



Nº3

SCAPA FLOW EASTERN DEFENCES & FLOTTA



WARTIME TRAIL



THE
NATIONAL
MUSEUM



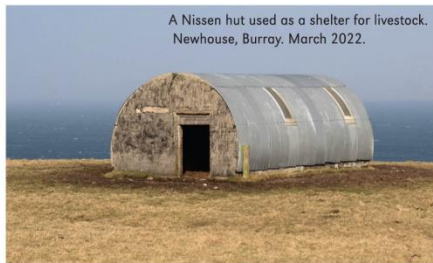
The Home Fleet in Scapa Flow as seen from Gaitnip before WW2



Photo: family collection of Evelyn Eunson

The Churchill Barriers

The loss of HMS *Royal Oak* resulted in the decision to close the four eastern channels with permanent causeways. Construction began in mid 1940 and was completed by September 1944. The strength of the tidal flows and the depths involved (up to 18m) made the task difficult. Each barrier has a core of loose rubble and 5 ton gabions (wire baskets filled with rock), topped with concrete. These are flanked by 5 ton concrete blocks that are in turn overlaid with 5 and 10 ton blocks placed in a random pattern to break the force of the sea. This project required the construction of a rail network, 3 piers, 5 power stations, 5 blockyards and accommodation for a workforce of over 2000, of whom 1300 were Italian prisoners of war. Seven local quarries provided rock for the production of over 66,000 blocks and an additional 330,000 tons of concrete. The gabions and blocks were dropped into place by aerial cableways, each of which was about 760m long and suspended from pairs of masts some 60m above the ground.



A Nissen hut used as a shelter for livestock. Newhouse, Burray, March 2022.

Photo: Ian Collins

Nissen Huts

This iconic hut was designed by Peter Nissen, DSO (1871–1930), originally a mining engineer before serving as an officer in the Royal Engineers during WW1. He developed the hut in 1916 as a prefabricated standard design that was easily transported, erected and dismantled. It consisted of a series of steel hoops covered with curved sections of corrugated iron and lined with a range of materials such as timber. There were three standard widths which could be extended to any length. The end walls of the smaller huts were often wooden, though metal, brick, concrete blocks or local stone were also used and might be adapted by the addition of dormer windows or a chimney stack. Huts at vulnerable or important sites were protected by a layer of reinforced concrete.



