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Newsletter of the Royal United Services Institute of Vancouver Island

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Royal Canadian Navy Testing Reduced Crew Sizes on Frigates

By Murray Brewster The Canadian Press 1 April 2016

OTTAWA – Defence planners hope “X” marks the spot for the sailor-strained Royal Canadian Navy as the military has embarked on a set of experiments aboard existing frigates aimed at reducing crew sizes on its future warships.

Vice-Admiral Mark Norman has designated the Halifax-based frigate HMCS Montreal as a so-called “X-ship,” which for the next few years will experiment in what’s being described as innovative concepts and procedures for ships’ companies.

The idea is to prepare the navy for both the new Arctic offshore patrol ships and eventually the replacements for country’s patrol frigates, both of which will have smaller crews than the navy traditionally deploys.

The level of automation on the new ships will allow defence planners to make the reduction, but Norman says it means assuming a level of risk and potentially reduces the flexibility of what the warship can do on operations.

But it is also an important cost consideration as the navy plans for the nominally designated Canadian Surface Combatants, which are to begin replacing the 1990s vintage patrol frigates in the early 2020s.

“We like to get cranked up about how much the ships cost,” Norman told a defence conference hosted by the MacKenzie Institute this week., (But) arguably over the 50 year life of the platform – if that’s what you’re planning for, but (ideally) let’s plan for 35 or 40 – the most expensive component of that ship is the crew.”

The average crew size of one of the existing patrol frigates is roughly 225.

The jaw-dropping price tag of the frigate replacements gives the exercise added weight. Some internal estimates at National Defence put the total investment in 15 warships – over 30 years – to be in the range of \$104 billion, including the purchase price and the full operating cost, including crew.

The Trudeau government will soon be asked to approve the strategic plan for acquiring the ships and to put some seed money into the preparations. It has also taken some preliminary steps to bringing down the cost by mandating builders go with an existing warship design and combining two procurement

See the RUSI Calendar of Events

plans into one.

The experiment also comes at a time when the navy has already gotten smaller. In 2009, the fleet was short 954 sailors out of a total complement of 8,541 regular force personnel.

Officials at defence headquarters pointed to 2012-13 federal budget reports which show the navy's total strength at 7,888, but wouldn't say on Thursday how many of those postings were unfilled.

During his speech, Norman also didn't say how many vacancies there might be.

"The organizational structure of the navy has shrunk significantly over the last decade and it is very, very fragile," he said.

But it's a give-in the new ships will have fewer bodies, Norman added.

"The crew of the surface combatant will be smaller than the crew of the (existing) Iroquois class (destroyers) and Halifax class (frigates) that it's replacing," he said. "The ship itself will be bigger. The systems will be more complex."

Discussions are still ongoing about how much smaller the crew of the frigate replacements will be, he added.

Data on the feasibility will be gathered through the long-term experiments run by the Montreal, and its sister ship HMCS Fredericton, which is running its own, smaller short-term trials while deployed with NATO's standing task force as part of Operation Reassurance.

The concept, according to Norman, involves using a core crew and mission crew. The core crew is needed to operate the ship; a separate mission crew is embarked depending on the tasks the warship is assigned.

"We're – in essence – splitting the crew," he said.

"The core crew is smaller and in essence you can customize the mission crew depending on what you want to do. That introduces a great deal of flexibility in terms of how we operate the ship."

The Last Post

**Kurt Kessler of Ladysmith, BC
a long time
RUSI VI Member**

Could Drones Replace Canada's Fighter Jets?

The Globe and Mail Mar. 10, 2016

Challenging the orthodoxy isn't typically encouraged in large organizations, so when it happens, a minor celebration is in order. General Jonathan Vance, the country's top soldier, is reimagining the future of the Royal Canadian Air Force – and that may include fewer fighter planes, but more drones.

The Chief of the Defence Staff deserves plaudits for stepping outside the usual sandbox as he prepares a wide-ranging defence policy review. At a Senate committee this week, he suggested it will look at the possibility of a significant shift toward unmanned aerial vehicles, specifically long-range drones capable of carrying weapons.



They could provide a versatile option for everything from surveillance, to search-and-rescue operations, to full-fledged military campaigns in places like Iraq and Syria. Acquiring them could reduce or even eliminate the need for an expensive program to replace Canada's aging CF-18 fighters. At the very least it implies the possibility of a smaller-scale one. The Canadian Forces already own a few small drones and have been thinking about acquiring more for some years; UAVs are de rigueur. It can be argued Gen. Vance is simply hewing to a newer military dogma.

These days, modern conflicts are rarely waged between fighter jocks in supersonic jets engaging in aerial dogfights. Nor are high-cost fighter aircraft necessarily what's needed for handling a lot of what Canada's air force does, things like northern sovereignty patrols and maritime reconnaissance. The fighter program is comparatively small. There is growing evidence that the next generation of combat aircraft will be unmanned, for reasons of technology and cost. Sophisticated drones aren't cheap – they can run in the tens of millions – but they are a bargain when compared to, for example, the controversial F-35 strike fighter. That plane has

been plagued with technical hiccups and rampaging cost overruns, and the previous Conservative government rightly shelved plans to acquire it. Prime Minister Justin Trudeau ran on a promise to find cheaper alternatives. In the end, cabinet may opt to splash out for one last fighter fleet. The good news is it won't be because the senior

HMS Queen Elizabeth Named in Rosyth



defence leadership is entirely wedded to old ideas.

