



Van Arty Association and RUSI Van Members News Dec 8, 2015

Newsletter on line. This newsletter, and previous editions, are available on the RUSI Vancouver website at: <http://www.rusivancouver.ca/newsletter.html>

Wednesday Lunches Last Lunch for 2015. The Armoury will shut down completely for the winter break so our last lunch for this year is on **Dec 9** and the first lunch of 2016 will be on **Jan 6**. The last lunch is traditionally a 'Ladies' lunch so we encourage attendees to bring spouses or significant others (but not both – that always gets messy). We are now starting to collect for Mrs Lum's annual 'Christmas Purse'. See me in the Mess to contribute.

Commanding Officers Christmas Tea – December 13 The annual CO's Christmas Tea will be held on Sunday December 13, 2015. This is probably the most enjoyed event of the year. The cost, \$20pp, includes sherry, Mrs Lum's delicious hors d'oeuvres, as well as coffee and tea served by Regimental Ladies. The Regimental Band is sending one of its combos to entertain us as we mingle. The bar will be open for those of you who want more than sherry. Dress is suit and tie (or Regimental blazer and tie) for gentlemen and the equivalent for ladies. **See invitation at the end of the newsletter.**

New Year's Levée – 1 Jan 2016

15 Fd Artillery Regiment is holding their annual Levée. The Messes will open for visitors at 1100hrs. A light lunch will be served starting around noon. The only other Unit we have heard from is the Seaforths. They will hold their Levée at the Jericho Mess.

World War 2 - 1940

John Thompson Strategic analyst quotes from his book "Spirit Over Steel"

Dec 9th: General O'Connor has 7th Armoured, 4th Indian Division, and a battalion of Matilda tanks from 7th Royal Tank Regiment. The Italians have 7 Divisions in Western Egypt, but O'Connor has been planning his attack since September and training his men accordingly. The Italian forts of Nibeiwa and Tummar West fall, and the whole Italian defence is unhinged already.

Dec 10th: Roosevelt places controls on iron and steel exports. Hitler orders X Fliegerkorps from Norway to Italy. The British capture the Italian fort of Tummar East and have surrounded Sidi Barrani, taking 38,000 prisoners in North Africa. Italian XXI Corps has escaped the net and is retreating westwards. The British hang two German spies, Jose Waldeberg and Carl Meier, who had been captured coming ashore in September.

Dec 11th: The Italians lose another 30,000 POWs in Egypt and five of seven divisions there have been ravaged, while the Royal Navy shells Sollum.

Dec 12th: Wavell must send 4th Indian Division to shore up the situation in the Sudan, and so loses the opportunity to really finish the job on the Italian Army in Egypt. The Yugoslavs sign a treaty of friendship with Hungary.

Dec 13th: Hitler orders more preparations for the invasion of Greece. A British battalion of light tanks cuts the road west of the Italian fort of Bardia.

The Only Gunner Nobel Laureate

100 years ago this autumn a visit to the lavatory by a Gunner Subaltern led to a breakthrough in military science. Archimedes had his inspiration sitting in the bath. Lieutenant William Lawrence Bragg, while sitting on the toilet. [27 NOVEMBER 2015](#)



Captain William Lawrence Bragg RHA

In 1915 William Lawrence Bragg was a 25-year-old subaltern borne in Adelaide Australia. He had joined the Territorial Army while a Cambridge undergraduate. When war broke out he was a Second Lieutenant in the Leicestershire RHA. He was a brilliant mathematician and physicist who discovered in 1912 what is known as Bragg's law of X-ray diffraction; the basis for the determination of crystal structure. In

September 1915 he was awarded the 1915 Nobel Prize for Science, jointly with his father, William Henry Bragg. He is still the youngest ever recipient of the prize.

In 1915 Bragg was working on a key problem facing the artillery on the Western front. How to locate enemy artillery. One of the most promising technologies was to use the sound of the gun. But it was not easy to pick out the sound of the gun firing from the shock wave of the shell breaking the sound barrier, the crack from the thump. Nor did they know how much of the energy generated by a gun firing was transmitted as low-frequency sounds, too low to be audible. The breakthrough came when Bragg was in the lavatory in his billet in Flanders. This was a small room, with a door, but no window. When the door was shut, the only connection to the outside world was the pipe leading from under his toilet seat. There was a British six-inch gun about 400 metres away. When it fired, his bare bottom was actually lifted off the toilet seat by the inaudible infra-sound energy, even though he could often hear nothing at all. So now he knew there was enormous energy in the inaudible infra-sound.

