

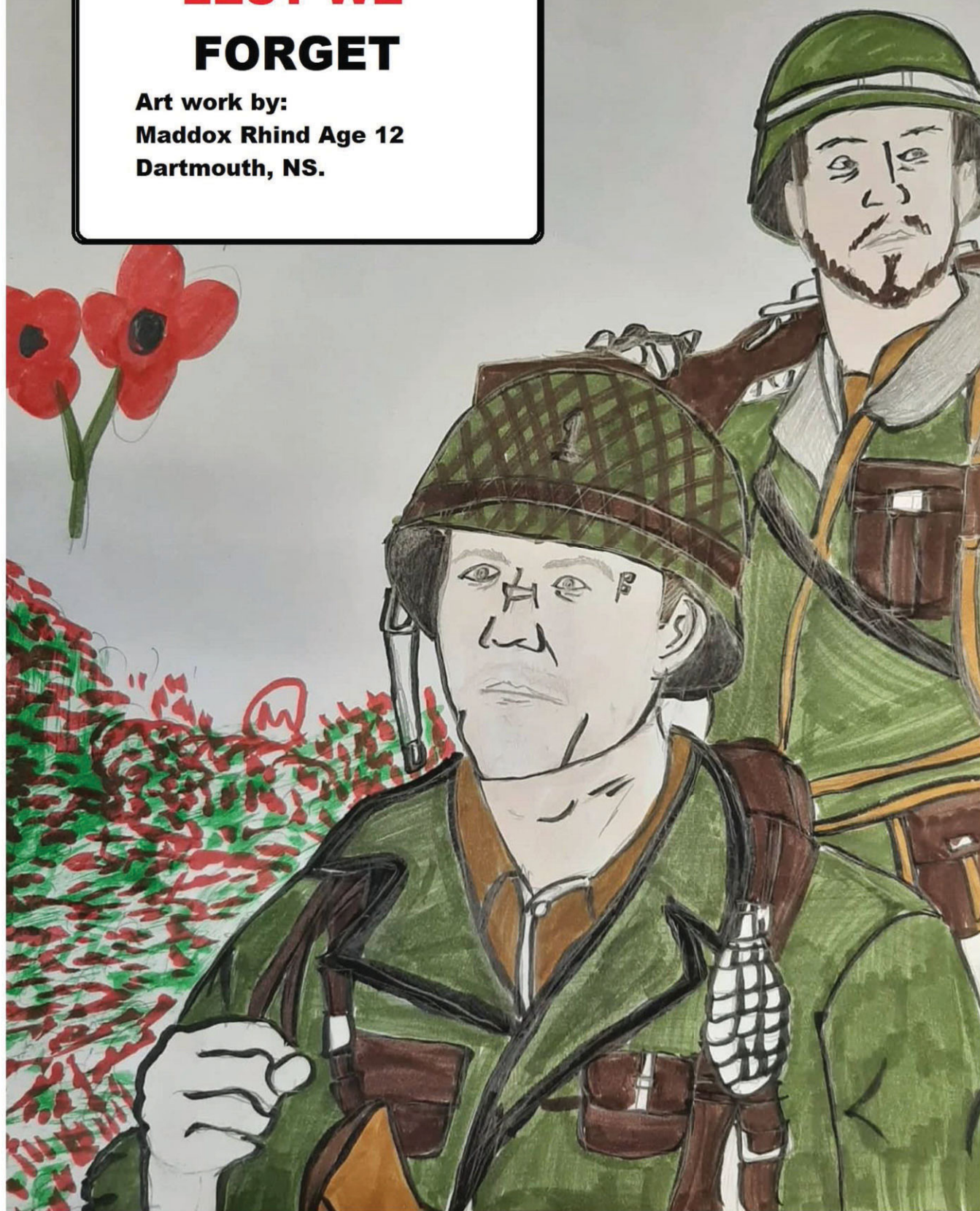
WARRIOR

WINTER 2021



LEST WE FORGET

**Art work by:
Maddox Rhind Age 12
Dartmouth, NS.**



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Stories should be no more than 6 pages long. Send only when you have finalized.

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Peter Robichaud HMCS Bonaventure

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 by: Maddox Roy Rhind Age 12
 Dartmouth NS

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12 Wing Remembrance
 Combat Camera

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From The President's Desk

A wise nation preserves its muniments, decorates the tombs of its illustrious dead, repairs its great public structures and fosters national pride and love of country by perpetual references to the sacrifices and glories of the past.

AN UPDATE ON 12 WING, MUSEUM AND SAMF AFFAIRS

Over the last three years, there has been much activity at Shearwater. The Shearwater 100th Anniversary in the summer of 2018 was magic. Think about it for a minute: 100 years of continuous operations from WW1, the long "between period", WW2, the Korean Conflict, the Gulf War, and more recently, the Afghanistan campaign. From Admiral Byrd who was the first CO here at Shearwater, through many very fine leaders who migrated from the RCN and the wartime RCAF, who started a long line of talented and dedicated men and women, who have set the tone for how Shearwater operates.

THE START OF SAM AND THE AIR PARK

In the mid 1960's, a group of Shearwaters started the collecting for the new Aviation Museum. "Build it and they will come", and in the last 55 odd years, these folks gathered a very fine number of display worthy items to grace our shelves, and the aircraft we now own which have outgrown our facilities. Hence, we have the new Air Park. An initiative of former 12 Wing Chief Warrant Officer, CWO Mike Whitman, the Shearwater Air Park has become a PR and legacy project, and was completed in time for Shearwater 100 celebrations in 2018. It really started to take shape by the placing and dedication of the Squadron monuments that were previously scattered around the airfield. The Shearwater Air Park is visited daily by many visitors, come rain, come shine. The current 12 Wing Chief Warrant Officer, CWO Bruno Poirier, is currently working on improvements to the Shearwater Air Park, including enhanced supports for the aircraft, and landscaping projects.

Three years later, a beautiful monument dedicated to the crew of Stalker 22 was placed in the centre of the display area dedicated to the four crew members and their two Naval passengers. And there are additional assets from our collective past which will also find a permanent home in and around the Air Park.

All of the aircraft that are currently in the park represent the good work carried on over the years from Shearwater. Soon to be added to this will be a Montreal built Challenger aircraft which served here as an EW Training and transport aircraft.

A RECENT INITIATIVE HAS SURFACED

In a recent edition of the Warrior, a retired Tracker Pilot who flew from Bonaventure wrote to us, outlining an idea he had. His suggestion was to add to the glow of the museum buildings by adding a sign in an appropriate place which would indicate that Shearwater is “THE HOME OF NAVAL AVIATION”. This is a simple enough request on the surface, but there are a couple of twists in this road that I think all should be aware of, before committing their time and treasure to this effort. On a personal note, I must say I reacted favorably to this suggestion.

As SAMF is responsible for the efficient expenditure of our funds, among other things, I began to do my “staff checks” to see how this might be accomplished, and how many folks support the idea. I am aware that there are many donors already lined up at the door to pitch in, and some who have sent us donations already to assist in funding this initiative. While it is being sorted, we have placed the funds received in a separate bank account, under SAMF’s administration.

There are many factors to be considered, and I am told by our curator Christine that this work continues apace. There are several great ideas being worked on by the museum team doing this work, which must then pass the various checks and balances on the way to taking life. Our curator is on top of this one, and I believe that all parties will be pleased when closer to a final product will be ready for your approval and construction.

Christine has already introduced some new signage which I personally find quite tasteful. I hope that all of our supporters will as well. There are several areas that new signage may be able to be worked into the longer-term exhibit plan and marketing products.

One of them, if we handle this correctly, will be an homage to Shearwater, with a sign, ‘THE HOME OF NAVAL AVIATION’ appropriately mounted in a suitable location. As Naval Aviation still goes on today, I personally like “THE CRADLE OF NAVAL AVIATION”, but that a debate for another day.

I must add my thanks to Tom Copeland for getting this ball rolling downhill. I ask all supporters of Tom’s suggestion to please be patient. As I am very familiar with how projects are done from my years in NDHQ and again with Industry in Ottawa, this project may take time to complete.

PROLOGUE

After two years of Covid running our days, our thoughts, and our planning processes, I am happy to report that we will commence operations as a Board soon. I plan to convene our first Board meeting in the middle of November. Some Board members have indicated they would like to retire, and I have a few folks who have indicated they would like to join. I will introduce them all to you in due time. In the meantime, be safe and be well.

John Cody
President, SAMF





Karen Collacutt-McHarg

Please Remember your membership dues for 2022.



If you would like to order one of our Signed Bonnie Prints give me a call at 902-461-0062 or E transfer \$25 [or e transfer samf@samfoundation.ca](mailto:samf@samfoundation.ca) Artist: Peter Robichaud



Donations will still be taken for the Stalker Memorial Fund.

The 2nd annual hike from Porters Lake to Shearwater on Saturday, 16th of Oct in support of

the Stalker 22 Memorial Fund. Donations can be made in their memory to the Shearwater Aviation Museum Foundation by e-transfer at samf@samfoundation.ca or by master card/visa over the phone @ 902-461-0062. 100% of the proceeds will go to the Stalker 22 Memorial Fund. Note: if donating by e-transfer ensure to write "Stalker Fund" in the message block. Thanks for your support!



Hi Karen: During the 1980s and '90s I did a fair bit of research and writing for books and articles on Naval Aviation, and one of my standard routines was to contact former members of the Service seeking information about their experiences back in the day. Currently I'm working on articles for submission to *Warrior*, and I continue to consult the letters that were sent to me and that I had put on file for possible future reference. One theme that continually comes up is the appreciation that the Officers had for the men.

One of my correspondents was R. E. "Dickie" Bartlett whose letter of March 1993 included a passage that typifies the perception of so many ex-Officers, It reads as follows:

"There was one thing I clearly remember and that was our respect and very high regard for our men. I sincerely hope that somewhere in the book you could bring in something to the effect that they were highly skilled and very dedicated and as good or better than any in all the Forces we had known. To this day I hold them in very high esteem."

