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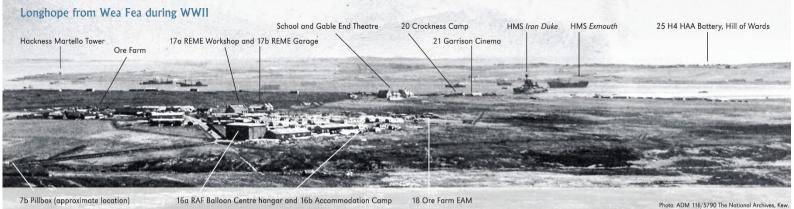












A legacy of conflict

Hoy is the second largest of the Orkney Islands and forms most of the south and west limits of Scapa Flow, the great natural harbour used by the British Navy as a strategic anchorage during both World Wars. It is ideally situated as a naval base from which to support convoy operations and maintain patrols over the North Sea and North Atlantic.

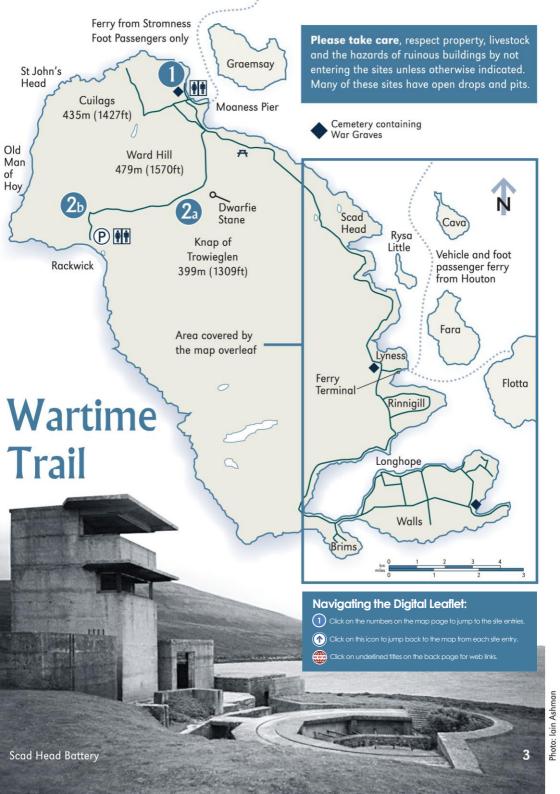
Scapa Flow was selected as the Main Fleet Base for the British Home Fleet just before the outbreak of WWII. When war was declared in September 1939, early attacks by both sea and air demonstrated the inadequacy of the existing defences. In October 1939 HMS Royal Oak was sunk by a German U-boat with the loss of 835 lives. Air attacks followed, damaging other warships including the flagship HMS Iron Duke. However, by mid 1940 substantial improvements had been made and the Orkney Islands became one of the most heavily defended areas in Britain.

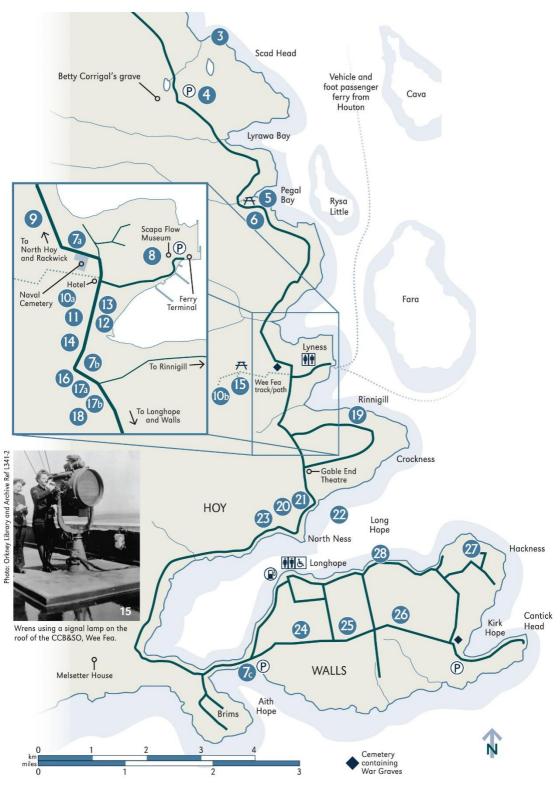
Defences and facilities were built throughout Orkney but the island of Hoy in particular became a hive of activity with tens of thousands of military and civilian personnel involved in defence, supply, maintenance, training and communication. From Rackwick Bay to Cantick Head the island and its community served the war effort as hotels, homes and farmland were requisitioned and the moorland covered with concrete installations and camps of prefabricated huts.