Drones' Role Limited - Response

by Tom Lawson, former CDS, Ottawa, Global Mail Editorial Column

Re Can Drones Replace Fighter Planes? (March 11): Your editorial justifiably praised Canada's Chief of the Defence Staff, General Jonathan Vance, for being a creative forward thinker. He is indeed so and, as his predecessor in the position, I know that this was one of the reasons he was selected to be chief of the defence staff.

That said, I believe you have misinterpreted the comments he made to the Senate committee regarding drones. He was simply restating what the Canadian Armed Forces has been saying for over a decade now: that the RCAF needs a fleet of unmanned aerial vehicles with the capability to carry armament.

Neither Gen. Vance, nor the RCAF, would suggest drones are anywhere near ready to replace fighter aircraft in the complex roles associated with protecting Canadian air and sea approaches, or in many other combat situations. Certainly, the US Air Force plans to fly manned fighters in the NORAD role for coming decades. If we plan to remain a viable partner in the defence of North American aerospace, Canada will need to replace the CF-18 with a new fighter aircraft. This is why it is critical to identify a replacement, and quickly. I am quite certain the coming defence review will confirm the need for both fighters and drones.

Lead and Line April 2016

The Royal Navy's largest ship ever built (and capable of carrying 40 aircraft), will be commissioned in May 2017.

Her CO, although technically a Commodore will be Capt Kyd (I am not making this up!) There will be no bear-strap like equipment as aircraft will be V/STOL, specifically F35B Lightning II fighter bombers and Merlin helicopters. She can accommodate 250 Royal Marines and the larger troop-carrying helicopters such as the Chinook. Weighing in at more than 75,000 tonnes she is 920 ft long and has Phalanx 30 mm guns and mini-guns for armament.



New Members

- LCol David A. Sproule, CD, (Ret)**
- Mr. John Azar**
- Capt Thomas Sturge, CD, (Ret)**

Fielding of Canadian Army's Tactical Armoured Patrol Vehicle Just Around the Corner

[http://www.army-armee.forces.gc.ca/Article/April 8, 2016/Project number: 15-0183](http://www.army-armee.forces.gc.ca/Article/April%208%202016/Project%20number%3A15-0183)

Ottawa, Ontario — The Canadian Army (CA) is preparing to take delivery of the new Tactical Armoured Patrol Vehicle (TAPV) later this year. The fleet of 500 vehicles will be distributed across seven bases and 24 units. 2nd Canadian Division will be the first formation to operate the TAPV, which will be part of a High Readiness Training Cycle culminating in Exercise MA-PLÉ RESOLVE 2018.

The CA expects to declare full operational capability by mid-2020, following training of all operators, and completion of user trials and exercises confirming operational readiness.

Brigadier-General S.M. Cadden, Chief of Staff Army Strategy, expresses the Army's building excitement for fielding this new fleet.

"The Army has closely followed the testing of this vehicle. We currently have over a dozen Canadian Armed Forces (CAF) personnel participating in testing activities, and they are relaying very positive feedback," he said. "We are looking forward to fielding the TAPV to units."

The TAPV, built by Textron Systems Canada Inc., was chosen after a rigorous evaluation process that included testing for mobility, firepower, survivability and human factors, as well as a paper-based evaluation of other technical and financial criteria.

The TAPV will be delivered in two variants: General Utility and Reconnaissance. The only differences between variants are their internal design and certain pieces of equipment. The Reconnaissance variant will be fielded to armoured reconnaissance squadrons, infantry reconnaissance platoons and the Royal Canadian Armoured Corps School.

A notable feature of the TAPV is its very high level of protection and survivability against enemy threats, which includes improvised explosive devices, explo-

sively-formed projectiles, and anti-armour weapons. The Textron Systems vehicle far exceeds the Army's essential requirements for protection levels, thereby offering an additional degree of confidence for operators when entering enemy theatre.

In addition to offering a higher degree of protection, the vehicle will be highly mobile. It is designed to effectively travel long distances on both roads and cross-country terrain. At just under 18,597 kilograms in weight, this light armoured vehicle can perform a wide variety of roles and tasks, including reconnaissance and surveillance, security (patrolling and escort), command and control, and armoured transport of personnel and equipment. Four TAPVs can be transported simultaneously by a CC-177 Globemaster III, providing good strategic mobility.

The TAPV also comes with several innovative new features. Of particular note is the TAPV's remote weapons station, which allows gunners to aim and fire from the vehicle's interior. The remote weapons station comes equipped with both a 40-mm automatic grenade launcher and a C6 flex machine gun. It offers impressive observational capabilities, allowing crews to see at distances of up to 10,000 metres. In addition, it has been specifically designed to accommodate soldiers with all personal protective equipment.