Leo Pettipas



FROM THE CURATOR'S DESK

By Christine Hines

As I write this article, I cannot believe it is already time for Karen to put the winter edition of *The Warrior* together!

Fall has been notable at SAM for work required to prepare for audits, inspections and a few significant projects, including safety inspections, gift shop inventory, and preparing the final stages of a long-awaited online retail store. While the museum remains closed due to the pandemic, the museum shop has been making some sales, but certainly not at its usual pace, especially with the cancellation of the Atlantic Canada International Air Show, which is one of our biggest fundraisers annually. An online store will help us market the museum a bit better and realize some much-needed funding. I would like to thank Digital Nova Scotia and Tourism Nova Scotia most sincerely for the opportunity to participate in the Tourism Digital Assistance Program. I have had the chance to learn from a local marketing expert, Brett Mosher at Catch the Wave Marketing, and the project has greatly increased my skill set and allowed the museum to enter the digital realm and offer e-commerce and online payment options to our customers. It is a great value-added service! Keep your eye on our social media platforms and website for an announcement about the launch of the online store soon!

Also, on the topic of marketing, we have been working with the graphic design staff at Personnel Support Programs at CFB Halifax to help produce a new brochure for the museum that is as useful in digital form as well as in traditional print form. This brochure and additional graphic products for the museum now being designed will be used as promotional materials and content for a new social media strategy that I have also been working on since we have been closed. These projects will be rolled out in advance of reopening to the public.

A little happy news to report since the last issue, SAM has been the recipient of a grant from the Nova Scotia Provincial Archive Development Program, to secure the services of a part-time archivist, Heidi Schiller, for sixteen weeks. Heidi's work will be to arrange and describe a collection of documents surrounding the creation of the Royal Canadian Naval Air Service, and the early operations at Baker Point. Heidi will be providing an inventory of the documents in the collection and will be providing a description of the collection for upload into "Memory NS", and searchable online database of archival holdings in Nova Scotia archival institutions. Check it out here: <https://memoryns.ca/>. We hope to add more descriptions and significant items to Memory NS as we progress in this work. We thank the Province of Nova Scotia for this award and Sharon Murray at the Council of Nova Scotia Archives for support and advice during this process.

Our small team at SAM is wishing you every happiness as we enter the Christmas Season, and a great 2022! We hope to see you at the museum soon!

All the best,

Christine



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FAIREY SWORDFISH

Ernie Cable

Shearwater Aviation Museum Historian

Fairey Swordfish HS469 is the centerpiece heritage aircraft at the Shearwater Aviation Museum and is thought to be one of only four in the world that have been restored to flying condition. Although Swordfish aircraft first entered service with the Royal Navy in 1935, they served on only 25 front-line squadrons during the Second World War, and participated in a number of notable sea battles. Despite their obsolescence, Swordfish were affectionately called “Stringbags” by their crews because of their wire and fabric construction. By the time production was terminated, a total of 2399 Swordfish were built.

The Swordfish first achieved international fame in November 1940 when 20 Swordfish, launched from the aircraft carrier *HMS Illustrious*, crippled the Italian Navy in the much-heralded attack on the Italian harbour at Taranto. The attack by the obsolete Swordfish, the first all-aircraft ship-to-ship naval attack in history, succeeded beyond all expectations, and eliminated the possibility of Italian warships increasing German naval strength in the Mediterranean for the remainder of Second World War. The Taranto attack demonstrated that aircraft were capable of engaging major naval warships, and was the pre-cursor to many British, Japanese and American air attacks against enemy fleets.

In May 1941, Swordfish from the British aircraft carriers *HMS Victorious* and *HMS Ark Royal* were involved in the search and sinking of the German battleship *Bismarck*, the pride of the Kriegsmarine (German navy). After the first sighting of the *Bismarck* by a Royal Air Force (RAF) Catalina flying boat, Lieutenant Commander Esmonde led the first Swordfish attack, which was launched from *HMS Victorious*. However, none of the torpedoes from the nine aircraft made a telling blow. The second attack, consisting of 20 Swordfish, was launched from *HMS Ark Royal*. One of the Swordfish torpedoes severely damaged *Bismarck's* rudder, seriously limiting her maneuverability and allowed the pursuing British task force to finally sink *Bismarck* with naval gunfire.

In February 1942, after being bottled up in the French port of Brest for almost ten months, the German battleships *Scharnhorst* and *Gneisenau* and the cruiser *Prinz Eugen* slipped out of the French port and forced passage of the English Channel to join the Norwegian campaign. Squadrons of RAF and Royal Navy Fleet Air Arm aircraft would have had an excellent opportunity to attack the three German capital ships in the relatively narrow Channel were it not for the exceptionally foul weather. Part of the Royal Navy's contribution consisted of six Swordfish from the hastily reformed 825 Squadron, which had no time to work up to operational readiness following the sinking of their aircraft carrier *Ark Royal*. (825 Squadron became a squadron of the Canadian Naval Air Arm in 1946 and in May 1951 was renumbered to 880 Squadron based at *HMCS Shearwater*). The Swordfish were the first to attack the German ships in the English Channel. Because of their vulnerability and slow speed, the Swordfish stood little chance for success. All six Swordfish reached the outer screen of German destroyers around the three capital ships and the first three dropped their torpedoes; the other three had only a mile to go to the dropping point when last seen. None of the torpedoes hit their mark and all six aircraft were shot down with only five of the total 18 crew members surviving. For his coolness, determination and leadership under fire, Lieutenant Commander E. Esmonde, the leader of the attack, was posthumously awarded the Victoria Cross. Because of incredibly poor headquarters coordination and bad weather, the German capital ships escaped unscathed, and their Channel dash became one of the allies' major embarrassments during the Second World War.

During the Battle of the Atlantic in the Second World War there were insufficient aircraft carriers to escort ocean convoys carrying supplies to England, therefore, the British converted 19 grain ships and oil tankers to Merchant Aircraft Carriers (MAC). The grain ships, fitted with a 420-foot flight deck, hangar, and elevator, operated four Swordfish while the tankers with a 460-foot flight deck had no hangar to accommodate their three Swordfish. Upon entering Halifax harbour to load their cargoes of grain and oil, the MAC Ships disembarked

their Swordfish, which flew ashore to the Royal Naval Air Section *HMS Seaborn*, a lodger unit established at RCAF Station Dartmouth in September 1940 to maintain and service the Swordfish. As the Swordfish suffered high attrition flying from their small MAC Ships in the heavy North Atlantic weather, replacement Swordfish were shipped in crates in holds of other merchant vessels to Halifax where they were assembled, and test flown at *HMS Seaborn* for replace aircraft on the MAC Ships returning to England. Many of the reassembled Swordfish were also flown to RCAF Station Yarmouth N.S. where they were used as training aircraft for the Royal Navy's Telegraphist Air Gunner School.

When *HMS Seaborn* was decommissioned on 28 January 1946, the Royal Navy donated the 22 Swordfish currently at *HMS Seaborn* to the Royal Canadian Navy (RCN). The newly acquired Swordfish were used to form Fleet Requirements Unit 743 where they were used for general purpose duties (FRU 743 became Fixed Wing Utility Squadron 32 (VU 32) at *HMCS Shearwater* in February 1954). With approval to form Reserve Divisions within the Canadian Naval Air Arm, some of the veteran Swordfish were ferried to 11 Naval Divisions across Canada for ground crew instructional purposes.

The Shearwater Aviation Museum's Swordfish HS469 was first delivered to the Royal Naval Air Section at RAF Station Manston in February 1943. Swordfish HS469 was flown by the Royal Navy's 841 Squadron while seconded to the RAF Coastal Command on English Channel operations, and thence on to Royal Naval Air Station Lee-On-Solent in April 1943, where it was disassembled, crated and shipped to *HMS Seaborn*. HS469 was reassembled at *HMS Seaborn*, and test flown 12 July 1943 by Lieutenant Richard S. Bunyard RN (later retired in Waterloo, ON.). The Swordfish was ferried to RCAF Station Yarmouth N.S., on 28 August 1943, where the Royal Navy's 745 Squadron provided training aircraft for Number 1 Naval Telegraphist Air Gunner School, which operated under the auspices of the British Commonwealth Air Training Plan.

During 1944 while at Yarmouth, HS469, originally a Mk. II, underwent modification No. 408 to enclose the open cockpits with a canopy to protect crews from the cold Canadian winters, thereby converting it to one of the 59 Mk. IV Swordfish operated by the School in January 1945.

On 2 August 1945, the HS469 was transferred to the RCN and retained its HS469 identification, but according to regulations at the time was registered on RCAF inventory. The RCN announced in July 1946 that the Swordfish were finally being withdrawn from service, although some aircraft were dispersed throughout Canada for ground training purposes. HS469 was struck off strength on 17 August 1946 and disposed for scrap in Ontario.

In the spring of 1980, a group of dedicated ex- Canadian Naval Air Arm volunteers in the Toronto area began to restore Swordfish HS469. After 14 years of painstaking diligence the restoration team presented the completely airworthy Swordfish to the Shearwater Aviation Museum where, on 13 April 1994, HS469 made its last flight. Swordfish HS469 is now on permanent display at the museum.

Type Three-seat torpedo bomber and maritime reconnaissance biplane

Wing Span 13.87 m (45 ft 6 in)	Length 10.87 m (35 ft 8 in)	Height 3.76 m (12 ft 4 in)
Max. Speed 222 kph (138 mph)	Service Ceiling 3260 m (10,700 ft)	Range 1658 km (1030 miles)
Max. Weight 3406 kg (7510 lb.)	Empty Weight 2132 kg (4700 lb.)	