At the peak, about 40,000 personnel were stationed in Orkney, but by the end of the war the numbers had been much reduced and eventually all the armed forces departed leaving behind a landscape and people profoundly marked by their brief but dramatic stay.

With the highest concentration of well-preserved wartime sites in Orkney and perhaps one of the least disturbed WWII defence landscapes in the UK, the Island of Hoy is now home to a remarkable but little known material legacy from recent world conflict.









This was one of the coast batteries that protected the north-western approach to Scapa Flow during WWII, the others being at Stromness (Links and Ness), Houton Head and Scad Head. A battery was built on Graemsay, next to Hoy Low Lighthouse, though not fully commissioned until March 1945. A journey to Hoy on the Stromness - Moaness ferry will bring you very close to the Graemsay site as well as offering distant views of the Skerry and Ness batteries.

Skerry battery consists of two 12-pounder gun emplacements, crew shelters, an ammunition magazine, the two-storey battery observation post, two engine houses in reinforced Nissen huts and two searchlight emplacements. The adjacent accommodation camp consisted of two rows of huts sited just to the left of the remaining buildings. Skerry battery takes its name from the rocky reefs (skerries) nearby.



2a

South Burn Anti-Aircraft Searchlight Battery (AASL HY1.2)

The archaeological remains of AASL batteries can be difficult to identify though many of the 18 sites built in Hoy and Walls in late 1939 survive in good condition. These were very basic positions that formed part of Scapa Flow's air raid defences with the 10-man detachments often located in remote spots far from the amenities enjoyed by other troops. AASL HY1.2 in the South Burn valley is visible as a collection of low grassy mounds amidst the heather on the south side of the road approximately 1.1 km past the Dwarfie Stone when heading towards Rackwick. The enlarged passing place on the battery side of the road is a convenient viewpoint.

2b

Rackwick Bay (AASL HY1.3)

Located on the west side of the footpath to Linksness c.160m north of where the path leaves the road is a large, circular enclosure about 10m diameter and built of peat and turf. This was the emplacement for an anti-aircraft searchlight positioned here from 1944 until the end of the war. The remains of air raid shelters and a light anti-aircraft machine gun position can also be seen surviving as low grassy mounds nearby. The searchlight was originally sited 100m further inland on the other side of the path where the corner of the concrete ablutions block foundation is still visible; it was redeployed in 1944 to make way for a 40mm Bofors light anti-aircraft gun brought in to counter low flying aircraft that had started using the South Burn Valley to approach Scapa Flow undetected.



Scad Head Coast Artillery Battery, Camp and Tramway

You can reach this extensive site either by following the trail from the Lyrawa Hill viewpoint (site 4) or by the steep footpath that follows the old route of the cable operated tramway. There is a Scapa Flow Landscape Partnerhip Scheme (SFLPS) information board near the shore. Parking is available at the lay-by for Betty Corrigall's grave.

4 H7 Lyrawa Heavy Anti-Aircraft (HAA) Battery

The remains of a Norcon type cylindrical concrete pillbox marks the entrance to a short track leading to the Lyrawa Hill viewpoint. Alongside the track are the remains of a HAA battery including gun and searchlight emplacements, a 'dummy' decoy emplacement, the concrete bases of an accommodation camp, defensive positions and ammunition stores. An information board at this site describes the circular walk that takes in Scad Head Battery.

Pegal Burn Barrage Balloon Site

Rough parking available nearby on the south side of road exactly 0.22 miles NE of Shell Hill (before the passing place).

