

THE CHEZZETCOOK AIR WEAPONS RANGE

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The Setting

Chezzetcook Inlet is a narrow, north-south trending bay on Nova Scotia's Eastern Shore. It is situated some 12 miles as the crow flies northeast of Halifax Harbour and, like much of the general area, is characterized by numerous "drumlins" -- conspicuous rounded hills created by glaciers during the last Ice Age. The mouth of the inlet fronts on the Atlantic Ocean, and is defined by barrier beaches that connect several near-shore, partially submerged drumlins to the mainland. This combination of natural features was well suited to the establishment of a weapons range for HMCS Shearwater.

Naval operational and training squadrons had been based at the station since early 1946, and among the various activities in which they were engaged was air-to-surface firing practice. Until the early 1950s, this type of work was accomplished with the use of targets anchored in the ocean or towed by ships at sea. The real need, however, was for a shore-based firing range, complete with fixed control and observation buildings, to supplement the use of **Weapons Range.** **seaborne targets.**

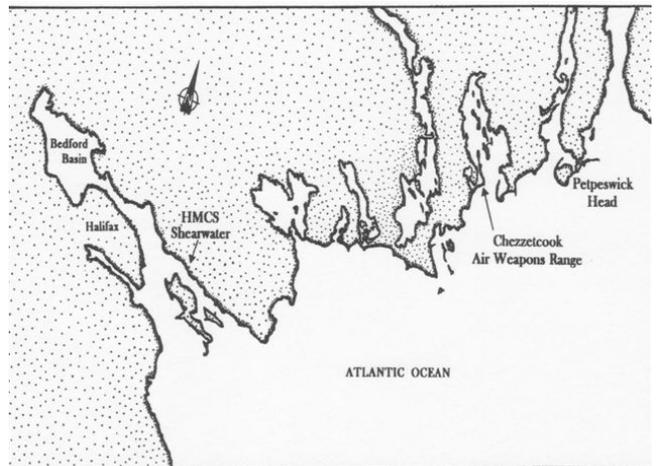


Fig.1. Regional setting of the Chezzetcook

By 1949, the search was on; charts were consulted, and in April of 1950 aerial photographs were taken of the nearby Chezzetcook area. A site on the west side of the inlet near its mouth and adjacent to the tiny Acadian village of Grand Desert proved ideal for the needs of an air-to-ground weapons range (Fig. 1).

Infrastructure

The immediate shoreline of the Grand Desert site was occupied by a prominent drumlin, the slopes of which offered a commanding view of the adjacent harbour mouth. It was on the south, seaward-facing side of this drumlin, some 200 feet above sea level, that the range control tower (call sign "Bomber Control") was situated. According to local testimony, the original tower was actually a barn (or barn-like structure) to which an observation platform was attached. This edifice burned down and was replaced by a tailor-made building designed expressly for the purpose.

Situated at appropriate points in the general area was a pair of quad huts from which aircraft dive angles and fall-of-shot results could be measured. A lagoon separated the shoreline below the tower from a long sandy spit known as Grand Desert Beach. The south end of the beach morphed into an eroding drumlin that formed a small headland referred to by the naval personnel as "The Hill" and by cartographers as "Cape Entry" (see Fig. 2). Targets were placed on the north-facing (landward) slope of The Hill, and for many years, the bombing and rocketry target comprised a ring, approximately 50 feet in diameter, of large whitewashed beach cobbles, with a cluster of more such stones forming a bull's eye in the centre. Derelict tank hulks painted yellow also served as land targets. Another target was positioned within the lagoon adjacent to The Hill. During the

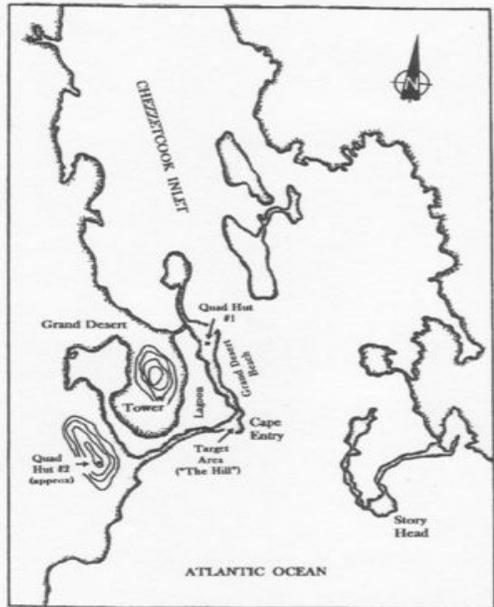


Fig. 2 Local setting and features of the Chezzetcook Weapons Range

Banshee years, the lagoon target was a tethered floating barrel painted a bright florescent red, and this was also the aiming point for rockets and bombs. Circuits over the range were flown in a racetrack pattern, and the target run was invariably north-to-south, i.e., seaward, so that ricocheting ordnance would tend to deflect towards the ocean (designated a "danger area", code-named "Foxtrot"), rather than onto the land.

