analytique au comportement socio-économique cyclique. Encouragé par ce succès, il a découvert d'autres formes cycliques discernables qui sont en synchronie avec des événements historiques majeurs. Dans l'article intitulé *Long Waves Revisited*, le Colonel (ret) Marsh explore le grand Jubilée, ancienne célébration hébraïque qui se produit chaque 490ème année. Le Colonel (ret) Marsh est un ancien analyste principal de la défense de l'Institut de la CAD.

They fought for freedom, tel est le titre d'un article qui a pour co-auteurs Paul Chapin, Don Macnamara, Brian MacDonald et John Scott Cowan et qui a été publié dans un récent numéro du *Ottawa Citizen*. Cet article décrit ce qu'a accompli l'engagement du Canada dans la guerre de l'Afghanistan. Avec la gracieuse permission du *Ottawa Citizen* nous sommes heureux de reproduire dans *ON TRACK* cette reconnaissance du succès canadien en Afghanistan.

Autre tiré à part que nous avons inclus dans *ON TRACK*, une gracieuseté de *Frontline Defence*, voici une chronique intitulée *NSPS – let's not forget the* Payload, due à la plume de M. Jim Carruthers. Il propose qu'il est temps de

Policy. Jim is President of the Ottawa Branch of the Naval Officers Association of Canada and is a board member of the CDA Institute.

Gertrude Kearns is a Toronto-based artist who has executed four portraits of Canadians serving and who have served on various missions. In *War Posters?* Ms. Kearns explains the rationale behind her work and provides a commentary for the last of four portraits that we are featuring in this edition of *ON TRACK*.

We are pleased to include a review by Arnav Manchanda, defence policy analyst with the CDA Institute, of the book, *The Other Cold War - Canada's Military Assistance to the Developing World 1945-1975*, written by Lieutenant-Colonel Christopher Kilford. His book provides valuable insights regarding the Whole of Government pillars of Defence, Development and Diplomacy, and the early history of the CF's Military Training Assistance Program.

Over the years we have seen a significant increase in the scope of the work of both the CDA Institute and of the CDA, to the extent that we have recently expanded the staff of the National Office. This expansion coincides with the move of the National Office from our present quarters to 151 Slater Street, Suite 412A, Ottawa. With our move I am very pleased to welcome aboard Paul Chapin and Dave Perry. Paul Chapin is the Institute's Director of Research. Paul left government service after more than 25 years in the Canadian Department of Foreign Affairs and International Trade. During his diplomatic career, he served in Washington as Minister-Counsellor in charge of the political section of the Canadian embassy, as Canada's representative on the NATO Political Advisors Committee in Brussels, and as a political affairs officer at the Canadian embassies in Moscow and Tel Aviv. He was also head of political and strategic analysis at Foreign Affairs and responsible for oversight of Canada's security and intelligence agencies. Between 2006 and 2008, he was Vice President (Programs) at the Pearson Peacekeeping Centre. He is also an adjunct professor and research associate in the Defence Management Studies program at the School of Policy Studies at Queen's University in Kingston. He is a member of the Institute's Board of Directors. Paul's complete biographical sketch is available on our website.

Dave Perry is a defence analyst with the Institute. He is a doctoral candidate in political science at Carleton University, where he holds a J. Armand Bombardier Canada Graduate Scholarship (SSHRC). His dissertation research compares defence privatization in Canada, the United States and India.

In 2002 the CDA and the Canadian Defence and Foreign Affairs Institute initiated the Ross Munro Media Award. The annual award was most recently presented, last November, to Mr. Murray Brewster, Parliamentary defence reporter and senior war correspondent for The Canadian Press news agency. The presentation of this prestigious award, this year, will take place during the Vimy Award dinner on 18 November to one Canadian journalist who has

considérer une politique nationale de chargement utile pour les navires. Jim est président de la succursale d'Ottawa de l'Association des officiers de marine du Canada et membre du conseil d'administration de l'Institut de la CAD.

Gertrude Kearns est une artiste torontoise qui a exécuté quatre portraits de Canadiens qui servent ou ont servi dans diverses missions. Dans *War Posters?*, Mme Kearns explique la raison d'être de son travail et nous donne un commentaire sur le dernier de ces quatre portraits que nous présentons dans le présent numéro de *ON TRACK*.

Nous sommes heureux d'inclure un compte rendu de lecture d'Arnav Manchanda, analyste des politiques de défense à l'Institut de la CAD, du livre *The Other Cold War - Canada's Military Assistance to the Developing World 1945-1975*, dû au Lieutenant-Colonel Christopher Kilford. Son livre nous livre de précieuses réflexions sur les piliers du cadre pangouvernemental que sont la défense, le développement et la diplomatie, ainsi que l'histoire des débuts du Programme d'aide à l'instruction militaire des CF.

Au fil des ans nous avons vu une augmentation significative de la portée des travaux de l'Institut de la CAD et de la CAD, à tel point que nous avons récemment ajouté au personnel de notre bureau national. Cette expansion coïncide avec le déménagement du bureau national au 151, rue Slater, Bureau 412A, Ottawa. Avec ce déménagement, j'ai le grand plaisir d'accueillir à bord Paul Chapin et Dave Perry. Paul Chapin est le directeur de la recherche de l'Institut. Paul a quitté le service du gouvernement après plus de 25 ans au ministère des Affaires étrangères et du Commerce international. Pendant sa carrière diplomatique, il a servi à Washington comme ministre conseiller chargé de la section politique de l'ambassade canadienne, comme représentant du Canada au comité des conseillers politiques de l'OTAN, à Bruxelles, et comme agent des affaires politiques des ambassades canadiennes à Moscou et à Tel Aviv. Il a aussi été chef d'analyse politique et stratégique aux Affaires étrangères et responsable de la supervision des agences de sécurité et de renseignements du Canada. Entre 2006 et 2008, il a été vice-président (aux programmes) du Centre Pearson pour le maintien de la paix. Il est également professeur auxiliaire et associé de recherche au programme d'Études en gestion de la défense de la School of Policy Studies de l'Université Queen's, à Kingston. Il est membre du conseil d'administration de l'Institut. On peut lire les données biographiques complètes de Paul sur notre site Web.

Dave Perry est analyste de la défense à l'Institut. Il est candidat au doctorat en sciences politiques à l'Université Carleton, où il est boursier du programme de bourses d'études supérieures J. Armand Bombardier du Canada (CRSH). Son mémoire de recherche compare la privatisation de la défense au Canada, aux États-Unis et en Inde.

En 2002, la CAD et l'Institut Canadien de la Défense et des Affaires Etrangères (ICDAE) a institué le prix Ross Muro Media Award. Le prix annuel le plus récent a été décerné, en novembre dernier, à M. Murray Brewster, journaliste parlementaire de la défense et correspondant de guerre en chef pour l'agence de nouvelles The Canadian Press. La présentation de ce prix prestigieux, cette année, aura lieu pendant le dîner du prix Vimy, le 18 novembre, et

made a significant contribution to the understanding by the public of defence and security issues affecting Canada. The Award comes with a cash prize of $2,500. The notice of the call for nominations appears elsewhere in this issue and on our website.

One of the major events in the CDA Institute's calendar is the annual presentation of the Vimy Award to one Canadian who has made a significant and outstanding contribution to the defence and security of our nation and the preservation of our democratic values. Last year's programme was an outstanding success, with a record number of excellent submissions that were considered by the Vimy Award Selection Committee. The programme culminated with the presentation of the Award to the Rt. Hon. Adrienne Clarkson by the His Excellency the Rt. Hon. David Johnston, Governor General and Commander-in-Chief of Canada, before some 670 guests at a formal dinner in the Canadian War Museum.

This year's presentation of the Vimy Award will take place on 18 November at a gala reception and dinner, again, in the Canadian War Museum. To make the Award truly meaningful the Institute needs your nomination for this year's recipient. While we have already received a number of nominations, CDA member associations as well as individuals are encouraged to submit nominations for their candidate. Please refer to the notice of the call for nominations that appears elsewhere in this issue and on our website.

Both programmes last year were outstanding successes. I am pleased to report that support for the programmes from Canadian industry and individuals is very encouraging.

The CDA Institute will continue to provide Canadians with insightful analysis of events and issues that impact on the defence and security of this country. Through the CDA Institute's research, roundtable discussions, annual seminars and symposia, and our collaboration with universities and other groups, we continue our focus on defence and security issues. Our aim is always to inform as well as support our government and policymakers in directions that will safeguard the defence and security interests of Canada and its citizens.

In closing, I wish to thank our benefactors, particularly our patrons, companions and officer level donors, for their financial support for the work of the CDA Institute, without whom we would be hard-pressed to fulfil our mandate.

If you are not already a donor to the CDA Institute, I would ask you to become one and recruit a friend. If you join at the Supporter level with a donation $75, or at a higher level, you will receive the following benefits for 12 months following your donation:

couronnera le travail d'un journaliste canadien, homme ou femme, qui a fait une contribution significative permettant au public de comprendre les enjeux de défense et de sécurité qui affectent le Canada. Le prix est accompagné d'un prix en argent de 2 500 $. L'avis d'appel de candidatures paraît ailleurs dans ce numéro et sur notre site Web.

L'une des grandes activités du calendrier de l'Institut de la CAD est la présentation annuelle du prix Vimy à un Canadien ou une Canadienne qui a fait une contribution significative et exceptionnelle à la défense et à la sécurité de notre pays et à la préservation de nos valeurs démocratiques. Le programme de l'an passé a connu un succès retentissant, alors qu'un nombre record d'excellentes soumissions fut considéré par le comité de sélection du prix Vimy. Le programme a connu son point culminant avec la présentation du prix à la Très Honorable Adrienne Clarkson par Son Excellence le Très Honorable David Johnston, gouverneur général et commandant en chef du Canada, devant un auditoire de quelque 670 invités lors d'un dîner de gala au Musée canadien de la guerre.

La présentation du prix Vimy, cette année, aura lieu le 18 novembre dans le cadre d'une réception et d'un dîner de gala, à nouveau au Musée canadien de la guerre. Pour donner encore plus d'éclat à ce prix, l'Institut a besoin de votre mise en candidature pour le récipiendaire de cette année. Même si nous avons déjà reçu un certain nombre de noms, les associations membres de la CAD, ainsi que les individus, sont priés de soumettre des mises en candidature pour les candidats de leur choix. On vous demanderait de vous reporter à l'avis d'appel de candidatures qui apparaît ailleurs dans ce numéro et sur notre site Web.

Les deux programmes ont connu un succès retentissant. J'ai le plaisir de rapporter que l'appui accordé aux programmes par l'industrie canadienne et des individus est très encourageant.

L'Institut de la CAD continuera de fournir aux Canadiens des analyses judicieuses des événements et des questions qui ont un impact sur la défense et la sécurité de ce pays. À travers notre recherche, nos tables rondes, nos séminaires et symposiums annuels, ainsi que par notre collaboration avec les universités et d'autres groupes, nous continuons à mettre l'accent sur les questions de défense et de sécurité. Notre but est de toujours informer et appuyer notre gouvernement et les concepteurs de politiques en vue de sauvegarder les intérêts du Canada et de ses citoyens en matière de défense et de sécurité.

En terminant, j'aimerais remercier nos bienfaiteurs, et particulièrement nos donateurs des niveaux *patron, compagnon,* et *officier* pour l'appui financier qu'ils accordent au travail de l'Institut de la CAD, appui sans lequel il nous serait très difficile de bien nous acquitter de notre mission.

Si vous n'êtes pas déjà un donateur à l'Institut de la CAD, je vous demanderais d'en devenir un et de recruter un ami. Si vous vous joignez au niveau *supporter*, avec un don de 75 $, ou à un niveau plus élevé, vous recevrez les bénéfices suivants pendant les 12 mois qui suivront votre don :

- Advance copies of all other CDA Institute publications, such as the Vimy Papers; and

- A discount registration rate at the CDA Institute's Annual Seminar.

A copy of Donor forms is printed elsewhere in this journal. Donor forms are also available on line at www.cda-cdai.ca/cdai/become-a-donor

Thank you. ©

- Un reçu d'impôt pour don caritatif ;
- Quatre numéros de la revue trimestrielle *ON TRACK* de l'Institut de la CAD ;
- Des exemplaires anticipés de toutes les autres publications de l'Institut de la CAD, comme les *Cahiers Vimy* ; et
- Un tarif à escompte pour l'inscription au séminaire annuel de l'Institut de la CAD.

Une copie du formulaire de donateurs est imprimée ailleurs dans ce magazine. Les formulaires de donateurs sont également disponibles sur notre site Web.

Merci. ©

The strategic threat of cyber attack

by General (Ret'd) Paul Manson

In the fall of 2010 a computer virus called Stuxnet caught the world's attention. This highly sophisticated "worm" apparently infiltrated Iran's nuclear centrifuge facility at Natanz, doing severe damage to that country's alleged nuclear weapons program. The Stuxnet attack portends a new form of strategic warfare. Canadians need to understand that they are vulnerable to the emerging threat, and they must do something about it.

The advent of digital technology and the rise of the Internet have changed our way of life greatly in the past four decades, mostly in beneficial and benign ways. But there is a dark side to the digital revolution. The Internet, originally built in the 1970s as a small network linking defence research facilities in the United States, was never meant to host the massive volume that exists today. The numbers are staggering. For example, it is estimated that last year alone two billion users sent more than 100 trillion e-mails. Very little security was built into the Internet, and this has led to malicious abuse, originally at the personal level (young hackers having fun), to more serious abuse by "hactivists," and criminal activity on an increasingly dangerous scale, mainly in the form of theft or pornography.

While the impact of these forms of abuse cannot be disregarded, it is the more recent appearance of state-sponsored strategic cyber intrusions, of which the public remains largely unaware in the face of incontrovertible evidence, that defensive measures are needed to prevent serious or even catastrophic consequences. It is a whole new form of warfare to which our Western world is especially vulnerable because of our massive use of digital networks and the inherent weakness of existing defences.

General (Ret'd) Paul Manson is a former President of the Conference of Defence Associations Institute. He was Chief of the Defence Staff from 1986 to 1989. General (Ret'd) Manson is a Member of the Board of Directors of the CDA Institute.

Consider the following scenario.

Without warning, North American power grids suddenly fail, enveloping the continent in a blackout. Simultaneously, the entire air traffic system shuts down because of the failure of air traffic control facilities, communications, airport security systems and airline passenger management programs. Financial systems in Canada and the United States, including banks and stock markets, together with other elements of critical infrastructure, come to a grinding halt. All of this is clearly the result of a massive, co-ordinated cyber attack. It is not hard to imagine the consequences, given that recovery could take weeks or even months.

Recent history tells us that the capability to mount such an attack currently exists. In the past several years a number of cyber attacks have been recorded, on a lesser scale to be sure, but these amply demonstrate that we have encountered a new form of strategic conflict. The Stuxnet episode was one, in this case carried out by the "good guys" (presumably the United States and Israel), which makes the point that there is both an offensive and defensive aspect to cyber warfare. Incidentally, when the full story of the current operation in Libya is told, it will be interesting to learn to what extent cyber means were used in the establishment of the no-fly zone and subsequent operations.

Back in 2007 Estonia, embroiled in a political dispute with Russia, was subjected to an extensive attack on many of its servers, affecting banking, media, mobile phone and government services. Russia indignantly disclaimed involvement, blaming the attack on patriotic hackers and criminal elements. This was ironic, given the fact that in the Russia-Georgia War the following year, the Georgians were subjected to a similar massive cyber attack affecting government websites, Internet traffic, media access, banks and communications. The assault also included extensive

"spoofing." Analysts of that episode concluded that the Russians probably employed criminal hackers to conduct the attack. The principal weapon, as in the Estonia case, was something called DDOS, standing for distributed denial of service, in which robotic networks ("botnets") involving many infected computers are commanded to simultaneously overwhelm the target systems with countless malicious inputs.

In the 2009 Ghostnet episode, a worldwide attack was fortuitously uncovered by the Information Warfare Monitor, a leading Canadian cyber facility. In that attack, several governments saw their networks compromised. Some 1,300 computers in various countries, including government systems, were infected, presumably leading to a loss of state and commercial secrets. And here is another intriguing example: in a 2010 event, 15 percent of American Internet traffic over a relatively brief period was mysteriously re-routed through China before going on to its intended recipients. And Canada is by no means immune. As recently as January 2011 a number of federal government systems were attacked. Such incidents are being reported with increasing frequency. It is a real phenomenon, as we learn with the almost daily reports of new cyber intrusions, some of which, incidentally, are designed to produce effects not just on the target networks themselves, but through them (Wikileaks can be seen as an example of this).