Power Plant One 559 kW (750 hp) Bristol Pegasus XXX, 9-cylinder radial piston engine

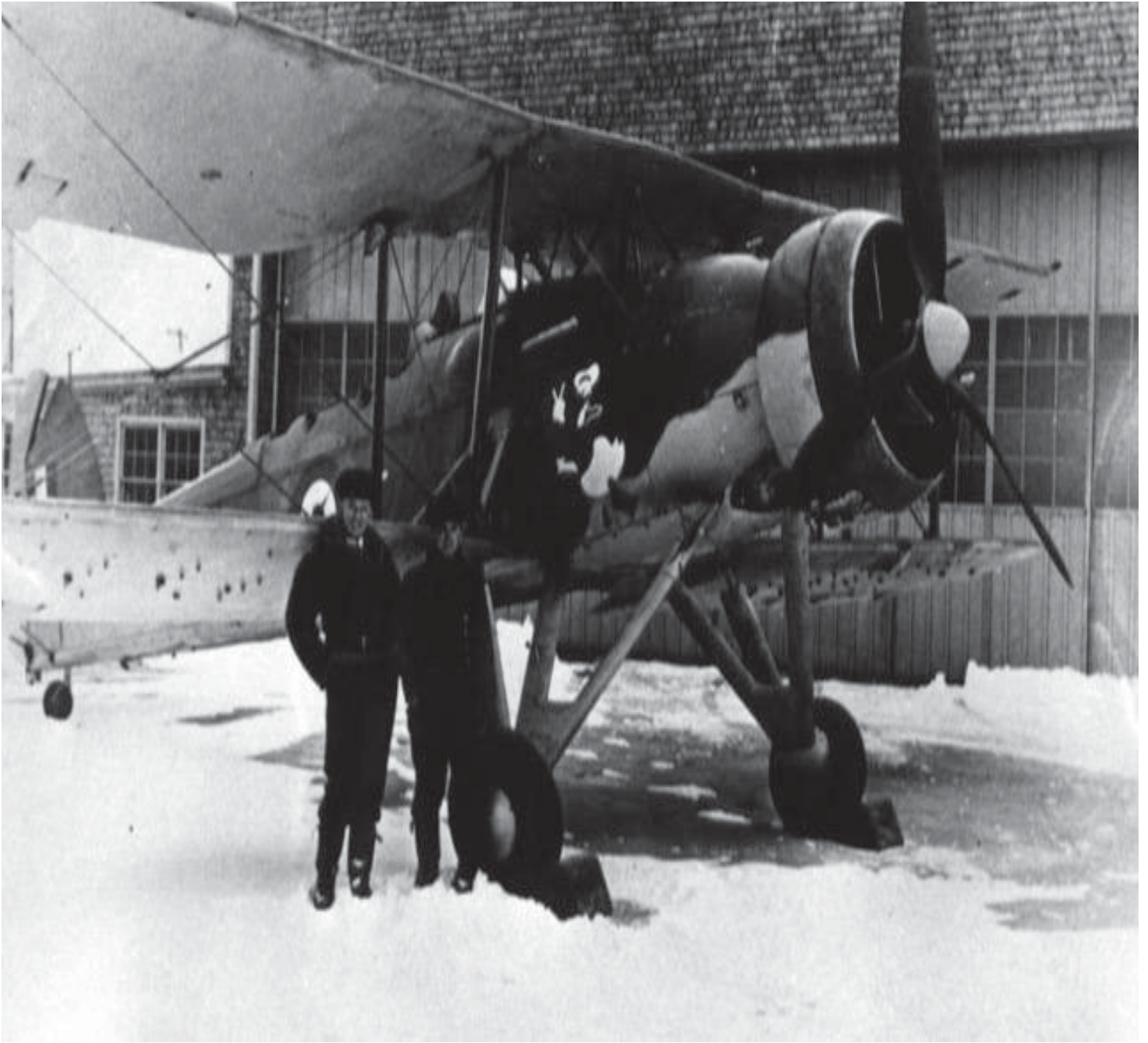
Armament One forward firing 7.7 mm (0.303 in) machine gun in fuselage and one 7.7 mm (0.303 in) Lewis gun in rear cockpit plus one 730 kg (1610 lb.) torpedo or 680 kg (1500 lb.) of bombs or Eight rocket projectiles on under wing racks.



Fleet Air Arm Swordfish (Foreground) and Avro Anson's at No.1. NAGS Yarmouth, NS



Fleet Air Arm No. 745 Squadron Swordfish Over Yarmouth, NS



Fleet Air Arm Swordfish
Parked in front of Hanger at HMS Seaborn
(Now Shearwater) During Second World War

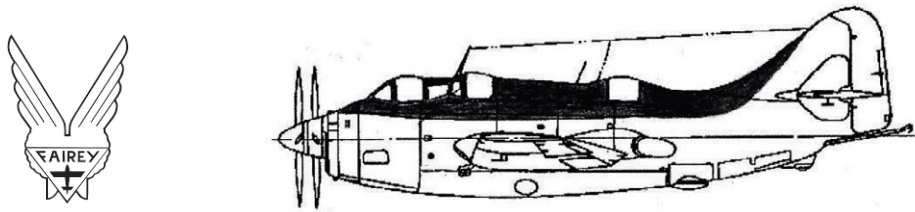
When the Gannet Came to Canada

Leo Pettipas
Winnipeg

With the onset of the Cold War and the establishment of NATO in 1949, the Royal Canadian Navy picked up where it left off at the end of the Second Great Unpleasantness – protection of the North Atlantic shipping lanes. Our country's mandate was once again anti-submarine warfare (ASW), only this time we took up the challenge with our own naval air arm. After a few tentative years of manning deficits and substandard front-line equipment, the RCN settled upon the modified Grumman TBM Avenger as its principal aerial ASW weapon of the early 1950s.

The pace of technological and tactical advancement during the first half of the 1950s decade necessitated a search for an advanced replacement of the Avenger. The *ab initio* development of a vehicle in Canada was not considered a viable option, so the thinkers in Ottawa looked to the US and the UK to fill the bill. By 1953 the Navy had a choice between two works-in-progress: the American Grumman S2F ("Stoof") Tracker, and the British Fairey Gannet. And on paper, the Gannet appeared to be a front-runner with its innovative propulsive assets.

Described as a mid-wing carrier-borne anti-submarine search-and-strike aircraft with accommodation for a crew of three, the



Portside view of the Gannet AS 1. Aircraft drawing after L. E. Bradford 1958.

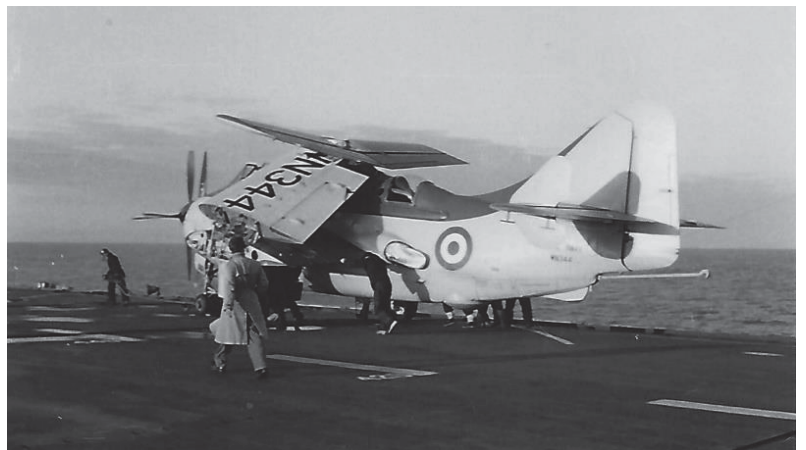
Fairey Gannet AS 1 was the very first aircraft anywhere to be powered by a turbine engine with double, in-line, contra-rotating propellers on the same driveshaft – in effect, two engines in a single package. As such, this composite set-up delivered all the benefits of a twin-engined aircraft within a single-engine configuration. This atypical arrangement provided special benefits for carrier aviation in that either half of the engine kit could be operated independently of the other by shutting one side down and feathering its airscrew. Accordingly, the economy of single-engined operation was achieved and the patrolling range correspondingly increased thanks to the reduced fuel consumption. When more speed was required for tactical manoeuvres, the activation of both propellers was immediately available once more by restarting the dormant powerplant.

A further enhancement to be had from the use of contra-rotating co-axial airscrews was the absence of asymmetrical handling demands as would be experienced with a standard twin-engined a/c. Making the Gannet even more suitable for carrier-based deployment was the fact that its Double Mamba engine was designed to run on kerosene, wide-cut turbine propellant, or naval diesel fuel. This averted the need to stow highly explosive avgas in aircraft carriers. Positioned aft of its voluminous weapons bay was an ASV radar scanner housed in a retractable tub-like container.

The Gannet was the first British-built, front-line naval aircraft to enter service that could carry internally all of its ordnance except wing-mounted rocket-projectiles. Not counting the American-designed and -built Grumman Avenger, all of the previous Fleet Air Arm's strike aircraft had carried their munitions external to the fuselage. The Gannet's payload variously comprised homing torpedoes, mines, depth charges; 500-, 1,000-, and 2,000-pound bombs; and the wing-mounted rocket projectiles. In keeping with its ASW mandate, it also carried sonobuoys, marine markers, and flares.

Curiously, historian Owen Thetford stated in his book "British Naval Aircraft 1912-1958" that the Gannet was the first Fleet Air Arm aircraft to combine the search and strike roles. However, these capabilities accrued to the fighter-reconnaissance and anti-submarine marks of the Fairey Firefly, all of which were armed and radar-equipped, that preceded the Gannet. Equally curious is the fact that the Gannet was not equipped with magnetic anomaly detection (MAD) equipment (of which more below), an asset that had been deployed by the US Navy in Avengers and PBY Catalinas during the Second World War. Considering the outstanding tactical success that the RCN went on to achieve with magnetic anomaly detection equipment and techniques with the Tracker, we must thank the Fates for the wisdom of our planners in selecting the Stoof!

When *HMCS Magnificent* put into Halifax on 11 June 1954 following a refit cruise to the UK, a Gannet (serial number WN 344) was on board. The Admiralty had two reasons for shipping the aircraft to Canada: (1) she was to serve as a trials and demonstration machine in the hopes that the Canadians would consider the type as the replacement of the Avenger, and (2) she was scheduled to undergo cold-weather testing, a common procedure applied to many aircraft during the Cold War (no pun intended).



