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## The Fortification of the Firth of Forth 1880–1977

‘The most powerful naval fortress in the British Empire’

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# REFERENCES

## Archival Sources

The minutes and memoranda of the Committee of Imperial Defence, in the CAB 12 and CAB 13 series, were consulted in the National Records of Scotland. Duplicate copies are also held in the National Archives, Kew. Individual items from the Stenhouse Collection in the University of Edinburgh (<https://archives.collections.ed.ac.uk/repositories/2/ressources/204>) have been used as illustrations and are referenced in their captions.

### *The National Archives, Kew*

- ADM 1/8667/164 1924 Personnel required at War Signal Stations on mobilisation.
- ADM 1/8879 1904–5 Submarine mine defence: Naval aspects.
- ADM 1/9505 1938 Defences United Kingdom: Seaward defences of home ports and bases: report of Admiralty Committee.
- ADM 1/9848 1938–9 Defences United Kingdom: Indicator loop systems and harbour defence ASDICS for ports at home and abroad.
- ADM 1/9849 1939 Defences United Kingdom: Defence of Home Ports.
- ADM 1/9855 1939 Defences United Kingdom: Firth of Forth Anti-submarine fixed defences: Measures to increase efficiency consequent upon torpedoing of HMS Belfast.
- ADM 1/9856 1939 Defences United Kingdom: Coastal Defences of UK Atlantic and Eastern Ports.
- ADM 1/10392 1939–40 Defences United Kingdom: May Island, Firth of Forth, proposed indicator loops system: requisition of five Trawlers as look-out vessels.
- ADM 1/12930 1941–3 Defences United Kingdom: Port defences in Rosyth Command: statement and amendments and removal of warhead minefield from Rosyth Channel.
- ADM 1/13135 1943 Defences United Kingdom: Anti-submarine defences in Firth of Forth: trials, reports and revision.
- ADM 1/15298 1943 Defences United Kingdom: Reductions in coast artillery defences in United Kingdom.
- ADM 1/16723 1941–4 Defences United Kingdom: Future policy regarding coast artillery: viewpoints of services.
- ADM 1/22932 1951–5 Naval Stations: Loch Ewe, Firth of Forth and Clyde: consideration of seaward defences; decision not to establish booms in peacetime; arrangements for laying heavy indicator nets in emergency.
- ADM 1/25641 1954–7 Port plan for Granton and Leith in time of war.
- ADM 1/28103 1961–2 Trials of medium anti-torpedo net: Exercise DRUM FLATS II.
- ADM 116/2073 1919 Future of Naval Establishments at Cromarty, Invergordon, Scapa, Thurso and Inverness.
- ADM 116/2493 1925–32 Defence of the Firth of Forth.
- ADM 116/4113 1937–9 Defences United Kingdom: Review of Port Defences and Facilities.
- ADM 116/5590 1938–48 Firth of Forth boom defences: wartime requirements for compulsory pilotage; subsequent cancellation of wartime restrictions.
- ADM 137/992 1914 Admiralty: Historical Section: Records used for Official History, First World War: Grand Fleet Bases: general.
- ADM 137/994 1914 Admiralty Historical Section: Records used for Official History, First World War. Grand Fleet Bases: Firth of Forth.
- ADM 137/1045 1915 Admiralty Historical Section: Records used for Official History, First World War. Anti-submarine: Nets, 1915.
- ADM 137/1075 1915 Admiralty: Historical Section: Records used for Official History, First World War. Grand Fleet Bases: Forth, January–July 1915.
- ADM 137/1170 1916 Admiralty Historical Section: Records used for Official History, First World War. Forth Defences. Booms and defences January–June 1916.
- ADM 137/1217 1916 Admiralty: Historical Section: records used for Official History, First World War. Firth of Forth Defences. July 1916–December 1916: Firth of Forth Defences. July 1916–December 1916.
- ADM 137/1264 1916 Admiralty Historical Section: Records used for Official History, First World War. Charts From Papers: Home Waters; I, July 1916–December 1916.
- ADM 137/1280 1917 Admiralty Historical Section: Records used for Official History, First World War. Forth and Cranton [Granton], Areas VI and VII, various, January–April 1917.
- ADM 137/1372 1917 Admiralty Historical Section: Records used for Official History, First World War. Forth and Granton: Various, May–December 1917.
- ADM 137/1647 1918 Admiralty: Historical Section: Records used for Official History, First World War: Charts from papers: Home Waters, Volume I.
- ADM 137/1892 1914–18 Admiralty Historical Section: Records used for Official History, First World War. Secret Packs of the Commander in Chief Grand Fleet, Volume XII, pack 007, section B.
- ADM 178/26 1917–18 Illegal practices in connection with enlistment of Royal Marine Submarine Miners: Col F G Scott, Capt J Morales and others convicted and sentenced by civil power.