With potentially catastrophic consequences for the victims of cyber attack, as in the above North American scenario, it is not surprising that the appearance of the strategic cyber weapon has been compared to the advent of nuclear weapons in the 1940s. A whole new body of academic study has evolved, characterized by such familiar terms as deterrence, first strike, massive retaliation, escalation, arms race and arms control. But there are significant differences between nuclear and cyber attack. The latter is cheaper, and it is instantaneous, giving virtually no warning. Most important, it can be a low-risk venture, for a very simple reason, namely the problem of "attribution."

Someone once said that nuclear missiles come with a return address; there can be little doubt about who launched them. In the case of cyber attack, however, identifying the perpetrator can be very difficult or even impossible. It might take weeks or months to trace the origin of an attack, since the digital weapons would likely have been lying dormant in the victim nation's own networks, and they could very well have originally been routed through two or more intermediate nations. Clearly, given all of this, the offence currently has an enormous advantage over the defender in the case of cyber warfare.

There is a critical need, therefore, to establish an effective defence. (Although deterrence through offensive capability is an important part of the equation, Canada's immediate interest lies in the defensive side, so the former will not be treated here. It is, nevertheless, an area of intense study.)

The United States is an obvious target. In 2009, for example, there were 71,000 cyber attacks against American government computers, many belonging to the 15,000 networks operated by the Department of Defense alone. Increasingly, we hear of serious intrusions into corporate networks, against such targets as Lockheed Martin, Google and Sony. Not all of these can be considered "strategic" attacks, but commercial espionage can have strategic consequences. The Americans have acted vigorously in response to the emerging threat, after years of half measures and a lack of effective coordination. Recognizing cyberspace as the strategic "fifth domain" after land, sea, air and space, in October 2009 they created US Cyber Command, bringing together the intelligence and operational communities to provide strong central control over both offensive and defensive capabilities. The Command now employs more than 90,000.

Meanwhile, Canada lags in its response to the emerging threat...

The United States is not alone in developing its capabilities, which raises the important question of who the opponents might be in this new conflict arena. Russia and China have already been mentioned as having exercised the strategic cyber weapon, and both countries are known to have powerful capabilities in this regard. So do Iran, North Korea, Syria and even Myanmar. Furthermore, we can be sure that non-state actors like Al Qaeda see the value of the new weapon. Even though such organizations may not have an organic capability of their own, there is growing concern about the use of "rent-a-hacker" options for the mounting cyber attacks against the West.

Meanwhile, Canada lags in its response to the emerging threat, but some initial steps have been taken in recent months, mainly with the assignment of responsibilities for coordinating the protection of critical infrastructure. In late 2010 the federal government presented its national cyber security strategy, under the aegis of Public Safety Canada. The Royal Canadian Mounted Police (RCMP) plays a major role with its Critical Infrastructure Criminal Intelligence section and the Cyber Crime Fusion Centre. A key element of the national strategy is the bringing together of strategic intelligence from a variety of sources, including the RCMP, Canadian Security Intelligence Service, and the Departments of National Defence and Foreign Affairs. It must be said, however, that actions taken by the federal government to date are essentially directed at the public sector, i.e. the protection of government networks. The problem goes much beyond that.

The safeguarding of vital system information from cyber espionage is an essential part of securing our national defence structure and our critical infrastructure, and here industry has a role to play. Traditionally, companies have been lukewarm in their approach to this responsibility because of the potential impact on the bottom line, but also because of a deeply-embedded belief that it is government's responsibility to protect the nation from external attack. Ultimately, self-interest will compel the private sector to

(*continued p. 12*)

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play an important role in their own defence against cyber assault, but the Government of Canada, with its substantial resources, must lead the way, both through the formulation of a really effective national strategy for defence against the cyber weapon, but also through the direct protection of commercial networks.

Government and industry must work together in another important way. As noted, the Internet is inherently vulnerable to penetration. Malware can be inserted far too easily, often through the exploitation of programming errors. Intensive research and development is required to eliminate weaknesses and to identify incursions. Owners and operators of critical infrastructure must protect their control systems (usually based on software called SCADA, Supervisory Control and Data Acquisition), which in many cases are very vulnerable. In the power grid, for example, control information has traditionally been transmitted "in the clear," via commercial phone lines or the Internet. Encryption has to become the norm, here and in similar areas.

The federal government and its provincial counterparts need to examine the need for legislation to enforce good practice in the design, management and use of the Internet and other networks that touch on critical infrastructure, and in the provision of military and economic security. Given the extraordinarily close ties between Canada and the United States in domains such as the power grid, we need to work hand in hand with our neighbour to the south in protecting our common interests. And beyond that, Canada and her allies need to establish an international treaty regime through which powerful controls may be exercised.

In the final analysis, the construction of a strong line of defence against cyber attack must be based upon public awareness and vigilance. Few Canadians know of their nation's susceptibility to this new form of warfare and its potential for great harm. Education is the key, at many levels: government, industry, university and the private citizen. A strong cadre of experts must be developed, to lead the process of building formidable defences against cyber attack.

The risk of a cyber Pearl Harbour may be remote, but it cannot be discounted. Given the devastating consequences, while understanding the damage that our nation might incur from other forms of cyber attack, Canada needs to respond to the new strategic threat in a deliberate and organized way, ensuring that we have the knowledge and expertise to cope with a very different new form of warfare. ©

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The NATO Training Mission - Afghanistan

by Lieutenant-General Stuart Beare

Since August 2010, Lieutenant-General Beare has been serving as the Deputy Commander – Police, NATO Training Mission – Afghanistan (NTM-A). Lieutenant-General Beare and the team he works with are responsible for helping the government of Afghanistan and its Ministry of Interior to develop their national police force.

At present, the Canadian Forces (CF) and civilian police are joining the NATO Training Mission-Afghanistan (NTM-A) in substantial numbers. By the fall, over 900 CF and several dozen civilian police will be part of the team. Canada will then be the second largest national contingent of the 33 nations serving in NTM-A.

The intervention and mission in Afghanistan has evolved significantly since the earliest days of the 3 PPCLI Battle Group in Kandahar in 2002, to Kabul in 2004, and back to Kandahar again in 2006. This period saw substantial investments and sacrifices that have been made, as well as considerable progress in many key areas.

Since the formation of NTM-A in November 2009, allied forces have seen marked improvements in the Afghan National Army (ANA) and the Afghan National Police (ANP), which together make up the Afghan National Security Force (ANSF).

As Deputy Commander-Police in NTM-A, I am proud to be a member of the team that is a key component to sustaining and accelerating this progress. I couldn't be happier that Canada, the CF, and our civilian police partners are becoming a much larger component of this effort. Indeed, as members of the NTM-A team, we are playing a dynamic role in a vital mission that touches the whole of the ANSF.

From my perspective here in Kabul, I can see the incredible progress made by the Afghan National Army and Police in recent years. Despite the many challenges, the NTM-A has played a vital role in training the ANA and ANP

While there were considerable efforts by many bilateral partners, the lack of resources and inadequate investments in the NTM-A yielded Afghan policemen and soldiers who were poorly equipped and untrained. Thus, they were unable to conduct duties without significant Coalition Force assistance.

Let's look at this progress as seen through the story of a man named Wakil, an Afghan policeman who has served in a southern province for ten years and who lost an arm while fighting the Taliban.

Lieutenant-General Beare is Chief of Force Development for the Canadian Forces. Since August 2010, he has been the Deputy Commander – Police, NATO Training Mission – Afghanistan (NTM-A). Lieutenant-General Beare was promoted to his current rank on 1 July 2011. He will assume the command of Canadian Expeditionary Force Command on 1 September.

Prior to NATO's changed approach and commitment of new resources in 2009, Wakil, like most of his fellow police officers, had not received any formal police training, wasn't paid an adequate wage, and was never taught to read and write. He was recruited and assigned locally without formalized training. In addition, Wakil could not rely on his superiors for leadership because they also had never been formally trained.

Afghan police officers like Wakil were not paid a basic "living wage." He received less than $100 per month, not enough salary to sustain his family. Wakil and 86 percent of his peers entered the force totally illiterate and innumerate. They were part of a "lost generation" who had no access to school. He could not write his own name or read his weapon serial number. With few training options, it was likely that he could spend his entire police career totally illiterate.

Most of Wakil's uniform items, such as boots, tactical gear, clothing and other equipment were made outside of Afghanistan. The quality of his equipment was generally low. He was put on the streets without the basic equipment and vehicles needed to perform his duty.

The National Police accessions model used at that time was to recruit a new policeman and then assign him to a police district with the *intention to train him at some future point.*

Many of Wakil's leaders were untrained or minimally trained due to a lack of nationally standardized training. While there were some great programs in certain provinces, the entire police training effort was disjointed and unsynchronized. As well, for both Army and Police, the quantity of leadership programs was inadequate for the size of the force.

Today the story of Wakil and the development of the ANA and ANP have dramatically changed. All across Afghanistan there has been an incredible "untold story"; a story that is underwritten by a dramatic increase in both the quantity of the force, quality of training effort, and in efforts to build effective and enduring Afghan institutions.

Today's Afghan policemen and soldiers are better trained because patrolmen now receive six weeks of formal training, growing to eight weeks this summer, and soldiers receive a high quality eight-week training programme. This training is now delivered by a growing number of Afghan professional instructors, who are expertly coached and mentored by a growing body of professional military and international police trainers in the 70 training centres across Afghanistan.

Today's soldier or policeman is well paid and receives a living wage commensurate with the national standard of living. New soldiers and patrolmen receive US$165 per month with bonus and incentive payments that

raise pay up to $250 in high risk areas. They are also eligible for a number of specialist pay incentives. Over 80 percent of the ANP and 95 percent of the ANA now receive their pay via electronic funds transfer or Pay by Phone, greatly reducing the opportunity for predatory corruption and the pilfering of salaries.

Today there are over 170,000 Afghan police and soldiers trained or in literacy training, over half of the current strength of the ANSF

Like 86 percent of fellow recruits, Wakil entered the police totally illiterate and innumerate. Today all students receive mandatory literacy training during recruit, junior leader and vocational training. Recruits receive at least a basic level of literacy over their first years in the force with incentives and training options for greater literacy education throughout their careers. Today there are over 170,000 Afghan police and soldiers trained or in literacy training, over half of the current strength of the ANSF.

The international community's focused efforts over the last 20 months have yielded an Afghan policeman and soldier equipped with quality weapons, vehicles, tactical gear and technical equipment. In addition to the near US$8 billion invested in vehicles, radios, uniforms and weapons, over US$10 billion has been invested in facilities such as training sites, headquarters and educational centres across Afghanistan.

Major-General Stuart Beare visits police trainees at National Police Training Center Wardak, in February, while checking the construction progress of Afghanistan's largest training facility that will have the capability to train 3,000 Afghan National Police trainees.

Photo by Captain Nicole Ashcroft, USAF, Public Affairs Officer DCOM-POLICE NATO Training Mission-Afghanistan

The current accessions model for the ANP today is to recruit, train and assign (or, R-T-A). Today's recruits receive basic police training before being assigned to a police district. Leaders are entering the force with better training than their predecessors. Staff colleges are providing continuing education and professional development to all levels of the ANA and ANP. These courses are elevating the quality of leaders and building a foundation for professionalization.

In addition to basic training, people like Wakil may also receive additional specialty training, something that did not exist 16 months ago. Courses like Explosive Ordnance Disposal, Special Weapons and Tactics, Driver Training, and Logistics are providing them with specialty skills that will make the ANP and ANA more independent of the CF and other mentoring nations.

After nearly 10 years as an untrained and illiterate police officer, Wakil graduated this spring from a southern Afghanistan Police Training Center. He is now armed with the knowledge, skills and basic level of literacy that enable him to truly embark on a career of service to his people, alongside others who share the same investment in them. To fully appreciate the dramatic impact literacy training is having, listen to what Wakil had to say about his literacy training experience:

> *"Most importantly we are being taught to read and write and to count. This knowledge gives me greater standing when I go back to my post in my community; it means I will be given more respect and have the same status as the village elders due to this knowledge. Through this I can better serve my country and protect the people I am responsible for."*

Wakil's experience has been shared by thousands of others, both Army and Police, leading to a second chapter of this untold story, that being the exponential growth of the ANSF. Since January 2010 ISAF and international forces have grown by approximately 40,000 troops. In that same period of time the ANA and ANP have grown by over 100,000. These forces continue to grow ahead of the 305,000 target for this Fall and are on track to achieve 352,000 in Fall 2012. With the near-300,000 ANSF, alongside ISAF's 140,000, the Afghan people are witnessing an unprecedented shift in the quality and presence of security forces.

Wakil serves now as a trained, equipped, well-led and enabled police officer within an ever expanding, increasingly professional, self-generating and sustaining ANP working alongside the ANA. Together they are serving *Shohna ba Shohna* (shoulder to shoulder) with incredibly capable coalition force partners to protect the 30 million people of Afghanistan.

Looking to the future, NTM-A will focus heavily on building even more quality and capacity in the Army and Police while sustaining this incredible growth and progress, specifically:

- Training over 2,000 Afghan instructors who are capable of leading and training the Army and Police;
- Aggressively developing Afghan leaders to fill the leadership needs of the growing force in the field and in

institutions;

- Building greater literacy and vocational skills through mandatory literacy and the specialty skill courses needed for key support functions like logistics. communications, medical services, air operations, and more;
- Instilling an ethos of stewardship at all levels of training and education to protect the investments of the international community; and,
- Continuing to develop enduring institutions, self-sustainable systems, and enablers required for a self-sustaining and professional force.

The vision is for the Afghan government to take security responsibility and leadership by the end of 2014, and our shared mission is to ensure that this mission succeeds. It is the key to transition.

As I write this, today (June 2011), in Kandahar Canadian troops are doing heroic work in clearing, holding and in developing key districts alongside a growing team of coalition partners, and, most importantly, Afghan Army and Police forces. As Brigadier-General Dean Milner tells it, he is working with Afghan security forces in numbers and with capabilities we could only dream of two years ago.

Milner and his combined Afghan-NATO team represent an incredible investment in a national treasure. They represent a legacy of an impressive and vitally important period of security operations in southern Afghanistan and they are doing themselves and their predecessors proud.

At the same time CF and Civilian Police are serving and joining NTM-A in impressive numbers. They are adding fuel to the engine that is growing and developing Afghan security forces. They are joining NTM-A as we focus further on developing Afghan ministries and their institutions that will ensure these security forces endure.

In sum, Canada's shift to NTM-A brings much needed energy, capacity, knowledge and skill to a mission that will ensure Afghan Army and Police forces can serve and protect the people of Afghanistan across the entirety of their country, in larger numbers, and then ultimately, on their own. ©

Mission creep and evolving war aims

by Louis Delvoie

The last major military operation undertaken by the United States and its allies that can be described as a clear-cut success was the first Gulf War of 1991. A good part of the reason for this was that the mission had well-defined objectives and was adequately resourced. This in turn owed a lot to the Chairman of the US Joint Chiefs of Staff, General Colin Powell.

General Powell had reflected long and hard on his and his country's experience in the Vietnam War. This had led him to formulate what came to be known informally as the "Powell Doctrine." Under the terms of this doctrine, the United States should never become involved in major military operations without clear, finite and feasible objectives and without the military manpower and equipment necessary to achieve those objectives within a reasonable time-frame.

In the situation prevailing in the Persian Gulf in 1991 following Iraq's invasion and occupation of Kuwait, the application of the Powell Doctrine meant essentially three things. First, the formulation of a clear political objective, which was the restoration of the sovereignty and independence of Kuwait. Second, flowing from the political objective was a clear military objective: the expulsion of all Iraqi forces from Kuwait. Third, the United States and its allies would deploy a massive land, air and naval force capable of achieving these objectives in short order. And, of course, it worked.

Unfortunately the same clarity and rigour has been absent from the analysis and decision-making surrounding the West's more recent major military interventions. This has resulted in the phenomenon known as "mission creep," which has been the West's Achilles heel in Kosovo, Iraq, Afghanistan and Libya.

The term mission creep first came into general usage in relation to some of the United Nations' peacekeeping missions in the 1990s, particularly those in Yugoslavia and Somalia. Endowed with peacekeeping mandates, these missions were first charged with escorting and protecting convoys of humanitarian supplies. However, as the situation on the ground changed and deteriorated, the mandates of the forces were altered to encompass more complex and onerous tasks such as protecting civilian populations and countering aggression by one or other parties in a civil war situation, in other words they made the transition from peacekeeping to enforcement.

The problem arose when these changes in the mandates were not matched by corresponding increases in the manpower and firepower of the forces, and by the necessary modifications to command and control mechanisms and to rules of engagement. The results in both Yugoslavia and

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Somalia were dismal, and testaments to the power of fuzzy thinking.

The NATO mission in Kosovo in 1999 was plagued by some of the same problems. The first was NATO's unwillingness to admit to what the mission really was in order to preserve its virginity as a purely defensive alliance.