SS Carron

SS Pontos

SS Collingdoc

No. 4 Barrier, Water Sound from Burray

Blockships lost in the sand See point 16 overleaf



July 1990

SS Carron

SS Pontos

SS Collingdoc

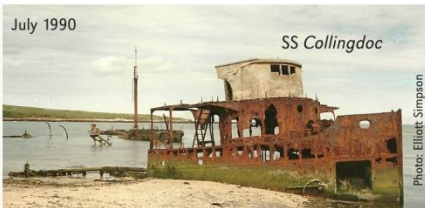
Photo: Elliott Simpson



September 2009

SS Carron

Photo: Iain Ashman



July 1990

SS Collingdoc

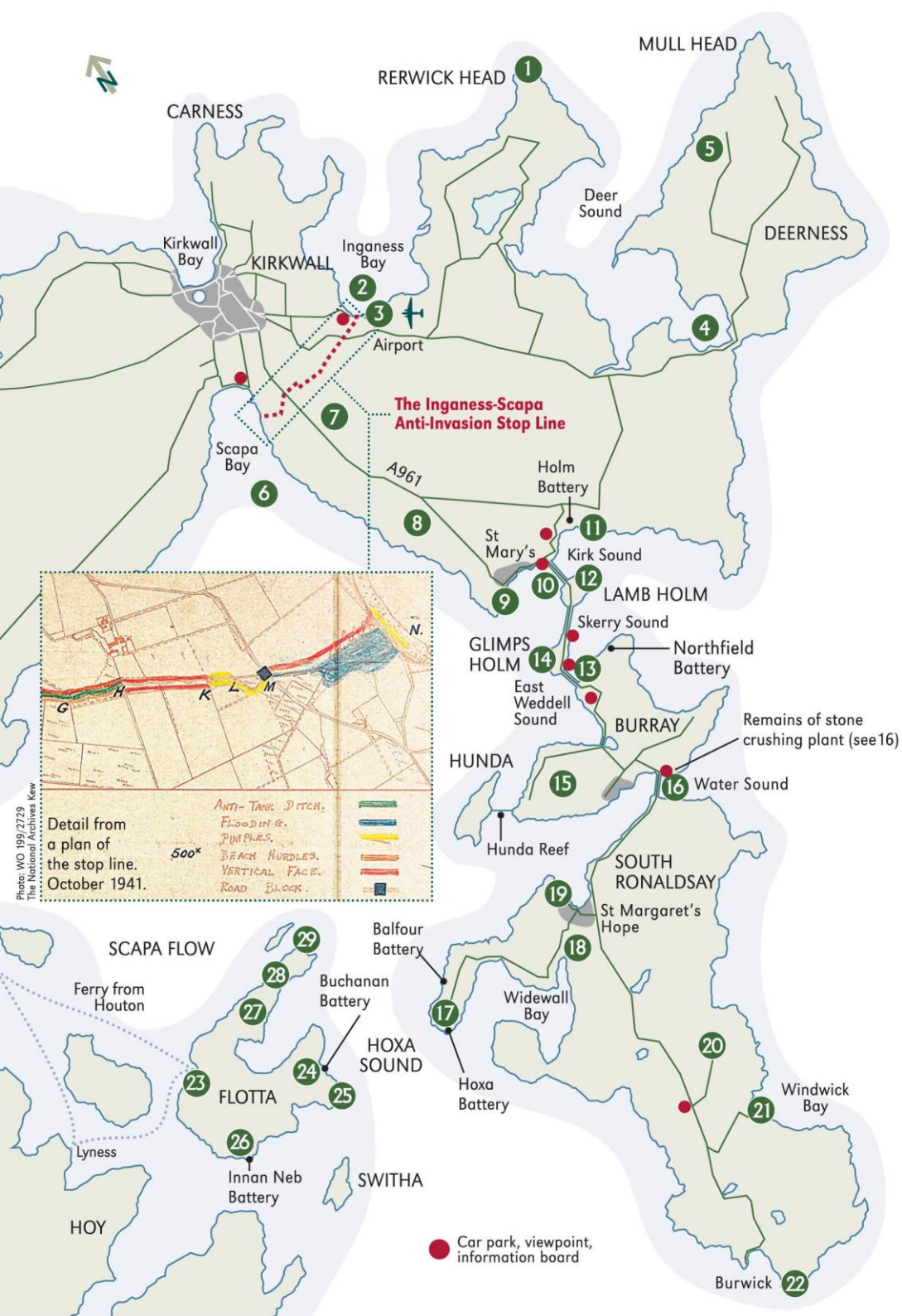
Photo: Elliott Simpson



March 2022

SS Collingdoc

Photo: Ian Collins



**The Ingness-Scapa
Anti-Invasion Stop Line**

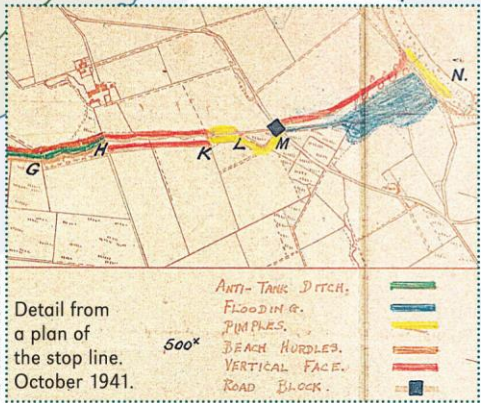


Photo: WO 199/2729
The National Archives, Kew

Photo: The National Archives, Kew

● Car park, viewpoint, information board

A Landscape Transformed

War, and the threat of war, has profoundly affected the physical and social landscape of the Orkney Islands. The sheltered natural harbour of Scapa Flow was the Royal Navy's main Fleet base during both World Wars, its strategic importance being partly due to the ease of access to important routes in the North Sea and Atlantic Ocean.




The loss of HMS *Royal Oak* (6) in October 1939 and a series of air raids (including one that almost sank the flagship HMS *Iron Duke*) led to the islands becoming one of the most heavily defended and militarised parts of the UK. Homes and farmland were requisitioned, curfews and travel restrictions were imposed; the resident population of 22,000 islanders was outnumbered by the presence of up to 40,000 military personnel. The land was transformed by thousands of structures including roadblocks, command centres, fuel stores, power stations, railways, accommodation huts, gun emplacements, airfields, piers, barrage balloon sites, radio stations and the Churchill Barriers.