The TAPV is based on Textron Systems' COMMANDO™ series of vehicles, specifically the COMMANDO Elite. Textron Systems describes the Elite models as "our most highly-protected and capable vehicles," and explains that it is "a more technologically advanced variation of the COMMANDO™ and is engineered to meet the Canadian Army's demanding standards, including operability in both extreme cold and heat."



Leading up to fielding, there is an increased focus on establishing in-service support.

The in-service support will be provided under a somewhat different approach from other fleets. The CAF will continue to perform first- and second-line maintenance as typical, but otherwise the TAPV fleet will be largely supported by the contractor, Textron Systems, along with their subcontractor Rheinmetall Canada. Textron Systems will run an equipment management team, and be the main point of contact for technical problems. The contractor owns the spare parts, though a stock of 60 days will be held by the CAF. The contract with Textron Systems is performance-based, and is designed to motivate Textron Systems to maintain good reliability and fleet availability. Additional information on the in-service support approach will be provided to the CA in the coming months.

“Textron Systems is fully committed to providing Canada with the most mobile, survivable, and reliable vehicle in the world today,” said Textron Systems Vice President of Land Vehicles Mike Gelpi. “We look forward to getting the vehicles in the soldiers’ hands in the very near term.”

Construction of new TAPV barns is underway at 4th Canadian Division Support Base Petawawa, 2nd Canadian Division Support Base Valcartier, and 5th Canadian Division Support Base Gagetown, and will begin shortly at 3rd Canadian Division Support Base Edmonton.

Operators and technicians will receive initial cadre training shortly after vehicles are delivered to their location. This initial training is being developed by the contractor, Textron Systems, while follow-on training will be provided by the CA training system.

TAPV maintenance publications will be modernized with an Interactive Electronic Technical Manual (IETM). Accessible via an easy-to-use interface resembling Microsoft Internet Explorer, the IETM will simplify the work of technicians by making manuals and procedures readily accessible via laptop. The IETM will also make updates instantly available.

The TAPV fleet will be the first CA vehicle fleet to have a Health and Usage Monitoring System (HUMS). This HUMS includes sensors throughout the vehicle that record key data, and provide information to assist with maintenance and fleet management.

The program has experienced some schedule delays, and fielding of the TAPV is anticipated approximately two years later than originally planned. This delay has

allowed the contractor sufficient time to improve certain aspects of the design, thereby providing a better and more reliable vehicle to the Army. The project office in the Department of National Defence’s Assistant Deputy Minister (Materiel) is overseeing the contractor’s testing and qualification activities which are currently more than 50 percent complete and planned to be finished by May 2016. Deliveries of vehicles are expected to begin shortly thereafter in August 2016, and all deliveries should be completed within 17 months of that date.

Winnipeg Veterans from World War II Receive Honours from Chinese Government

Globalnews.ca 21 March 2016 By Shannon Cuciz

More than 74 years after fighting in World War II, three Winnipeg veterans are being honoured.

George Peterson, Harry Hawrychuk and George Nobiss were all captured in the battle of Hong Kong.

The soldiers were taken in 1941. On Dec. 25 that same year, Britain surrendered the colony of Hong Kong to the Japanese and ordered all allied military to stop fighting.

The Chinese government recognized the former Winnipeg Grenadiers by presenting their families with the Chinese Peace Certificate and Medal over the weekend.

The certificate read,

“For your outstanding and dedicated services in the (Asia) Theatre during World World II, fighting against the Japanese invaders, protecting peace and promoting friendship between the people of Canada and China.”

Report on Vancouver RUSI 2016 Strategic Studies Conference – Apr 2016

By Don Macnamara, RUSI-VI

Commencing Friday evening 8 April through the morning and afternoon of 9 April, the 2016 RUSI Vancouver Strategic Studies Conference attracted over 170 participants (including students from SFU, UBC and UVic) and exposed them to an exquisite set of speakers and commentators on a variety of matters of strategic security issues affecting Canada.

The Friday evening ‘scene-setter’ was a panel addressing ‘Global Flashpoints’. The panelists – Dr. Jim Boutilier, RCAF BGen (Ret’d) Bob Chekan, Ambassador (Ret’d) Jillian Stirk, and UBC Professor Alen Sens identified the following critical issues:

- ◆ China and South China Sea,
- ◆ Challenges to European Security arising from Russian pressures regarding Ukraine,
- ◆ Refugee and migrant waves from the Middle East and Southwest Asia,
- ◆ Continuing issues in the Middle East including the ISIL/Daesh assaults in Syria and Iraq,
- ◆ Uncertainties in Iran plus the Saudi Arabia involvement in Yemen,
- ◆ Continuing issues in Afghanistan and nuclear-armed Pakistan and India.

Saturday consisted of a series of one hour sessions delivered by the Friday evening panelists expanding on their scene-setting comments. In addition, SFU Professor Alex Moens reviewed the threats and Challenges to NATO and the alliance responses – especially noting

the reduction in forces and national defence expenditures in the face of a deteriorating security environment.