NATO authorities chose to describe the mission as "a non Article 5 crisis management operation." This was at best a euphemism, and, at worst an attempt at deception. When the air forces of four or five sovereign countries bomb the forces and territory of another sovereign country for 78 days, there is only one word to describe what was going on, and that word is "war." As such, it deserved all of the planning and analysis regarding methods and objectives that would normally attend any other decision to go to war. It received neither, and became the victim *of ad hoc* decision-making and incrementalism (mission creep), which eventually saw NATO and the European Union bogged down in Kosovo for over a decade.

The operation launched in Afghanistan by the United States following the 9/11 terrorist attacks against New York City and Washington started off with fairly well-defined objectives

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The operation launched in Afghanistan by the United States following the 9/11 terrorist attacks against New York City and Washington started off with fairly well-defined objectives: to overthrow the Taliban regime in Kabul and to punish and destroy the leadership of Al Qaeda. The forces deployed for the purpose were adequate to the task, especially when assured of the support of the Afghan Northern Alliance. The first objective was achieved with relative ease and post haste; the second was to prove far more elusive.

As the leadership of Al Qaeda managed to escape apprehension and as the Taliban managed to regroup and develop a new lease on life, the purposes of the American and Western mission were expanded. Now the objective was to secure all of Afghanistan and to endow the country with a government sufficiently strong to resist any return to Taliban rule, a task requiring far more forces than those deployed. But the expansion of the mission's mandate did not end there.

The mandate soon came to encompass a commitment to restore and rehabilitate Afghanistan's infrastructure, which had been destroyed in the course of more than 20 years of war. This brought into play a host of governmental, international and non-governmental aid organizations, all well intentioned, but most operating to the tune of different drummers.

The final kicker in the field of mission creep in Afghanistan was the determination that the kind of government that the Western powers should leave behind should not be any old traditional Afghan government. Rather, it should be a government committed to the ideals of liberal democracy and featuring free and fair elections, respect for the rule of law and human rights, gender equality and a resolve to combat corruption and the narcotics trade. Those who posited this objective—and they were many—betrayed a total ignorance of Afghan history and of Afghan socio-economic realities. (My wife, who did anthropology in university, maintains that any Western leader, whether civilian or military, who ventures into the Third World should be accompanied not by a chief of staff or *aide de camp* but by an anthropologist. She may well be right.)

Such an objective might be achievable if the Western powers were prepared to convert Afghanistan into a NATO protectorate for 100 years or more. Barring that, it is a pipe dream. And, under pressure from Western publics fed up with a war that has lasted longer than the First and Second World Wars combined, NATO will eventually depart Afghanistan, leaving behind a thoroughly inconclusive and unstable situation.

The United States' invasion of Iraq in 2003 was a flawed military operation from the very start. The decision to proceed with the invasion represented the triumph of ignorance and ideology over knowledge and rational analysis.

The two reasons advanced for the operation (Saddam Hussein's weapons of mass destruction and collusion with Al Qaeda) proved to be totally bogus. Yet, the operation was launched over the objections of the Administration's most senior foreign policy advisor, Secretary of State Colin Powell. Furthermore, it was launched with a force far inferior in size to that recommended by the US Army Chief of Staff General Eric Shinseki.

The neo-conservative ideologues in the Pentagon and elsewhere, who had managed to trump the best professional advice available to the Administration, were convinced that the regime of Saddam Hussein could be smoothly replaced by a government led by their Iraqi exile clients, and that after having secured a few military bases in the country, American forces could be promptly withdrawn.

The reality proved totally different, and would have been eminently predictable to anyone with the most basic knowledge of, (a) the history of Iraq under Ottoman and British rule, and (b) the ethnic and sectarian makeup of Iraqi society. In the event, an inadequately prepared and inadequately resourced American force found itself confronted with widespread insurrection and virtual civil war. And of course mission creep set in.

From the simple objective of overthrowing the regime of Saddam Hussein, the aim became the pacification of a whole country and then took on the character of a nation building exercise. Eight years on, that task is anything but complete, and the future of Iraq anything but certain, with profound implications for the future peace and stability of the Persian Gulf region.

Finally, there is the case of the most recent NATO military operation in Libya. In contrast to the relatively bloodless revolutions that had just taken place in neighbouring Tunisia and Egypt, the unrest that broke out in Libya in March 2011 produced an armed standoff between the rebels

and the forces of the narcissistic and megalomaniac dictator, Colonel Qaddafi. When it became evident that the Colonel intended to use his forces, and particularly his air forces, to crush the rebels in the most bloody fashion, the international community reacted. The UN Security Council adopted a resolution calling for the creation of a "no-fly" zone in Libya, and NATO undertook to bring this about.

NATO forces were able to effectively bring about the grounding of Qaddafi's air forces in short order, but the violence did not stop. His ground forces continue their offensives against the rebels and NATO has escalated its operations to include aerial attacks against those ground forces. Those attacks now also include the bombardment of the regime's "command and control" facilities and the reported provisioning of covert military assistance to the rebels, leading to the now avowed aim of regime change.

NATO operations in Libya to date provide another classical case of mission creep with thoroughly uncertain outcomes, given the tribal and geographic divisions that characterize the country.

In a recent article on what he called the Libyan quagmire, Gwynne Dyer wrote: "Let us give NATO governments credit for letting their hearts overrule their heads." While I have a high regard for Dyer as a strategic analyst, on this point I could not disagree with him more. In terms of all of the risks involved, war is far too serious a business to be embarked upon in fits of patriotic or humanitarian fervour. On the contrary, decisions to go to war should be based on knowledge and rational analysis, and on informed calculations relating to interests, ends and means. In the absence of such intellectual rigour, mission creep and failure will continue to be the order of the day. ©

Canada's Partnership in the Joint Strike Fighter Program

by Lieutenant-General (Ret'd) George Macdonald

The government's decision last summer to purchase the F-35 Lightning II Joint Strike Fighter (JSF) has resulted in intense media attention and the polarization of viewpoints regarding the suitability of the aircraft, the cost, and even whether it should be acquired at all. The decision came as a surprise to many Canadians. The background to it was neither well explained nor was there a description of the foundational work that had been done to support the decision. More information has come to light since the announcement, but there remain some fundamental tenets that still seem to be lost in translation. Principal among these is the fact that Canada began its participation in the JSF program in 1997.

A multilateral agreement

In the beginning, Canada committed $10 million to the Concept Demonstration Phase of the JSF program to ensure that Canada had knowledge of the evolution of the requirements, access to the technologies being developed, and an understanding of how best to involve Canadian industry. This was well before a US decision on the actual aircraft to be produced. A competition between demonstration aircraft provided by Lockheed Martin and Boeing resulted in the F-35 being chosen late in 2001. This led to Canada's further participation in the System Development and Demonstration phase, projected to run from 2002 to 2013 at a cost of $150 million. This continued to enable military insight into the aircraft itself, but the prime purpose was to exploit opportunities for Canadian companies.

The most recent, and most significant, commitment came in 2006 when Canada signed with eight other partner nations[1] a memorandum of understanding (MOU) for the Production, Sustainment and Follow-on Development Phase. This will continue over some four decades, from 2007 to 2051, and is projected to cost Canada US$551 million.

Throughout the JSF initiative, the incentives offered to participating nations have been unprecedented in the history of US Department of Defense programs. The fixed-cost contributions of partner nations have leveraged development costing approximately US$50 billion, with the risk being assumed by the United States.

As a partner nation, Canada is involved in decisions related to the overall development, the inclusion of certain capabilities, choices of ordnance to be certified, etc. Over the longer term, in addition to the extensive interoperability advantages that this will enable, we will continue to participate actively in the future program of growth and improvement of the aircraft.

We will work with other partners to ensure a common configuration and, by extension, the most cost effective

Lieutenant-General (Ret'd) George Macdonald, a former fighter pilot in the Canadian Forces, retired as Vice Chief of the Defence Staff in 2004. He is now a senior partner with an Ottawa consultancy which counts Lockheed Martin as a client. Lieutenant-General (Ret'd) Macdonald is a fellow with the Canadian Defence and Foreign Affairs Institute and a board member of the CDA Institute.

approach to maintaining operational relevance and effective in-service support. The JSF partnership also ensures that we get the members' price on the aircraft we buy. We will even receive royalties on aircraft sold outside the partnership. Overall, the value for the Canadian development investment has been enormous; and, Canadian companies will continue to benefit. As the prime contractor, Lockheed Martin must ensure that partner nations are allowed to participate on a best-value basis in the development of the F-35.

Misunderstanding of this partnership arrangement pervades public commentary, where it is assumed that Canada will procure the aircraft under contract with Lockheed Martin Aeronautics. In fact, Canada will submit a procurement request to the F-35 Joint Program Office (JPO) for collation with those of other partner nations into what is known as a Consolidated Procurement Request.

The JPO will then negotiate a contract with Lockheed Martin for all aircraft and related equipment to be purchased during a specific production run and present it to partner nations for approval.

The eventual contract will be between the US government and Lockheed. The beauty of this model is that Canadians remain privy to and involved in the process throughout. Canada has a vote, like the other partner nations, and is an equal participant to the governance structure for the program.

Indeed, through participation in the JPO, Canadian military officers have had access to detailed information on the capabilities of the F-35, much of which is very highly classified. This has enabled a competent assessment of the ability of the aircraft to meet the statement of requirements. In parallel, air force staff have conducted extensive data gathering and evaluation of the potential competitors for a new fighter. This has involved contact with the manufacturers in addition to military personnel and government officials in customer countries. Option analysis has included flying mission scenarios in simulators and compiling cost information for acquisition and in-service support. The result of this evaluation of operational characteristics, growth potential, sustainment issues, availability and cost substantiated a recommendation to the government, supported by Industry Canada and Public Works and Government Services Canada officials, that the F-35 is the only aircraft which met the Canadian requirement.

The F-35 may not be the least expensive new fighter, but it is certainly cost competitive. All JSF partner nations seek the best value for the funding committed to the acquisition and accept that a commonly configured fighter will provide cost effectiveness for everyone involved. Unit cost will be determined by block production run. That is, for a certain block, or series, of production aircraft, partner nations will realize a common cost per aircraft. Canada projects deliveries to begin in 2016-17, which currently coincides with the ramp-up to a higher production rate, resulting in concomitant economies of scale for everyone through the 'bulk' purchasing and increasing production efficiencies by Lockheed Martin.

Importantly, one must consider the lifetime costs for maintenance and sustainment in addition to the funding for acquisition. This is where the F-35 is a clear winner given the economies of scale that will be possible in a worldwide fleet of more than 3,000 aircraft. Too often we have paid a premium to maintain out-of-production aircraft beyond their projected life. Recently, the Department of National Defence has been more aggressive in identifying the downstream support costs for large equipment purchases, and the F-35 has been no exception. It is, of course, difficult to estimate these costs for any new purchase but there are some fundamental features of the JSF program that will serve us well. As a program partner, Canada will realize efficiencies through the global in-service support system that will be established. The cost of spares and repair of components, for example, will be reduced from the scale of these support functions. Non-recurring costs for modifications can be agreed to and shared by users over time. Efficiencies will be achieved throughout the supplier network to ensure that it remains competitive for all, and we will be assured that it will exist for the life of the fleet.

Industrial involvement

A persistent criticism of the F-35 decision cites the absence of a traditional industrial and regional benefit (IRB) package. For large defence purchases, Industry Canada mandates and monitors IRBs, which require a contractor to provide work in Canada equal to 100 percent of the contract value. This is intended to ensure that Canadian companies benefit from large government expenditures, ideally in areas of high technology and those with potential to exploit future opportunities. Upon signing the JSF MOU, partner nations agreed that they would not impose nationally mandated IRBs or offsets for the JSF. Rather, companies in partner nations compete for F-35 related work, anticipating that they will receive a fair share throughout the life of the program. Importantly, contracted work applies to the entire program and is not limited to any one nation's projected fleet.

The Canadian aerospace industry remains a powerful, world-class sector of the Canadian economy, comprising some 80,000 jobs and over $22 billion in annual revenues.[2] Canadian companies can compete well and have proven so with the success that they have achieved thus far in the F-35 program. They have already received about $350 million in F-35 contracts, well before any firm decision or actual purchase of the aircraft. In the world of IRBs, this is unprecedented and has been made possible by Canada's involvement as a partner nation. The July 2010 decision by the government to acquire the F-35 served to confirm Canada's commitment to the program and further perpetuated opportunities for Canadian companies.

To track potential work, Industry Canada has maintained an evolving Industrial Participation Plan with Lockheed Martin to identify opportunities for Canadian industry. The plan continues to expand and currently includes about $10 billion on opportunities, almost all related to the aircraft acquisition. Another $2 billion is anticipated in work related to the aircraft engines. The Plan is reviewed

biennially to ensure anticipated opportunities are provided to industry and to enable preparation to capitalize on those opportunities. It will evolve to include an increasing number of sustainment contracts as the program matures.

Although there are no ironclad guarantees that Canada will benefit to the extent anticipated in JSF-related work, the signals are certainly positive. Canadian companies are already doing well and are making investments, in some cases with government assistance, in high technology capabilities. Even before sustainment issues have been addressed, the $12 billion in opportunities identified far exceeds the $4.5 to 5 billion estimated for the actual purchase of the aircraft.

Overall

Acquisition of the F-35 at the beginning of its operational life will better assure the Canadian Forces of an effective, evolving fighter capability over the four decades it is likely to be in service. We cannot predict the future missions for which the aircraft might be needed but we can ensure that the air force has the most capable aircraft available to meet the challenge, and with the growth potential to remain effective over its lifetime.

Canada's participation in the JSF program enables the acquisition and support of the F-35 in cooperation with other like-minded nations at the best price possible, and with considerable opportunity for the Canadian aerospace industry. Procured and sustained through the JSF program, the F-35 is the best value for our taxpayer.

The F-35 is a well-considered and appropriate choice for Canada's fighter capability for the longer term. It will enable Canada to protect our sovereignty, participate in continental defence with the Americans, and deploy to global missions as determined by the government of the day. It is the right choice at the right time for the right price. ©

(Endnotes)

1 In addition to the United States (Air Force, Navy and Marine Corps) and Canada, the partners are the United Kingdom, Norway, the Netherlands, Denmark, Italy, Turkey and Australia.

2 Deloitte & Touche LLP and affiliated entities, *The Strategic and Economic Impact of the Canadian Aerospace Industry*, October 2010, p. 4.

Canada's Joint Strike Fighter Purchase: Parsing the Numbers

by David Perry

The Canadian government's announcement that it would purchase 65 F-35 Lightning II Joint Strike Fighters (JSF) has met with considerable controversy. In particular, citing studies by the Parliamentary Budget Officer (PBO) and US Government Accountability Office (GAO) some have argued that the Department of National Defence (DND) has underestimated the costs of acquiring the F-35.

This article provides some clarity regarding JSF costs by comparing these three cost estimates. The good news is that the difference between government estimates and those of the PBO and GAO are actually closer than they have been reported. In fact, comparing the $70-75 million figure (per fighter) attributed to DND with the PBO's estimate of $148 million and the GAO's prediction of $133 million is misleading as doing so essentially compares apples and oranges. The bad news is that DND's estimates for the lifecycle sustainment costs of the F-35 vary significantly from American estimates.

Making a meaningful comparison of the F-35 cost estimates requires first describing four relevant types of costs associated with the procurement: recurring flyaway cost, procurement cost, acquisition cost, and total ownership cost. Each of these cost units captures important elements of the costs of acquiring the F-35.[1]

The basic unit of analysis is the recurring flyaway costs, often presented as a unit recurring flyaway cost (URF). These costs include program management, hardware, airframe, vehicle and mission systems, propulsion and engineering change orders.