First Salvoes

There is some discrepancy in the published records as to the official opening date of the Chezzetcook Range. The annual report of the Department of National Defence for the fiscal year 1950-51 notes that it was opened in the autumn of 1950. The official history of Naval Aviation places it in January of 1951 -- specifically, according to pilots' logbooks, on 17 January when Shearwater-based Sea Furies, Fireflies and Avengers put on an inaugural firing display to mark the occasion, and the range was in business.

Armament and Ordnance

The Chezzetcook Range was intended for year-round practice in gunnery, rocketry and light bombing. All of the aircraft types used at the range -- Fireflies,¹ Sea Furies, Harvards, Avengers, Banshees and Trackers -- were armed with rockets and

bombs. High-explosive bombs and rockets were not permitted at any time, and so the high-velocity aerial rockets (HVARs), a.k.a. rocket projectiles or RPs, were all fitted with non-explosive practice heads. Either single or multiple types of ordnance were carried/expended per mission. For example, in one Avenger pilot's log book, the duty column reads "rocket firing" on one occasion, but "R/P & Strafing" on another and "RP's & Bombs" on yet another. Likewise, the log book of a Sea Fury pilot shows that he was conducting "RP V & Strafing" during one particular sortie.

Bombs: At the outset, the bombs were of the small, 11½-lb practice variety of Second World War vintage. They were white and teardrop-shaped with a cylindrical tail. When the bomb struck the ground or a hard object there ensued a loud bang and a cloud of white smoke that was easy to plot. A 16½-lb practice bomb came into use when Trackers were the only aircraft type still using the range.

Bombing exercises ("Bombex's") at Chezzetcook were of two kinds – glide-bombing, in which the aircraft approached the target in a dive, and low-level bombing, in which the aircraft closed the target at low altitude in level flight. Glide-bombing, as opposed to "dive-bombing", involved attacking at less than a 60° dive. In a typical glide-bombing exercise, it was possible to make use of the gunsight. In a low-level Bombex, however, use of the gunsight was not possible, nor were RCN aircraft fitted with bombsights as such. Furthermore, bombs were simply released (dropped). Consequently, effective low-level bombing was as much art as it was science, and more an exercise in judgement than aiming.

Low-level bombing of the sort described above was particularly germane for the ASW aircraft. An altitude of 300 feet was used, for two reasons: (1) it was the tactical altitude at which an aircraft would localize and depth-charge a diving submarine, and (2) it was the prescribed release altitude for the Mk 43 torpedo, giving time for the parachute to deploy before the weapon entered the water. Accuracy was important because of the limited range of the weapon. When the practice target was an old tank with an open turret, the challenge was to drop one's bombs in the turret. If, as the exercise progressed, the pilot was not having much success and the limited on-board supply of bombs was diminishing, the tendency was to get lower and slower so as to increase one's chances of slipping the bomb into the cavity. When straddle-bombing the barrel target in the lagoon, the objective was to drop the first bomb some 40 feet short of the barrel to simulate the initial depth bomb of a stick of four bracketing a submarine. This linear staggering of bombs virtually assured that the target would be destroyed.

Rockets: Throughout the 1950s, the rockets used at Chezzetcook were also surplus from the Second World War. They were of the 3-inch variety that could be fitted with 25- and 60-lb concrete and 25-lb semi-armour-piercing heads for training and practice. The rockets were mounted on rails or zero-length launchers fitted to the undersides of the wings. The Fireflies and Sea Furies had provision for 16 rockets, the Harvards could carry four (two per wing), and the Avenger, eight. The radar pod on the Avengers was positioned immediately outboard of the starboard launchers and hence was subject to damage by the rocket blast from the projectile closest to it. When rocket-firing was scheduled, therefore, either the pod was removed or else the launcher next to it was left vacant.