At the end of hostilities most of the armed services departed. Their buildings and installations were demolished, scrapped, re-purposed or left to decay. Previously isolated communities have remained linked by the Churchill Barriers. The remaining earthworks and concrete structures have become enduring, if accidental, monuments to the military occupation; it is quite possible that traces of these will persist for as long as the Neolithic sites for which Orkney is better known.




Photo: Orkney Library and Archive Ref. L1254-3

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.

Navigating the Digital Leaflet:  Click on the numbers on the map page to jump to the site entries.  Click on this icon to jump back to the map from each site entry.  Click on underlined titles on the back page for web links.

1 Rerwick Head Coast Battery and Royal Navy Camp

Parking at the end of a rough track. Path EM3 around Rerwick Head passes this well-preserved site, one of 24 coast batteries that defended Orkney against attack from the sea. Most were built during WW2, some were adapted from WW1 installations. The most conspicuous feature here is the observation post; nearby are the two main gun emplacements with concrete canopies and attached ammunition magazines. The reinforced Nissen hut is one of the two engine houses that provided electricity. Other remains include searchlight buildings, air-raid shelters, a minefield control post and the foundations of accommodation huts for about 100 personnel. The low-profile building at the south end of the site is the command post. In the grass to the north is a 'holdfast' for an anti-aircraft gun: a ring of bolts set in concrete. 




Battery observation post, Rerwick Head.

Photo: Ian Collins 2018

2 MT *Juniata* and the Inganess-Scapa Anti-Invasion Stop Line

Parking. Nature walk along Path K14.

The oil tanker RFA *Spruocol* was completed for the Admiralty in January 1918. She was torpedoed six months later near the Humber estuary and almost sunk. After repair she was sold and renamed MT *Juniata* only to be requisitioned in 1940 and sunk as a blockship in Water Sound. Re-floated in 1949 to be towed away for scrap, she ended up stranded here, too fragile to be moved any further.


In WW2 there was a serious threat that enemy forces would invade the UK. This led to the construction of a series of anti-invasion 'stop-lines' including this one along Wideford Burn to Scapa Bay (see inset map overleaf). The plan from 1941 shows how the burn was straightened and land flooded. There were four pillboxes, 2.2km of anti-invasion scaffolding, 400m of anti-tank ditches, 350m of artificial cliffs and hundreds of concrete 'pimples' in the marsh. In early 1943, McNaughton tube mines were deployed; a row of 230 steel pipes, each 17m long, packed with high explosive and inserted underground at a shallow angle. If detonated, the enemy would have been 'surprised' by the appearance of a ditch some 8m wide and 3m deep stretching across the landscape. The pillboxes, pieces of scaffolding and earthworks can still be seen. 

MT *Juniata*
in service.

Date and
copyright
unknown.



3 RAF Grimsetter/HMS *Robin*/Kirkwall Airport.


This was one of four airfields constructed in Orkney during WW2. It covered the lands of Essonquoy, Noltland and Grimsetter. It was active from August 1940 as a satellite of RAF Skeabrae, and home to a series of squadrons that provided local air defence. It was used by the Navy from April 1943 and re-named HMS *Robin*. It became a civilian airport in 1948. 

HMS *Robin* in April 1945.
Looking towards Inganess Bay.
The original control tower
(upper centre), was
demolished c.2001

Photo: Collection of Neil Thain



4 Sandi Sands, St Peter's Pool anti-invasion obstructions

The remains of a row of WW2 concrete and iron anti-invasion obstructions run down the beach and into the sea. It is likely that barbed-wire and impact-mines were attached to these. 

March 2022



Photo: Ian Collins

5 Deerness Chain Home Low (CHL) Radar Station


Parking at HY574076, information board, Path EM10 to Covenanters Memorial and coast. On the hill some 600m to the west of the car park are a group of buildings (not accessible) that were part of this radar station which was set up in 1940 to detect low-flying enemy aircraft, surfaced submarines and shipping that were invisible to the long-range Chain Home early warning system (See 8 RAF Netherbutton). Radar stations were also used to keep track of friendly vessels and to guide damaged or disorientated aircraft back to safety.

Deerness CHL Station, probably in autumn 1945



Photo: Orkney Library & Archive Ref: L7-3

6 HMS Royal Oak

This photograph was taken by Andrew Petrie of Burray when he was working on a tugboat in Scapa Flow. It is likely to be one of the last recorded images of the ship before her sinking (see 10). 