The next relevant category of JSF costs is the procurement costs. These include all recurring flyaway costs, plus ancillary equipment, weapons systems and initial spares. Procurement costs are frequently expressed per aircraft as average procurement unit costs (APUC). The acquisition costs of the JSF include the procurement costs, plus research,

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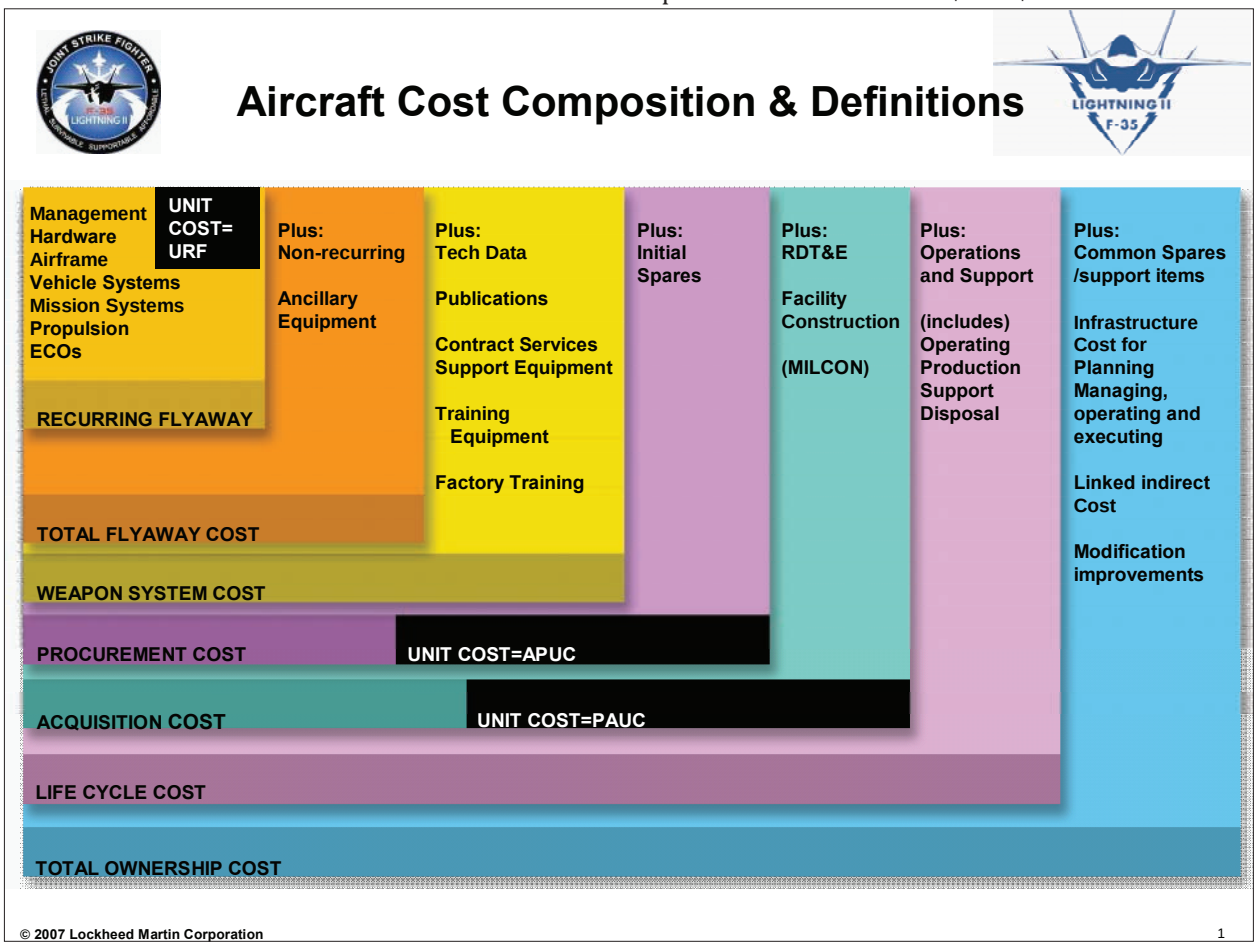
development, test and evaluation and the cost of facility construction. Finally, total ownership costs include all the preceding costs, plus operations and support, improvements and modifications.

Furthermore, it is important to note that there are three versions of the F-35: Conventional Takeoff and Landing (CTOL), Short Take-Off and Vertical Landing (STOVL), and Carrier Variant (CV). Canada is purchasing the CTOL variant, which is the least costly.



The controversy surrounding JSF costs is partly attributable to confusion over the relevant cost unit under discussion. DND initially announced that the JSF program would cost $9 billion for "the acquisition of 65 F-35 aircraft and associated weapons, infrastructure, initial spares, training simulators, contingency funds and project operating costs,"[2] plus $7-$9 billion for 20 years of in-service support, a total of $16-18 billion.[3] Subsequently, however, government officials referenced a per-aircraft cost of $70-$75 million.[4]

The release of the PBO report called these government figures into question, as the PBO contends that Canada's F-35 (CTOL) will cost roughly $148.5 million each in 2009 US dollars.[5] Soon thereafter, the GAO reported that the APUC for the fighter would be $133 million in Then Year US dollars,[6] further adding to the confusion.[7]

So, which are the right numbers to compare? A meaningful comparison of the DND, PBO and GAO estimates has been greatly facilitated by DND's release of additional costing information, which clarifies three issues: DND's $70-$75 million figure is a unit recurring flyaway cost; the estimate for sustainment is $5.7 billion over 20 years; and, DND's cost estimates are expressed in Then Year Canadian dollars.[8] With this information we can see that DND's $75 million URF estimate cannot be meaningfully compared with the GAO's $133 million estimate, because the latter figure is an APUC, and thus includes spare parts, logistics and other items.[9] Furthermore, the GAO's $133 million estimate is for *all three* variants of F-35. For the CTOL variant the GAO predicts a lower APUC of $110-$115 million.[10]

A more meaningful comparison can be provided by attempting to express DND's estimate as an APUC.[11]

DND's published costs note $6 billion for "production," including: $5.58 billion for aircraft; $180 million for block upgrades; $100 million for a refuelling probe; $60 million for drag chutes; $10 million for government supplied material; and $70 million for miscellaneous systems. In addition to these production costs, DND also estimates $1.3 billion for initial logistics set-up; $200 million for project management; $400 million for infrastructure upgrades; $300 million for initial weapons capability; and an $800 million contingency for currency fluctuations and unforeseen events.

To calculate total procurement costs according to the definition outlined above, we should include the following: $5.58 billion for aircraft; $10 million for government supplied material; $70 million for miscellaneous systems; $1.3 billion for initial logistics set-up; $200 million for project management; and $300 million for initial weapons capability. In total, DND's estimated procurement costs are

$7.46 billion, meaning a rough APUC for the Canadian F-35 (CTOL) will be $115 million in Then Year Canadian dollars.

Including the $100 million refuelling probe and $60 million drag chutes, the APUC, *including Canadian-specific modifications*, would be approximately $117 million. As the GAO estimates the APUC for the *entire production run* of F-35 (CTOL) will be USD $110-$115 million, DND's cost estimate is comparable to that of the GAO.[12]

The PBO, however, predicts far higher costs for the F-35 (CTOL) than either DND or the PBO. They estimate that the total costs of acquiring the 65 fighters will be $9.7 billion plus $1.7 billion for logistic set-up, $14 billion for 30 years of operating and support costs, and $3.9 billion for overhaul and upgrades in 2009 US dollars - $29.3 billion in total.[13] Based on their calculations, they estimate that the average cost of *all* F-35 (CTOL) will be $128 million, and that Canada's procurements will cost an average of $148.5 million per aircraft.[14]

However, to express the PBO figures in terms of total procurement costs, we must add the $9.7 billion costs of the aircraft and the $1.7 billion initial logistics cost for a total procurement cost of $11.4 billion. Expressed as an APUC, the PBO estimates Canada's aircraft will cost roughly $175 million per aircraft, in 2009 US dollars.

That the PBO's estimate is considerably higher is likely attributable to three factors. Their estimates are in 2009 US dollars and employ historical, rather than production, data in their calculations. Furthermore, they estimate that the average cost of *Canada's* purchases will be higher than those for the entire production run because Canada intends to procure the JSF early, when the PBO believes that average costs will be high.[15] In contrast, DND maintains that it will be purchasing its aircraft at the cheapest point of production, and is able to adjust its purchase date to coincide with the start of multi-year production if desired.[16]

Regardless, although the estimated costs for DND's procurement of F-35 (CTOL) appear similar to those of the GAO, DND's estimates for sustainment costs are another story. DND estimates 20 years of in-service support will cost $5.7 billion, or $285 million per year.[17] Over 30 years, the aircraft's estimated life expectancy, DND's operations and support (O&S) cost estimate would be roughly $8.55 billion. When accounting for the $180 million cost of block upgrades, DND's estimate for lifetime support is $8.73 billion in Then Year Canadian dollars. The PBO, in contrast, predicts it will cost $14 billion for 30 years of O&S, plus $3.9 billion for overhauls and upgrades, or $17.9 billion in 2009 US dollars. Thus, the PBO estimate is more than double DND's, without accounting for currency or inflation adjustments. More importantly, over the JSF's lifetime DND estimates it will pay only slightly more - $8.73 billion - to operate and maintain the JSF than it will to acquire it - $8.02 billion.[18]

DND's estimate for support appears to be derived, in part, from the assumption that the operating and support costs for the 65 JSF will approximate what DND currently pays for its fleet of CF-18s.[19] However, this estimate might be called into question. The GAO has indicated that the JSF "may cost substantially more to operate and maintain over the life cycle than the legacy aircraft they replace."[20] These findings were echoed by a US Department of Defense official who

Table 1.

DND, PBO and GAO: Apples and Apples

DND		PBO		GAO			
Description	**(TY$CAD)**	**Description**	**(2009$US)**	**F35A**	**(TY$US)**	**All F35**	**(TY$US)**
Aircraft	5.58 B	Production	9.7B				
Government Supplied Material	0.01 B	*[Average Unit Production Cost*	*148.5M]*				
Other Miscellaneous Systems	0.07 B						
Initial Logistics Set-up	1.30 B	Initial Logistics Set-up	1.7B				
Project Management Office	0.20 B						
Weapons	0.30 B						
Total Procurement Cost	**7.46B**	**Total Procurement Cost**	**11.4B**				
APUC	***115M***	***APUC***	***175M***	***APUC***	***110M-115M***	***APUC***	***133M***
Refuelling Probe	0.10 B						
Drag Chute	0.06 B						
Total Procurement Cost + Modifications	**7.62B**						
APUC including modifications	***117M***	***APUC***	***175M***	***APUC***	***110M-115M***	***APUC***	***133M***
Infrastructure	0.4B						
Total Acquisition Cost	**8.02B**	**Total Acquisition Cost**	**11.4B**				
Contingency	0.80 B						
Total Acquisition Cost Plus Contingency	**8.82B**	**Total Acquisition Cost**	**11.4B**				
Operation and Sustainment (30yrs)	8.55B	Operating and Support (30yrs)	14B				
Block Upgrades	0.18 B	Overhaul and Upgrades	3.9B				
Total Sustainment Cost	**8.73B**	**Total Sustainment Cost**	**17.9B**				
Total Ownership Cost (30yrs)	**17.28B**	**Total Ownership Cost (30yrs)**	**29.3B**	.	.	.	.

recently testified that, "it will cost about 33 percent more per flight hour to operate JSF relative to the F-16 and F-18 aircraft it is replacing."[21] Recent Canadian experience also indicates that we should expect F-35 sustainment costs to exceed those of the aircraft it replaces. Alan Williams, former Assistant Deputy Minister (Materiel) at DND, has written, "it usually costs more to maintain new (and more complicated) equipment than the equipment being replaced."[22] The Auditor General has echoed this conclusion, reporting that the Cyclone helicopters will cost $1.1 billion more to operate and maintain over 20 years than the Sea Kings they are replacing.[23]

Furthermore, American officials also estimate that it will actually cost more to operate and sustain the JSF over its lifetime than it will to acquire it. Dr. Ashton Carter, US Under Secretary of Defense for Acquisition Technology and Logistics stated that, "70% of overall life cycle cost is in sustainment."[24] Recent Canadian aircraft acquisitions reflect this expectation, as the ratio of the procurement to in-service support portions of recent contracts range from 1:1.33 to 1:2.75.

Thus, even though the JSF project is incorporating revolutionary advances in sustainment practices, DND's estimate of a roughly 1:1 ratio for acquisition to sustainment appears to underestimate what it will cost to operate and fly the F-35.

Conclusion

Ultimately, the costs of Canada's JSF procurement are highly significant. If the government has underestimated the costs of purchasing and sustaining the F-35s, pressure will increase on funding for other major capital fleet replacements and DND's operations and maintenance budget.

Recent American audits indicate that JSF program costs have grown substantially since the program launch, it is several years behind schedule, and a great deal of uncertainty remains about how much it will eventually cost to procure and operate the aircraft. Nonetheless, DND's cost estimates for the F-35 (CTOL) appear very similar to the GAO's when expressed in comparable terms, although the PBO's estimates are significantly higher. At the same time, however, the money that DND is allocating to sustain the aircraft appears to be insufficient. ©

Recent CF Aircraft Acquisitions	
Aircraft	Procurement Costs : Support Costs
F-35A [i]	1 to 1.09
C-17 Globemaster [ii]	1 to 1.33
CH-148 Cyclone [iii]	1 to 2.67
CH-147F Chinook [iv]	1 to 2.75

Table 2

[i] See calculations above.
[ii] For each aircraft the announced in service support contract was for 20 years. These totals were used to calculate average yearly support costs, which were then multiplied by 30 years to create an estimate for lifetime sustainment. This figure was then compared with the announced cost of procurement. Department of National Defence, "Canada First Defence Procurement – Contract Awarding for Strategic Aircraft," *Backgrounders*. June 28, 2006.
[iii] Department of National Defence, "Maritime Helicopter Project," *Backgrounders*. July 26, 2010.
[iv] Department of National Defence, "Government of Canada Buys Chinook Helicopters for the Canadian Forces," *News Releases*. August 10, 2009.

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2 Department of National Defence, "Government Of Canada Strengthens Sovereignty While Generating Significant Economic Benefits," *News Release. NR - 10.079*. July 16, 2010. Available at http://www.forces.gc.ca/site/news-nouvelles/news-nouvelles-eng.asp?cat=02&id=3472

3 Mike Blanchfield, "Ottawa to spend $16-billion on fighter jets," *The Globe and Mail*. July 16, 2010 and "Canada to spend $9B on F-35 fighter jets," *CBC News*. July 16, 2010. The initial release did not specify per-aircraft costs.

4 Dan Ross, "Evidence," Standing Committee on National Defence. October 19, 2010. Available at http://www.parl.gc.ca/content/hoc/Committee/403/NDDN/Evidence/EV4703461/NDDNEV28-E.PDF p. 2.

5 Office of the Parliamentary Budget Officer, *An Estimate of the Fiscal Impact of Canada's Proposed Acquisition of the F-35 Lighting II Joint Strike Fighter*. March 10, 2011.

6 "Then Year dollars" refer to costs at the time of procurement, and are used to capture the impacts of inflation.

7 United States Government Accountability Office, *Joint Strike Fighter: Restructuring Places Program on Firmer Footing, but Progress Still Lags*. Report to Congressional Committees GAO-11-325. Washington, DC. April 2011. p. 5.

8 Department of National Defence. *F-35 Joint Strike Fighter: Next Generation Fighter Capability* March 29, 2010. http://www.forces.gc.ca/site/pri/2/pro-pro/ngfc-eng.asp Accessed May 12, 2011. See documents "Arriving at Canada's Costs for the F-35A Conventional Takeoff and Landing Variant Joint Strike Fighter" and "Next Generation Fighter Capability Comparison of Costing"

9 The GAOs April 2011 report does not specifically delineate what is included in its average unit procurement cost, but its description of unit procurement costs and unit acquisition costs is consistent with the terminology used in the DND technical briefing. See GAO, *Joint Strike Fighter*, p.4.

10 Laura Payton, "F-35s cost more than $100M each: U.S. official," *CBC News.ca*. March 29, 2011.

11 It should be noted that only a rough estimate can be made, as DND has published neither an estimated total procurement cost nor an APUC.

12 However, the GAO predicts that these costs will increase, due to program restructuring.

13 PBO, *An Estimate of the Fiscal Impact of Canada's Proposed Acquisition of the F-35 Lighting II Joint Strike Fighter*, p. 8.

14 The PBO terminology here is unclear, referring to its $128M figure as an "average unit acquisition cost of the F-35A," and at the same time calling the GAO's $133M estimated average procurement unit cost "comparable figures." Office of the Parliamentary Budget Officer, *Comparing PBO and DND Cost Estimates on Canada's Proposed Acquisition of the F-35 Joint Strike Fighter*, March 23, 2011, p. 2. However, the $1.7B for "initial logistics setup," includes initial spares, facilities for diagnostic testing, and staff training. According to the DND technical briefing, these costs should be counted as procurement costs. PBO, *An Estimate of the Fiscal Impact of Canada's Proposed Acquisition of the F-35 Lighting II Joint Strike Fighter*, p. 9.

15 PBO, *Comparing PBO and DND Cost Estimates on Canada's Proposed Acquisition of the F-35 Joint Strike Fighter*, p. 7.

16 Michael Slack, "Presentation: Canada - U.S. Defence Materiel Relations," Carleton University, Ottawa, ON. March 2, 2011.

17 DND, "Narrative"

18 This figure is derived by adding the $7.46B procurement cost + $400M infrastructure upgrades + $100M refueling probe + $60M drag chute = $8.02B. See Table 1.

19 Dan Ross, "Evidence," p. 3. And LGen J.P.A. Deschamps, "Evidence," SCOND. October 28, 2010.

20 GAO, *Joint Strike Fighter*, p. 6.

21 The Honourable Christine Fox, "Statement," *Presentation to the Senate Armed Services Committee*. Washington, DC: United States Senate, May 19, 2011.