## FORTIFICATION OF THE FIRTH OF FORTH

- ADM 186/377 1916 Admiralty: Publications: Armament: Torpedo, Anti-submarine and Mine: Indicator Net Notes.
- ADM 244/2 1926–34 Construction and laying of anti-submarine nets.
- ADM 253/14 1950 Admiralty: Mine Design Department and Mining Establishment: Reports and Papers: Neutralisation of grounds mines by explosive charges: effect when mine is buried.  
(Note: some CAB files are listed under National Records of Scotland below.)
- CAB 2/4 1923–7 Committee of Imperial Defence and Standing Defence Sub-committee: Minutes: Meetings 176–220.
- CAB 2/5 1927–33 Committee of Imperial Defence and Standing Defence Sub-committee: Minutes. Meetings 221–260.
- CAB 3/2 1906–14 Committee of Imperial Defence: Home Defence Memoranda (A Series): Nos 41A–80A.
- CAB 3/4 1923–9 Committee of Imperial Defence: Home Defence Memoranda (A Series): Nos 118–170.
- CAB 7/6 1898 Papers: Secretary Colonial Defence Committee.
- CAB 18/19 1898–10 Committee of Imperial Defence: Miscellaneous Reports and Papers: Approved armaments.
- CAB 18/22A 1891–1903 Reports by Joint Naval and Military Committee on Defence.
- CAB 38/1/4 1901–3 Report of a Conference between Admiralty and War Office representatives to consider the strategic conditions governing the coast defence of the United Kingdom in war as affected by naval considerations.
- CAB 38/5/83 1904 Records of the Committee of Imperial defence: Amendments to Report of Conference on the Strategic Conditions governing the Coast Defence.
- CAB 38/13/16 1907 Records of the Committee of Imperial Defence: Revision of coast defence armaments.
- CAB 38/13/27 1907 Records of the Committee of Imperial Defence: Invasion.
- CAB 38/19/53 1911 Records of the Committee of Imperial Defence. The Forth: Fixed Defences.
- CAB 44/47 1948 Section E, chapter III: History of the defence of the United Kingdom 1939–45, by Captain G. C. Wynne.
- MT 10/883/4 1903 Foreshores. Assent to construct a pier for submarine mining purposes on the foreshore of the Firth of Forth at North Queensferry.
- T 1/15865 1879 Firth of Forth defences: purchase of land at Kinghorn and on Inchkeith Island; access and rights to mineral deposits.
- WO 32/5528 1918 Coastal Defence: General (Code 75(A)): Summary of policy and work of coast fortification in past 60 years by General Scott-Moncrieff.
- WO 32/6295 1892–5 Coastal Defence: Report of Joint Naval Military Committee on defence of ports, harbours and anchorages.
- WO 32/6355 1890–5 Joint Naval and Military Committee on Defence: Reports on defence of Harbours and Ports. Local Committees for defence of ports of the Empire.
- WO 32/10376 1943–4 Reduction in Coast Artillery for Flood Tide.
- WO 32/11674 1945 Coastal Defences: General: Investigation of coast defence fortifications.
- WO 33/5 1854–8 War Office: Reports, Memoranda and Papers (O and A Series).
- WO 33/39 1882 Report of Committee on defences of mercantile ports of the United Kingdom.