A final panel (on which Jim Boutilier and Bob Chekan were joined Arctic studies specialists SFU Prof Tina Adcock and one of her doctoral candidates) discussed “The Arctic – Whose Future is this Anyway?” This panel identified the complex array of issues in the Arctic including:

- ◆ Climate change and environmental sensitivities,
- ◆ Human issues in the many small settlements in the North,
- ◆ Defence and sovereignty challenges across an area that occupies 40% of Canada’s national territory, and
- ◆ The difficulties arising from the great distances across the North exacerbated by limited satellite coverage and inconsistencies in communications and surveillance responsibilities.

Closing remarks were given by Minister of National Defence, Harjit Sajjan, PC, OMM, MSM, CD, MP. Speaking on “Canada and International Security” he reviewed the activities of the Canadian Forces in a multiplicity of operations, describing changes to the Iraq operation. He also spoke about the review of defence policy for which he is seeking lots of public input (and in which RUSI-VI will participate).

He was emphatic that there will be no reductions to the CAF. Rather, he will seek to help the CAF recruit up to its authorized strength, maintain the currently budgeted annual 2% increase in funding and ultimately increase funding by 3%. He has also safeguarded approximately 4 billion procurement dollars that cannot be spent on time through moving these funds future years.

This brief review cannot do justice to the very high quality of the presentations, the panel discussions, or the open discussion and questions. It was, simply put; an exceptionally well organized, structured and executed program and a most impressive and informative conference.

Note: RUSI VI was a financial sponsor of this event with 3 members representing our organization

The Canadian Military Develops Green Artillery Ammunition

As contradictory as it sounds here is an article from the RUSI Vancouver Newsletter By Justin Ling February 17, 2016

It may have taken five years, but Canada may finally be getting some green artillery that won't poison people. In the process, military scientists have found a more effective and cheaper type of ammunition that could reduce the environmental impact of war across the board. A research project in the Canadian Armed Forces began looking for a new type of ammunition in 2011 in response to fear that its shooting ranges were posing a threat to local water sources. Explosive rounds, especially from the artillery, were being scattered around their training sites, and the military feared that the toxic chemicals inside the water-soluble rounds could seep into drinking water. So scientists with the Canadian military began researching how to fix the problem. Their solution: make sure the rounds explode fully, and replace the decades-old explosive solution inside them with less-toxic material.

The project was called RIGHTTRAC — an acronym for Revolutionary Insensitive, Green and Healthier Training Technology with Reduced Adverse Contamination — and it was undertaken by Defence Research & Development Canada (DRDC). It served essentially as a proof of concept, and the results are expected to be replicated on other types of ammunition. The final report is dated May 2015, but the results were only just published by the DRDC. "This project has proven that it is possible to develop [insensitive munitions] and green munitions that perform better than current munitions and that will help to ease the environmental pressures on [ranges and training areas]," the report concludes. "The end result is that military personnel will be able to train and fight with ammunition having comparable or better properties than

current munitions, with the added benefit of decreasing the environmental pressure and the health hazards on soldiers, sailors or airmen." The report notes that the project was unique, in that it put environmental considerations at the forefront — without regard for cost — and ended up saving money in the long run, as well as developing a superior product.

The trouble with munitions, like artillery shells, is that they're designed to only explode in specific conditions. As such, there's all sorts of cases where the rounds only partially explode, or where they turn out to be duds and don't explode at all. "Unexploded or deflagrated RDX does not degrade in soil and, because of its solubility in water, migrates easily to groundwater and off military property," the report says, referring to Research Department Formula X, a powerful and very common explosive developed during WWII. "This may trigger a serious environmental problem and becomes a public health concern if the groundwater is used for drinking." One of the researchers on the project told La Presse newspaper that "we never know in which state of instability we'll find these non-exploded munitions."

The Canadian military, under this project, developed a formula for the shells that doesn't include RDX. The 80-year-old chemical compound wasn't the only problem. Researchers also looked to improve the engineering of the rounds to avoid duds, and sought to replace toxic and carcinogenic compounds in the rounds with more earth-friendly chemicals. And, by and large, they succeeded. This breakthrough may mean that the Department of National Defense won't have to pay to continually remediate these training sites to detoxify the soil. The new ammunition was primarily designed just for training ranges in Canada, but the fact that the new rounds are both more effective, and cheaper, than regularly ammunition means that they could become the military standard for other militaries, both at home and in theatre. In 2009, Patrick Brousseau, one of the researchers responsible for the project, noted that the Canadian Forces were working alongside the American, Swedish, British, Dutch, and Australian militaries on the project.

The international impact of toxic ammunition can be disastrous. A report on the effect of shelling in Syria says the ravaged country will also be facing "problematic soil and water contaminant" in the long-term, after the bombing ends. Motherboard reported in 2015 that one Canadian Forces training base was rebuilding its firing range in order to prevent the littering of ammunition. More than a decade ago, the American military tried to green itself by reducing the amount of lead in its bullets — though that effort appeared, ultimately, to be counter-productive.