22 Alan Williams, *Reinventing Canadian Defence Procurement*. Montreal and Kingston: Breakout Education Network, 2006. p.2.

23 Office of the Auditor General of Canada, "Chapter 6: Acquisition of Military Helicopters," *Report of the Auditor General of Canada to the House of Commons*. Ottawa: Minister of Public Works and Government Services Canada, Fall, 2010.

24 Dr. Ashton Carter, Mr. David M. Van Buren and Vice Admiral David J. Venlet, "Combined Statement," *Presentation to the Senate Armed Services Committee*. Washington, DC: United States Senate, May 19, 2011.

25 See calculations above.

26 For each aircraft the announced in service support contract was for 20 years. These totals were used to calculate average yearly support costs, which were then multiplied by 30 years to create an estimate for lifetime sustainment. This figure was then compared with the announced cost of procurement. Department of National Defence, "Canada First Defence Procurement – Contract Awarding for Strategic Aircraft," Backgrounders. June 28, 2006.

27 Department of National Defence, "Maritime Helicopter Project," Backgrounders. July 26, 2010.

28 Department of National Defence, "Government of Canada Buys Chinook Helicopters for the Canadian Forces," News Releases. August 10, 2009.

Supply Chain Management: from Micro to Macro in Defence Procurements

by Paul Hillier

Defence procurements have become increasingly dependent upon commercial supply chains, responsible for the movement of materials at all stages of procurement, production and distribution.[1]

Supply chain management (SCM) is the process by which materials are overseen to securely and efficiently pass from one organization to another. A key differentiation is between micro and macro SCM.[2] At a micro level, a single organization may track its goods from procurement to distribution, from its first tier suppliers to first tier consumers. By contrast, on a macro level, "supply chain management is responsible for the movement of materials all the way from initial suppliers through to final customers."[3]

Given that the failure of one company to deliver its goods efficiently and effectively poses a threat to subsequent organizations, risks and threats can be said to hold a transitive property along supply chains. Accordingly, managing threats along the entire chain is of growing importance as companies and government departments grow ever more intertwined when it comes to defence procurements.

There exists a general assumption that government departments such as those of National Defence (DND) and Public Works and Government Services Canada (PWGSC) are unique from industry because they are the final consumer and therefore at the end of the supply chain. As such, these agencies are seen as not having consumers onto whom risks or threats are passed. This, I maintain, is a primary factor for the organizational conflict of interest between industry and government.

Satisfying customers plays an integral role for individual companies' responsibility to their shareholders in a manner that is seen as non-replicable for government.

First, I argue that these agencies utilize a micro approach to supply chain management, which, while intended to minimize security risks, actually compounds them. I then provide a brief sketch of a macro approach to SCM and argue that in order to change the prevailing paradigm, National Defence can be conceived of as a public good that these departments supply to citizens in a manner similar to how industry provides goods and services to consumers.

Under the current micro approach to SCM practiced by DND and PWGSC, accountability for securing against risks and threats is typically specified contractually between suppliers and consumers; accordingly, "when one organization manages its own risks it has to insist that its suppliers have adequate methods in place to deal with their own risk. The suppliers, in turn, pass on the requirements to their own suppliers."[4] The overarching value this promotes is prevention of any risks, which is characteristic of a zero-tolerance environment in which defence procurements operate.

Since accountability for securing the supply chain against threats is a matter of financial costs (and assuming that both industry and government will seek to limit these costs within their own organizations[5]), then by using a micro approach to SCM, organizations thinking first of their own finances will pass all possible risks onto other partners. This encourages larger organizations to place more risk onto smaller companies,[6] which are in turn in a poorer position to handle it.[7]

These factors, over the past decade, have contributed to smaller companies facing rising risks. Mirroring this, their role has also become increasingly important to defence procurements, with the growing role that commercial off-the-shelf products (COTS) play.

Many advanced technologies are proprietary and held commercially by small, specialized companies. These act as choke points in the supply chain, wherein all materials must pass through a given company or small set of companies. Accordingly, small companies are more important and face increased exposure to threats by large organizations practicing micro-SCM.

As these risks may be exponentially increased by micro-SCM, a macro approach should be taken in the case of defence procurements. In its simplest form, this has two core tenets: focusing on resiliency rather than prevention, and developing a culture of transparency and, eventually, sharing of risk.

Because risks are never 100 percent preventable, a focus on resiliency—the ability to bounce back after a disturbance—demonstrates a holistic concern towards the security of the entire chain. This is not to suggest that DND and PWGSC must embody a lax approach to threats—it is important to appreciate that defence procurements operate in a zero-fail environment. However, the culture and structure that would promote a macro-approach to SCM are in direct opposition to those currently practiced.

Pursuing resilience as the goal of security is accomplished by dispersing decision-making authority into the hands of those who have experience and expertise.[8]

Given the transitive nature of risks and threats, macro-SCM is, in essence, about training and educating decision-makers to reject the difference between security within one's own organization and security of the entire chain. This would be a drastic change in culture, as currently administrators are being educated in a system where they "are held responsible less for what they produce than how they produce it … discretion is limited, and they quite necessarily adopt cautionary and risk-averse attitudes and actions."[9]

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The unique position in which DND and PWGSC[10] hold themselves to be as the final consumer institutionalizes an organizational conflict of interest that must be challenged for a macro approach to SCM to be successful.[11] Instead, appreciating DND and PWGSC as suppliers of a public good highlights structural similarities with companies, insofar as they both take a given material from a supplier and deliver a good or service to a consumer. In addition to the traditional manner in which government is seen as being responsible to citizens as taxpayers, these departments would be responsible to citizens as consumers of defence.

This newfound similarity between government and industry in ensuring delivery of goods to consumers would cause fundamental changes regarding dealing with failure within DND and PWGSC.

Government procurement could adopt a more industry-inspired approach, where a failure in security is anything that hampers an organization's ability to execute delivery of its product. A company experiences a failure in security when either an external risk or an internal threat hampers its ability to supply its good or services to a consumer. Using this approach, DND could be said to experience a failure in security when threats hamper its ability to provide defence to Canadian citizens. The corollary to this is that success in government procurements could take an industry-inspired definition, of effective and efficient delivery of a good. This, in turn, would begin to change the culture of process-based successes (being more concerned with *how* something is produced, rather than *what* is produced) into a consequentialist-based definition of success.

This consequentialist model for success would not differentiate between threats internal to these agencies and external risks stemming from industry.

Currently, while internal threats are mitigated by DND and PWGSC, external risks are treated as other partners' responsibility, with very little ability to either monitor or provide assistance to industry's attempts to manage these risks.

Whereas individual companies have distinct abilities to monitor their own systems, government departments hold a legal monopoly over some powers of surveillance; enhanced transparency would draw these two capabilities together, beginning the formation of a comprehensive strategy for approaching threats facing the entire chain.

A macro approach to SCM is the first step to such a comprehensive strategy, rejecting this divide between internal threats and external risks, focusing instead on the resiliency of the entire chain in outcome-oriented terms. ©

(Endnotes)

1 Palaniswami, Shanthakumar. "Risk and Security in Corporate Supply Chain Networks: Moving From Operational to Strategic Concern." *The Conference Board of Canada*. Executive Action Report: June 2010.

2 This short paper cannot indulge the needs for a comprehensive literature review upon which much of this paper draws; however, the distinction in terminology between micro and macro SCM is my own. In addition to the pieces herein cited, Helen Peck is a respected voice in the field with effective literature reviews: "Reconciling Supply Chain Vulnerability, Risk and Supply Chain Management." *International Journal of Logistics: Research and Applications* 9.2 (2006) and "Drivers of Supply Chain Vulnerability: an Integrated Framework. *International Journal of Physical Distribution & Logistics Management* 35.4 (2005).

3 Waters, Donald. *Supply Chain Risk Management: Vulnerability and Resilience in Logistics.* London: Kogan Page Limited, 2007.

4 Waters, Donald. *Supply Chain Risk Management: Vulnerability and Resilience in Logistics.* London: Kogan Page Limited, 2007.

5 The sacrosanct role that profits play in industry's measurements of success should make this a truism when it comes to companies, and lowest-cost is frequently ascribed one of the highest values by government departments when it comes to defence procurements.

6 Ibid.

7 Many of the components required to effectively handle risk include a host of risk specialists, an extended history of dealing with risk, and supplies of reserve capital to mitigate the financial costs of risks. These are three areas that small companies will find it difficult to meet, thereby making them more vulnerable to risk.

8 Ibid.

9 Rendon, Rene and Keith Snider. "Supply management in American public administration: Towards an academic discipline?" *Journal of Purchasing & Supply Management* 16 (2010).

10 An area for further study would be to attempt to apply the arguments herein explored to other areas of procurement outside of defence and whether conceptualizing health, for example, as a public good, had any consequences for procurement of certain equipment.

11 A defining feature of macro-SCM, a transparent model of information sharing, is made nearly impossible in pre-contractual settings due to this organizational conflict of interest, wherein government agencies cannot be seen to be showing favouritism or impro-

Effective military leadership

by Dr. Alan Okros

This article is developed from a more comprehensive monograph published by Canadian Forces Leadership Institute.

Leadership is essential in the military, thus it is given prominence in what individuals do on a daily basis as well as in the professional development, assessment and advancement of military members.

Canadian Forces (CF) leadership doctrine, published in four volumes in 2003-2005, provides clarity and direction on leadership in the CF.[1] There are, however, significant differences in how leadership is practiced across the CF. Obvious differences exist across the navy, army, air force and special operations forces (SOF) contexts, between operational missions and operational support situations, and among staff functions in higher headquarters and non-operational circumstances.

While aspects of these differences are clear to those who move from one context to the other, the current doctrine presents a unitary and fairly generic understanding of Canadian military leadership with only passing references to the differences that can and do exist from one setting to the next. This article expands on the present understandings of CF leadership by considering the use of leader power and understanding differences across "services."

Leadership as unbounded power

Leadership is fundamental to the power to influence others, yet most theories assume that the leader will automatically know what to do with their leader power and will always use this power for good not evil.[2]

This section presents a framework of leadership as unbounded power, arguing that both command and management are bounded by formal authorities, yet leadership can be exercised well beyond these limits. In particular, those who have developed high levels of personal power, or the capacity to influence others through their character and reputation not just by exercising the formal authorities of position power, can lead "up, across and out," not just "down and in." A key perspective offered is that organizations rely on individuals to use their leader influence for the right goals because the leader has internalized an appropriate set of values, principles and objectives.

The framework presented is based on three dimensions. The first is the amount of personal and position power that the individual possesses. Those who are low in both are confined to a "Figurehead" role, those with low personal but assigned position power are restricted to be "Transactional" leaders, those with high personal power but not given position power are "Emergent" leaders, while those high in both can engage in "Transformational" leader behaviours.

The second dimension draws on the Kegan and Kohlberg stages of moral development.[3] Drawing on Kohlberg's lowest pre-conventional stage which emphasizes obedience and self-interest, the referents used by the junior or apprentice leader in deciding what to do are a combination of asking "what is expected of me" and "what's in it for me," which is referred to as the "Personal" stage. For those who move to the conventional stage which emphasizes conformity and social order, the referents for the mid-level, journeyman leader are based on what other "good" leaders do and a reliance on rules, referred to as the "Normative" stage. For the rare numbers who achieve it,[4] the highest post conventional or "Principle" stage evolves to the use of universal principles thus the senior, mastery level leader has developed a "principled conscience" which allows them to step outside of the rules and norms to exercise independent reasoning.

The third dimension is based on the understanding that even the most senior, principled leaders can be either effective or ineffective. For those at the lowest "Personal," it depends on whether they are focussed primarily on achieving organizational or personal goals (self, troops, mission rather than mission, troops, self). For those at the

	FIGUREHEAD	**TRANSACTIONAL**	**EMERGENT**	**TRANSFORMATIONAL**
PERSONAL + Org interest - Self interest	INGRATIATOR + Substitute leader - Pariah	NEGOTIATOR + Achiever - Manipulator	POLITICIAN + Careerist - Machiavellian	MAVERICK + Change Catalyst - Rogue leader
NORMS + Holistic - Rigid	BUREAUCRAT + Administrator - Obstructionist	REGULATOR + Efficiency expert - Enforcer	REFEREE + Consistency - Shop Steward	STANDARD BEARER + Heroic leader - Blind obedience
PRINCIPLE + Relativist - Idealistic	MORALIST + Voice of conscience - Whistle blower	DIPLOMAT + Extrinsic motivator - Benevolent dictator	ADVOCATE + Sage - Agitator	INNOVATOR + Champion - Loose cannon

"Normative" stage, the primary issue is whether the norms that influence the leader are interpreted in a holistic/adaptive or disconnected/rigid manner. For those at the "Principled" stage using principle-based reasoning, the key is whether these are followed in an idealistic or relativistic fashion–or absolute versus utilitarian.

The grid produced provides 24 labels for the different types of leaders that may emerge. Although significant research is required to examine the differing roles presented within this framework, it is suggested that the most common effective leader roles seen in the CF would be: the (tactical) Substitute Leader or Achiever, the (operational) Efficiency Expert or Heroic Leader and the (strategic) Champion.

As the military does award those promoted with significant position power, it is likely that the most common ineffective leaders would be the Transactional Manipulator, Enforcer or Benevolent Dictator and the Transformational leader who expects Blind Obedience.

The nature of military leadership

The vast majority of military leaders initially develop their leadership style based on the environment in which they are employed. Although all will draw on the common CF Leadership doctrine, there are real and valid reasons why leadership approaches differ from one environment to another. This section presents some key operational differences to then provide a short summary of the dominant leadership model for each environment.

The first factor of importance in differentiating across operational environments pertains to control of lethal force with the Army and SOF delegating the decision to actually engage down to the individual level, while the Air and Naval environments are characterized by increased centralization.[5] This delegation has significant implications for the use of guiding versus controlling leadership styles.

The second comes from the number of deployed sub-components and the degree of independence versus interdependencies. The Army relies of the largest number of semi-independent teams (hence the need to sort out left and right of arc), the Naval and Air have fewer sub-units and more inter-dependencies while SOF requires a single, "fused" team. Thus, the Army tends to emphasize mission command, the Navy and Air Force the common operating picture, and SOF most on self-synchronization.[6]

As an extension, the third perspective is the amount of supporting elements or the amount of "tail" that needs to be integrated with the "teeth" in theatre. The Army is based on long term sustainment in theatre, the Navy on medium term, and the Air and SOF environments rely on "quick in, quick out." The net result is that the size and composition of deployed units are quite different across the services.

The fourth factor pertains to the issue of cohesion and small group dynamics.[7] The greater emphasis on interdependencies rather than independence across sub-units leads to a stronger emphasis on task cohesion in the Air Force and, to a degree, the Navy than in the Army. Conversely, the large numbers of those who deploy together and the restrictive nature of the environment in which individuals live in the Army and especially the Navy lead to a greater emphasis on social cohesion.

The rather unique nature of SOF employment with extremely strong interdependencies along with the need for very high levels of mutual trust, create a requirement for very high levels of both task and social cohesion.

The fifth perspective offered pertains to the degree of noise, confusion, and uncertainly versus the amount of clarity, predictability and comprehension that exists concerning the mission environment and the key factors that will influence mission success.

The lessons learned over time from the fog of war lead to the response by the Air Force to review and reprogram the solution, by the Army and Navy, to rethink and adjust the plan, and by SOF to innovate. The final facet is the historical use of the Navy in "showing the flag" with increased emphasis on adapting personal behaviours to the social context.

These factors strongly influence the dominant leadership approach across environment.

The Air Force approach is seen as focused on optimizing systems performance using a monitoring leadership approach to ensure that leaders know when things are not going well. The Army leadership approach is focused on improvising in chaos using a preparatory leadership approach to ensure that individuals and teams maintain effort and use appropriate independent reasoning, particularly regarding use of lethal force. The Naval approach is focused on signalling shifting identities using a social leadership approach to invoke the most salient identity for the circumstances. The SOF approach is seen as focusing creative excellence through a collaborative leadership approach that facilitates innovation and forges a single, maximally effective team.

The key final comment on services differences is that each has developed over decades or centuries due to the unique crucible of being tested in battle. As a result, while they can appear to be rather different, one is not seen as better than the others; each has a role and place in the modern military.

While beyond the scope of this article, none of the four models presented appears to be optimally suited to either the emerging "all one team" philosophy of melding military, public service, contractors and even nongovernmental organizations under emerging comprehensive approaches, nor does it fit the evolution from imposing physical security to setting the conditions for human security.