Remains of the radio station near Oaklea, April 2018



Photo: Ian Collins

7 The A961 from St Mary's to Wideford Burn

During WW2 the land adjacent to this stretch of road was home to at least 100 accommodation huts and to a range of major installations, including a heavy anti-aircraft (HAA) battery at Midhouse, RAF Netherbutton (8) and a radio station at Oaklea. There were also searchlight emplacements, power stations, light anti-aircraft emplacements, a decoy HAA battery at Borrowstonehill and anti-invasion defences at Wideford Burn (2). Most of these structures have been demolished and a few re-purposed. Many fields still show marks left by building foundations. 

8 RAF Netherbutton Chain Home (CH) Radar Station

Following the development of radar in the mid 1930's, the Air Ministry began building CH stations around the UK coastline to provide long-range early warning of air attack. RAF Netherbutton was operational throughout WW2 and was later part of the 1950's ROTOR cold-war early warning system. Its 13-acre site straddles the A961. To the west of the road were the four 107m steel transmitter towers and the blast-proof transmitter building. These were used as a BBC TV relay station from 1959 to 1986 after which the towers were dismantled and the building converted to a house. To the east stood the four 73m wooden receiver towers and the receiver building, also converted to a home.


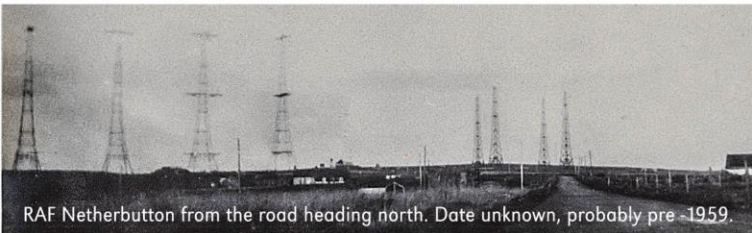
400m to the northeast are two underground backup transmitter and receiver bunkers, they are hidden under massive steel and concrete sliding doors. The electricity supply for Netherbutton came from the engine house sited by the A961, 500m north of the guard-house; still retaining its blast walls, it is now used as a farm shed. 

Photo: Ian Collins

Photo: Collection Evelyn Eunson



RAF Netherbutton from the road heading north. Date unknown, probably pre -1959.



The guard-house in 2018.

Photo: Nick Catford



Access hatches for the backup receiver bunker near Northfield Farm in 2016.




Trawler-based barrage balloon.

Date and copyright unknown.

9 St Mary's, Skaildequoy and Howequoy

The closure of the eastern channels by blockships during WW1 contributed to the decline of the herring fishing industry at St. Mary's. The village had an extensive military presence during WW2, including a base for RAF and naval personnel who crewed the trawlers from which barrage balloons were flown. The remains of their camp and a generator building can be seen in the fields by West Greaves Rd. On the east side of the road to Kirkwall is a Romney hut with its distinctive curved roof. It was originally the camp cinema.

The Howequoy circular walk (3km, Path EM4) passes the remains of a 19th century gun battery at Skaildequoy Point. To the east of the path, about 200m north Hesti Geo, is a ramp and platform of breeze blocks which once supported a mobile radar unit. This was part of a WW2 heavy anti-aircraft battery, most of which has been demolished though the remains of two gun emplacements and a command post can still be seen in the field to the west of the path a further 160m north. 

10 Barrier No 1, Kirk Sound and St. Mary's Rockworks

Car park and information board. On a high tide on the night of 13th -14th October 1939, the German submarine U-47 entered Scapa Flow through this stretch of water. With only the glow of the northern lights to see by, the intruder slipped past the unmanned East Breckan battery (11), between the blockships *Seriano* and *Numidian* and into the protected anchorage. Once inside, the U-47 was able to torpedo and sink HMS *Royal Oak* causing the death of 835 of the ship's company of 1259. This incident led to the decision to build permanent barriers across the eastern channels.