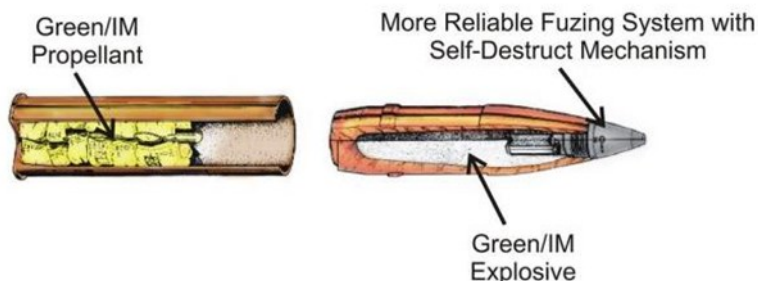


Figure 1: RIGHTTRAC concept

Minister Sajjan Launches Public Consultations on Defence Policy Review

April 6, 2016 – Ottawa – National Defence / Canadian Armed Forces

Defence Minister Harjit S. Sajjan today announced the launch of public consultations as part of an open and transparent dialogue with Canadians and key stakeholders to inform the development of a new defence policy for Canada.

This marks the first public consultation of this magnitude on Canadian defence policy in over 20 years. The Government of Canada is committed to ensuring the Canadian Armed Forces (CAF) has the tools it needs to defend Canada and North America, and to contribute to a wide spectrum of operations globally. The review will help set future direction and priorities so that our military is equipped, trained, and prepared to confront new threats and challenges in the years ahead.

Discussions will be centered on three fundamental areas of inquiry: the main challenges to Canada's security, the role of the CAF in addressing current threats and challenges, and resource and capability requirements to carry out the CAF mandate.

A Ministerial advisory panel has also been created. Over the next year, four eminent Canadians with expertise in defence, security, foreign affairs, and legal matters will support and advise the Minister of National Defence during the policy review process. The members of the Advisory Panel are:

- **The Honourable Louise Arbour**, former Justice of the Supreme Court of Canada and a member of the Advisory Board of The Coalition for the International Criminal Court
- **The Honourable Bill Graham**, former Minister of Foreign Affairs, and former Minister of National Defence
- **General (Ret'd) Raymond R. Henault**, former Chief of the Defence Staff, and past Chairman of the NATO Military Committee (CMC)

Margaret Purdy, former Deputy Secretary to the Cabinet (Security and Intelligence) in the Privy Council Office, and former Associate Deputy Minister of National Defence.

RUSI-VI to Hold Consultations on Defence Policy Review

Royal United Services Institute – Vancouver Island is holding an all-day Chatham House Rule workshop on **May 30th at The Bay Street Armoury** to develop a position paper to be sent to the Federal Government as part of the latter's public consultation process for the Review. We believe this activity is self-evidently in the best interests of the nation, the Government, DND, and the Canadian Armed Forces.

All RUSI members are invited to participate in this workshop, which will be limited to 50 people and organized around the ten specific review questions published by the government (see below).

The tight timeline associated with public input, together with the comprehensive and inter-related nature of the considerations, necessitates a different approach to the process from what might otherwise apply. To accommodate this, we are asking participants to provide, by May 15th, a one page bullet point summary of their views on each of the individual questions which they feel comfortable and competent to address, keeping answers at the level of strategy, policy or principle – without arguable detail. These will be collated, with a concise overall summary provided to participants ahead of the workshop. The workshop will run with breakout groups to discuss and refine the summaries, followed by a précis of the discussion group conclusions to be presented and discussed during a final plenary session.

The final products of the workshop groups will be formatted into a paper for delivery to the Review, aiming at a 'one-pager' answer to each question.. Workshop participants will be asked to provide comments, assuming time permits by the July 1 deadline but final wording will, of course, be at the discretion of the RUSI group tasked with developing the paper.

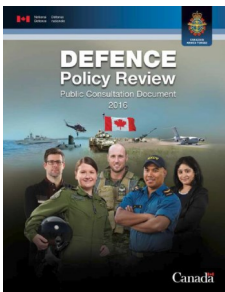
We will be ordering coffee and a selection of sandwiches for a modest lunch for which we expect a

maximum of \$20 contribution from participants.

Please indicate whether you will participate in this important process to Roger Love, Treasurer, RUSI-VI at RUSIDPRev@gmail.com. He will provide details for the pre-workshop consideration summary process and final information about the workshop.

Questions

1. Are there any threats to Canada's security that are not being addressed adequately?
2. What roles should the Canadian Armed Forces play domestically, including in support of civilian authorities?
3. How should Canada-United States cooperation on defence of North America evolve in the coming years?
4. What form should the CAF contribution to peace support operations take?
5. Is there a role for the CAF in helping to prevent conflict before it occurs?
6. Should the size, structure, and composition for the Canadian Armed Forces change from what they are today?
7. How can DND and the CAF improve the way they support the health and wellness of military members? In what areas should more be done?
8. Should Canada strive to maintain military capability across the full spectrum of operations?
9. Are there specific niche areas of capability in which Canada should specialize?
10. What type of investments should Canada make in space, cyber, and unmanned systems? To what extent should Canada strive to keep pace and be interoperable with key allies in these domains?
11. What additional measures could the DND undertake, along with partner departments, to improve defence procurement?
12. What resources will the CAF require to meet Canada's defence needs?