Low-zone (LZ) barrage balloons were used to protect the Fleet and military installations from aerial attack by forcing enemy aircraft to fly higher and reduce the accuracy of their bombing. The standard LZ balloon was 19.5m long, and weighed about 270kg. They were filled with hydrogen and designed to fly at an altitude of up to 5000 feet. The balloons deployed around Scapa Flow were either flown from a fixed site on land or from a small ship (a balloon trawler). The Pegal Burn site is a typical installation consisting of three concentric rings of concrete blocks used as mooring points to tether the balloon down when it wasn't flying and a central block that was the anchor point for the wire cable used for lowering and raising the balloon using a truck-based winch. Most of the blocks are still visible amongst the moss and heather; the outer ring is about 26m in diameter. There was another balloon mooring site approximately 750m further north (see also site 16).



6 Shell Hill Engine House

Engine houses like this are usually found in conjunction with coast artillery batteries where they provided electrical power for searchlights, gun systems and associated accommodation. This building is constructed around a Nissen hut and reinforced with a concrete outer skin as bomb-proofing; this example also has a concrete block extension to the rear which would have housed three diesel generator sets. You can see three ventilators on the flat roof. The exact purpose of this particular installation is unknown as there is no coast artillery battery nearby, though it seems likely that it would have supplied power to some of the many of the remote military sites in the area. Graffiti found inside suggests it was built by 669 Artisan Works Company, Royal Engineers in 1942.





mage courtesy of David Thomas/Airgroup4.com

Photo: Ian Collins





7a 7b 7c Pillboxes at Lyness, Burn of Ore and The Ayre

There are three similar hexagonal reinforced concrete defensive structures on this trail. Usually known as pillboxes, these examples were constructed in 1939 as part of anti-invasion preparations for the Hoy Defence Scheme. They are of a semi-standard design called Type FW3/22 that can be seen across the UK though these three are unusual in having a sunken entrance rather than a doorway in one of the faces. The walls are about 400mm thick with tapered openings known as 'loopholes'. Prepared defensive positions, strongpoints and pillboxes were built across the island to defend vulnerable points from attack by parachute troops or commando-type raids landed by sea. Most of these positions were maintained by Army infantry units serving a 12-month tour of duty. Orkney was considered an overseas posting and personnel were paid at an enhanced rate. Regular exercises and occasional mock attacks were carried out to test the defences and train the troops in combined operations with Navy and RAF units.



Lyness Naval Base

Sites here are described in the Lyness Wartime Trail, copies available at the Museum.



Mill Bay Naval Camp

Also known as Burn Camp, plans from 1943 suggest that this site had c.80 buildings, over 60 of which were accommodation huts. This camp is notable for its 'dispersed' layout. It was built at the height of the air raid threat in order to move personnel away from the fuel oil storage tanks at Lyness, a prime bombing target. Little now remains apart from foundations and roadways.



Oa Furnace Fuel Oil Pumphouse No.2 and Underground oil storage tanks, 10b Wee Fea

Pumphouse No.2 is one of the few visible signs of a civil engineering masterpiece. It was built by Sir Wiliam Arrol & Co. in 1937 as part of an Admiralty contract to provide bomb-proof storage for 100,000 tons (113 million litres) of fuel oil in six vast reservoirs deep under Wee Fea hill, 1km to the north-west. The pumphouse was equipped with two large diesel-powered pumps that filled the reservoirs from the above-ground tanks at Lyness via a pair of buried pipelines. Each reservoir is 237m long, 9m wide and 13.5m high. They were excavated between 1938 and 1943 by a workforce of thousands and the extracted rock used to reclaim land and build the Golden Wharf at Lyness. The facility was decommissioned in 1972 but remains in remarkably good condition.



The pump house from the Hoy Hotel, 2018



The pump house interior.



The portal to the underground reservoirs.





Royal Navy Base Fire Station

The fire station building was once much more extensive; you can see the semicircular outlines of two Nissen huts that were attached to the southern facade. During WWII the station would have been surrounded by accommodation huts of the Upper Dockyard Camp and the nearby Royal Marines Camp (point 14).