Photo: Balfour Beatty Collection, courtesy John Andrew



The cement sheds. Rockworks October 1943

The large hut behind you was part a site known as 'Rockworks' which included Balfour Beatty's main offices and workshops, a block fabrication yard, headquarters of the Admiralty overseers and at least 18 accommodation huts. The photograph gives a sense of the vast scale of the operation. There were similar yards at Bossack, Lamb Holm, Warebanks and South Burray; between them they produced over 60,000 concrete blocks, each weighing between 4.8 and 10 tons. [↑](#)

Photo: Orkney Library & Archive Ref L 1246/1



The Rockworks blockyard at St. Mary's. August 1943



Photo: Collection of Eweijn Eufuson

The 4-inch guns at East Breckan Battery during WW1. In the background are some of the blockships of Kirk Sound.

11 East Breckan (Holm) Battery, Graemeshall

This site can be viewed from Path EM6. A coast artillery battery was established here in 1914, the only one to cover the eastern flank of Scapa Flow during WW1. In 1939 there were plans to update the battery by installing twin 6-pounder guns (with their characteristic director tower), along with an observation post, ammunition magazines and four searchlight emplacements. However, none of this was in place when HMS *Royal Oak* was attacked (6 and 10). With the near completion of the Barriers in late 1943 the battery was decommissioned and the guns relocated to other sites in Orkney. [↑](#)

12 Camp 60, The Italian Chapel and Barriers Memorial

Car park and visitor centre. This is the last remaining building of a camp that housed Italian prisoners of war from 1942 onwards. It consists of two Nissen huts joined end to end; the highly decorated interior was fabricated from materials such as surplus mortar, scrap metal and recycled tin cans. The concrete foundations of some camp huts can be seen in the adjacent field. On the beach is one of several massive anchor points for the two aerial ropeways that stretched across Kirk Sound (10); another is in the field above the chapel. The modern memorial to those who died in accidents during construction of the barriers is built onto one of the ropeway anchors. [↑](#)



Camp 60. October 1944



August 1943. The barrier nearing completion as seen from Lamb Holm. Note the aerial ropeways.

Photo: Orkney Library & Archive Ref L1245/4

13 Barrier No3, blockships and boom baulks (floats)

The conspicuous wreck is the SS *Reginald*, built in 1878 and scuttled here as a blockship in September 1915. On the foreshore at the south end of the barrier are several anti-motorboat boom baulks (floats) made of iron-strapped timber. These were linked by steel cables armed with spikes, designed to rip through the hull of high-speed motor torpedo boats (see also 17). At low tides, the remains of the blockships SS *Martis* and SS *Empire Seaman* can be seen off the west side of the barrier. [↑](#)

Photo: The National Archives, Kew

14 Glimps Holm beach, quarry, pier and air-raid shelters

Car park and beach access. From the beach is a good view of the east side of barrier No2, the hulk of a floating crane, and the mast of the SS *Emerald Wings* which was built in 1920 and scuttled in 1940. In the distance, resting against the blocks, are the remains of a ship's engine. Cross the road with care and follow the track above the shore along the course of a railway that ran to Glimps Holm quarry. To your left is a long embankment. 750m further on are a pair of air raid shelters. Below are the remains of a pier.

BEWARE of the crumbling cliff edges. ⚠️



Photo: Ian Collins

One of the air-raid shelters. March 2022

15 Mossbank Heavy Anti-Aircraft (HAA) gun battery

This site can be viewed from Path B4. There were 22 HAA batteries in Orkney during WW2. This one is believed to have been active from 1942. The remains include an arc of four gun-emplacements, each surrounded by ammunition lockers that also acted as crew shelters. The command centre and accommodation camp have been demolished; the extent of the site can be seen on the 1944 aerial photograph. There were four dummy emplacements south west of the genuine ones, an attempt to fool the enemy into thinking that this area was very heavily defended.

About 130m to the south is a concrete platform for a mobile gun-laying radar set; it was surrounded by a huge octagonal mat of chicken-wire 120m across and suspended 1.5m above the ground by hundreds of wooden posts. The performance of early radar was adversely affected by uneven terrain, the 'ground mat' was used to give a reference plane for accurate calibration. Extensive use of this technology during WW2 caused a UK-wide shortage of chicken-wire. ⚠️

Aerial view of Mossbank Battery from the north east. The four round green patches mark the site of the dummy emplacements.