The ferrying of the Gannet to and from Canada was courtesy of the *HMCS Magnificent* taxicab service. **Left:** DND/RCN photo, via National Library and Archives Canada. **Right:** DND/RCN photo, via the Paul E. Moore Collection.

The Fairey Aviation Company of Canada (FAC), with a well-equipped factory just down the highway from *HMCS Shearwater* (aka CANAS) and as a branch plant of the British parent, was considered by the FAC brass to be the prime contender for the



Brothers in Arms, left to right: Lancaster MR 10, Gannet AS 1, Avenger AS 3M2, and Sea Fury FB 11 overflying Halifax Harbour, 1954. DND/RCN photo.

contract to build the Avenger's successor. The Canadian firm had been engaged since March 1949 in the repair, modification, and overhaul of the Navy's first-line aircraft, and was anxious to manufacture a fleet of Gannets from the ground up.

The Gannet was a key player in political machinations that brought to light a true champion of Canadian Naval Aviation. Since the latter was beginning from scratch with the onset of the post-war era, arrangements were made for experienced and knowledgeable Royal Naval officers to transfer to the RCN to help the fledgeling Service get off the ground (literally). These men were also expected by the British government to lobby the Canadian authorities to purchase British aircraft and equipment. One of these officers was Commodore C. L. Keighly-Peach, RN, who was informed in writing, and in no uncertain terms, that he was to beat the drum for the British aircraft industry. His failure to do so – particularly in regards to the Gannet -- would seriously jeopardise his future career in the King's Navy.

Commodore Keighly-Peach, however, firmly believed that his over-riding responsibility was to benefit Canada's Navy, not the British Board of Trade. When he took up his Canadian post in 1951, the RCN planners were beginning to think about eventually replacing its Avenger ASW aircraft, its Sea Fury fighters, and its on-loan *HMCS Magnificent* aircraft carrier. To the tall foreheads in the UK, the solution was obvious: they envisaged a sort of "package deal" comprising the modernised *HMS Powerful*, the ASW Gannet, and a creature called the "de Havilland Sea Venom" all-weather jet fighter. The carrier was basically to the Canadians' liking, but the two aircraft types were not at all what the colonials had in mind.

What the RCN bought in the final analysis was the carrier (subsequently named *HMCS Bonaventure*), and American-originated but Canadian-built de Havilland Canada CS2F Trackers, and American-designed and -built McDonnell F2H-3 Banshees -- not Gannets or Sea Venoms. And what became of C. L. Keighly-Peach -- the staunch advocate of Canadian Naval Aviation -- upon his departure from his post in Ottawa in 1953? Lo' and behold, that same year found him retired from the Royal Navy!

Meanwhile, the first item of business with WN 344 at *Shearwater* was the preparation of a flight evaluation plan that encompassed familiarisation and demonstration flights, field carrier landing practice, radar exercises, and local flying. The said demonstration flights were performed by RN Pilot Peter "Sheepy" Lamb who had accompanied the aircraft to Canada for that purpose. Another key player was the Officer-in-Charge of the Flight Test Division of CANAS-based VX 10 Squadron.

In his memoirs, former RCN Test Pilot Roy de Nevers noted that the Brits' sales pitch was an instance of too little, too late: the RCN had pretty well given thumbs up to the Tracker by the time that the Gannet had come to town. Another rather astounding anomaly was the fact that while the Gannet evaluation was ongoing, VX-10 was carrying out MAD tests in an Avenger -- the very same aircraft type that the MAD-less Gannet would have replaced had it been chosen to succeed the MAD-equipped Avenger AS 3M that went into front-line RCN service in 1955 pending its replacement!



An example of the Avenger AS 3M, the type that the Gannet would have replaced had it been selected for service in the RCN. Note the prominent MAD-boom sleeve running along the aft fuselage. DND/RCN photo, via Patrick Martin.

One *Shearwater*-based familiarisation exercise involved flying the Gannet outside the circuit with only one propeller turning. After joining the circuit, the Pilot would activate the propeller on the second (hitherto inactive) engine on the downwind leg. If the wind was blowing in the right direction, the a/c passed over the *Shearwater* married quarters for the air start. On one occasion, this aroused the wrath of the PMQ wives who could only stand helplessly by and watch their laundry get gently sprayed with jet fuel when the dormant engine failed to start on the first attempt. Worse, there was diesel propellant in the fuel mix, and it was quite difficult for the laundress to remove the resultant stains -- particularly out of *white* clothes. To cop a phrase from good Queen Victoria, their ladyships were not amused.

Following the Gannet's sojourn at *Shearwater*, it departed for northwestern Canada and the Central Experimental & Proving Establishment's Climatic Detachment where it underwent the planned investigations into the effects of extreme winter temperatures on the aircraft's structure and systems. This programme was completed in June 1956 and the plane was forwarded on to 1107 TSD at



Top, WM 344 during its cold-weather trials. Via Bill Wheeler. Bottom, The CS2F-1 Tracker, the type that won the RCN competition for the Avenger's successor, also underwent cold-weather testing, H. Tate photo, via Jack McNulty. Note the disk-shaped Climatic Detachment badge with the polar bear motif on the noses of both aircraft.

Fairey Aviation of Canada for flying trials, during which the port nosewheel fairing kept falling off. After that spot of bother was addressed, Fairey technicians packed up the machine for transit back to Old Blighty where it eventually ended its days as a ground instructional airframe.

The only Commonwealth country outside of the UK whose naval air arm accepted the Gannet was Australia, which operated the type beginning in 1955. A full decade after the Canadians had re-equipped with CS2Fs, the Aussies retired their Gannets and replaced them with ... wait for it ... Grumman Trackers!



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HMCS Labrador Opens Canada's Arctic

By

Ernest Cable

Shearwater Aviation Museum Historian

Canada's Arctic Archipelago is the largest group of islands in the world. Yet, its geography is unfamiliar to most Canadians and despite its strategic importance it remains an enigma to the rest of the world. The area stretches across 70 degrees of longitude from Cape Chidley, Labrador's most northern point, to the Yukon-Alaska border; a great circle distance of just over 2,000 miles. The southern coastal island group of: Baffin, Somerset, Prince of Wales, King William, Victoria, Banks and some smaller islands, is divided from the northern Queen Elizabeth Islands by Lancaster Sound, Barrow Strait, Viscount Melville Sound and McClure Strait. These waterways form the main axis of the long sought-after Northwest Passage, which is the principal east-west route through the Arctic Archipelago.

Beginning in the sixteenth century explorers took nearly four centuries to find the Northwest Passage in their search of a shorter trade route from Europe to China and India. However, after the existence of the Northwest Passage was confirmed early in the twentieth century, Canada showed little interest in the northern waterway traversing its Arctic frontier. It wasn't until well after the Second World War that the Royal Canadian Navy (RCN) showed any interest in the Arctic when it finally sent its first icebreaker, *HMCS Labrador*, on four epic voyages into the Northwest Passage.



Canadian Arctic Archipelago

The lusty British privateer, Martin Frobisher, was the earliest explorer to search for a north-west route to Cathay, as it was then known. Between 1560 and 1578 Frobisher convinced English merchants and British royalty to finance three voyages, but he never got farther than the bay that bears his name on the southern tip of Baffin Island. In 1819, Sir William Parry's expedition marked the first European ships to enter the Arctic Archipelago through Lancaster Sound and reach 113 degrees West longitude near Melville Island. Parry's incredible voyage was recognized by naming the Lancaster Sound, Barrow Strait and Melville Sound section of the Northwest Passage the "Parry Channel"; it also qualified him for the £5,000 prize offered by the Board of Longitude as the first vessel to cross the 110th meridian at northern latitudes. Parry's ships, *Hecla* and *Griper* became trapped in the winter ice, and were the first Royal Navy ships to winter in the Canadian Arctic. Perhaps the most notable arctic expedition was that of Sir John Franklin whose ships *Erebus* and *Terror* became frozen in the ice in 1848 near King William Island where all 129 members of the expedition died. British mariners searched for Franklin for the next 15 years without success, but in doing so a much larger area of the Arctic was explored and mapped. By the right of discovery, the Arctic islands became British possessions. In 1850, Captain Robert McClure approached the Arctic Archipelago from the west after passing through the Bering Strait and the Beaufort Sea. He immediately discovered Prince of Wales Strait between Banks Island and Victoria Island, but his ship became trapped in the winter ice. Undaunted, he continued to explore eastward by sledge and linked up with the position reached by Parry on his west bound voyage. This was the last piece of the puzzle that confirmed the existence of the long sought-after Northwest Passage. McClure and his crew were awarded the £10,000 prize for finding the Passage.

In 1880, the British saw no commercial value in the Arctic and turned over all her North American possessions including the Arctic islands, but not Newfoundland, to the young Dominion of Canada (Confederation 1867). However, it wasn't until 1905 that Roald Amundsen and his Norwegian crew of seven became the first to navigate the entire length of the Northwest Passage. Amundsen set off in 1903 in the 47-ton herring fisher, *Gjoa*, to locate the North Magnetic Pole and to navigate the southern coastal route of the Northwest Passage. He entered Lancaster Sound then turned south through Peel Sound and spent two winters in Gjoa Haven on King William Island (near the Magnetic North Pole); he spent a third winter in the western Arctic before exiting the coastal route along the Canadian mainland to the east of present-day Inuvik.