Fire was a major hazard, whether accidental or caused by an air-raid. The massive fuel-oil storage tanks, hydrogen production for barrage balloons, clusters of timber buildings, temporary accommodation camps for thousands of personnel and the sometimes dry surrounding moorland all posed a risk. In the early days of WWII this building was home to firefighting equipment initially staffed by the Royal Marines and from late 1941 by the newly formed Royal Naval Fire Force. Both were under the command of the Passive Defence Organisation (PDO) which was based at a control centre complete with a lookout tower which remains standing in Lyness. The Force had island-wide responsibility for fire precautions, the maintenance of fire appliances and also for the training of personnel in firefighting techniques. There was a fire training school at Rinnigill (site 19).

Photo: ADM 116/5790 The National Archives, Kew.



12 Royal Navy Laundry

This group of what appear to be agricultural buildings was once the Royal Navy laundry. Construction work began in September 1941 with the laundry becoming operational in April 1942. The laundry handled work from the Fleet as well as all the other services on the island. It was at its busiest during 1944-45 and had a staff of up to 58. The main output was bedding; during three years of operation the laundry washed 170,000 blankets. 🕟



Photo: Gavin Lindsay

Passive Defence Organisation (PDO) Decontamination Centre

This is one of three decontamination centres constructed around the base that would be put into operation in the event of a gas attack (you can see the other surviving example at point 11 on the Lyness Wartime Trail). These buildings were purpose built to a standard design, each with their own boiler room, water tank and separate facilities for men and women, all on a one-way layout with airlocks at the entrance and exit.



Royal Marines Camp, Dockyard Camp and Engineers Store

During WWII this open stretch of land was home to thousands of military and dockyard personnel. Carved into the hillside along the west side of this stretch of road are the concrete foundations, terracing and roadways that are the only visible remains of two groups of camps. Wartime plans show the outlines of at least 110 buildings of which approximately 80 were for the Royal Marines and 30 were for dockyard workers, the latter sited below the Oil Pumphouse. Originally called the Auxiliary Battalion, the Marines arrived here in March 1940, pitched their tents in the mud and set to work digging drainage ditches, preparing foundations, constructing roads and unloading vessels at the pier before eventually erecting their own camp huts. In October they were reorganised as the 19th Battalion Royal Marine Engineers; amongst their many achievements was the construction of the CCB&SO (site 15) on Wee Fea between March 1942 and September 1943. They were also trained for combat duties as part of the Hoy defence force. Across the road, you can see an upstanding section of a prefabricated concrete air raid shelter which marks the position of a RM Engineers store. The photograph shows the Royal Marine Engineers Camp and the slopes of Wee Fea c.1945.

Royal Navy Central Communication Building & Staff Office (CCB&SO) Wee Fea

The CCB&SO and its three aerial towers are visible in the top-right corner of the above photograph. Completed in September 1943, this blast-proof building was the HQ for the Admiral Commanding Orkney & Shetland (ACOS) and was also the hub of a complex communications network. It provided secure telephone, telegraph, morse and radio links between the Fleet, other facilities in Orkney, the UK mainland and the Admiralty in London. Laid out like a ship, complete with portholes, a flag deck, mast and signal-bridge, it had a staff of over 270 the majority being Wrens (Women's Royal Naval Service). Further information about this unique building is available at the Scapa Flow Museum.



No 20 Balloon Centre Accommodation Camp for 950 Barrage Balloon Squadron

Between the large REME workshop and the wind turbine are the remains of the RAF Barrage Balloon Centre and its accommodation camp. Construction began in January 1940 (see photograph). By 1941 there were 56 balloon sites in the so called 'Viking Barrage' of which 40 were based on the east side of Hoy and on the islands of Flotta, Cava and Fara with the remainder being flown from trawlers. By 1943 there were 81 sites in the barrage. The balloon repair section was

Photo: Courtesy the Warner family and Peter Garwood. Album copy is held by Orkney Library and Archive kept busy trying to maintain the barrage in airworthy condition; many balloons were damaged or lost in storms. Attempting to moor them in a breeze could be difficult and occasionally dangerous, the sudden breakage and consequent whiplash of the main winch cable could inflict serious injury.