It took a second eureka moment to solve the problem. Corporal WS Tucker, another physicist in Bragg's team was accommodated in a tarpaper hut. There were a couple of holes near his bed

space. He noticed that even on a day with no wind or sound, annoying puffs of air would blow onto his face. He and Bragg compared notes and they deduced that these were the result of low frequency sound from artillery. He made a detector out of a wooden ammunition box, which became known as the Tucker microphone. This led to the development of microphones to record the inaudible frequencies making it possible to develop sound ranging as a way to locate enemy guns to within 50metres. The same technology, applied in a slightly different way made it possible to measure the muzzle velocity of individual guns, which made it easier to predict fire. Together these technique was used to devastating effect from 1917 onwards. For example, at Cambrai 20 November 1917 a barrage of 1000 guns fired a predicted fire plan hitting enemy guns located by sound alone. Bragg shared the results of his work with his father. Bragg senior was working for the Admiralty on acoustic detection and the result was ASDIC, an echo locating system to detect submerged submarines.

Bragg ended the war with an OBE, MC and three mentions in despatches. He went on to have a very distinguished scientific career, including the announcement of the discovery of DNA. Bragg is probably the only serving soldier to receive the Nobel prize for Science.

Judy Foote Gets Her Orders on Defence Procurement

Nov 13, 2015 05:43 pm | David Pugliese, Ottawa Citizen



Defence Watch is running the main portions of the ministerial mandate letters relating to defence and veterans in three separate postings. Here are the relevant portions for Judy Foote, Minister of Public Services and Procurement. The letter was sent by Prime Minister Justin Trudeau:

- Work with the Minister of National Defence and the Minister of Innovation, Science and Economic Development to launch an open and transparent competition to replace the CF-18 fighter aircraft, focusing on options that match Canada’s defence needs.
- Prioritize the National Shipbuilding Procurement Strategy to support renewal of the Canadian Coast Guard fleet and to ensure the Royal Canadian Navy is able to operate as a true blue-water maritime force.
- Modernize procurement practices so that they are simpler, less administratively burdensome, deploy modern comptrollership, and include practices that support our economic policy goals, including green and social procurement.

HEAVY GROUND MOBILITY SYSTEM – HGMS

FAUN HEAVY GROUND MOBILITY SYSTEM is a temporary modular roadway which enables the rapid deployment and recovery of vehicles and people. The military specification system facilitates the launch and recovery of the Trackway. A standard HGMS provides 100m of Trackway – with 50m carried on the vehicle and a further 50m towed on a trailer.

HGMS is suitable for very heavy tracked and wheeled vehicles, including tanks and bridge transporters. It provides access for these vehicles into areas where there are no roads, or roads



have been damaged. HGMS enables boggy or marshy terrain to become accessible to large, heavy vehicles.

HGMS is deployed very quickly and efficiently. A trained two-man team can

deploy 50m of Trackway in less than 10 minutes over the toughest of terrain. The aluminium Trackway will withstand repeated loads of up to 70 tonnes (rated to MLC 70). It features a unique 'spool to spool' transfer system that allows multiple 50m lengths of roadway to be laid quickly and easily. HGMS can be easily mounted to chassis with a PLS/DROPS hook lift system and is best suited to adverse terrain conditions, including snow, marsh, mud and sand in a variety of climates. It also provides rapid access to bridgeheads and is in use worldwide in a variety of military engineering applications, including humanitarian and disaster relief. HGMS is also suitable for civilian applications, including oil and gas pipeline access, construction projects and temporary bridging. The system is 95% recyclable.

HEAVY GROUND MOBILITY SYSTEM COMPRISES OF SEVEN KEY ELEMENTS:

- **TRACKWAY** – 50m length of MLC 70 aluminium panels, coiled onto a SPOOL. The width is 4.572m.
- **SPOOL** – a braced steel structure onto which the Trackway panels are coiled. The SPOOL slots into the TRACKRACK and SPOOLRACK.
- **TRACKRACK** – a specially designed launch, recovery, transportation and storage system for the Trackway. The Trackrack is mounted to the CHASSIS.
- **CHASSIS** – an 8x8 vehicle with DROPS/PLS with a payload of at least 13T, to carry the TRACKRACK.
- **SPOOLRACK** – a simplified TRACKRACK that is TRAILER mounted. SPOOLRACK stores and transports additional TRACKWAY, enabling it to be transferred to the TRACKRACK for launch and recovery.
- **TRAILER** – a transportation trailer for the SPOOLRACK.
- **ACCESSORIES** – items placed inside the lockers that are built into the TRACKRACK, to enable deployment, recovery, anchorage and field maintenance.



Northrop Grumman Invents a Laser Tank

Theoretically, and eventually -- but the capability is there.