Photo: Ewan Howe 2020

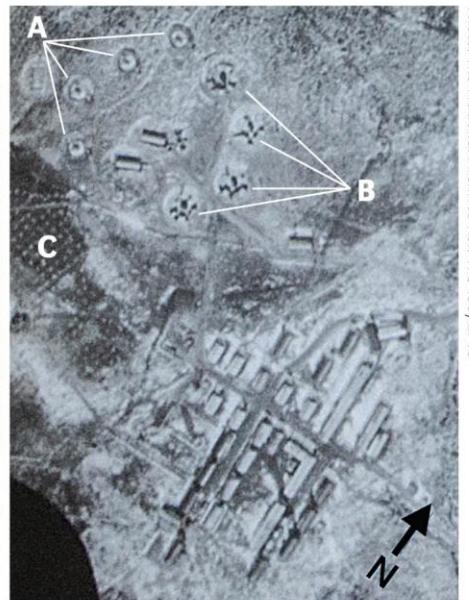


Photo: The National Archives Ref. WO199/27710


Mossbank Battery in March 1944

A = dummy emplacement

B = HAA gun emplacement.

C = radar ground mat posts.

16 Churchill Barrier No4. Blockships lost in the sand

Car park, information board, WC and beach access. Construction of this barrier has dramatically altered the local geography and ecology with the open stretch of Water Sound being replaced by a vast accumulation of sand. Before the barrier was built, this entrance to Scapa Flow was closed by eight or nine blockships. Upon closure, some were salvaged for scrap, including the MT *Juniata* (2). Five are believed to remain in situ, buried in the sand (see overleaf) with only the concrete-clad bridge of the SS *Collingdoc* at the southern end of the beach now visible. Looking north from here, it is just possible to make out the concrete remains of the stone crushing plant on the hillside of Burray (see map). 



The stone crushing plant near Housebreck Quarry, Burray. June 1943

Photo: Orkney Library & Archive Ref L3290/4

17 Hoxa and Balfour Coast Batteries. The Hoxa Boom

Both of these extensive sites can be viewed from Path SR1. Hoxa Sound is the main southern entrance to Scapa Flow. It was heavily defended in both world wars. Balfour Battery can be identified by its pair of director towers. It became operational during 1940, its primary role was to help defend the Hoxa Boom. Hoxa Battery was established during WW1 and extended in WW2.



WW2 engine house in a reinforced Nissen hut, Hoxa Battery, 2022



The Hoxa boom and drifters during WW1



Hoxa Sound was blocked by 2.7km booms that stretched between Balfour Battery and Buchanan Battery on Flotta. These consisted of cables, anchored to the shore and supported by floats. They were armed with anti-motor torpedo boat spikes at water level and anti-submarine netting suspended below (see also 14). Moveable sections of the boom were used as 'gates' to allow the passage of shipping; they were operated by small ships. 

Photo: US Naval History and Heritage Command Ref: NH 110539

18 Hillside Camp and Telephone Exchange

Next to Path SR4, this Nissen hut dating from WW2 contained a telephone exchange that linked military installations in the area. It has been reinforced with concrete and disguised by the addition of fake chimney stacks to make it seem like a domestic property when viewed in aerial reconnaissance photography.

To the northwest, on the slope of Hoxa Hill, is the site of Hillside Camp. This was home to some 500 men from the Royal Engineers and Royal Artillery during WW2. A reinforced Nissen hut is the only building that remains standing. 



The telephone exchange in 2021


Photo: Ian Collins

19 St Margaret's Hope. Royal Navy Mining Station


The harbour was used by the armed forces and ferry services throughout both world wars. It was a vital link in the supply chain for the extensive network of military installations in South Ronaldsay before completion of the Churchill Barriers allowed road transport.



The Mining Station in WW1
Photo: Orkney Library & Archive Ref. L8745-2

Some of the buildings at the ferry terminal are the remains of the mining station, constructed in WW1 and extended in WW2. This was the headquarters of mine-laying and control for Scapa Flow. On the foreshore beyond the pier was a boom defence depot, responsible for maintaining the Hoxa Boom (17). 400m along the road is the three-storey Smiddybanks Farm warehouse whose upper floor was used as a military hospital during WW1. Next door is a re-purposed wartime Nissen hut. 

20 Ward Hill, Admiralty Experimental Station No5.


On the highest point in South Ronaldsay and offering spectacular views, this site is accessible via Paths SR6/8 from Windwick Bay or by Path SR8 that leads up from the A961, 50m north of the viewpoint. Dating from 1940, this was No5 in a group of six stations which deployed a series of newly developed radar systems. Most of the buildings have been demolished or modified, though an engine house and its blast screen survive adjacent to the track. The large building to the north probably housed the Chain Home Low unit that became operational in 1943. Other remains include anchor points for aerial masts and the concrete foundations for huts. There are also traces of defensive works such as slit-trenches, and emplacements for anti-aircraft guns and searchlights. 