From Our President

The 2015-16 luncheon session has ended and it has been a successful year. Thanks to our coordinator, Craig Cotter, our speakers have been, without exception, interesting, informative and entertaining. Thanks to Ray Webber, the Events Chair, who organized all of the lunches, which included dealing with the Caterer, Bar and finally manhandling the table and chair placement in the Currie Room.

Although lunches are over until September, the business of RUSI VI goes on. As I am sure most are aware, the Liberal government has initiated a Defence Policy Review and RUSI VI will hold an all-day round-table meeting May 30th to help produce our input. Details on how to get involved are in this newsletter. Many thanks to directors Don Macnamara, Skip Triplett and Roger Love for organizing this very important event.

The RUI Military Oral History Endowment continues to grow and now stands at almost \$33,000. However, that is still quite short of the \$75,000 needed to provide stable funding for the program. Past residents Ed Fitch and Don Macnamara are investigating funding options, but donations are always accepted and are eligible for a tax receipt.

I would like to acknowledge those who have contributed so far. Thanks to Michel Brusset, Clive Caton, Susan Turnbull Caton, Gary Del Villano, Eric P. Green, Don Macnamara, Janice Malainey, John Neroutsos, Murray Ramsbottom, the late Ardith J. Roy, David Stinson, Doug Yuill and an anonymous donor. Thanks to all of you.

I would also like to thank the following institutions that also contributed: the Naval Assoc of Canada – VI Branch, the Royal Canadian Air Force Assoc Trust Fund, and of course our very own RUSI of Vancouver Island.

LCol C.I. (Clive) Caton (Retired), CD
President RUSI VI

RCAF Test Facility Could Move from Al- berta to Ottawa Area

DAVID PUGLIESE, OTTAWA CITIZEN | April 25, 2016

As part of efforts to cut costs, the Canadian Forces is looking at options to revamp its Alberta-based aerospace test facilities, including transferring some of the work to private industry or moving the organization to a more accessible location, such as the Ottawa area. The process, dubbed the Engineering Flight Test Rationalization Initiative, is part of continuing efforts at the Department of National Defence to create a lean, more efficient organization while freeing up money or staff to support other military capabilities. It was started last year under the Conservative government but has continued under the Liberals. The focus is on the services offered by the Aerospace Engineering Test Establishment, or AETE, in Cold Lake, Alta.

Defence industry representatives have been told the military believes substantial savings can be made at AETE while keeping essential flight test capabilities intact. Several options are being considered, including increased co-operation with industry, allies or other government departments or changing how the staff is structured — 175 of its 200 employees belong to the military. Other possibilities are moving the facility to the Ottawa region or contracting out some of the work. Areas where industry might play a role include aircraft maintenance, providing planes for flight testing and operating ranges. “We’re still gathering information

to build up our options,” said Col. Mike Barker, AETE’s commanding officer. “Once we figure out the ‘what,’ then the ‘how’ or the ‘when’ all falls from that.” AETE tests everything from new seatbelts for military planes to radars to aircraft. Some of its recent work included testing gun systems on helicopters and the new guided bombs for the CF-18 fighter jets. “Nobody is talking about shutting down what we do,” Barker said. “It’s a core capability. (But) are there opportunities to do it smarter or better?”

The military has already gathered information from industry on what services it could offer and there have been back-and-forth discussions. Whether AETE moves from Cold Lake depends on the options being examined. But the military has told industry representatives the remote Cold Lake location makes it challenging to attract or retain people. AETE employs test pilots, engineers, and other specialists and support staff. Whatever option is selected, there will still be the need for the bombing ranges at Cold Lake. But other parts of AETE could be located near regional airports aerospace industry hubs, or in the national capital region. “You don’t have to go very far north of Ottawa before there is a lot of nothing,” Barker said when asked about what airspace could be used for testing near the capital city. AETE staff have been kept in the loop about the process and why it is being done, he said. John MacLennan, national president of the Union of National Defence Employees, said one potential location in the national capital region is in Gatineau, Que., where there is another military test organization. AETE began operating at Canadian Forces Base Cold Lake in 1971.

Barker said he does not have a specific time-

table for the options to be completed or acted upon if necessary. But the Liberal government recently launched a defence review that is expected to be made public in early 2017. The Liberals said during the election campaign

they would move ahead with developing an “agile and lean” Canadian Forces and the review of defence capabilities is part of that process.



AETEA CF—18 flies past AETE in 2004. The services currently offered by AETE may be moved near Ottawa.

Vimy Ridge : A legacy for the Canadian Armed Forces

CDA Institute Research Fellow **Richard Shimooka** explores what Canada's experience at Vimy Ridge can tell us about its future military role. 13 April 2016

Last Saturday marked Vimy Ridge Day, the 99th anniversary of the battle on the Western front of First World War. Routinely cited as the birth of the Canadian national identity separate from Britain, perhaps more directly, it left an indelible mark on Canadian military culture. It emphasized perseverance through immense sacrifice, while maintaining practicing to a high professional standard and innovative thinking.