Northrop's new hellhound LRV packs a 30 mm cannon today -- and maybe a 30 kw laser cannon tomorrow.

Image source: Northrop Grumman

For more than six years now -- some might argue for more than a

decade -- US defense contractors including Boeing and Raytheon, Lockheed Martin, and Kratos Defense have been hard at work designing working laser weapons for the US military. In 2009, Boeing announced its entry into the competition, a "Heavy Expanded Mobility Tactical Truck" capable of mounting a 10-kilowatt laser. Raytheon has an even more powerful laser, the 25-kW Ground Based Air Defense Directed Energy On-the-Move Future Naval Capabilities, which it totes around in the back of a Humvee. Kratos built a 33-kilowatt Laser Weapon System for the Navy -- but it's so big it requires a warship to carry it. And Lockheed Martin is working on a 60-kilowatt High Energy Laser Mobile Demonstrator for the Army. While not all the way up to 60 yet, it can already push out 30 kW... and to devastating effect:



Lockheed's Laser Gun: 1; Truck: 0.

IMAGE SOURCE: LOCKHEED MARTIN.

And yet, there's one tiny detail that may get in the way of any of these laser weapons performing as promised: They all need a lot of power to operate. As website Breaking Defense explains, translating electric output into laser output is not a very efficient process. It takes about three units of power generated to produce each incremental kilowatt of laser emitted. As a result, the 10 kilowatts of "exportable" electricity generated by an Oshkosh JLTV probably won't be enough to power an effective laser weapon system on its own. For that matter, a 30-ton Bradley APC only puts out 20 kilowatts of exportable electric power -- which, again, isn't enough to power the kinds of laser weapons the military wants.

Fact is, you need about 90 kW of electric generation to power even a 30-kilowatt laser -- and that's if the vehicle is sitting still. Run the A/C or leave the radio on (or maneuver your vehicle in the middle of a firefight), and you need a whole lot more juice to power your laser.

This is where Northrop Grumman comes in. Last month, Northrop introduced a new prototype light reconnaissance vehicle that it calls the Hellhound. Small enough to fit in the cargo hold of a CH-47 Chinook, Hellhound nonetheless packs a powerful 120 kW Jenoptik integrated starter

generator, capable of "exporting" 100 kilowatts of electricity over and above what's needed to power the vehicle itself. That's enough juice to power a small field hospital or a military



command center -- or, should one be so inclined, a 30-kilowatt laser cannon.

Although Northrop Grumman has a pretty wide-ranging laser research and development department of its own, to date the company has played primarily a supporting role in developing other companies' marquee laser weapons projects. Northrop's development of the Hellhound promises to continue that

trend. By offering a vehicle capable of mounting other companies' various laser weapons and -- crucially -- generating the power those weapons will need to operate, Northrop appears to be positioning itself to partner with any number of its defense contracting "rivals" as they win contracts to produce actual laser weapons. Granted, it's not as "sexy" a business as building actual laser cannons -- but it may be a smart business strategy nonetheless.

China's Black Friday Deal: a New Russian Jet

Jake Novak | @jakejakeny



The Russian-made Sukhoi SU-35 military jet lands after its preparation flying display at Le Bourget on June 16, 2013. Eric Piermont | AFP | Getty Images

So how was your Black Friday? Did you camp out at the mall overnight and pick up

any outrageous and unexpected deals? Or are you the type who likes shopping online and clicking on popup ads or special emails announcing exciting offers? Either way, you're probably not having as great a holiday shopping season as China this year. And that's all because it sure seems like Beijing just picked up the deal of the century. That would be China's \$2 billion purchase from Russia of 24 Sukhoi SU-35 jet fighters, made public late last month. No, the \$83.3 million-per-jet price was not technically a bargain but the fact that they were for sale at all is the big news. The SU-35 is just about the most cutting edge fighter jet the Russians make, and Russia and the rest of the world don't usually sell the newest jets and weapons to

China out of fears the Chinese will copy the technology and make and sell their pirated versions in short order. To put it simply, the Russians broke tradition with this sale and much of the world is asking why.

There are two top contenders for the title of "best answer," and most defense and political analysts believe the reason is some combination of the two. One explanation is that Russian President Vladimir Putin has damaged Russian relations with NATO and all the Western nations so badly that he needs to create better ties with China in the East. And if speeding up the usual wait time before selling Moscow's latest and greatest weapons and other technology is the cost, so be it. This strategy makes sense on a lot of levels but it's also a bit dicey since Russia's top arms customer is still India and India is China's long-time antagonist in the region. New alliance building is never easy. The second biggest answer out there is the simplest: it's about the money. With the price of oil at historic lows for about 15 months now, all the world's biggest crude producers like Russia are feeling the pain. Throw in the rising costs of the Russian entanglements in Syria and Ukraine, and you've got even more pressures for Putin and company to get some more cash. Russia is one of the few big oil producing nations that actually has something else valuable to export and now its really exporting it.