- WO 33/173 1900 War Office: Reports, Memoranda and Papers (O and A Series): Scottish District Defence Scheme.
- WO 33/189 1900 Report of a conference between Admiralty and War Office representatives on coast defence of the United Kingdom.
- WO 33/381 1905 Scotland Coast Defence Scheme: Part 1 – Forth defences.
- WO 33/396/3 1886–8 Royal Artillery and Royal Engineers Works committee: reports 33–80.
- WO 33/444 1907 Scotland Coast Defence Scheme: Part I – Forth Section.
- WO 33/491 1909 War Office: Reports, Memoranda and Papers (O and A Series): Remarks on the Defence Schemes for the Scottish defended ports.
- WO 33/510 1911 Approved Defence Electric Lights.
- WO 33/513 1911 The Organisation and Fighting of the Fixed Armament of a Coast Fortress or Defended Port.
- WO 33/515 1911 Memorandum on the Principles Governing the Defence of the United Kingdom.
- WO 33/626 1913 Approved Defence Electric Lights.
- WO 33/639 1913 Approved Armaments.
- WO 33/697 1914 Manual of Coast Fortress Defence.
- WO 33/706 1915 Annual Return of Armaments on Fixed Mountings.
- WO 33/755 1916 Annual Return of Armaments on Fixed Mountings.
- WO 33/766 1916 Provisional War Establishment: Royal Garrison Artillery: personnel required to man fixed defences (excluding Anti-aircraft guns).
- WO 33/810 1917 War Establishment: Part IIIB: Manning and maintenance details of Defence Electric Lights and telephones in garrisons at home.
- WO 33/861 1918 Approved Defence Electric Lights.
- WO 33/873 1918 War Establishment, Part III A: Fire Commands.
- WO 33/942 1919 Approved Armaments.
- WO 33/1006 1922–4 Approved Armaments.
- WO 33/1186 1930 Provisional Manual of Coast Fortress Defence.
- WO 33/2577 1946 War Office organisational table: Home defence coast artillery.
- WO 33/2857 1912 Scottish Command Scheme.
- WO 33/3264 1912 Coast defences: state of completion as regards works, armaments and defence lights on 1 April 1912.
- WO 78/3548 1895 Forth Bridge.
- WO 78/3856 1904 Hardines Batty. Revision for 1. 9.2" B.L. H.P. Mark 1 (From Inchkeith).
- WO 78/4173 1900 Kinghorn, Fifeshire Emplacement for 9.2 B.L. Gun Mark X Gun etc.
- WO 78/4250 1902 Firth of Forth. Record plan of Kinghorn Battery.
- WO 78/4316 1914 Inchgarvie, Scotland Proposal for 4-4" Q.F. and 3 E. Light Emplacements (16 Beams) Engine Rooms, etc.
- WO 78/4328 Survey Maps of Inchkeith, Scotland.
- WO 78/4331 1914 Firth of Forth Hound Point. Proposed Battery for 2.6" B.L. Mark VII Guns. Infantry Defences.
- WO 78/4396 1916 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Scottish Field Defences. 1:2500.
- WO 78/4417 1915 War Office and predecessors: Maps and Plans: Great Britain: Inchcolm & Inchkeith: Firth of Forth Middle Defences: Record plans of defences on mobilization. 1:2500.
- WO 78/4751 1911 Plans of war accommodation in works of defence at Inchkeith.
- WO 78/4937 ND Crombie: Nine sections of the magazine and tunnel at Crombie R.N.A. Depot. Labelled 'Sheet No. 3'. Manuscript, signed by M.A. Butler.