Conclusion

This article seeks to expand and extend the work that was conducted in developing the current conceptual and doctrinal understanding of leadership in the CF. It is

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Alan Okros is a Professor at the Canadian Forces College, Toronto. His final appointment in the CF was as the first Director of the Canadian Forces Leadership Institute (CFLI) where he was responsible for the production of the current CF doctrine on leadership and the profession of arms.

intended to provide additional nuance and differentiations to understand why and how leadership is practiced in certain ways across differing contexts in the CF. In doing so, this work seeks to extend our understanding of effective leadership in the Canadian military context. Doing so will assist the CF to remain relevant and responsive into the future, which is the primary responsibility of those exercising institutional leadership. ©

(Endnotes)

1 The interested reader is referred to: the series of preliminary academic reports prepared by Karol Wenek, the primary author of *Conceptual Foundations;* the four doctrinal leadership publications *Leadership in the Canadian Forces: Doctrine*, *Leadership in the Canadian Forces: Conceptual Foundations*, *Leadership in the Canadian Forces: Leading People* and *Leadership in the Canadian Forces: Leading the Institution* along with *Duty with Honour: The Profession of Arms in Canada*; and, the subsequent exploratory and explanatory papers published under CDA Press.

2 There is considerable research on the 'dark side' of leadership including the work by Reed and Conger on toxic leadership in the military. Reed, G. E. "Toxic Leadership." *Military Review*, 84 (2004): 67-71. Conger, J. "The Dark Side of Leadership." Organizational Dynamics, 19 (1990): 44–55.

3 For an integration of the stages of moral development in the military context, see Daniel Lagacé-Roy & Justin Wright's "Cultural Intelligence and Identity Development" in Karen D. Davis (ed), Cultural Intelligence and Leadership. Kingston, ON: Canadian Defence Academy Press, 2009.

4 Paul Bartone's research on stages of moral development amongst US Army Officers reveals that they were consistently operating at a lower level than their rank really requires; see Forsythe, G.B., Snook, S., Lewis, P., & Bartone, P.T. "Making Sense of Officership: Developing a Professional Identity for 21st Century Army Officers." In Lloyd J. Matthews (ed) The Future of the Army Profession. New York: McGraw-Hill, 2002. .

5 Perhaps with the emerging exception of Naval boarding parties conducting interdiction, however those involved still do not have the degree of individual discretion of dismounted troops.

6 For an extended discussion of how the military has blurred emerging concepts like common operating picture, self-synchronization and net-centric/net-enabled operations, see English, A.D., McCann, C., Gimblett, R.H. & Coombs, H.C. Beware of Putting the Cart before the Horse: Network Enabled Operations as a Canadian Approach to Transformation. Toronto: Defence Research & Development Canada, 2005.

7 For more on the evolving understanding of cohesion, see Guy Siebold's "The Essence of Military Group Cohesion." *Armed Forces & Society*, Vol. 33, No. 2 (2007): 286-295

Opinion

Direct Communication: A Remarkable CF Success Story

by Colonel (Ret'd) Brett Boudreau

In the last issue of *On Track*, Thomas Caldwell made a strong case for direct communication by members of the Canadian Forces (CF) as an important means to inform the public about the work done by the CF. He will have left readers with the impression that much remains to be done on this front – that there has been little to facilitate hearing from serving members and as a consequence the public is relatively uninformed about the work of the CF, and neither understands their issues nor appreciates their accomplishments – in short, "that story is not being adequately told to our country at large."

The defence public affairs function has certainly seen its share of peaks and valleys in its time. On the "operational communications" front, though, the record has been consistently good for many years, be that helping to tell and show the story of the Forces while fighting fires, floods or dealing with the effects of storms at home; delivering humanitarian aid; on UN peacekeeping missions; participating in air campaigns; or, in support of the multi-faceted engagement in Afghanistan.

With regard to the latter, the influential Manley Panel in January 2008 had this to say: "*To put things bluntly, Governments from the start of Canada's Afghan involvement have failed to communicate with Canadians with balance and candour about the reasons for Canadian involvement, or about the risks, difficulties and expected results of that involvement.*

(continued p. 30)

Colonel (Ret'd) Brett Boudreau spent 20 years in the military's public affairs branch, including PA assignments as a colonel at DND, NATO and the PCO Afghanistan Task Force. He retired from the CF in 2009, is the newest member of the CDA Institute Board of Directors. Colonel (Ret'd) Boudreau consults on a variety of issues including national security-related policy and communications for a number of clients that include the Privy Council Office, the UN, the Department of Foreign Affairs, and the Department of National Defence.

THE VIMY AWARD

Nominations are invited for the 2011 Vimy Award.

The Vimy Award was initiated in 1991 by the CDA Institute to recognize, annually, one Canadian who has made a significant and outstanding contribution to the defence and security of our nation and the preservation of our democratic values.

Previous recipients of this prestigious award include: Vice-Admiral Larry Murray, Lieutenant-General Charles H.Belzile, the Hon. Barnett Danson, Air Commodore Leonard Birchall, Colonel the Hon. John Fraser, General Paul Manson, Dr. David Bercuson, Brigadier-General David Fraser, General Raymond R. Henault, General Rick Hillier, Warrant Officer WIliam MacDonald, and the Rt. Hon. Adrienne Clarkson.

Any Canadian may nominate one individual citizen for the award. Nominations must be in writing, be accompanied by a summary of the reasons for the nomination and include a brief biographical sketch of the nominee. Nominations must be received by 1 August 2011, and should be addressed to:

VIMY AWARD SELECTION COMMITTEE
CDA INSTITUTE
151 SLATER STREET, SUITE 412A
OTTAWA ON K1P 5H3

The Vimy Award will be presented on Friday, 18 November 2011, at a gala dinner that will be held at the Canadian War Museum.

For more information, including ticket orders for the Award dinner, contact the Conference of Defence Associations Institute at the above address, or fax (613) 236 8191; e-mail pao@cda-cdai.ca; or telephone (613) 236 9903.

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Nous invitons les nominations pour la Distinction honorifique Vimy 2011.

La Distinction honorifique Vimy a été instituée en 1991 par l'Institut de la CAD dans le but dereconnaître, chaque année, un Canadien ou Canadienne qui s'est distingué(e) par sa contribution à la défense et à la sécurité de notre pays et à la préservation de nos valeurs démocratiques.

Les récipiendaires précédents de la Distinction honorifique Vimy sont, entre autres, le vice-amiral Larry Murray, le lieutenant-général Charles H. Belzile, l'Hon. Barnett Danson, Colonel l'Hon. John Fraser, le Général Paul Manson, M. David Bercuson, le Brigadier-général David Fraser, le Général Raymond R. Henault, le Général Rick Hillier, l'Adjudant William MacDonald, et la Très hon. Adrienne Clarkson.

Tout Canadien ou Canadienne peut nommer un citoyen ou citoyenne pour la Distinction honorifique Vimy. Les nominations doivent nous parvenir par écrit et doivent être accompagnées d'un sommaire citant les raisons motivant votre nomination et une biographie du candidat. Les nominations doivent nous parvenir au plus tard le 1 août 2011, et doivent être adressées au:

COMITÉ DE SÉLECTION DE LA DISTINCTION HONORIFIQUE VIMY
L'INSTITUT DE LA CAD
151, RUE SLATER, SUITE 412A
OTTAWA ON K1P 5H3

La Distinction honorifique Vimy sera présentée vendredi, le 18 novembre 2011, à un diner qui aura lieu au Musée canadien de la guerre.

Pour de plus amples informations, incluant la demande de billets pour le diner, veuillez contacter l'Institut de la Conférence des associations de la Défense à l'adresse ci-haut mentionnée ou télécopier: (613) 236 8191; courriel:
pao@cda-cdai.ca; ou téléphone (613) 236 9903.

Almost the only Government accounts that Canadians have received have come from the Department of National Defence."

For the critical "future of the DND/CF" issues, however, the institutional record is decidedly mixed and in this respect Mr. Caldwell's point about a paucity of information for the public is well made. Only time will tell if the larger corporate issues afoot that will inform decisions about the affordability and future capabilities of the CF – transformation, strategic review, the Canada First Defence Strategy, the CF post-Afghanistan, and procurement – will be explained with vigour and effect. In this respect, the public would benefit from a more proactive role, along the lines of the US model for senior military officers, senior NCOs, and especially the senior civilian leadership in explaining the needs, requirements and options available to decision makers. This is especially important given how unlikely it is that mainstream Canadian media are about to suddenly add experienced, full-time defence and security reporters to their staffs.

...the Canadian public is more knowledgeable and more informed about the current capabilities, needs and challenges of the CF than they have been since at least the Second World War.

The view, though, that the CF is remiss in the effort to reach out and directly reconnect with the Canadian public does not square with the facts and evidence on hand.

Arguably, the current unprecedented wellspring of public support and goodwill for the men and women of the Canadian Forces exists precisely because the rank-and-file have for years now been so active, so vocal and so visible. Further, I would argue that as a result, the Canadian public is more knowledgeable and more informed about the current capabilities, needs and challenges of the CF than they have been since at least the Second World War.

This past decade, we have witnessed heartfelt, spontaneous outpourings of support from Canadians from all walks of life and political stripe. This has manifested itself in a myriad of ways, including the moving Highway of Heroes tributes, the Yellow Ribbon campaign, "Red Fridays," Izzy dolls, and a variety of initiatives to raise funds for various "soldier support" activities.

Politicians now actively solicit opportunities to be seen and pictured with soldiers, sailors and airmen. Attendance at Remembrance Day and Remembrance Week ceremonies is way up. Major events related to the military (including the CDA Institute's Vimy Dinner and Ottawa Conference on Defence and Security, both now oversubscribed), and events sponsored by the military like the Army Run are exceptionally well attended.

Sports stars, business leaders and major entertainers are regular and active visitors to theatres of operation and are keen promoters of the Forces. Perhaps most tellingly, hardly anyone now bats an eye on seeing a CF member in uniform in public, even if in combats.

There are many anecdotal examples to illustrate the degree to which the Forces have reconnected with Canadians, and this is borne out by public opinion surveys that regularly show support for the CF in at least the 70th or 80th percentile.

The most authoritative snapshot assessment of the public mood about the CF is considered to be the annual *Views of the Canadian Forces* tracking study, given its large sample size and the rigorous methodology employed. This year's results are not yet publicly available, and though the following data is a year old, it seems unlikely that the findings would have changed dramatically. Remarkably, the 2010 survey found that:

- 92% of Canadians perceive the CF as a vital national institution;
- 87% have a positive impression of the people who serve in the CF;
- 50% feel the Canadian military is under-funded;
- 72% recalled hearing, reading or seeing something about the CF, an increase of 9% over the year before; and,
- After almost a decade of service in Afghanistan, including a significant number of deaths and injuries and at considerable financial cost to the nation, 56% supported Canada's activities in Afghanistan.

Polls also consistently rank the CF among the top of the "most respected" institutions in the country. Those who were in uniform during the public opinion nadir of the mid-1990s will appreciate how enormous a shift this is.

The most recent such poll (Ipsos Reid, January 2011) found that "Canadian soldiers" were the fourth-most trusted profession (at 72%) of the 26 surveyed, behind pharmacists, doctors, and airline pilots – and considerably ahead of "TV and radio personalities" (30%), "journalists" (29%), and "national politicians" (9%). Interestingly, the change in the trust score was up 15% over that for the "Canadian Forces" in 2003, the biggest increase by far of any of the groups surveyed. And, an Environics poll assessing a similar subject listed the CF as "the most trusted major institution" over the 2007-2010 period, the runner-up being the Supreme Court.

This happy result is the culmination of a number of factors, but is predicated on the foundation of demonstrable, exceptional work and selfless service by CF members over many years. But if all were left unseen, unsaid or untold, Canadians would arguably be less the wiser and not nearly so inclined to support a national institution they knew little about. The current situation exists expressly because Canadians have so regularly been exposed to stories of their military men and women, as told in their own words.

The genesis of this remarkable transformation lies more than 10 years ago in the creation of the Public Affairs series of Defence Administrative Orders and Directives that gave all members of the DND/CF the authority to conduct media relations without the prior, express approval of the chain of command.

It has been the *modus operandi* for so long now and seems so self-evident that the revolutionary aspect of that model is too easily forgotten. The series, principally the work of Scott Taymun, a civilian public servant, was developed as a key instrument by then-Associate Deputy Minister (Public Affairs) Larry Gordon to start to wrest the Department and the CF from the successive public affairs shocks of the Somalia scandal.

This policy remains the only such authority for any federal government department (and the envy of most). It unleashed almost 100,000 potential spokespersons on behalf of the Regular and Reserve Forces. And talk these spokespersons did – at times, it seemed like all of them were talking, sometimes all at once, and not necessarily in the tenor or tone that governments of the day found favourable. But, in the thousands of interviews conducted with CF members since the enactment of the policy, almost without exception the young privates, corporals, non-commissioned members and young officers have acquitted themselves marvellously.

The vast majority of furious after-the-fact media relations work by public affairs officers, in fact, has been in response to interviews by senior officers or even politicians! (including for instance, a defence minister who early in the crisis blamed the August 2003 power outage on a fire at a nuclear plant in Pennsylvania).

The policy set in motion regular media awareness training, with public affairs activities and simulations included in many of the basic, mid-level and senior-level instructional courses. Media were encouraged to embed with the CF to see, speak to and record the faces and voices of CF members in action.

Visionaries like ADM PA Tom Ring – who "understood strategic communication better than anybody I've ever met," wrote General (Ret'd) Rick Hillier in *A Soldier First* – invested in strategic assets like a public affairs Training Centre and an enhanced CF Combat Camera capability. The latter has returned especially rich dividends, the shooters providing broadcast-quality footage and imagery from locations the media could not easily access or were not prepared to go to because of the cost.

That there has been an incredible (re)connection with the Canadian population is undeniable, and a key tool for this has been the facilitation of direct communication between media and Forces members. In fact, it is not uncommon now for local media to regularly feature stories *by* (not just *of*) a CF member from their readership area.

The concept of proactively seeking to embed media with the modern-day CF deployed on operations dates mainly to the 1991 Gulf War, and dozens of operations since then both international and domestic have featured proactive efforts to facilitate media-military access. Still, it is the unqualified success of the media embed program in the Afghanistan conflict that deserves particular credit for the current state of public awareness of the CF. The program has been in place since February 2002, and while composite statistics have not yet been compiled, some data from a couple of recent tours is insightful.

During the November 2009 to August 2010 rotation, Task Force Kandahar (TFK) hosted 147 embedded media from 70 different organizations (all data courtesy of CEFCOM Public Affairs). An additional 90 reporters from 75 different media organizations also visited the Kandahar Provincial Reconstruction Team during that period on NATO/ISAF-sponsored visits.

CEFCOM assesses that 1,200 news stories related to TFK appeared per month in Canadian and Afghan media, and they estimate that approximately 100 TFK-related news stories were produced per month by the journalists participating in the media embedding program – plus the work of others who chose not to embed. Though the focus of those articles tended to kinetic operations and the security situation, a substantial number featured the full range of "news" available in theatre, including reporting on the Whole-of-Government effort.

That rotation featured a renewed focus of NATO/ISAF on the TFK area of operations as well as a large element of the surge of US forces. While those circumstances pushed media embed numbers up for that tour, the program has been particularly active since the move of the CF to the southern Afghanistan. The rotation ending in November 2009, for instance, hosted 52 Canadian and 11 international journalists, representing 28 different organizations (17 Canadian, 11 international).

...the vast majority of coverage has shown the CF at their best – a tough, mature, fighting force of "real" Canadian men and women with the courage, tenacity and brains to engage and win the three-block war.

Some of those media have more "time in theatre" than two-tour soldiers. The indomitable war reporter Matthew Fisher, for instance, has spent nearly 30 months in Afghanistan over 23 visits since September 2001, many visits being 8 to 15 weeks at a time; Fisher estimates he has written about 800 articles while embedded with CF troops there. The major news agencies have been well represented throughout, in particular the national newswire service Canadian Press (including several extended stays by Stephen Thorne, Murray Brewster and Bill Graveland), as well as Al Stephens with CTV, Francis Silvaggio from Global TV and Graeme Smith from the *Globe and Mail*, to name a few stalwarts.

Yes, there has been some unfair, even egregious reporting. But any objective assessment would clearly show the vast majority of coverage has shown the CF at their best – a tough, mature, fighting force of "real" Canadian men and women with the courage, tenacity and brains to engage and win the three-block war.

Canadian and even international media lived and worked amongst the troops and civilian officials, for years covering and reflecting on the work of Canadian personnel who during interviews expressed nary a complaint even in the face of considerable challenge and sacrifice – members talking not about themselves, but of their mission, their work to help Afghans reclaim their country, their comrades, about

why they are proud to be Canadian, and why they are proud to serve in the CF.

Indeed, a Canadian would be hard pressed to pick up any daily paper in the country in the past half-decade and *not* find at least one article about the CF. To that, add outreach tours for senior CF members on their return from theatre; talks by hundreds of recent veterans to groups or their *alma mater*; CF exhibitions and displays at more than 150 locations throughout the year at which soldiers, sailors, airwomen and airmen chat with Canadians from every walk and quarter; and the major efforts on recruit advertising, departmental websites and internal information publications such as *The Maple Leaf*, all of which reach wide audiences.