The fighter-bombers (Sea Furies, Banshees) and the Fireflies were fitted with gyro gunsights mounted atop the instrument panel. These were used to aim both the guns and the RPs. The gyro gunsight was a most useful instrument inasmuch as it compensated for such ballistic behaviour as "trail" (drag) and gravity drop, as well as for wind speed and direction. The Mk 8 reflector gunsight fitted to the Avengers possessed similar advantages. In a Tracker, the rocket-firing exercise ("Rocketex") was rather more involved than the routine described above for the Bombex. The sight comprised a small ball ("pipper") mounted atop a post positioned on the nose of the aircraft just forward of the pilot's windscreen. Stencilled on the windscreen were horizontal and vertical "mil" lines. By holding the pipper in line with a particular vertical "mil" line, the pilot could correct his aim for the drop of the missile in flight and for drift caused by a crosswind. The approach to the target was to be flown at an angle of between 20° and 25°.

By the early 1960s, the 3-inch RPs were being supplanted by the 5-inch variety. The last type to be used at Chezzetcook was the 2.75-inch folding-fin aerial rocket (FFAR). Initially, these were carried singly on under-wing pylons, but by the time the range went out of active use, the Trackers were firing their FFARs from reusable LAU 59 rocket pods (LAU stands for "launcher aircraft unit") capable of carrying six rockets each. Earlier on the Trackers had presented something of a problem in that they were fitted with de-icer boots on the leading edges of the wings, and these often had to be changed due to scorching by the rocket blast. This problem was solved by the adoption of the pods. The Banshees were not fitted with de-icer boots, and so scorching problems did not arise in their case; however, the jets were retired in August of 1962 and the 5-inch rocket went out of vogue shortly thereafter.

Guns: In addition to bomb racks and rocket launchers, the Fireflies, Sea Furies and Banshees were equipped with 20-mm cannon and the Avengers with .50-calibre machine guns. These were used for strafing practice at the Chezzetcook range, and for this purpose three large, heavy wooden frames were placed upright with resin-covered fabric attached to them. The ammunition was painted different colours, each of which was assigned to the different pilots using the range at any one time. After the aircraft had finished their firing runs, the holes were counted and credited to the respective pilots. The Harvards carried a single .303, but the Trackers did not carry guns of any kind, that sort of weapon being considered passé in anti-submarine warfare by the time the Trackers came on strength.

Procedure

In the normal scheme of things, two types of attack were conducted at the Chezzetcook range – live and dummy. Dummy runs, so called because no ordnance was fired or released, were frequently conducted at the beginning of a session so that the tower could confirm that the aircraft had the correct dive angle. By this means, the pilot could correct his angle if necessary before proceeding with the live runs. Then, through the combined efforts of the personnel in the quad huts and the control tower, the aircraft dive angle, fall of shot bearings and yardage error of each run on the target were duly recorded and the appropriate information relayed forthwith to the firing aircraft via the Range Control Officer stationed in the control tower. In the interest of safety, the minimum ceilings for the various uses of the range were as follows: rocketry and glide bombing – 2,000 feet;

low-level bombing – 1,500 feet; gunnery – 2,000 feet. The altitude and slant range were critical for the rockets in particular because the motors had to burn out just prior to impact to limit the distance ricochets could travel. Daytime exercises were forbidden when either flight visibility was less than 3 miles or when ground visibility was less than 1 mile. In the early years of range operation, a crash boat was positioned in the vicinity while the facility was in use.

If for whatever reason an arriving aircraft could not be cleared to join the range, or if an exercise was in progress and an emergency arose, the pilots were directed to the Waiting Position located three miles up the coast above Petpeswick Head. The range could be used between sunrise and 2359 under VFR conditions. Note that business hours continued after sundown, when both bombing and rocket practice were conducted. These night time sorties were facilitated by a ground-sited, illuminated arrow that guided the pilots to the target.

Incidents

Military flying being what it is, a number of crashes occurred near the range during armament practice due to engine failures. In September 1957, while conducting rocket and bombing proficiency work, a VU 32 pilot flying an Avenger lost power and had to ditch in the ocean adjacent to the range. Two years previous, a VS 881 Avenger had belly-landed on the nearby flats when the tide was out. A mobile crane was brought to the site and the TBM was hauled ashore, but not before the tide had come in and flooded it with seawater. As a consequence, the aircraft was a write-off. On yet another occasion, a VF 870 Sea Fury suffered engine failure that resulted in a wheels-up forced-landing in a farmer's field adjacent to the range.