One of the two Type 277 Radars at Ward Hill c.1944




Photo: Orkney Library and Archive Ref. L795-4

21 Windwick Bay Memorial

Car park, beach, Path SR6. The memorial is to the 188 sailors of HMS *Opal* and HMS *Narbrough* who lost their lives on the night of the 12th January 1918. The ships had been part of a patrol searching for German minelayers and submarines. They were attempting to return to Scapa Flow in heavy seas when they were caught in a severe snowstorm and ran onto the rocks at Hesta Head some 1.5km to the north-east. Able Seaman William Sissons, the only survivor, was found two days later, sheltering in a cave above the Clett of Crura. 

22 Brough Ness Coastguard and Signal Station


Path SR11 will take you past this Coastguard and Signal Station that is believed to date from before the outbreak of WW1. The upper storey was partially rebuilt and a balcony added, perhaps at the beginning of WW2. 

The station before reconstruction, early 20th century.



Photo: Geoffrey Stell Collection

23 Flotta Cinema


This 1236 seat theatre and cinema was built by the Royal Marine Engineers and opened in July 1943. The original building was about twice as long as the existing remains, which include the foyer, stairways and projection room. The plaque dated 1944 was relocated from the nearby Fleet Club buildings after their demolition. 

First Night,
18th July 1943




Photo: © Imperial War Museum
Lt. FA Hudson ©IWM Ref: A18144

24 Buchanan Battery

Path F2. This well preserved WW2 coast battery was part of the defences for Hoxa Sound (see 17). It was damaged in an air-raid of April 1940, whilst still under construction. 

25 Port War Signal Station, Stanger Head

Path F2. Completed around 1938, this was a replacement for the two WW1 signal stations built of timber that once stood here and on West Hill, 3km to the northwest. The movements of all shipping in and out of Scapa Flow were monitored and controlled from here. Nearby are the remains of numerous structures including an engine house, transmitter buildings, air raid shelters, anti-aircraft emplacements, accommodation blocks and water storage tanks. Quarrying for the construction of the Flotta oil terminal has largely obliterated the sites of two WW1 coast artillery batteries and a WW2 radar installation. 

The WW2 signal station at Stanger Head in 2022.




The WW1 signal station on West Hill.



Photo: © Ministry of Defence

Photo: Neil Thain/Aerial Vision Orkney

26 Innan Neb Battery (WW1), Neb and Gate Batteries (WW2)

Path F1 passes the extensive remains of these three coast batteries that have helped to guard Switha Sound. Next to the road is one of the two WW2 engine houses and the foundations of an accommodation camp. On the shore are the remains of the boom-net anchor chains. 

Innan Neb Battery (A) dates from 1915. The ammunition magazine is at the top of the horseshoe. From WW2 are Gate Battery (B), Neb Battery (C), searchlights (D) and one of the engine houses (E).

Dispersed-beam searchlight emplacement at Innan Neb, 2022.

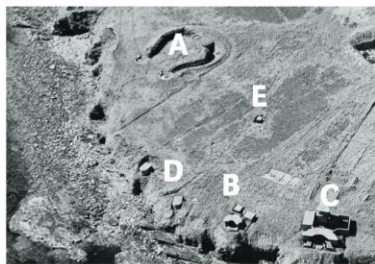


Photo: June 1997 SC 1682195 © HES



Photo: Ian Collins

27 The 'Z' rocket battery, Golta

Dating from WW2, this consists of a grid of 64 rocket launching pads each with two tunnel-like ammunition stores made from corrugated iron and concrete. The battery was designed to launch a barrage of projectiles and produce a wall of shrapnel in the path of enemy aircraft. The tunnels gave the crew some protection from falling debris.

NOTE: Visitors to the Golta peninsula should call the oil terminal control room before passing the flare stack (contact number displayed on the gate).



Test-firing the Z battery in June 1944.



Photo: Sargent Travis © Imperial War Museum Ref. H39435



The battery in 2017.