## REFERENCES

- WO 78/5156 1918–20 War Office Maps and Plans, Great Britain, Scotland, Firth of Forth Index Plans.
- WO 78/5157 1908–15 War Office, Maps and Plans, Great Britain, Scotland, Firth of Forth: Inchkeith ‘B’ Group Artillery. The National Archive, Kew.
- WO 78/5158 1904–13 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchkeith ‘F’ Group Artillery.
- WO 78/5159 1901 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchkeith No. 3 South Battery.
- WO 78/5160 1906; 1915 Firth of Forth: P.F. Cells and Fire Commanders Post.
- WO 78/5162 1919 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchkeith Defences.
- WO 78/5163 1916–1939 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchmickery, Electric Light Emplacements.
- WO 78/5165 1914 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Downing Point Battery.
- WO 78/5166 1903 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Dalmeny, Electric Light Installations.
- WO 78/5169 1912 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Braefoot Point Battery.
- WO 78/5170 1939 Firth of Forth Defences: A.M.T.B. Installations.
- WO 78/5171 1916 Firth of Forth: Inchcolm Signal Station.
- WO 78/5172 1904–5 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchgarvie Battery.
- WO 78/5173 1919 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Hound Point Battery.
- WO 78/5175 1904–8 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Carlingnose Battery.
- WO 78/5176 1916–30 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Leith Docks Battery.
- WO 78/5177 1916–24 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Leith Docks Battery.
- WO 78/5178 1905 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Kinghorn and Crying Hill Battery.
- WO 78/5179 1907–36 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Admiralty Charts showing defences.
- WO 78/5180 1902–16 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchkeith Battery.
- WO 78/5181 1916 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Forth: Inchcolm Batteries.
- WO 78/5183 1905–21 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Firth of Clyde: Admiralty Charts showing defences.
- WO 78/5195 1916 War Office and predecessors: Maps and Plans: Great Britain: Scotland: Broughty Castle: Castle Green Battery.
- WO 95/5457 1918–19 19, 20 and 21 (Forth) Fire Command Royal Garrison Artillery.
- WO 106/44 1901–6 Directory of Military Operations and Intelligence: Defence and Operational Plans.
- WO 137/3106 1914 Reported presence of submarine at entrance to Firth of Forth.
- WO 166/11 1939–41 General Headquarters: Royal Artillery, Coast Defence (RA CD).
- WO 166/1567 1939–41 Royal Artillery: Field Regiments: 155 Field Regiment.
- WO 166/1706 1939–41 Royal Artillery: Coast Regiments: 504 Coast Regiment. .
- WO 166/1742 1940–1 Royal Artillery: Coast Regiments: No 2 Group Coastal Artillery (542 Coast Regiment).
- WO 166/2058 1939–41 Royal Artillery: Fixed Defences: Forth Fixed Defences.
- WO 166/2128 1940 Anti-aircraft Command: Anti-aircraft Divisions: Headquarters 3 Anti-aircraft Division, General (HQ G).
- WO 166/2296 1940 Anti-aircraft Command: Anti-aircraft Brigades: Headquarters 51 Anti-aircraft Brigade, General (HQ G).
- WO 166/2362 1939–41 71 Heavy Anti-aircraft Regiment (HAA).
- WO 166/7128 1942 Royal Artillery: Coast Regiments: 504 Regiment. .
- WO 166/11210 1943 36 Anti-aircraft Brigade.
- WO 166/11408 1943 Royal Artillery. Coast Regiments. 505 Regt.
- WO 166/11409 1943 Royal Artillery, Coast Regiments. 506 Regt.
- WO 166/15002 1944 Royal Artillery. Coast Regiments. 505 Regt.
- WO 192/98 1907–27 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Northern Command Berwick battery, Northumberland.
- WO 192/100 1907–27 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish Command, Inchgarvie Battery, Firth of Forth 1900–1927.
- WO 192/101 1910–16 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish Command: Carlingnose Battery, Firth of Forth.
- WO 192/104 1918–39 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish Command. Queensferry Battery, Firth of Forth 1900–1939. (Coastguard Battery).
- WO 192/108 1939–14 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish Command: Inchcolm Fire Command, Firth of Forth 1914–1944.
- WO 192/250 1908–53 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish. Firth of Forth: Kinghorn Fort (1863–1953).
- WO 192/251 1922–53 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish: Firth of Forth: Inchkeith Battery (1896–1953).
- WO 192/252 1931–55 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish. Firth of Forth: Leith Docks Battery.
- WO 192/253 1939–54 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish. Firth of Forth: Cramond Island Battery.
- WO 192/254 1939–54 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish: Firth of Forth: Inchcolm Battery (1914–1954).
- WO 192/255 1939–56 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish. Firth of Forth: Kinraig Battery.
- WO 192/256 1940–54 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish. Firth of Forth: Inchmickery Battery (1914–54).