During the battle, the Canadian Corps fighting together for the first time, conceived and implemented new tactics, and displayed unflinching courage in taking the seemingly unconquerable hill. Vimy was not an isolated event: rather it was reflective of the general conduct of the Canadian military over its modern history. This includes the Battle of Britain, the Battle of the Atlantic, Dieppe, Juno Beach, and Kapyong, to name a few. Despite the unfavourable outcome of several of these battles, Canadian soldiers, sailors, and aviators have consistently displayed remarkable resilience, determination and professionalism.

This legacy is an important to highlight under current circumstances. The Trudeau government has decided to conduct a defence policy review to chart a course for the military's future. It will focus on the increasingly complex nature of conflict in the international system, characterized as volatile, uncertain, complex, and ambiguous. Certainly warfare has become more visibly violent, as even basic moral considerations often being discarded for military or propaganda purposes. However the increasing prevalence of social media has stripped away the fog of war that once obscured events on the ground. Consequently, even small indiscretions can have major consequences for an intervention's outcome.

Being aware of cultural contexts and other considerations are now part and parcel of these new campaigns for international security. Given these challenges, Canada's resourcefulness, professionalism and courage, are critical advantages for this new era of conflicts. The military's contributions are highly valued among our allies, despite the relatively small size of our forces.

Nowhere was this more evident than during Canada's decade-long commitment to Afghanistan. Canadian soldiers routinely faced immensely challenging situations, which was not simply related to combat with the resourceful and tenacious Taliban. They often navigated the confusing and corrupt morass of local Afghan politics, as well as the country's unique local society.

In the face of this challenge, many allies established well-fortified bases in comparatively peaceful areas, and rarely ventured outside of the wire. Other states took a much more aggressive posture in their areas, which often upset the delicate balance and turned the local populations against them. The Canadian Armed Forces left Kandahar and its environs in a much more stable condition than it had received it.

Another example can be found in the aerial campaign against the Islamic State (IS). Many pointed out that Canada's six CF-18s represented a small proportion of the overall air effort against IS, and could be easily replaced once withdrawn. However, that view belies the exceptionally high professional standards present within the Royal Canadian Air Force (RCAF), which makes preventing civilian casualties a primary consideration. Through a rare combination of exceptional training, precision weapons, and dedicated organizational structure, Canada's CF-18s greatly minimized collateral while playing an important role in the conflict. As in Afghanistan, several other states participating in the air campaign do not possess the rigorous process and standards for precision weapons delivery, and Canada's withdrawal means they will play a larger role in the conflict, to the detriment of all involved.

In the past, the Canadian Armed Forces have also made valuable contributions was UN peacekeeping, such as in the Sinai and Cyprus. In these difficult operations Canadian soldiers applied the same dedication, professionalism, and resilience readily apparent in their conventional war-fighting experience to make a positive difference. However the nature of peacekeeping has fundamentally changed in the past twenty years, reflecting the new realities of international conflict. Most UN interventions are better described as peace enforcement missions, whereby foreign forces attempt to stabilize a collapsed state in the throws of a violent conflict. Moreover the UN is often unwilling and ill equipped to intervene in more serious outbreaks of violence. They often pose too great a challenge for the organization, with the similar risks and challenges that afflicted Canadian military operations in Afghanistan. Consequently, these crises are typically managed by coalitions-of-the-willing or regional security organizations like NATO.

If the current government desires to make a real contri-

bution to peace and security in the international sphere, it should be made on the basis of the Canadian Armed Forces' capabilities and an accurate assessment of what are the actual requirements of the international community. Canada has a history of operating with its allies and providing professional, highly capable, and courageous soldiers. This is a legacy that should be understood and not be disregarded lightly.

Richard Shimooka is a research fellow at the Conference of Defence Associations Institute. (Image courtesy of Veterans Affairs Canada.)

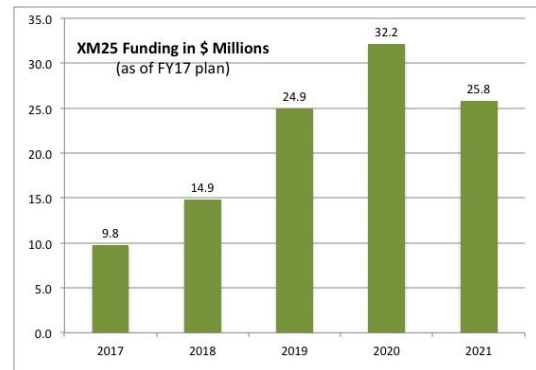


The German StG44, the first mass-produced assault rifle

Now the XM25 comes to destroy the value of cover. Built-in targeting lasers, infrared sights and a ballistic computer calculate the exact location of the target so the weapon can fire a projectile precisely *past* it. The 25mm round — essentially a precision-guided mini-grenade — waits to detonate until it has passed whatever cover the target had and can strafe its unprotected side. It will blow up above a trench or fox-hole, on the far side of a wall or barricade.

The Army, typically, calls this the “Counter Defilade Target Engagement System” (CDTE), defilade being a military term of art that boils down to “cover.” Built by [OrbitalATK](#), the XM25 is officially a “new start” program in [the fiscal 2017 budget](#), getting its first significant funding that year: \$9.8 million dollars for the first 105 Low-Rate Initial Production (LRIP) weapons. Annual funding peaks at \$32.2 million in 2020.