Photo: Ian Collins

28 Flotta YMCA, bomb craters, barrage balloon site and Roan Head battery

The chimneys and stone walls are the remains of an Arts & Crafts style building which was opened by the Young Men's Christian Association (YMCA) and used by naval personnel as a recreation centre during WW1. It was abandoned in 1923 after a failed attempt to run it as a holiday resort. Other WW1 sites nearby include a pier to the north, a coast battery and a minefield control station at Roan Head.

Just to the south of the YMCA is a WW2 barrage-balloon mooring site; one of 18 that were in place on Flotta by 1943. It has a central anchor point and four concentric circles of concrete blocks; the outer ring is about 55m across. The balloons supported a cordon of steel cables that forced enemy aircraft to fly higher, reducing the accuracy of their attacks. There are a run of bomb craters clearly visible at Red Face, some 350m to the SE.

Old postcard of Flotta YMCA



Aerial image courtesy of Canmore/Historic Environment Scotland

Barrage balloon site (arrowed).
Part of the YMCA building can be seen.



Date stone St. Vincent Pier,
near the YMCA.



29 Roan Head, boom nets, barge and tripod

An artificial reef blocking Calf Sound has been formed by abandoned anti-submarine boom netting dating from WW2. The tripod and the wrecked barge on the shore are believed to have been used for deploying the boom nets.

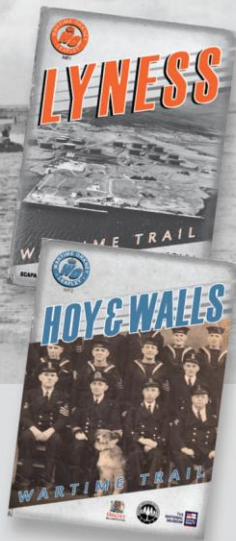


The anti-submarine net in Calf Sound



Photo: © George Brown - geograph.org.uk/p/932316

Beach football. Barrier No4 looking towards Burray. MT Juniata (left) MV Carolina Thorden being salvaged (centre) and SS Pontos (right) c.1948. Photograph: Robert Rosie.



This leaflet offers a brief introduction to a few of the many hundreds of wartime archaeological sites across Flotta and the eastern side of Scapa Flow. The selected sites are visible from public roads, paths or from the ferry.

Path numbers refer to the Orkney Core Paths plan; details and maps can be downloaded from: www.orkney.gov.uk/Service-Directory/C/Core-Paths.htm

This leaflet is the companion to The Lyness Wartime Trail (Wartime Orkney Leaflet No.1) which describes a 2 mile self-guided walk around the remains of the base; and to the Hoy & Walls Wartime Trail (Wartime Orkney Leaflet No.2) which covers sites further afield.

Free copies are available at the Scapa Flow Museum.

FLOTTA: The orkney.com website has details of the [Flotta Wartime Trail](#), a 13km way-marked circular route that includes sites 23-26 and the [Flotta Heritage Centre](#). The quiet roads are good for cycling.

SCAPA FLOW MUSEUM: Located a few minutes' walk from the Lyness ferry terminal, the Museum occupies part of the former Lyness Royal Naval Base. 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. There is a shop, café and toilets. Admission is free. Tel. 01856 791300

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

[Stromness Museum](#) 01856 850025

[The Orkney Museum](#), Kirkwall 01856 873191

[Ness Battery](#), Stromness 07759 857298 (for guided tours)

[HMS Tern / RNAS Twatt](#) Birsay Heritage Trust 07470 381237 (for guided tours)

[Orkney Wireless Museum](#), Kirkwall 01856 871400

[Orkney Fossil and Heritage Centre](#), Burray: The Centre has excellent wartime heritage displays including scale model exhibits depicting the Churchill Barriers under construction. Tel. 07470 381237

For further archaeological information and archive photographs visit:

www.hoyorkney.com/
<https://canmore.org.uk>

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

Acknowledgements: With many thanks to the Orkney Archaeology Society, The National Museum of The Royal Navy and Orkney Islands Council for financial support. Thanks also to Brice Avery, Ewan Brown, John Budge, Maura Collins, George Esson, Evelyn Eunson, Euan Howe, Gavin Lindsay, Chris Loosemore, Peter MacDonald, John Manton, Catherine & Michael Moldau, Tom Muir, Robert Rosie, Elliott Simpson, Geoffrey Stell, John Stevenson, Craig Taylor, Neil Thain and also to the staff of Scapa Flow Museum and Orkney Library & Archive.

Concept, text and editorial Ian Collins and Andrew Hollinrake Design Iain AshmanDesign