By 1900 American whalers were becoming more and more active in the Arctic and there was concern in Canada that the U.S. might try to take over the islands. As in previous events in Canadian history fear of American action triggered an interest in sovereignty over the Arctic islands. The Minister of Marine and Fisheries, L.P. Brodeur who played a key role in establishing the Canadian navy, was the driving force in upholding northern sovereignty; ensuring a Canadian presence was maintained with regular expeditions and patrols. Between 1904 and 1911 the Canadian Coast Guard Ship (CGS) *Arctic*, commanded by Captain Bernier, made several voyages and brought back a wealth of information including valuable surveying in the arctic islands. In 1908, *CGS Arctic* lay in McClure Sound beyond Parry's farthest point in 1819 and ice-free water stretched as far ahead as Bernier could see. Had he followed the open water; Bernier might have been the first to navigate the Northwest Passage in a single season. As he had no instructions to proceed through the Northwest Passage, and he turned back to

Winter Harbour to lay up for the season. Bernier was a prodigious surveyor and built up a wealth of Arctic navigation. On Dominion Day (1 July) 1909, he planted a plaque on Melville Island asserting Canadian sovereignty over “the whole of the Arctic Archipelago lying north of America from longitude 60 West to longitude 141 West” (Yukon-Alaska border).

Captain Bernier made one more voyage after the First World War, and other mariners continued the yearly patrols until 1940. The RCMP patrolled the islands and channels each year with small vessels and sled-dogs. During the Second World War Canada agreed to the American building of the Northwest Staging Route, a series of 13 airfields, between Edmonton, Alberta and Snag, Yukon to ferry lend-lease aircraft from the U.S. to Russia through Alaska. As a counter to the increased American presence in the north, the RCMP vessel *St. Roch* embarked on a historic sovereignty voyage through the Northwest Passage that took two years. It left Vancouver in June 1940, and after spending two winters frozen in the ice, finally docked at Halifax on 11 October 1942. It was the second ship to navigate the Passage, and the first to go from west to east. In 1944, *St. Roch* returned to Vancouver by way of the more northerly Parry Channel route of the Northwest Passage cutting the transit time down to just 86 days. Today, the *St. Roch* is a Canadian national heritage site at the Vancouver Maritime Museum.

After the Second World War Canada, as a consequence of geography, became a buffer between the two Cold War antagonists; Canada and the United States faced the Soviet Union across the Arctic Ocean. Suddenly, the Arctic gained unprecedented strategic importance in the world. However, the RCN was slow to recognize the new significance of the Arctic; Vice Admiral Jones, Chief of Naval Staff, declined to participate in starting the Canada/U.S. Joint Experimental Station for cold weather work at Churchill Manitoba. And in 1946, the RCN refused to join the large U.S. Navy Arctic exercise “Nanook”. The next year Admiral Reid advised against getting into Arctic operations; stating that naval ships weren’t designed to sail in ice-infested waters. Not appreciating the strategic importance of the Arctic as recognized by the U.S. Navy, he declined to send the RCN north to explore the capabilities of Canadian warships in the northern waters. Reid didn’t even send representation to join the U.S. Navy in building more Arctic weather stations in 1947.

If the Admirals weren’t looking north, the Prime Minister was. Mackenzie King perked the navy’s interest in the Arctic by refusing to keep *HMCS Warrior*, the first of two aircraft carriers intended for the RCN, because it wasn’t winterized for the North Atlantic let alone Arctic operations. He did agree to one carrier *if* it could be used in the Arctic. According to the Royal Navy *HMCS Magnificent* was “arcticized” with an acceptable heating system and upper-deck machinery engineered for cold weather. In 1948, *Magnificent* sailed into Hudson Strait as far as Wakeham Bay (Kangiqsujuaq QC), but like any other aircraft carrier of the day she was highly unsuited for the Arctic.

A naval presence in the Arctic required an ice capable ship. Therefore, in early 1949, the RCN gained approval for the construction of *HMCS Labrador* for northern operations. Ironically, the U.S. Navy provided the technical details which were based on their "Wind" class icebreaker. *Labrador's* Captain-designate, Captain Owen Robertson spent two years with the U.S. Navy and Coast Guard before his ship was commissioned, learning the intricacies of navigating in the Arctic. Feedback from Robertson's Arctic experience resulted in *Labrador* receiving a hangar and an enlarged flight deck for three helicopters as well as big improvements over the U.S. Navy's communications and radar, as well as superior living and recreation quarters. She was modified to include then state-of-the-art scientific equipment changing her from a purely military patrol vessel to a self-sufficient explorer with an elaborately equipped laboratory and hospital. *Labrador* was also a transport, rescue ship and school.

Because icebreakers have a round bottom to work in ice, they have an extraordinary roll in open seas, therefore, *Labrador* was fitted with retractable stabilizing fins. She had a deep 30-foot draft with large screws tucked well below to avoid the chunks of ice that would cascade down her hull. *HMCS Labrador* was designed as a conventional icebreaker with the ability to drive forward so that her bow mounted the ice then using her weight to break it downwards. Another technique was to roll the ship from side to side by pumping water into her heeling tanks at an impressive 40,000 gallons per minute; similar tanks were fitted for trimming fore and aft. Her six diesel electric engines were capable of delivering 10,000 shaft horsepower to drive her 6,900-ton displacement at a maximum speed of 16 knots (30 km/h).

HMCS Labrador was commissioned in Sorel Quebec, on 8 July 1954. She had just two weeks to sail to Halifax, test and calibrate all her complex equipment, store and provision for three months. She embarked 80 tons of coal for the RCMP detachment at Alexandria Fiord and flew on two Bell HTL helicopters, before setting sail for the summer season in the Arctic. In 1954, Canada's navy was finally in the Arctic and, notwithstanding the sparse RCMP patrols; Canada's Arctic waters were no longer the sole domain of the U.S. Navy.

At the end of July, Captain Robertson sailed *Labrador* up Lancaster Sound and anchored off Resolute Bay, Cornwallis Island. The ship's company conducted surveys and set up beacons to open the harbour at Resolute so that the airfield, weather and scientific stations could be resupplied by heavy ships. Supply tasks took *Labrador* back to Baffin Bay and northward through Kane Basin to deliver RCMP Special Constable Ariak and family with 17 dogs and the 80 tons of coal to Alexandria Fiord. *Labrador* returned to the Parry Channel and continued west where she rendezvoused with her American sister ships, *Northwind* and *Burton Island* off Melville Island. This marked the first-time naval vessels from east and west met in the Arctic. The three ships surveyed, collected hydrographic, oceanographic and scientific data through Prince of Wales Strait and into the Beaufort Sea. During the last week of September, *Labrador* passed through Bering Strait into the Pacific Ocean and became the first warship or large ship of any description to sail the entire length of the Northwest Passage. She sailed on to Esquimalt and home to Halifax via the Panama Canal, making *Labrador* second only the RCMP's

St. Roch to circumnavigate North America. More importantly, *Labrador* had proved to be the finest Arctic vessel in the Western world with a ship's company that was ready for any challenge the North could offer.



HMCS Labrador's 1954 Route

The value of *Labrador's* two Bell HTL helicopters was quickly recognized when 45 miles of surveying was completed in four days compared to 10 miles being surveyed in 18 days using the previous laborious method of a land-based tracked vehicle. The helicopters were also used to locate suitable sites for positioning beacons, mail delivery and medical missions. The most important were the ice reconnaissance missions where the helicopters would scout ahead of the ship providing navigational guidance around the ice floes in the waters ahead. Lieutenants John Laurie and "Duke" Muncaster, pilots of the two HTL's, enjoyed the unique flying opportunity to demonstrate the helicopters' versatility in the Arctic environment. They each flew four to five trips per day, and between 23 July and 20 September each accumulated nearly 70 hours flying time.

Many naval authorities had doubts about the ability to operate helicopters from small ships in open ocean conditions. However, *Labrador* proved that a stabilized vessel, a helicopter with good deck handling equipment and a capable crew made flying operations from a small ship entirely feasible. The small team of highly qualified aircraft maintenance personnel supervised by Chief Petty Officers Shorten and Turner set the standard for technical support for small-ship helicopter operations. During *Labrador's* subsequent summer excursions to the Arctic in 1955, 1956 and 1957, the concept of helicopter operations was expanded and refined, and included the addition of a Piasecki HUP-3, one of three acquired specifically for *HMCS Labrador*. The HUP 3 provided a heavy lift (900 pound / 408 kg) capability and was used to lift heavy radar navigation beacons ashore for oceanographic and hydrographic surveys, and to support marine biology and ice physics research and a host of other Defence Research Board activities. These cruises provided a cadre of experienced pilots and technicians who were instrumental in pioneering the development of the "Beartrap" and the operation of large ASW helicopters from small destroyers.

With the advent of Soviet intercontinental bombers capable of delivering atomic bombs via the polar region the Arctic gained even more strategic importance. In 1955, Canada and the United

States started to build the Distant Early Warning (DEW) line; initially a chain of 22 radar stations that eventually grew to 63 sites, stretching from Alaska along the Canadian Arctic mainland coast and islands to Baffin Island. The gigantic task of sea lifting materials and equipment fell to the U.S. Navy's Military Sea Transport Service. With her previous year of hard Arctic experience, *Labrador* was Canada's sole vessel capable of contributing to the northern sealift. As the only ship flying the Canadian flag, her lone representation of Canada in Canadian Arctic waters was no mere token. *Labrador* was placed under U.S. Navy operational control, but Captain Robertson was given command of the U.S. Navy's Eastern Arctic Task Group of 23 ships. Robertson's job was to chart and clear the approaches to beaches in the Foxe Basin area of the eastern Arctic so that enormous loads of equipment and materials for the new DEW line sites could be taken ashore by landing craft.

In 1956, *Labrador*, under the command of Captain T.C. Pullen, returned to the eastern DEW line. Similar to the previous year *Labrador* helped to prepare the way for 95 ships to land 250,000 tons of dry cargo and three million barrels of fuel at the various radar sites. Pullen noted that the Americans had operated thin-skinned ships in all areas of the Arctic, thus gaining valuable knowledge. They had done more pioneering, surveying, charting, oceanography and exploring in Canada's northern waters than in all the previous years of history combined. Canada and her navy had much to learn. Besides her sealift duties, *Labrador's* crew made major revisions to ten charts and produced 12 completely new ones which opened numerous Arctic channels and harbours to deep draft ships. During the 1956 and 1957 seasons in the Arctic, *Labrador* navigated and charted Bellot Strait for the first time, discovered a deep channel into Frobisher Bay, and surveyed and erected beacons around Foxe Basin that opened a huge area of the eastern Arctic for safe navigation.