Most of the hydrogen used was shipped in cylinders from mainland Scotland though a hydrogen plant was built at Rinnigill (see site 19) towards the end of the war. The squadron was moved to England in 1944 to help protect London from V1 and V2 flying bombs. The balloon hangar and surrounding RAF camp buildings can be seen in the wartime panorama (overleaf), all that remains now is the large concrete slab that formed the base of the hangar, rubble and the concrete foot paths that once ran alongside the timber accommodation huts.

17a 17b Royal Electrical & Mechanical Engineers (REME) buildings

The large and prominent building on the brow of the hill and set back from the road is the shell of the REME vehicle workshop. Much of the interior is lined with red engineering bricks though part of the north gable has a large section of glazed red and white brickwork demonstrating a high standard of craftsmanship. There are partitioned workshop spaces, inspection pits and an attached boiler house for the heating system. Many of the original metal-framed windows are still intact. The porthole-like opening on the north end was for an extractor fan.

Nearer the road is the REME vehicle garage with a single sliding door entrance, blue tinted skylight windows and an overhead gantry crane. The small cement rendered brick building next to the garage is a boiler house and coal store which would have served the large tube type wall radiators that survive in the garage. Elsewhere on the island, the technicians of the REME would have carried out specialist maintenance and repair of equipment such as anti-aircraft guns, searchlights and radar sets.

These two buildings and the nearby ammunition magazines are the only standing remains of the many buildings that once covered this area.









hotos: Ian Collins

18 Equipment Ammunition Magazine

This was the main ammunition magazine for the Army's anti-aircraft guns on Hoy & Walls. There were originally six concrete magazine buildings, built to a standard design found throughout the UK. They were rectangular in plan, with buttressed blast walls and earth banks. Each contained numbered bays where crates of ammunition were stored after arriving by ship at Lyness. When required, the ammunition crates would be moved manually using a metal rolling rack system installed along the interior walls and then loaded into trucks through the steel doorways at either end. From here they would be transported to smaller magazines located next to the individual gun batteries around the island. The remains of tall metal posts that once supported a security fence can still be found in the surrounding moorland.



Rinnigill area

Close to the Arctic Convoy Memorial in Lyness there is a SFLPS information board describing the extensive Rinnigill site. The panorama overleaf shows the view from the Lyness-Flotta ferry.



Crockness Camp

The two brick buildings here are all that survive of an extensive accommodation camp constructed in 1943 for the crews of the 10th and 23rd Landing Craft Tank (LCT) flotillas. These two open plan buildings probably served as canteens for the camp. They are surrounded by the concrete bases of at least 16 timber accommodation huts.

The LCT was the largest landing craft used by the Royal Navy and 30 of them were converted by the Boom Defence Office at Lyness to serve as close-protection anti-torpedo vessels by suspending 9 metre deep anti-torpedo nets below their hulls. The LCTs could then be moored alongside any large vessels that needed to be protected. The pier at North Ness was constructed in September 1942 to service the LCTs and land the crews. The scheme was not entirely successful and in April 1944 the flotillas left to take part in Operation Neptune, the air and seaborne transportation of allied forces for D-Day. In less than two months, the LCT crews who had been living at Crockness found themselves landing Canadian troops on Juno Beach in Normandy.





Photo: Orkney Library and Archive Ref. L1855-1



The Garrison Cinema

This impressive Art Deco style building was opened by the Admiral Commanding Orkney & Shetland (ACOS), Vice Admiral Sir H. Harwood KCD OBE on 18th April 1944 to provide an entertainment and training venue for all service personnel stationed south of Ore Burn. It consisted of two large corrugated iron curved roof halls attached to a concrete rendered facade, the latter now a private residence. One hall was a cinema and the other a theatre where well-known artists such as the violinist Yehudi Menuhin performed.

If you had descended the hill by the Garrison Cinema during WWII the view would have been dominated by a WWI vintage dreadnought battleship. HMS *Iron Duke* was originally moored at the mouth of Ore Bay near Lyness where she served as the flagship and headquarters. She was bombed and badly damaged in the first air raid on Scapa Flow on 17 October 1939, following which she was towed into Long Hope and beached to prevent her from sinking, only to be damaged again during a major air raid on 16 March 1940 when 18 Junkers Ju 88 bombers attacked the harbour and surrounding installations.