These are tiny numbers by Pentagon standards, but it’s “a very big deal,” Scharre says.



In the Second World War, “the three most dangerous jobs in the military were bomber crews, submariners, and the infantry,” Scharre notes. “We’ve been able to reduce casualty rates [for the first two], but life in the infantry seems as bloody as it’s ever been.” “A lot of that has to do with technology,” the futurist says. (Continued page 14)



The XM25 Biggest Change for the Infantry since WWII

By [SYDNEY J. FREEDBERG JR.](#) on February 24, 2016 at 4:01 AM [Breakingdefense.com](#)

WASHINGTON: Buried in a [bleak Army budget](#) is a bright nugget of revolution: a precision-guided grenade launcher called the [XM25](#). In [difficult development](#) for over a decade, the XM25 will finally enter limited production in 2017. It will be the first radically new small arms technology since 1943.

“This has the potential to be a huge game changer for infantry combat. Once it gets into the hands of more troops, they can start experimenting and adapting tactics,” military futurist [Paul Scharre](#) believes.

Germany fielded the first mass-produced assault rifle, the [StG 44](#), in 1943 putting the power of a (scaled down) machinegun in the hands of a rank-and-file rifleman. The Russians followed with their AK-47, the Americans with the M-16. Against such ever-increasing firepower, the best defense was simply to take cover.

Mark Your Calendar

Wednesday, 11 May marked the final luncheon of our RUSI-VI 2015/16 season.

Mon 30 May RUSI-VI Defence Policy Review round table session. Bay St Armoury

Wednesday, 14 September will be the first luncheon of our 2016/17 season. Speaker coordinator, Craig Cotter is in the final stages of confirming our fall series and details will be announced in our August 2016 Newsletter. Have a great summer!

The XM25 (Continued from page 13)

“We’ve been able to leverage American military technology into building stealth bombers and super sneaky submarines, [and] one of the things that’s been able to make US airpower so amazingly powerful in the last 30 years is the application of precision guided weapons, [but] that hasn’t really been the case on the ground, certainly not on the squad level. People are still shooting at each other with bullets.” The XM25 can change that by bringing Information Age precision to the infantry, just as automatic weapons brought Industrial Age volume.

It’s certainly taken a while to get here. While Iraq and Afghanistan were very much infantry wars, which triggered investment in [body armor](#) and armored vehicles to protect soldiers, the infantry’s offensive firepower remained an afterthought. The Army did study [replacing the M-4 carbine](#) — an M-16 cut down for urban combat — but ultimately decided the alternatives offered [too little improvement](#) for the price. Meanwhile the revolutionary technology that would become the XM25 struggled with cost and weight, especially in the early phases when the Army envisioned issuing every infantryman a double-barreled “[Objective Individual Combat Weapon](#)” combining an XM25 and a regular rifle in one 18-pound package.

The XM25 now entering production is [14 lbs](#) and will only go to select soldiers as a specialist weapon. Scharre expects its weight and cost to come down over time.

The XM25 is not the only technology with the potential to put a precision-guided weapon in the infantryman’s hands. “If you want to build a smart firearm, it’s available on the market,” retired [Maj. Gen. Robert Scales](#), former commandant of the Army War College, notes. “There’s an outfit in Austin, Texas called [TrackingPoint](#),” he said, which makes a lightweight gunsight that calculates the trajectory to the target and fires when the gun is in the precisely right position to hit, compensating for any unsteadiness in the hand of the shooter. “You pull the trigger, and you just hold it on the target until the dot turns green and the gun fires by itself.”

With TrackingPoint, “an untrained shooter can hit within a half-inch of his or her aimpoint at 1,000 yards, nearly an order of magnitude more accurate than world-class shooters,” Scharre wrote in [a December study for the Center for a New American Security](#).



There’s also a DARPA project called EXACTO — [EXTreme ACcuracy Tasked Ordnance](#) — that developed a laser-guided bullet that can change course in mid-flight. “This allows extreme accuracy at long range, including against moving targets,” Scharre wrote. However, EXACTO has the downside that each individual bullet requires precision-guidance electronics, while TrackingPoint combines a smart gunsight with regular, inexpensive bullets.

Precision-guided bullets like TrackingPoint and EXACTO aren’t quite as revolutionary as precision-guided grenades, since even smart bullets can’t bypass cover the way the XM25 can. Nevertheless they could make better shots out of everyone from elite snipers to supply clerks, giving them a better chance to survive. They could also let troops kill their targets with fewer rounds and fewer chances of shooting innocent civilians, a major concern in modern wars. And they could achieve these real-world results for much less than [a new aircraft](#).

“The problem is we’re in love with *Star Wars*, but what we need in this nation is *Popular Mechanics*,” said Scales. “We have all these technologies, they’re there - there are certainly [relatively cheap but technologically sophisticated](#) things that the Army could focus on to make us a better army without having to buy a [new tank](#), a [new helicopter](#).”

“If four out of five of all Americans who die at the hands of the enemy are [infantrymen](#), and our vulnerable center of gravity is dead Americans,” said Scales, “then why don’t we, as a national priority, do everything we can to keep ground combat soldiers alive?”