There is a cautionary flipside to this very successful effort, however. At some juncture we might wish to ask, "how much can the market bear?" and at what point does the law of (public affairs) diminishing marginal returns kick in. Indeed, in the battlefront that is maintaining public support, are we at or near a stage in which the military faces an opponent never before encountered – positive overexposure – and with it, its own set of new challenges? ©

Long Waves Revisited

by Colonel (Ret'd) Howard Marsh

"History does not repeat itself: it rhymes." Mark Twain

In the Autumn 2005 issue of *On Track,* I applied long-wave theories as an analytical tool to cyclical socio-economic behaviour, with some success. Encouraged by the merits of long-wave theory as an analytical tool, I have found other discernible cyclical patterns that synchronize with major historical events. The major transitions of history that occur on or very near to the ancient Hebraic metric of time offer a long-wave that is worth studying.

Grand Jubilee is an ancient Hebraic celebration that occurs every 490th year. Although the events accompanying a Grand Jubilee are not identical to past ones, the similarities are striking: an enhancement in the access and sharing of information, change in religious order, prolonged shifts in power structures accompanied by disruptions in society.

Early in each cycle the main elements of the new order appear; to those who recognize the new, the future belongs.

Should history rhyme, then it is of much value for the strategic thinker to reflect on how past societies navigated their Grand Jubilees and what lessons apply in our era of the 1980s Grand Jubilee.

The Grand Jubilee

Our Western civilization measures expanses of time in multiples of tens: decades, centuries, millennia, but the underpinning measure of time ordained in the foundation of the Judaic faith is seven: Sabbath year (7), Jubilee (49), and "70 weeks of years" (490).

King Solomon dedicated the first temple on the date of the Grand Jubilee in the 950s BC, 490 years after the Exodus in the 1440s BC. The next Grand Jubilee occurred during the restoration of the second temple under Ezra with the authority of Artaxerxes, King of Persia, 460s BC.[1]

Modern Era Grand Jubilees

The ancient record establishes the period of this cycle and synchronizes it with our calendar, but its significance in ancient times is centred on the nation of Israel. However in the modern era the significance of this cycle appears to also correlate well with Western civilization's defining moments:

1. The first Grand Jubilee of the modern era would have been celebrated in the third decade (Julian calendar). The events close to this date are the life and ministry of Christ, the birth of Christianity, the writing of the New Testament, the destruction of Jerusalem, and the Diaspora of 70AD. This era also marked the most important advance in the sharing of information prior to the printing press: the codex. No longer was the reader limited to sequential access to information by the scroll, but now random access was available at lower cost by the turning of pages.

2. The second Grand Jubilee of the modern era would have occurred in the tumultuous times of 510s AD, shortly after the end of the West Roman Empire and at the start of the Dark Ages. The 6th century marked the end of the usage of the scroll and the dominance of the codex. The Papacy replaced the Empire as the centre of authority in Western Europe.

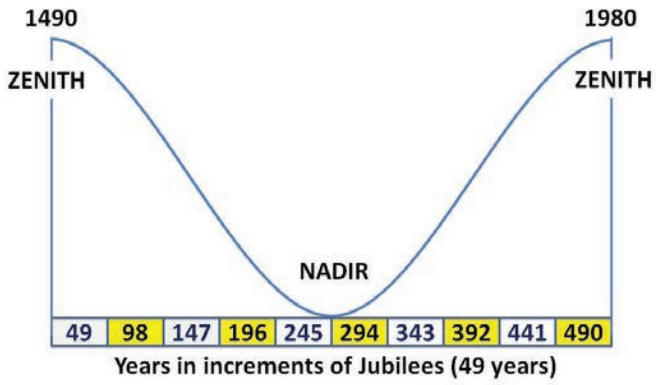
Colonel (Ret'd) Howard Marsh first retired in 2002, following 37 years of honourable service in the Canadian Army and the Canadian Forces. He is a former Senior Defence Analyst with the CDA Institute. Colonel (Ret'd) Harsh was Senior Policy Advisor to the Minister of National Defence who was the Hon. Gordon O'Connor at the time.

3. The events surrounding the third Grand Jubilee of 1000s AD witnessed the Normans displacing the Byzantine Empire. Charlemagne's empire formed the basis of what became the Holy Roman Empire. The year 1054 AD is considered the date of the schism between the Eastern Orthodox and Western Catholic churches. The 11th century monastic order the Cistercians were the main force of technological diffusion in medieval Europe. Abbeys pioneered scriptoriums for the copying and sharing of information and were trusted with the transfer of secular wealth by paper notes of credit throughout Europe.

4. The events surrounding the fourth Grand Jubilee of 1490s AD are the capture of Constantinople and the rule of Orthodox Christians by Muslims, the impact of the printing press, the discovery of America and the nd of the medieval Christian civilization with the Reformation in the 1500s. The Reformation divided Europe into Protestant and Catholic camps and religious wars ensued.[2]

Lessons to be learned

At this juncture it would be of value to picture the latest 490-year cycle and discuss the similarities that repeat near the zeniths of the cycle. As can be seen by the illustration the duration of a zenith would be about 100 years.



At each of the four previous Grand Jubilees in the modern era an old order ends and a new one emerges. Whether it is the emerging first century Christian faith that challenged Judaism or the emergence of the ten tribes of Europe in the post-West Roman Empire disorder, or the decline of Byzantine power and the rise of Norman domination, or the emerging Protestant church against the Catholic order, a Grand Jubilee seems to mark the emergence of something new that struggles with existing power. This repetition of power struggles between the emerging new and the existing old alert us to the likely perils of the era in which we live. Peace is probably not at hand, but rather long struggles until the new equilibrium is established.

It is indeed coincidental that, for the most part, each Grand Jubilee heralds an advancement in accessing and sharing information in more productive means: scroll to codex; manuscripts and scriptoriums; printing press, and in this era the digitization of information. Innovations in information sharing are in themselves not a danger, but as has been recently witnessed former Egyptian president Hosni Mubarak would consider digitization a weapon that undermines authority and heralds transfer of political power.

In the early stages of this cycle we should be aware that a significant transfer in power and commerce caused by enhanced access to information and sharing of information is underway that will once again transform Western civilization.[3]

...some assess that Europe's march toward Gnosticism heralds its demise.

The Judeo-Christian faith appears to be greatly disrupted at each Grand Jubilee. Judaism was challenged and separated from the early Messianic church. The early church became dominated by papal-catholic rule. The Eastern Orthodox Church separated from the Western Catholic Church. The Catholic Church fought the emergence of Protestantism. The religious divergence of this zenith is probably underway in the north-south divide of liberalism opposed to conservatism. How this will affect Western civilization in the 21st century is not yet clear, although some assess that Europe's march toward Gnosticism heralds its demise.[4]

In summary, this long wave warns:

1. Western civilization is entering a long period of significant transformation.
2. Now is the time to prepare for prolonged conflict and disorder.
3. It is critical to identify the fading older powers and the emerging new ones, and reconsider alliances.
4. The major elements of the transformation should be evident early in the 21st century, and now is the time to monitor and identify them.
5. Now is *not* the time to invest in long-term assets or fading alliances for they are likely to become liabilities in the mid-term.
6. Religious structures and thought are likely to change and concomitantly the culture it underpins will demand new norms and engagement with governance.
7. Dramatic enhancements to accessing and sharing knowledge will displace most public and private endeavours dependent on accredited access to knowledge.

So what?

In this cycle of history Canada is in an enviable position and is poised to emerge as an influential nation in the new order, if the government and military plan well. The government is ahead of most in deficit and debt reduction and the land holds a wealth of resources, but we, like Europeans, have become accustomed to unsustainable entitlements.

When the nation engages in a new contractual arrangement of wealth distribution and governance, the loyal, disciplined, force-of-last-resort needs to be at the forefront. The future of the Canadian Forces (CF) is most likely to be determined by its national presence and credibility. Now is the time to seriously transform the institution, enhance national security, presence and the capacity for expansion in emergencies. History reveals that this is not the time for expeditionary forces, but national security and credible military force. Invest in the mobilization base; study, and adopt where appropriate, military command and control structures that function well with a paucity of resources and overwhelming challenges.

Some of our most powerful and wealthy allies are likely to have diminished means in the near future and may be forced to sell national assets. Just as the CF recently obtained surplus Leopard 2 main battle tanks from the Netherlands and Germany, the department should not rush to buy new, but wait to buy surplus, late-model ships and planes, including F-35 jets as the United States and United Kingdom downsize their military capabilities and terminate contracts. Get ready for the coming international military equipment sale.

Many US-European military and economic alliances, working arrangements, protocols and conventions are likely to collapse as members no longer have the means to participate. It would be good to identify that which is likely to disappear and respond accordingly. Now is *not* the time to invest in co-operative arrangements.

The emerging new economic and military powers are likely to be confirmed by the middle of the next decade. ~~Now is the time to enhan~~ce military liaison, expand training opportunities, military exchanges and academic cooperation with developing nations.

In the first millennium of the modern era enhancements to the access to information was the dominant innovation; in the second millennium improvements in the sharing of information dominated. Thus far in the third millennium the instant sharing of information with countless recipients has been achieved. It is very difficult to advance further in the sharing of information. While the means to share information is unprecedented, the manner in which individuals access information is still rooted in traditional practices—page by page. Until digitization revolutionizes accessing information it would be prudent to be cautious in IT investment.[5]

Concluding thoughts

I have persuaded myself that I know too little about the historical events and significance that accompany the 490-year long wave, and I plan to explore the repetitions of similarities further. My attention is drawn not so much to the evident power shifts and struggles, but to the recurring advances in accessing and sharing information and the impact this has on rulers and merchants. ©

(Endnotes)

1 Rob J. Hyndman's *The Times: A Chronology of the Bible*, July 2010, and James Ussher's *The Annals of the World*, August 2007.

2 The major references are: Richard Tarnas' *The Passion of the Western Mind* (1993); Oswald Spengler's *The Decline of The West* (2006); and, Diarmaid MacCulloch's *Christianity: The First Three Thousand Years* (2011).

3 William M. Schniedewind's *How the Bible Became a Book*, 2004.

4 Eric Voegelin's *Science*, *Politics and Gnosticism*, 1968.

5 The reader may wish to examine www.conflicthistory.com/#/period/0984-1004 for an illustration of aggregate data on an unbounded page.

Afghanistan: Our soldiers' legacy

by Paul H. Chapin,
Brigadier-General (Ret'd) Don Macnamara,
Colonel (Ret'd) Brian MacDonald, and Dr. John Scott Cowan

This article was originally published in the Ottawa Citizen on June 7, 2011.

August and September 2006 were the cruellest months. No eight weeks would ever be as calamitous for Canadians in Afghanistan: 18 soldiers dead, many more wounded... in two months, as many killed as in the four years preceding.

Since the beginning, some had questioned why Canada was in Afghanistan. Now Canadians opposed to participation consistently outpolled those in favour. In Parliament every political party had members asking about the engagement. As the toll mounted (38 in total in 2006, 30 in 2007), the government commissioned an independent review whose report explained what was at stake and recommended a way forward. The Manley Panel's recommendations have guided Canadian policy ever since: Canada should continue with a security role but emphasize training the Afghan security forces.

So what has Canada's engagement accomplished? Cynics will reply: not much. The war goes on, the Afghan government is as incompetent and corrupt as ever, and Afghans are ungrateful for our assistance. Some of this is true. But it misses the point at several levels of analysis.

Let's start at the strategic level, with the big picture. It all began because Afghanistan-based terrorists killed 2,669 Americans and 329 foreign nationals on 9/11, including 24 Canadians. Had al-Qaeda succeeded in its quest for nuclear or biological weapons, the toll would have been several orders of magnitude greater–likely killing Canadians in Canada. For the United States the first order of business was to prevent another attack, and Washington demanded the Taliban government of Afghanistan hand over Osama bin Laden and close down his training camps. When the Taliban leader Mullah Omar refused, the US made common cause with his Afghan opponents and within weeks both he and bin Laden had fled–probably to Pakistan where bin Laden was found ten years later. Omar remains a hunted man.

Canada lent its support because the United States was a neighbour and friend; because NATO allies invoked Article 5 of their treaty to come to the defence of any member attacked; and because the Security Council called on UN members to contribute to an International Security Assistance Force (ISAF) to assist the new Afghan government. Support began with special operations forces and a naval task force, then rotations of battle groups each better prepared and equipped than the previous, and officers to serve in ISAF commands.

At the level of operations, the Canadian Forces (CF) were never more than a small portion of the allied total. But their effectiveness became legendary–especially after highly trained soldiers were matched with equipment they had long needed for joint operations with allies. Partners came to count on them. The 2006 operations which cost so many Canadian lives may have saved Afghanistan. With the Taliban massing to assault Kandahar, all that stood in their way was the Canadians. As the ISAF commander (British General David Richards) said, if Kandahar had fallen it would not have mattered how well the British did in Helmand or the Dutch in Uruzgan next door. "Their two provinces would also, as night followed day, have fallen because we would have lost the consent of the Pashtun people because of the totemic importance of Kandahar."

In the years following, the Canadians successfully suppressed the Taliban in Kandahar with minimal force, provided security to permit economic development in the villages, and supplied seed for farmers, assisted in irrigation development, built roads for market access, and employed and paid local labour for these projects.

The CF also did other extraordinary things: establishing a support base in the Arabian Gulf; creating a Strategic Advisory Team to work directly with Afghan ministries to draw up national development plans that would attract aid and investment; and supplying the bulk of the manpower for a mixed civilian-military Provincial Reconstruction Team in Kandahar.

Finally, at the level of military methods and tactics, the CF developed a proficiency in the profession of arms which has transformed them into one of the world's premier fighting forces–equally capable of going to war, training others to defend their country, conducting peacekeeping operations, and delivering humanitarian relief anywhere on earth. An achievement made possible but also more difficult because the CF were introducing organizational reforms at the same time. Canadians and their governments will be reaping the benefits of having acquired such a capability for the next 20 to 30 years.

Paul Chapin is a former diplomat and currently Director of Research at the CDA Institute. Don Macnamara is a retired air force brigadier-general, former professor, and member of the Board of the CDA Institute. Brian MacDonald is the Senior Defence Analyst at the CDA Institute. Dr. John Scott Cowan is the President of the CDA Institute.

Since they arrived in Afghanistan, the CF have successfully defended and advanced important Canadian interests. Canadians are safer because the CF helped to eliminate al-Qaeda's safe haven and to strengthen NATO's ability to fight terrorism. Canadians' economic livelihoods are more secure because the CF helped to prevent the spread of conflict and disruption of the oil supplies on which trading partners depend. The international security scene is improved because the CF has helped rebuild Afghanistan and drawn necessary attention to a troubled region. And there is just a bit more individual freedom, democracy and the rule of law in the world because the CF fought for it.

A profound psychological distance used to separate the CF from the citizenry. Today, the CF have never been so well regarded, thanks in part to more knowledgeable journalists. Our service men and women have earned the respect the public accords them. As their combat role in Afghanistan ends, the legacy must be to ensure Canadians never again become disconnected from those who go in harm's way on their behalf.

NSPS: Let's not forget the payload

by Jim Carruthers

Halifax Class operations room

This article was originally published in FrontLine Defence magazine, Issue 3, 2011.

The strategic need for Canadian sources to build ships on an ongoing basis has led the government to develop its National Shipbuilding Procurement Strategy (NSPS). This same logic should lead to a consideration of the most expensive part of warships – the sensors, weapons, and other internal systems that make up the payload. Accordingly, perhaps it is time to consider a National Ship Payload Policy.

A proud history of success

For decades, the Canadian Navy has led the way in the critical domain of sensor development and system integration. Tactical data systems and ship system integration development date back 60 years with the first shipboard digital computer based system, DATAR. The US Navy recognized Canada's contribution during the development of its Naval Tactical Data System. Canada's frigates and destroyers have been renowned for their command and control capabilities afforded by SHINPADS architecture and components conceived by our Navy. The Navy, working with industry partners, delivered resilient, reconfigurable systems providing the unique capabilities for which the Halifax class frigates and Tribal class destroyers are recognized. Canada also became internationally known for its involvement in the development of underwater warfare sensors, naval communications, machinery control, and helicopter landing systems. Other nations have followed suit, emulating or purchasing these Canadian technologies to increase their own capabilities.

Yet, as we prepare to embark upon a new series of shipbuilding programs, there does not appear to be any coherent policy to build upon these technical and business successes.

Payload requirements

The major weapons components from which ship designers select is a relatively small set, as are the propulsion options. Also, each nation has different requirements and, equally as important, different ways of operating. This is particularly true for the Canadian Navy, which must operate from the Indian Ocean to the Arctic. Matching varied components to requirements is done through system integration, this being the difference between an also-ran capability and the unequalled capabilities of our frigates and destroyers.