In 1958, as a cost reduction measure the RCN had to choose between an icebreaker and more ASW destroyers for NATO. Consequently, *HMCS Labrador* was paid off and turned over to the Department of Transport where she served for 29 years before being sold for scrap in 1987. *Labrador*, in her four short years with the navy, contributed more to science, hydrography and oceanography in the Canadian Arctic than any single ship in the twentieth century. Additionally, *Labrador* paved the way for submarines to make submerged transits of the Arctic under the polar ice. In 1958, *USS Nautilus* made the first underwater transit of the Arctic Ocean by submerging in the Barrow Sea, north of Alaska, sailing northward to the North Pole and surfacing east of Greenland. Then in 1960, the *USS Seadragon* made the first submerged transit of Canada's Northwest Passage by sailing under the ice through Parry Channel and McClure Strait; ironically, *Labrador's* first Captain, Commodore Owen Robertson, was aboard. Once clear of the Strait, *Seadragon* turned north and surfaced in a polynya a mile from the North Pole.

The loss of *HMCS Labrador* forced the RCN to withdraw from the Canadian Arctic, and lose the ability to expand on its recently gained wealth of northern knowledge and operating experience. The RCN also lost the opportunity to exchange information with the U.S. Navy. With no information to trade the RCN had to rely on the good graces of its southern neighbour for advances in Arctic science and submarine operations under the polar ice. Most importantly, Canada's navy surrendered its sole capability to uphold Canadian sovereignty in its northern maritime frontier.



WALL OF HONOUR

Guidelines for designing your “Wall of Honour” Tile.

The tile used is made from high quality marble which is 12 inches square. The tile can be sand blasted in various ways to suit your wishes. All lettering will be in upper case and the tile will be mounted in the diamond orientation as opposed to a square orientation. All Text will run horizontally across the tile.

The options are:

Option A: One half tile 12" X 12" x 17" and triangular in shape with up to 5 rows of 3/4" letters for a maximum of 60 letters and spaces. The longest row can accommodate up to 20 letters and spaces. The remaining 4 rows will decrease in length as the border/edge of the tile dictates. It should be noted that the upper half of the tile will start with a short row and the bottom half will start with a long row.

Option B: The full tile with up to 6 rows of 1" letters for a maximum of 55 letters and spaces. The two centre rows can accommodate up to 16 letters and spaces. The remaining rows will decrease as the edge of the tile dictates.

Option C: The full tile with up to 10 rows of 3/4" letters for a maximum of 120 letters and spaces. The two centre rows can accommodate 20 letters and spaces. The remaining rows will decrease as the edge of the tile dictates.

Option D: The “Buddy” Tile - sold only as a full tile. This tile is divided into 4 quarters - each 6" X 6". Each quarter can accommodate up to 6 rows of 1/2" letters for a maximum of 48 letters and spaces. The two centre rows can accommodate up to 12 letters and spaces with the remaining rows decreasing as the tile edge dictates.

Option A



\$300

Option B & C



\$600

Option D



\$600

Wall Tiles may be purchased through monthly installments.

Half Tiles - \$100 day of purchase - \$100 per month for the following two months.

Full Tiles - \$200 day of purchase - \$ 100 per month for the following four months.



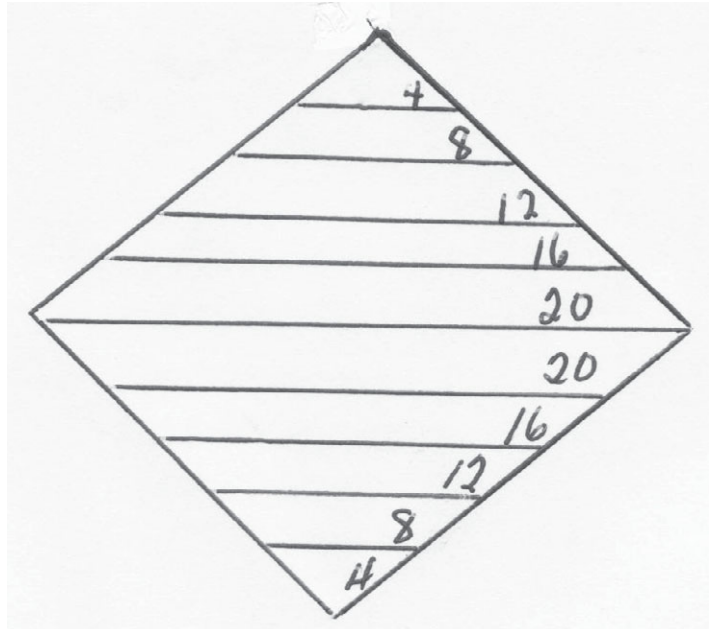
(Wall Tiles (continued))

The colour of the tile will be 'Belmont Rose'. If the submission requires any alteration, the subscriber will be contacted by phone or email by the coordinator for further discussion. **REMEMBER TO COUNT THE SPACES!**

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 CITY: _____
 PROV: _____ POSTAL CODE: _____
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ENGRAVING REQUEST



TYPICAL OPTION 'C' above

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PLANNED GIVING

There are two primary ways in which gifts may be made to the Shearwater Aviation Museum Foundation: by giving a gift of money or securities as a Gift (Inter Vivos) or by making provision in your Will for giving of a gift to the Foundation. Remember a Will “speaks” for us from the date of death, since Wills are revocable and thus any Tax Benefits of a gift to the Foundation, through a Will, cannot be realized until one dies. A gift (Inter Vivos) i.e. a gift Now does benefit from the **reduced rate of Income Tax**.

Requests made by Will: In your Will, you may leave a lump sum bequest or a bequest of a specified percentage of the remained of your estate, or a bequest specified as “the rest and residue of your estate” to the Foundation. You may also make a gift of property or securities (stocks, T-Bills, bonds, GIC’s) to the Foundation by means of a provision in your Will.

Income Tax Benefits: A bequest made by your Will confers an important advantage to your estate when the bequest is made to a Charitable organization such as the Shearwater Aviation Museum Foundation. Your lawyer or financial advisor can advise you on such advantages and the implications or limitations of such bequests.

Request of Life Insurance: The gift of a Life Insurance Policy can be an effective way of offering a benefit to the Foundation on your death. You may either give an existing policy which you may no longer need, or a new policy obtained specifically for the purpose of making a donation to the Foundation. In both cases, the Income Tax benefits of such gifts can be very important to the Foundation and you. Consult with your Insurance Agent re the specifics of such benefits.

Or BY MEANS OF A SIMPLE CODICIL TO YOUR CURRENT WILL. (The following is a simple Codicil which can be added to your present Will.)

Codicil to the Last Will and Testament of _____ Which Last Will

and Testament is dated _____ Day of _____ 20___. I hereby add to that said Will as follows:

I give, devise and bequeath to the Shearwater Aviation Museum Foundation the sum of \$ _____ to be paid out of my general estate.

Signed and dated this _____ Day of _____ 20_____

In the City of _____ Province of _____ Postal Code _____

Witness: _____ Witness: _____

Address: _____ Address: _____ Signature of the Testator

Thank you for supporting the Shearwater Aviation Museum Foundation



Lt Robert Hampton Gray, VC, DSC, RCNVR Memorial Monument Dedication

By: Colonel Stanley Brygadyr (ret'd) (Project Secretary)

One of the most pleasant days of summer arrived on Sunday, 8th Aug, just in time for the celebration, unveiling and dedication of Lt Gray 3 panel granite monument honouring him and his Canadian colleagues who served on loan with the Royal Navy's Fleet Air Arm during WW2. The project Team of "Four Old Guys" planned, fund raised (\$100K) and executed the project over 3 years in partnership with the BC Aviation Museum at the Victoria Airport. Over 100 donor guests (all donors were invited except for a few whose addresses were unknown), dignitaries and senior military were seated outdoors to witness a flawless ceremony following all military protocols with CFB assistance (Band, Guard, Bugler, Piper, etc.) Of note, was the attendance of Dr. Anne George, niece of Lt Gray and 5 other descendants (2 great-nieces and 3 great-great nieces!) who laid a wreath honouring their uncle who perished while attacking and sinking a Japanese Escort Vessel in Onagawa Bay on Aug 9th 1945, for which he was awarded the Victoria Cross. There were several speakers, of note LGen Meinzinger, Commander RCAF and Mr. Takasaki Hatori, Consul General of Japan.. The programme concluded with light refreshments, socializing (Covid 19 masking optional!). Many visited the excellent museum of BC Aviation History.



2nd from the left is Dr. Anne George (Niece)
with her daughter and nieces and great-great nieces of Lt Robert Hampton Gray



The unveiling of the Hampton Gray Monument on Jan 5th 2021 at the BC Aviation Museum. (L - R) Ret'd Col Stan Brygadyr (Project Secretary), Ret'd Navy Capt. Terry Milne (Project Mgr), Ret'd LCdr Gerry Pash (Public Affairs / Ceremonial), and Ret'd RCN Sailor Joe Buczkowski. Missing from photo is Ret'd Major Peter Keith-Murray (BCAM Liaison and Lt Gray)



IN THE DELTA

CODY William John (Bill)	Sept 2021
DEL FABRO George Joseph George	Oct 2021
DEL FABRO Geraldine Marie	Oct 2021
DONALDSON DR. John Drummond	Sept 2021
FRIZZELL Raymond Charles (WOret)	Sept 2021
KENNEDY, Cdr. J.K. "Jake " (ret.)	Apr 2021
MILLAR Kenneth Bruce	Sept 2021
MUNDLE, Dr. Robert Murray	Oct 2021
MURRAY Ian	July 2021
OWENS, Agnes Mary Cecilia	Aug 2021
ROBERTS John Murray	July 2021
TURNER Phyliss M.	Aug 2021
WOJCIK John Robert (LCol Ret'd)	July 2021

In Flanders Fields

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

We are the Dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved, and were loved, and now we lie
In Flanders fields.