After more repairs and pumping out of flooded compartments, HMS Iron Duke continued to play a significant role for the rest of war although ACOS moved to new offices at the Head of Right in Lyness. She became the base for the Scapa Auxiliary Patrol as well as a floating anti-aircraft platform, depot, store and repair ship victualling more than 50 attached vessels. She also accommodated courts martial, an ophthalmic surgery unit and a bakery that produced more than 450kg of bread per day.



Photo: ADM 116/5790 The National Archives, Kew



Photo: ADM 116/5790 The National Archives, Kew.

Royal Navy Hospital (also known as RN Sick Quarters)

What appears to be an agricultural shed at the top of the driveway was once the officers' ward of the North Ness Hospital and is the last remaining 'temporary' building on the site. The open-plan, centrally heated hospital was built on this south facing slope using timber with fireproof cladding. It was opened in October 1940 to supplement hospital ships, sick-bay and field-hospital facilities in Hoy and Walls. When fully operational it had 114 beds and included an isolation block for treating infectious cases. There were X-ray, laboratory, dispensary and operating facilities and accommodation for medical staff. Major dental surgery and training for first-aid parties was also undertaken here.

Gallow Tuag on the road from The Ayre. Wireless Station (left) and water tanks (right)

Gallow Tuag. Fresh Water Storage Tank and Royal Navy Wireless Telegraphy (W/T) Station

The red brick building adjacent to the road was completed in February 1941. It contains the rusted remains of storage tanks with a capacity of over 450,000 litres that were once part of an extensive water supply system which included over 25km of high-pressure pipeline connecting Mill Burn Reservoir (north of Lyness) & Heldale Water (above Melsetter) to the military facilities in Lyness, Rinnigill and South Walls as well as to the many ships moored or taking on supplies in Scapa Flow. The whole system was designed to provide over 4 million litres per day.

Opposite is the Royal Navy W/T Station. Operational from February 1941, it consists of a group of five brick and concrete buildings at the end of a short track. From left to right you can see a small isolated building of unknown function, the fuel-oil store (exposed brickwork), the diesel generator house/workshop, the two-storey transmitter hall and behind this the staff offices. In the fields to either side of the track are the remains of concrete foundation bases for the three communications masts. The station was equipped with 11 transmitters and was originally connected by cable to the offices of the ACOS which were located at Head of Right in Lyness. When ACOS moved to the new CCB&SO (site 15) in September 1943 it became possible to control some functions of the W/T station remotely. The station crew and their pet dog can be seen in the cover photo. The station was decommissioned around 1957 following the closure of the Lyness Naval Base.



H4 Hill of Wards Heavy Anti Aircraft (HAA) Battery camp and radar site

Some 750 metres east of Gallow Tuag (before you reach Stromabank) is the H4 HAA battery. Either side of the road you can see the concrete foundations of pre-fabricated accommodation huts. On the summit of Hill of Wards (to the north) is the technical area of the battery consisting of four earth-banked concrete emplacements for each of the 3.7-inch guns evenly positioned in a semi-circlular arc around a central command post. Each emplacement has an ammunition locker and crew shelter. The command post housed equipment for calculating the trajectory of approaching hostile aircraft, the crew restroom and the all-important telephone link to the central Gun Operations Room in Kirkwall. This is one of the two HAA batteries located on South Walls, the other being at Eastbister. There was also a decoy site, still visible today, near Newhouse in Hackness.

Less than 150m further north is a concrete platform and ramp for a mobile gun-laying radar set, designed to assist with aircraft detection and targeting. Surviving around the platform are some of the hundreds of wooden posts that would have suspended a huge octagonal mat of chicken-wire 120m across and 1.5m above the ground. The performance of early radar was badly affected by uneven local terrain; the suspended 'ground mat' was designed to provide a flat reference plane to allow accurate and stable calibration of the radar equipment. Extensive use of this technology during WWII caused a UK wide shortage of chicken-wire.