Asia isn't the only big marketplace right now. Spurred by the West's nuclear deal with Iran, several Gulf states have been buying up Russian gear lately with help from the Saudis who are often acting as the financing arm in the acquisitions. The next question is what other nations will start lining up if Putin really starts opening up the store. That decision could be forced by other factors that include continuing oil price pain or a colder than usual Russian winter. But the clearest message the world is getting is that if Putin is willing to sell his prized SU-35's to the Chinese, there probably isn't a very long list of other nations that he wouldn't sell to. And that may be the biggest reason for this sale after all.

The Gunners of Canada Vol III

The moment all you Gunners have been waiting for has finally arrived. The book launch for The Gunners of Canada Vol III took place on the 12 September, 2015 at the RCAA AGM held at the Chateau Laurier in Ottawa.

The shipping charge for individual books is quite high so we are looking at getting a bulk order to save on shipping charges. Anyone interested contact me at bob.mugford@outlook.com

Who is it?



Last Week: This is one of the two British made 6" guns manufactured in the very late 1800's or early 1900's, sold to the Japanese and mounted on their naval ships, but later use as coast artillery defence guns after their invasion of the Aleutians . This photo was taken on Kiska in 1943, after the US and Canadian forces recaptured the Island and was loaned to the museum by Lt Larry Marrier (ret'd).

This Week: This week's photo looks distinctly un-military at first glance. It's a row of very sporty cars, the type once driven by young dandies, replete with Errol Flynn-style moustaches, and a penchant for young ladies. Now, these cars seem reserved for elderly lads with loads of money, but still an penchant for young ladies (save that the penchant is not usually reciprocal). However, these fast drop-head coupes were driven by military men (many with that aforementioned moustache). Your task is to tell us why, when, and by whom were these racers motored. I haven't asked "where", as a cursory glance shows this to have been taken in front of Bessborough Armoury, on 11th Avenue West. As a bonus, keeners might identify the vehicle makes



So, dear reader sleuths, you may send your ideas to the editor, or to the author, John Redmond (johnd_redmond@telus.net). Thank you, and, as a veteran of the RCN in the Second World War used to say to us all, "Happy Motoring!"

From the 'Punitary'

What do sea monsters eat for lunch? Fish and ships.

Murphy's other Laws

A memorandum is written not to inform the reader but to protect the writer.

Quotable Quotes

There are no secrets to success. It is the result of preparation, hard work, and learning from failure. - *Colin Powell*

*The Commanding Officer,
Lieutenant Colonel Brent Purcell,
Requests the Pleasure of your Company*



*at the
Annual Christmas Tea
to be held on
Sunday, December 13th, 2015
in the
15th Field Regiment Officers' Mess
Commencing at two o'clock
in the afternoon.*

Dress: Jacket & Tie
Cost: \$ 20 per person at the door
Please sign up at the Bar or
RSVP to dpgayton@gmail.com

SOUNDS *of* CHRISTMAS

Sat, Nov 28th, 7:30pm *White Rock*
with *North Surrey Secondary School Choir*
White Rock Baptist Church
1657-140th Street, Surrey

Thurs, Dec 3rd, 7:30pm *Vancouver*
with *The CHT Salvation Army Band*
St. Andrew's-Wesley United Church
cnr Burrard/Nelson Streets

Sat, Dec 5th, 7:30pm *Shaughnessy*
with *Magee Secondary School Choir*
Shaughnessy Heights United Church
1550 West 33rd Avenue, Vancouver

Sun, Dec 6th, 2:30pm *New Westminster*
with *Winter Harp* at **Massey Theatre***
735-8th Avenue, New Westminster

Fri, Dec 11th, 7:30pm *North Vancouver*
with *the Argyle Secondary School Choir*
Centennial Theatre, 2300 Lonsdale Ave

Sun, Dec 13th, 7:30pm *Chilliwack*
at the **Chilliwack Cultural Centre**

Where to Buy Tickets:

Online: vwmc.ca (no surcharges)

In person: from any choir member

By phone: 604-878-1190 or

From Massey box office: (plus surcharges)

Ticket Prices:

\$27 **\$25** **\$10***

ADULT SENIOR STUDENT with ID.

Except at Massey Theatre, \$33, \$28, \$22*



CHRISTMAS

2015

CONCERTS



VANCOUVER WELSH MEN'S CHOIR

CANADA'S LARGEST MALE VOICE CHOIR