Immediately upon firing a rocket, the pilot was to raise the nose to the horizon and execute a climbing left-hand turn for another firing run; it was verboten for him to follow the ordnance down to observe the hit, as this increased the possibility of the aircraft being struck by a ricochet. For the same reason, rockets were not to be fired below an altitude of 1100 feet because the rocket motor would still be burning when the head struck home, and once again rebounds were a potential threat. Nonetheless, it was not uncommon to be hit by flying debris on rocket runs; on one occasion, a Tracker had a ricocheting rocket head lodge itself in the leading edge of a wing inboard of the engine after proceeding unimpeded right through the propeller arc!

Ordnance ricocheting out to sea posed a hazard to fishermen transiting the harbour entrance. To deal with this situation, an HU 21 helicopter was dispatched to clear the range prior to use. This was accomplished with a Sikorsky H04S equipped with a voice amplifier attached to its fuselage. To further alert the locals that the range was manned and scheduled for use that day, a light on the tower was switched on and a red flag raised. Another flag was raised down on the beach leading to the lagoon and the target areas. If an emergency cease-fire became necessary, a red flare was fired from the control tower with a Very pistol. A green flare, used when radio communication had not been established, signalled that dummy runs only were permitted, while a yellow flare meant "no firing and return to base."

The Army's Involvement

The Navy was not the only service that had a presence at the Chezzetcook range in the years prior to Armed Forces unification. Although anti-submarine warfare was the leading role of the naval air arm, an important secondary task for which it trained was close air support for the Army. Between 1951 and 1953, exercises were conducted at the range in conjunction with Army personnel and equipment. The objective was to give practical experience to naval pilots (called "observers") in artillery reconnaissance, or ArtyR, whereby aircraft directed artillery fire onto targets via radio communications with the gunners on the ground. At Chezzetcook, the soldiers would simulate artillery rounds with explosive charges known as "thunderflashes." An army truck served as a simulated target, and a ground controller would signal to the pilot that a "round" had been "fired" (i.e., a thunderflash detonated). It was then up to the pilot to spot the burst and smoke from the thunderflash, and give his corrections in yards for what he thought would bring the next round on the target. For training in live ArtyR, the squadrons deployed to the Camp Shilo weapons range in far-off Manitoba.

Squadrons

Both Regular force and Reserve squadrons held forth at the Chezzetcook range. The Shearwater-based operational and second-line squadrons practiced there regularly, and special programmes were held before heading to Rivers or Gagetown for the intensive armament training and co-op workups with the Army. During their summer camps at Shearwater in the 1950s, Reserve pilots from around the country carried out strafing, bombing and rocket practice at Chezzetcook in VT 40 Harvards and Avengers under the watchful eye of the squadron's Advanced Training Flight. Trials were carried out by VX 10 with the 5" rockets on the CS2F and the Banshee in 1960 and 1961 respectively. VX 10 also did test firings of LAU-32 rocket launchers cum 2.75" FFARs from 1963 through 1966 with an eye to solving the scorched de-icer boot problem.

In December 1973, the government revised its defence policy. This brought a change in function of the sole remaining fixed-wing operational squadron based at Shearwater at that time. VS 880's mandate was now heavily weighted toward fisheries, pollution and sovereignty patrol in place of ASW. The squadron was re-designated "MR 880" in early 1975 to reflect its maritime reconnaissance orientation. On 1 May 1974, MR 420 Reserve Squadron had been formed at Shearwater and augmented MR 880 by sharing Trackers in coastal surveillance. An air-to-surface offensive capability was still required, and the ordnance of choice for anticipated targets -- lightly-armed surface vessels -- was the rocket projectile. Accordingly, the Chezzetcook range continued in use throughout the 1970s.

Bravo Zulu

Like most other fields of endeavour involving two or more individuals, armament practice lent itself to friendly competition. In 1970, a contest was organized whereby airmen of VS 880 Squadron could vie for trophies by applying their skills at the Chezzetcook range, and most squadron crew commanders and some co-pilots competed. They dropped four practice bombs each, and to the winner of this Bombex went the "Best Bomber Trophy." Organized along much the same lines as the bombing competition was the rocket-firing contest whose winner netted the "Rocket Trophy." Another prize was the "Blew-It Trophy"; the pilot who collected this one got two bull's-eyes and missed the target completely with his other two bombs. The

Blew-It Trophy was originally HMCS Bonaventure's "Bolter Trophy," awarded to the pilot who missed the carrier's arrester wires most often when landing.

The End