Take up our quarrel with the foe:
To you from failing hands we throw
The torch; be yours to hold it high.
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.

- John McCrae



Chezzetcook Air Weapons Range

Leo Pettipas¹

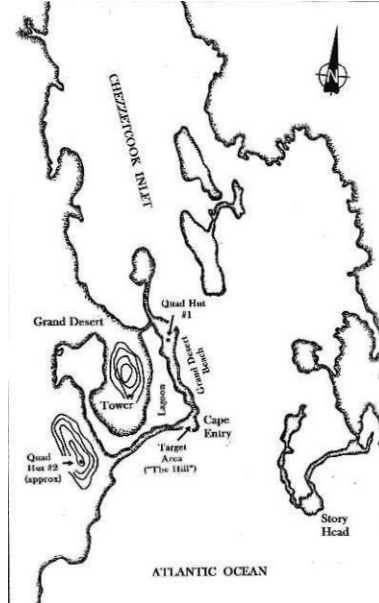
The Chezzetcook weapons range was situated on a narrow north-south oriented inlet on Nova Scotia's Eastern Shore approximately 12 miles (19 km) east of CFB Shearwater. Much of the area is characterized by numerous drumlins, conspicuous rounded hills created by glaciers during the last Ice Age. The mouth of the inlet opens to the Atlantic Ocean and is bordered by stretches of beaches that connect several offshore drumlins with the mainland. This combination of natural features proved to be an ideal location for a weapons range for aircraft based at HMCS Shearwater naval air station during the formative years of Canadian naval aviation.

The Range

The Navy's tenure at Shearwater began in late 1945 as a naval air facility lodger unit at RCAF Station Dartmouth where it shared the airfield and a pair of hangars. As the RCAF presence declined after the Second World War, the Navy took over vacated buildings until the entire station was turned over to the RCN in December 1948 and commissioned as HMCS Shearwater. Operational and training squadrons at Shearwater began air-to-surface weapon practice in the spring of 1946 against static targets anchored off the coast or mobile targets towed by ships at sea. However, it was soon realized there was a real need to supplement the sea-based targets with a land-based weapons range, complete with fixed observation towers to evaluate weapon delivery accuracy.

The search for a suitable range began in 1949. After consulting topographical charts, aerial photographs were taken of a site near Chezzetcook Inlet in April 1950. A site on the west side of the inlet held promise for a suitable air-to-ground weapons range. A prominent drumlin on the west shore of the inlet, about two km southeast of the tiny village of Grand Desert, rose to about 200 feet (65 meters) above sea level and offered a commanding view of the inlet. At the foot of the drumlin on the west side of the inlet a long sandy isthmus (Grand Desert Beach) was connected to the mainland; as the isthmus ran southward parallel to the mainland shore it was separated from the mainland by a lagoon. The south end of the isthmus morphed into an eroding drumlin, which formed a small headland near the mouth of the inlet. This was referred to by naval personnel as "The Hill" and by cartographers as "Cape Entry". The landward slope of "The Hill" provided an ideal location to position the targets. The south slope of the larger drumlin high on the mainland overlooking the isthmus and the lagoon provided an ideal site for the range control tower (call sign "Bomber Control").

An elevated hut housing a quadrant sight (Quad Hut 1) was built several hundred meters up the isthmus north of the target area and sited just to the right of the flight line approach to the target. A second quadrant hut (Quad Hut 2) was built a short distance west of the target area on the mainland shore. The sight lines from Quad Hut 1 and Quad Hut 2 to the target area were 90° to each other to assess cross-track and along-track target miss distances. Quad Hut 2 fell into disuse before the range was shut down in the early 1980s and had been out of service for quite some time.



Details Of The Chezzetcook Weapons Range

A second target was positioned in the lagoon between the Cape Entry target area and the mainland where the control tower was situated. The approach to the target area was from the north heading south towards the ocean, so that ricocheting ordnance would skip out into an offshore designated danger area rather than onto the land.



Bird's Eye View of the Range Facing South. "The Hill" Target Area Is the Triangular-Shaped Landform Near The Centre Of The Photo.

Wintertime View of The Hill, Facing West



The Armament

The official opening date of the Chezzetcook range is clouded by conflicting information in official records. The Department of National Defence annual 1950-51 report records the range was opened in the autumn of 1950. However, the official history of Naval Aviation states that according to pilots' flying logbooks the range was opened on 17 January 1951 when Sea Furies and Fireflies from Shearwater put on an inaugural rocket and cannon display to mark the occasion. The range remained active until 1982 under the call sign "Foxtrot". From the outset, Firefly, Sea Fury, Harvard, Avenger and Banshee aircraft conducted gun, rocket and bombing practice all year-round. The Trackers were also armed with bombs and rockets, but not guns; and high-explosive ordnance was prohibited at all times, regardless of aircraft type. Accordingly, 3-inch (7.62 cm), 5-inch (12.7 cm), and 2.75-inch (7.0 cm) high-velocity aerial rockets (HVARs) were fitted with non-explosive practice warheads made of concrete or plastic as were the 25-pound (11.3 kg) semi-armour piercing rockets.



Uploading Practice Rockets On The Underside Of An Avenger Wing

The 11½-lb (5.2 kg) small practice bomb had a solid heavy metal head and the hollow metal fin that contained a 1-lb (454 gm) smoke charge. When the bomb struck the ground, a detonating charge produced a loud bang and cloud of white smoke that helped the range observers plot the fall of shot. The bombs were subsequently retrieved and re-used. Avengers carried practice bombs internally in the bomb bay, while other aircraft carried practice bombs on pylons under the wings or on light bomb carriers (bomb racks mounted under the aircraft); the Firefly AS 5 aircraft could also carry a brace of practice bombs under the fuselage.



Practice Bombs Being Mounted On Light-Bomb Carrier

The Firefly Is and Sea Furies were also equipped with forward firing 20-mm cannons mounted internally in the wings, as were the Avengers' .50-calibre machine guns. The Harvard's single .303 machine gun was mounted in the starboard wing but was used solely to teach deflection shooting in air-to-air gunnery, which was not sanctioned for the Chezzetcook range. The Banshees' four 20-mm cannons were mounted in the lower forward fuselage. Rocket projectiles mounted on pylons under each wing provided the Trackers' sole forward-firing armament to attack lightly armed surface vessels.

Most communities welcomed military establishments to their area because of the financial benefits that came with them. Even the Chezzetcook range offered economic spin-offs for the local populace, at least for a time. During the cannon and machine gun firing runs, the older Sea Furies and Avengers ejected a trail of spent cartridges that fell on the beach leading to the target area. Following the firing exercises, residents collected the cartridges and sold them to scrap metal dealers for a tidy profit. This enterprise suffered a distinct setback with the arrival of the Banshees, as the shell casings were not ejected from the aircraft but were collected in the gun

bay to avoid being ingested by the jet engines. The shell casings were subsequently discarded after landing at Shearwater.

For several years the navy practised on the Chezzetcook range with rockets and bombs left over from the Second World War. When the wartime stocks were exhausted, they were replaced by 16½-lb (7.5 kg) practice bombs and 2.75-inch (7.0 cm) folding-fin aerial rockets (FFARs). Because rocket projectiles produced searing heat plumes when fired, they had to be loaded differently on various types of aircraft. The ASH-4 radar pod on the Avengers was mounted on the starboard outboard weapon pylon and was likely to be damaged by the rocket blast from the adjacent pylon. Therefore, Avengers scheduled for rocket practice, either had the radar pod removed or the weapon pylon adjacent to the radar pod was not uploaded with a rocket. Also, the de-icer boots on the leading edges of the Trackers' wings often had to be replaced due to scorching, particularly from the 5-inch (12.7 cm) rockets.

The target for bombs and rockets was initially an arrangement of whitewashed beach cobblestones placed in a circle about 50 feet (17 meters) in diameter, with a cluster of similar stones in the centre forming the bull's eye. To provide more realistic military targets the circle was later replaced by derelict army tank hulls painted yellow. The rocket and bomb target in the lagoon was a tethered floating barrel painted bright florescent red. Tracker pilots aimed to drop the first practice bomb about 40 feet (13 meters) short of the barrel to simulate the first of a stick of four depth charges intended to straddle a submarine, thereby providing an explosive force on each side of the submarine to crush the hull. Tracker pilots initiated the release of a stick of four depth charges by manually pressing the weapon release button, which not only released the first depth charge, but also triggered an intervalometer that sequentially released the remaining three depth charges at the selected spacing so that any two of the four depth charges would straddle the submarine. Targets for gunnery practice were made of resin covered fabric stretched over three large, upright wooden frames. The guns of each aircraft scheduled for the range were armed with differently coloured rounds to identify hits on the target. After multiple firing runs by different aircraft, the number of holes made by each colour was tallied and credited to the respective pilots.

Range Control

When the range was first established, the duties of "aircraft controller" in the range tower were assigned to a pilot who maintained radio communications with the Shearwater control tower and aircraft active on the range. However, the position was later changed to an air ordnance Petty Officer "range control operator", a position not to be trifled with. He was responsible for range safety and controlling aircraft entering and departing the range, and had the authority to order pilots to return to Shearwater if range procedures were violated. Two armourers manned quadrant sights in each of the quad huts. One measured aircraft bearings and dive angles while the other would sight the fall of shot and report results to the range tower. The tower, in turn, transmitted target miss distances to each aircraft and recorded the results on a master plot for each pilot safety procedures were paramount. Not only did pilots have to consider the safety of other armed aircraft on the range but also the safety of the residents in the nearby village of Grand Dessert. Pilots avoided overflying the village to eliminate the risk of armament inadvertently falling from the aircraft, and causing serious damage. Similarly, while lining up on

the targets and completing their runs, pilots adjusted their circuits around the range to avoid overflying the communities of East and West Chezzetcook located along the shores of the Chezzetcook inlet. Fishermen transiting the harbour entrance were also a safety consideration as they could be exposed to ordnance ricocheting out to sea. The range control operator was responsible for ensuring that one of the HO4S helicopters from HU 21 (Shearwater's helicopter utility squadron) had cleared the range prior to activation. Vessels in the danger area surrounding the range were verbally warned to clear the area using a loudspeaker attached to the fuselage. The range control operator was also responsible for ensuring that a "Notice to Airmen" (NOTAM) and a "Notice to Mariners" had been promulgated to warn airmen and seafarers to stay clear of the range while it was active. An illuminated light on the control tower and a raised signal flag alerted neighbouring residents that the range was manned, and weapon firing was scheduled for that day. The control tower signalled an emergency cease-fire by firing a red Very pistol flare. In the event of radio communication failure, a green flare signalled that dummy runs only were permitted (no weapons to be dropped), and a yellow flare indicated, "No firing and return to base".