Photo: Ian Collins



Lining the north side of the road are eight concrete bases for Nissen huts, some of which still have standing gable-ends. Although huts like these were often used for accommodation, these larger examples are believed to have been used as dispersed ammunition storage for the four 4.5-inch HAA guns positioned at the nearby H3 HAA Battery (c.500m further west). Each hut would have stored approximately 2,600 rounds of ammunition supplied from the main magazine at Ore Farm (site18) and would have been used to replenish the stocks held in the lockers next to each of H3's guns.





Hackness Martello Tower and Battery

Managed by Historic Environment Scotland and open to visitors.

For information telephone 01856 701727

This carefully preserved Martello tower and its twin at Crockness were constructed in 1813–14, at the height of the Napoleonic Wars when French and American raiders were wreaking havoc on British merchant convoys. These towers protected the entrance to the safe anchorage in Long Hope Sound. The Hackness site was used as a naval lookout in WWI and the Crockness tower as a radar station in WWII.





The YMCA building, Longhope

During WWI the Home Fleet was based around Longhope with the Admiral resident in The Longhope (now Royal) Hotel. This timber building near the shore was built as a canteen during WWI and was probably used as an entertainment venue during WWII. Extensively refurbished in 2000, it now functions as a community centre, still known as 'The YM'.



econd Digital Edition October 2022 by Gavin Lindsay.

This leaflet is the companion to the Lyness Wartime Trail and offers an introduction to a few of the many hundreds of wartime archaeological sites across Hoy and Walls. The selected sites are visible from public roads, paths or from the ferry.

Please take care, respect property, livestock and the hazards of ruinous buildings by not entering the sites unless otherwise indicated. Many of these sites have open drops and pits.



Photo: ADM 116/5790 The National Archives, Kew.

Scapa Flow Museum

Located a few minutes' walk from the Lyness ferry terminal, the Scapa Flow Museum occupies part of the former Lyness Royal Naval Base and includes the impressive fuel-oil pumphouse of 1937 complete with its original boilers and pumps. Nearby is a tank that once held 12,000 tons of fuel oil, the last remaining example of the 16 that were on the site. The museum has a rich collection of artefacts that illustrate the military and social history of Scapa Flow, concentrating on its role as a base for the British Fleet during the two World Wars. There is a shop, café and toilets. Admission is free.

The Lyness Wartime Trail (Wartime Orkney Leaflet No.1) describes a 2 mile self-guided walk around the remains of the base. Free copies are available at the Museum.

email: museum@orkney.gov.uk

www.orkney.gov.uk/Service-Directory/S/scapa-flow-visitor-centre-and-museum_2.htm

Other exhibits and visits relating to the wartime heritage of Orkney:

Stromness Museum tel: 01856 850025 www.stromnessmuseum.org.uk

The Orkney Museum (Kirkwall) tel: 01856 873191 www.orkneymuseum.wordpress.com

Ness Battery (Stromness) tel: 07759 857 298 www.nessbattery.co.uk

HMS Tern/RNAS Twatt, Birsay Heritage Trust, tel: 07470 381237 www.hmstern.co.uk

Orkney Wireless Museum (Kirkwall) tel: 01856 871400

Hoy Kirk Heritage Centre, www.hoyheritage.wordpress.com

Orkney Fossil and Heritage Centre (Burray) tel: 01856 731255 www.orkneyfossilcentre.co.uk

For further archaeological information and archive photographs visit:

www.hoyorkney.com and www.canmore.org.uk

To discover more about the **National Museum of the Royal Navy** please visit: <u>www.nmrn.org.uk</u>

Acknowledgements: With many thanks to The Orkney Archaeological Society, Orkney Islands Council and The National Museum of The Royal Navy for financial support. Thanks also to John Budge, Peter Garwood, Andrew Hollinrake, Chris Loosemore, Catherine & Michael Moldau, Grace & Ian Robertson, Stanley Thomson, Lesley Warner and also to the staff of Scapa Flow Museum and Orkney Library & Archive.

Concept, text and editorial Gavin Lindsay and Ian Collins Design: Iain Ashman Design