The NSPS will deliver a continuous stream of ships with the hull and propulsion systems remaining relatively identical over at least a couple of variants. There will, however, be a requirement to update the payload to match changes in

Jim Carruthers is President of the Ottawa Branch of the Naval Officers Association of Canada and a member of the Board of Directors, CDA Institute.

April 2011 – HMCS Charlottetown – Naval Combat Information Operator (NCIOP), Able Seaman (AB) Sylvia Limane, AB Kynan Pelletier, and Master Seaman (MS) Conrad Johnson monitor their stations to give the Operations Room Officer (ORO) an overall picture for all areas of warfare during OP MOBILE in the Mediterranean Sea. HMCS Charlottetown, together with Canada's NATO partners, is currently in the Mediterranean Sea enforcing an embargo under authority of the United Nations Security Resolution 1973, a measure taken to protect Libyan civilians. Charlottetown's presence demonstrates Canada's willingness and ability to assist in North Africa by creating a sustained maritime presence in the region while providing a range of readily deployable capabilities to the Government of Canada. (Photo: Cpl Chris Ringius, Formation Imaging Services, Halifax)

technology and evolving naval requirements. Buying systems offshore could be problematic. Providing ongoing support for a system design initially developed for an offshore customer will invariably result in increased cost and risk, and may not even be possible as these systems evolve in response to other nations' requirements.

Most significantly, when procuring US equipment, the US International Traffic in Arms Regulation (ITAR) legislation seriously limits our ability to modify and adapt systems to our needs, and restricts Canadian companies from internationally marketing products incorporating anything subject to ITAR. Systems developed in Canada can be "ITAR free," thus giving our navy far greater latitude while enabling international sales.

Industrial benefits

The laudable goals of high technology jobs, high value product development and the lasting economic value on which the NSPS is based, apply equally in the case of Canadian-based payload development. The logic of keeping major expenditures for future warship production in Canada–embodied in the NSPS–is equally solid.

Common sense

Our Navy and our industry have a proud legacy in shipbuilding and naval payload system development. Our Navy continues to face unique operational requirements. At the same time, Canada needs to retain high value high technology jobs.

Common sense would indicate that development of a National Ship Payload Policy would go a long way to maintaining that legacy.

THE ROSS MUNRO MEDIA AWARD

Nominations are invited for the 2011 Ross Munro Media Award.

The Ross Munro Media Award was initiated in 2002 by the Conference of Defence Associations (CDA) in collaboration with the Canadian Defence & Foreign Affairs Institute (CDFAI). Its purpose is to recognize, annually, one Canadian journalist who has made a significant and outstanding contribution to the general public's understanding of issues that relate to Canada's defence and security.

The recipient of the Award will receive a replica of the Ross Munro statue, along with a cash award of $2,500.

The past recipients of this prestigious award are Stephen Thorne, Garth Pritchard, Sharon Hobson, Bruce Campion-Smith, Christie Blatchford, Matthew Fisher, Alec Castonguay, Brian Stewart, and Murray Brewster.

Anyone may nominate a journalist for the award. Nominations must be in writing, accompanied by two letters of support, and include a summary of reasons for the nomination, a brief biographical sketch of the nominee, and samples of the journalist's work. Further details are available at www.cda-cdai.ca, click: Ross Munro Award. Nominations must be received by 1 September 2011, and should be addressed to:

ROSS MUNRO MEDIA AWARD
SELECTION COMMITTEE
CONFERENCE OF DEFENCE ASSOCIATIONS
222 SOMERSET STREET WEST, SUITE 400B
OTTAWA, ON K2P 2G3

The Ross Munro Media Award will be presented on Friday, 18 November 2011, at the Vimy Award dinner that will be held at the the Canadian War Museum.

For more information, including ticket orders for the Award dinner, contact the Conference of Defence Associations at: fax (613) 236-8191, e-mail pao@cda-cdai.ca, or telephone (613) 236-9903.

PRIX MÉDIA ROSS MUNRO

Nous invitons les nominations pour le prix média Ross Munro, 2011.

Le prix Média Ross Munro a été décerné pour la première fois en 2002 par la Conférence des associations de la défense (CAD), en collaboration avec l'Institut Canadien de la Défense et des Affaires Etrangères (ICDAE). Ce prix a pour but de reconnaître annuellement un journaliste canadien qui a contribué de manière importante et remarquable à la sensibilisation du grand public aux questions liées à la défense et à la sécurité canadiennes.

Le lauréat ou la lauréate du Prix recevra une reproduction de la statuette Ross Munro et un prix en argent de 2500 $.

Au nombre des lauréats des années précédentes, figurent Stephen Thorne, Garth Pritchard, Sharon Hobson, Bruce Campion-Smith, Christie Blatchford, Matthew Fisher, Alec Castonguay, Brian Stewart, et Murray Brewster.

Toute personne peut nommer un (une) journaliste pour le prix Ross Munro. Les nominations doivent nous parvenir par deux lettres du soutien, être accompagnées d'un sommaire citant les raisons qui motivent votre nomination, d'une biographie du candidat et des examples des travaux du journaliste. Pour les détails voir www.cda-cdai.ca, click: Ross Munro Award. Les nominations doivent nous parvenir au plus tard le 1 septembre 2011, et doivent être adressées au:

COMITÉ DE SÉLECTION DU PRIX MÉDIA ROSS MUNRO
LA CONFÉRENCE DES ASSOCIATIONS DE LA DÉFENSE
222, RUE SOMERSET OUEST, SUITE 400B
OTTAWA, ON K2P 2G3

Le prix média Ross Munro sera présenté vendredi, le 18 novembre 2011, à un dîner qui aura lieu au Musée canadien de la guerre.

Pour plus d'informations, incluant la demande de billets pour le dîner, veuillez contacter la Conférence des associations de la Défense: télécopieur (613) 236 8191; courriel pao@cda-cdai.ca, ou téléphone (613) 236 9903.

WAR POSTERS?

by Gertrude Kearns

"Editorial in nature, propaganda like in energy and attitude, with a bias towards chivalry and a hint of the devious, this series is about the nature of command perspectives in modern operations. From Lieutenant-Commander to Colonel to General and Defence Analyst this group of four Canadians creates a cross section of platforms spanning post cold war Balkans, Canadian security, and the current Afghan counterinsurgency."

(*This is the last in a series of four articles about the art of Gertrude Kearns that we are pleased to have featured in this and previous editions of ON TRACK, with our thanks to the artist - ed*.)

This article is in part an artist's statement, the term used in current art practice whereby the visual arts practitioner explains the intentions, ideas and contexts of his work, in general as regards his practice, or as here specifically in relation to a particular body of work.

This series of posters (2004-2010) is a war art documentation of sorts using Canadian Forces individuals as subjects. These expanded portraits function on three levels: military portraiture, editorially tinged commentary, quasi-historical record, inasmuch as each subject's Canadian defence career is represented in the context of a specific yet verbally abstracted mission type. The one exception is the Colonel Brian MacDonald piece, which is about the nature of defence analysis.

It is equally imperative that these works function in the contemporary art forum, establishing another viable credibility. This age of irony with a penchant for nihilistic predisposition seeks integrated message and can be as crucial as any visually technical prowess.

These posters seem to appeal to civilians even if the message remains somewhat unclear. Even when they function as "just guys in uniforms," and by association the military in general, there is an existential ring of sorts which bridges civilian and defence interpretations.

These posters are the antithesis of traditional war posters, which targeted specific audiences for immediate results in the "war effort." They were highly emotional sales devices via propaganda, not reliant on symbolism, humour or metaphor. "They were not meant to be archival or historical documents…" (McGill University Canadian War Poster Collection).

My intentions are contrary in every sense. These "posters" are not made to be reproduced in quantity, understood easily, or sell anything. They need to be interpreted, and gradated through an inherent understanding of the concern in question. In other words "they are meant for a sophisticated audience"; these words came in response to a recent informal presentation I made of this group in a Toronto think-tank environment.

These works cannot even hint at "real" propaganda as they are not selling defence, not even questioning it. Rather they aim to express the hinge in operations via apparent oxymoron. However they are intended to "look" like propaganda, to suggest some campaign is being waged as they are responding to the urgency of the times. Because these portraits are heroic in nature, they are meant to command attention and impart military ethos and the psychological and strategic rationale of modern defence sensibilities.

Suggested paradox and the general aesthete of each work are points of departure from historical military art into modern expressions of "social commentary" it has been said, but more significantly from my perspective, an attempt to make "defence commentary." If they do not function in this respect, they are not successful.

Each poster idea evolved slowly, in the midst of other related work. My intention was to say as much as possible with the fewest words. A 1942 war poster study by the Toronto agency Young and Rubicon showed emotional appeal to be the most effective, whereas humour and symbolism were ineffective sales tools/methods. Relying on dry humour and contained emotion, these would have fared poorly in 1942!

The four subjects all agreed to sit for me and each has completely supported my decisions after the fact. None were commissioned drawings and I have retained all originals.

Image 4: The Point is... - Brian S. MacDonald, Colonel (retired), 2010

Prior to adding text in 2010, the following accompanied the 5x3ft portrait in photo format emailed to the Canadian War Museum for my file in July 2009: "*This is a portrait of a Canadian senior defence analyst, of particular note to the artist a military intellectual engaged at national and international levels. His Canadian Forces background is*

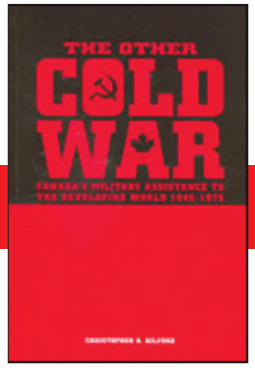
Gertrude Kearns of Toronto has worked both officially and unofficially as a Canadian war artist for nearly two decades. She had a 2006 contract with TFA Roto 0 embedded in theatre in Kandahar and Kabul under Colonel S P Noonan. Work is in private, public and corporate collections in Canada; currently in the 2009-2012, eight venues across Canada "Brush with War: military art from Korea to Afghanistan", under DND and the Canadian War Museum. She is the 'unofficial' war artist in residence at the RCMI and a SSC member, on the SITREP Boulter Award jury for 4 years.

represented for one via his tie, as a former senior aide-de-camp to the Governor General in Toronto in the latter 1980s, and The Royal Regiment of Canadian Artillery by his sword. However the intention of the portrait is to reflect his person, his insights and to imply his defence concerns and the business of acting upon them. His sword is treated somewhat non-specifically, as without its design embellishments it can better suggest a slide rule, to gauge perceived threats and reactions. The point of the sword is hidden and off the paper anyway, an intentional analogy for sensitivities around the notion of threat. The time on his watch reads just before 12; is it 'nigh' high noon or midnight? The interpretations and ambiguities behind strategically considered secondary details gave particular acuity in an editorial manner to the parallel process of pure portraiture over the course of four sittings. A refracted chess or checker board, our national and global security and the players involved, Canada continues by necessity to position internally and externally. Serious business. Strategic insight required."

On January 13, 2010 Brian emailed (during a Defence Studies Committee member's response to the poster when I was asked if he was drawing or sheathing, to which I replied that the ambiguity was the point): "And it is also an artillery sword - as opposed to a cavalry sword or an infantry sword - for the artillery sword (named "Ubique") is the most astute of all of the military swords, especially when it is called upon to deal with a collection of mendacious pens, which the diplomatic folks are far too well equipped with! But the diplomatic pens suffer from being innumerate, which places them at a distinct disadvantage to the artillery swords, particularly since the artillery swords understand spherical trigonometry! *Quo fas et gloria ducunt!*"

Oh, such gallant defence of sword and slander of pen! ©

Book review



The Other Cold War

by Colonel Christopher R. Kilford

Reviewed by Arnav Manchanda

Kilford, Lieutenant-Colonel Christopher R. The Other Cold War, Canadian Defence Academy Press, 2010, 324 pages, ISBN 978-1-100-14338-5

In July the Canadian military mission in Afghanistan transitioned from a counterinsurgency effort in Kandahar province to a Kabul-centric mission providing up to 950 trainers for the Afghan security forces. This new Operation ATTENTION represents a sizable and focused mission for the Canadian Forces in training a foreign military force in a developing country.

Thus, the time is ripe for a review of previous Canadian efforts at foreign military training. To fill this gap comes Christopher Kilford's timely and relevant monograph, *The Other Cold War: Canada's military assistance to the developing world, 1945-1975.* It examines Canadian foreign military training assistance in various forms in the period following the Second World War, providing valuable lessons about previous Canadian efforts in this field.

Colonel Kilford is currently Canada's defence attaché in Turkey and previously served as deputy military attaché in Kabul, and thus knows a thing or two about relations with foreign militaries.

Kilford writes that during the 1950s and 1960s, efforts to train military forces in the developing world were driven by several factors. One was superpower rivalry: if the West did not engage with post-colonial governments and their militaries, the communists (Soviet Union and China) would do so. A second driver was the popular argument that modern militaries encouraged overall socioeconomic modernization in underdeveloped countries. Third, Canadian training efforts were often complemented by lucrative sales of military hardware and support contracts.

Kilford writes that successive Canadian governments under prime ministers Diefenbaker and Pearson pushed a reluctant Canadian military to train foreign forces, most notably in Africa. Kilford provides two case studies of Canadian efforts in Ghana and Tanzania. The accounting is warts-and-all, detailing the bureaucratic infighting over the desirability and funding of such missions (with External Affairs taking the lead in pushing these missions onto a reluctant military). More remarkable is how, despite much handwringing in Ottawa over issues such as Canada being considered a "merchant of death" or getting involved in costly Cold War intrigues, national interest, prestige and commercial considerations won the day.

Kilford also writes that the results of these training efforts were not always as expected. While the Canadian military educated its foreign pupils about the military following the orders of the civilian government, Canadian-educated officers took part in the deposing of the first leader of a post-colonial Ghana, Kwame Nkrumah.

In both Tanzania and Ghana, the Canadian government and military were supplying training and equipment that could have been used by various African rebel forces in their efforts against colonial powers such as Portugal, which was a NATO ally and thus put Canada in an awkward position.

Overall, the impression one gets is that once a reluctant Canadian bureaucracy embraced these training missions, it did so with gusto, forming an interdepartmental committee to coordinate efforts across various countries. However, the efforts never did achieve the "whole of government" cohesion that is so desired today in Afghanistan and elsewhere. For instance, the Canadian International Development Agency was not seriously considered for inclusion in the list of participating departments, despite having a considerable range of overseas projects in countries that were chosen for military training assistance.

While there was some semblance of strategy in picking suitable recipient countries, each case was treated largely on its own merits and not as part of an overall foreign policy objective. Kilford suggets that this was due to resource constraints and an overall distaste with getting involved in training militaries of undesirable regimes. (These themes seem to persevere in today's foreign and defence policy...)

The Trudeau government put an end to most foreign military training efforts, due to Trudeau's desire to re-evaluate Canada's foreign and defence policies, and to

Arnav Manchanda is a defence policy analyst at the CDA Institute, and a business capture and analytics specialist with The SecDev Group. Arnav is a former Security and Defence Forum Intern with the CDA Institute.

focus on spending on new domestic social programs and on domestic security concerns.

While the overall account by Kilford is exemplary, there are some details lacking. Firstly, the reader cannot truly judge how much impact the Canadian efforts abroad had when compared with other countries' efforts, most notably those of Canada's NATO allies and adversaries (China and the Soviet Union). While there is mention made of other countries' efforts, there is not enough systematic comparison to judge which were more effective or long-lasting. Second, Kilford often makes mention of the pressure Canadian officials were placed under by US and British officials to contribute to military training missions in the developing world to counter the spread of communism; however, some substantiation of this claim would have been helpful, especially given that this pressure did not seem to greatly affect the Trudeau government. Thirdly, Kilford could have explored further the pressure from Canadian industry to push for foreign military training missions in order to drive sales of equipment; Kilford could have accomplished this with a case study of one particular company mentioned throughout the book, De Havilland Aircraft of Canada.

In conclusion, T*he Other Cold War* is a worthy and required addition to the Canadian defence reader's shelf. It covers a little explored yet significant part of Canada's military history, and has immediate relevance given today's robust training mission in Afghanistan. One only hopes that Kilford will review CF training efforts in Afghanistan in the very near future! ©

Notice

The CDA Institute
and
the Conference of Defence Associaitons
have moved.

Please note our **new address** is

151 Slater Street, Suite 412A
Ottawa ON K1P 5H3

E-mail addresses and telephone numbers will remain unchnaged.

Avis

L'Institut de la CAD
et
La Conférance des associations de la défense
ont déménagé.

Veuillez noter que notre **nouvelle adresse** est

151, rue Slater, Suite 412A
Ottawa (ON) K1P 5H3

L'adresse courriel et les numéros de téléphone resteront les mêmes.

M777 155 mm Howitzer in action in Afghanistan

ON TRACK

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