NOTAMs advised the times when the range would be in use, usually between sunrise and 2359 under Visual Flight Rule (VFR) conditions. For late-hour activity, an electrically illuminated arrow pointing toward the target area was positioned on the beach below the flight line. Range activity was forbidden when the flight visibility was less than three miles (5 km), or when ground visibility was less than one mile (1.6 km). The minimum ceiling for rocket and bombing practice was 2,000 feet; minimum ceiling for low-level bombing was 1,500 feet; and for air-to-ground strafing the minimum ceiling was 2,000 feet. The altitude and slant range were particularly critical for rockets because the rocket propellant had to have time to burn out prior to impact to prevent ricochets.

Flights between Shearwater and the range were along a safe approach route over water in case stores accidentally fell from the aircraft enroute. A former squadron weapons officer recalls sending out four Trackers each armed with four practice bombs and receiving a telephone call from the range control operator shortly afterwards asking why one aircraft had arrived with only two bombs on board. This led to fearful trepidation while anticipating a telephone call from an irate citizen reporting property damage or personal injury. None was received, so the accidental drop must have occurred during the transit over water.

On approaching the range, pilots contacted the range control tower by reporting their call sign, location and altitude and type of ordnance, then requested permission to join the range. When cleared to join, the range control operator indicated the circuit in use (invariably left-hand) and assigned the pilot a position in the circuit (1, 2, 3, etc.), and clearance to carry out live or dummy firing runs. Dummy runs were frequently conducted at the beginning of a practice session so that the quad hut could measure the dive angle and advise the pilot of dive angle adjustments before proceeding with the live runs. Aircraft not cleared to join the range were directed to the holding pattern located three miles (5 km) east of the range over Petpeswick Head.

After receiving clearance to join the range, pilots entered the left-hand circuit at the altitude and air speed briefed before take-off at Shearwater. The range circuit was a racetrack

pattern similar to those used at most airports. On rolling into the target, pilots transmitted their call sign and the type of run (live or dummy). For rocket attacks, the pilot advised the range control operator that the master armament switch was selected to the “Arm” position to activate the electrical firing circuits. Throughout the approach to the target the pilot maintained steady flight in a dive angle between 20° and 25°. Rockets were fired at an indicated altitude of 1,100 feet, but under no circumstances was this minimum altitude to be violated. As the pilot pulled off the target he selected “Safe” on the master armament switch to eliminate the possibility of an inadvertent firing and climbed to 1,700 feet in left-hand turn to rejoin the circuit. As a safety precaution, pilots were not to follow the rockets down to observe the hit to reduce the possibility of the aircraft being struck by a ricochet or flying debris.

Armament Incidents

On one occasion in 1965, the pre-flight briefing officer lowered the firing height from 1,100 to 900 feet to give the Tracker pilots an aiming advantage. The reduction in height resulted in the propellant still burning when the rocket struck the ground. Since a rolling high “G” pullout was not permitted in the Tracker it was difficult not to overfly the target area after firing. This set the scene for a 2.75-inch (7.0 cm) rocket to ricochet back into the air and strike the aircraft as it climbed through 1,200 feet. The errant rocket embedded itself into the nose, damaging some of the flight instruments and some of the fuselage support structure, jamming the fore and aft movement of the flight controls. It also severed the fuel line to the Janitrol heater and the hydraulic lines for the brakes. Coincidentally, the aircraft lost its radios as the pilot pulled off the range for an emergency straight-in approach to Shearwater.

Immediately following this incident, the original range firing height was restored. Although, uncommon to be hit by flying debris on rocket runs, another Tracker had a close call when a ricocheting rocket embedded itself in the leading edge of the wing between the fuselage and the engine. Amazingly, the rocket passed through the propeller arc untouched!

Although, most armament incidents occurred when ordnance was intentionally released, other incidents occurred when the ordnance didn't release when fired. If the pilot suspected a hang-up or an unexpended explosive store on board, further attempts to release the store were attempted over the danger area or over open water. The initial procedure involved checking and resetting all armament circuits before attempting another release on the target. Failing this, the pilot set the master armament to “Safe” and cleared the range in the normal manner. On approaching Shearwater, the pilot informed the control tower of his hung-up store and requested special clearance to avoid built-up areas during the landing approach, followed by clearance to taxi to the “armed aircraft” parking area, a remote area on the airfield where an inadvertent misfire would cause little or no damage and the aircraft could be safely de-armed. In spite of all the precautions, a number of crashes occurred near the range during armament practice. In one instance, an Avenger ditched offshore following an engine failure. Another Avenger landed wheels up on the range tidal flats; and on yet another occasion a Sea Fury force landed in a farmer's field adjacent to the range.



Avenger Crash On The Range Tidal Flats



Sea Fury Crash On Private Property Adjacent To The Range

Army Support

Prior to Armed Forces unification in 1968 the Navy was not the only service that used the Chezzetcook range. Although anti-submarine warfare and fleet air defence were the primary roles of the naval air arm, an important secondary role included close air support for the Army.

Between 1951 and 1953, exercises were conducted to train naval pilots to be artillery “observers” by reporting the fall of artillery rounds for gunners. To provide a reference point to report the fall of shot an “O/T line” (oboe/tare, or observer/target line) was established by simply creating an imaginary bearing line passing through the target. The artillery command post identified the O/T line to the gunners and pilot via VHF radio. The pilot then reported the fall of shot in reference to the O/T line so the gunners could adjust the aim of the next round to strike the target.

Since the artillery range at Camp Gagetown, NB had not yet been built and the nearest artillery range was at Petawawa, Ontario, the Chezzetcook range provided a good locale to train naval pilots as artillery observers. The gunners parked their wireless vehicle centrally on the range to serve as the “target”. Markers were placed at 100-meter intervals from the vehicle in the form of a cross, with the longer axis representing the O/T line. After announcing his arrival on the range to the wireless vehicle and exercise controller, the pilot proceeded to orbit the target. The exercise started when the controller ordered “shoot”, whereupon one of several gunners, deployed on the ground near the O/T line, tossed a “Thunder Flash” to an arbitrary position and distance from the “target” vehicle to simulate the fall of the artillery round.

A “Thunder Flash” was a pyrotechnic device that produced a flash and loud bang. Upon being advised by the controller that a “round” had been fired the pilot had to spot the burst and smoke, and radio his estimate in yards (meters) along and across the O/T line that would bring the next round on target.

For advanced training in live artillery spotting, Shearwater squadrons deployed to the Canadian Joint Air Training Centre (CJATC) at Rivers, Manitoba, and the nearby army artillery range at Camp Shilo. Before deploying to CJATC Rivers, or Camp Gagetown when it later became available for armament and co-operation training with the army, the squadrons conducted intensive training on the Chezzetcook range.

Naval Reserve Squadrons

During the 1950s, naval reserve squadrons from across the country deployed to Shearwater for summer camp. Under the tutelage of the Advanced Training Flight from Shearwater’s VT 40 (Fixed Wing Training Squadron 40), reserve squadron Harvards and Avengers practised strafing, bombing and rocket firing at the Chezzetcook range. In December 1973, as part of the Defence Department reorganization, the Naval Air Branch was absorbed by the Canadian Armed Force’s Air Command. Consequently, VS 880 remained the sole former navy Tracker squadron at Shearwater. VS 880 was re-tasked from anti-submarine warfare (ASW) to maritime reconnaissance, focusing on fishery, pollution, and sovereignty patrols. In 1975, the squadron was redesignated “Maritime Reconnaissance Squadron 880” (MR 880) to reflect its maritime reconnaissance role.

On 1 May 1974, a new reserve squadron, MR 420, was formed at Shearwater and shared the Tracker aircraft assigned to MR 880 in the maritime reconnaissance role. During times of increased tensions MR 880 and MR 420 Squadrons shared the task of attacking lightly armed surface vessels that showed hostile intent. To perform the air-to-surface role the Tracker was

armed with rocket projectiles, which extended the requirement for the Chezzetcook range into the early 1980s. In the summer of 1981, as part of the re-distribution of Air Command squadrons, MR 880 and MR 420 squadrons were transferred to CFB Summerside, PEI where the nearby Tracadie Air-Ground Weapons Range, controlled by CFB Chatham, New Brunswick, became the new weapons practice facility. Since the Chezzetcook range was no longer needed the facility was de-activated, and the buildings were dismantled; today, only the concrete pads upon which they stood remain. The ocean has completely eroded the “The Hill” target area and an extension of the adjoining rocky beach is all that remains.

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Leo drafted this paper circa 2007 and acknowledges that his research would not have been possible without the assistance of the following former Shearwater-based personnel who gave freely of their time and information: Charles Barter, Rod Bays, Gord Edwards, Ted Gibbon, Rod Lyons, Bob Murray, Joe Paquette, Pat Ryan, John Searle, Allan Snowie, Dave Tate, and Jerry Watson.

As a mentor and colleague, Leo gave me this paper many years ago for comment, but I misplaced it and only recently resurrected it. I have made editorial changes, taking particular care to preserve Leo’s original research, but adding material from my personal experience as well as explanations for those unfamiliar with naval air terminology. Therefore, I take full responsibility for all errors of omission and commission.

Ernie Cable SAM Historian





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