## FORTIFICATION OF THE FIRTH OF FORTH

- WO 192/258 1941–56 Commander-in-Chief and War Office: Fort Record Books: Home Commands: Scottish. Firth of Forth: Charles Hill Battery (1939–1956).
- WO 196/26 1933–6 Coast Artillery Conference.
- WO 199/527 1943–4 'Floodtide': reduction and reorganisation of coast artillery.
- WO 199/528 1944 'Floodtide': reduction and reorganisation of coast artillery.
- WO 199/930 1944–5 Reduction of Coastal Artillery armaments in U.K.
- WO 199/940 1940–1 GHQ, Royal Artillery. Tours and visits to coastal defences.
- WO 199/942 1941 GHQ, Royal Artillery. Tours and visits to coastal defences.
- WO 199/943 1941 GHQ, Royal Artillery. Tours and visits to coastal defences.
- WO 199/954B 1943–4 Floodtide: Reduction in Coast Artillery.
- WO 199/1110 1941 Home Forces Coast Defence Committee.
- WO 199/1137 1945 GHQ. Coast Artillery. Defence of U.K.
- WO 199/1171 1939–45 GHQ: Coast Artillery, Fixed Defences: Firth of Forth.
- WO 199/2672 1939–41 HQ Scottish Command: Coastal Defence: General Policy.
- WO 199/2673 1938–43 HQ Scottish Command: Coast Defence: General policy.
- WO 199/2818 June 1941 Fixed Defences: Forth Defence Scheme.
- WO 287/78 1938 Concealment of Coast Defence Works.
- WO 287/84 1939 Manual of Coast Defence.
- WO 396/2 1884–6 Royal Artillery and Royal Engineers Works Committee: reports 1–32.
- WO 396/5 1889–96 Royal Artillery and Royal Engineers Works committee: reports 113–139.
- DD 27/1209 1948–57 Inchcolm Abbey. Lease of islands of Inchcolm and Inchmickery.
- DD 27/1213 1950–7 Inchcolm Abbey. Termination of encroachment by War Department.
- DD 27/3715 1962–77 Inchcolm. Shore installations for Firth of Forth Boom.
- E 886/98 1862–3 Kinghorn. Papers (including sketch plan) relating to arbitration over ground required by the War Department at Kinghorn-ness.
- GD 224/514/12 1853–5 Letters by John Gibson WS: 30. 1855 February 14 Request by the Board of Ordnance to place two batteries and a guardhouse at Inchkeith.
- GD 310/30 1939–40 John Best (Contractors) Edinburgh Ltd. War Office – Inchcolm & Inchmickery Islands: Reconstruction of anti-motor torpedo boat defences (Conditions, estimate and deviation orders).
- MW 1/439 1922–38 Inchcolm Abbey. Works and restoration.
- MW 1/441 1928 Inchcolm Abbey. Transfer of lease of Inchcolm and Inchmickery Islands from War Department to Ministry of Works.
- MW 1/1033 1938–9 Inchcolm Abbey. Encroachment by War Department on Inchcolm and Inchmickery Islands.
- NLC 10/3/80 1938–48 Northern Lighthouse Commissioners: Lighthouses: Isle of May.
- RHP 2704 c 1860 Plan of Inchkeith Island, Fife: land feued by Commissioners of Northern Lighthouses and property of the War Department. Inch Keith Island. Miscellaneous: War Department Papers (E886)
- RHP 48586 1860 Tracing plan (enlarged from Ordnance Survey) of Island of Inchkeith showing ground proposed to be acquired by War Department for erection of batteries and barracks. Plan of the island of Inchkeith – showing the sites for proposed batteries purchased by the government in 1859, with the position of the boundary stones to identify the same.
- RHP 93657 1859–64 Plan of island of Inchkeith, showing sites of proposed government batteries, purchased in 1859.

### ***National Records of Scotland, Edinburgh***

- CAB 12/1 1909–22 Committee of Imperial Defence Home [Ports] Defence Committee: Minutes of Meetings, Nos 1–38.
- CAB 12/5 1923–38 Committee of Imperial Defence Home [Ports] Defence Committee: Minutes by the Committee Nos 1–38.
- CAB 13/1 1909–21 Committee of Imperial Defence Home [Ports] Defence Committee: Memoranda by the Committee 1–43.
- CAB 13/2 1919–22 Committee of Imperial Defence Home [Ports] Defence Committee: Memoranda for the Committee 1–49.
- CAB 13/3 1923–5 Committee of Imperial Defence Home [Ports] Defence Committee: Memoranda for the Committee 1–40.
- CAB 13/8 1938–9 Committee of Imperial Defence Home [Ports] Defence Committee: Memoranda for the Committee 266–300.
- CAB 16/105 1932 Committee of Imperial defence, Ad Hoc Sub-Committees: Minutes, Memoranda & Reports: Coast Defence.
- CAB 24/231/39 1932 Record Type: Memorandum: Former Reference: CP 238 (32): Title: Coast Defence.: Author: M P A Hankey.
- CAB 36/16 1924–7 Sub-committee on defence of British Ports: Home Ports: report and Meetings 1–7.
- CAB 36/17 1924–8 Committee of Imperial Defence: Sub-committee on Defence of British Ports Home Ports: Memoranda Nos 1–20.
- CAB 36/18 1926–8 Committee of Imperial Defence: Sub-committee on Defence of British Ports Home Ports: Memoranda Nos 21–51.

### ***Other Archives***

- A.VI.1/77 1940–1 'Zalacznik do planu obrony Nr 1 [addendum to defence plan no 1]. Polish Institute and Sikorski Museum, London.
- A1977/060 1932 'Report of Controlled Mining Trials, Canty Bay, Firth of Forth 1932'. Royal Navy Submarine Museum.
- LP/WNC/31/4/56–76 1914–15 'Complaint at verdict of court martial on Pte. S.Laing of 6th Roy. Scots'. Labour History Archive and Study Centre, University of Central Lancashire.
- M.Dv.502 1939 'Oberkommando der Kriegsmarine. Fremde Marinen England – Flottenstützpunkte und Küstbefestigungen – Der Firth of Forth [Foreign Navies England – naval bases and coastal fortifications – the Firth of Forth]'. Zentrum für Militärgeschichtliche und Sozialwissenschaften der Bundeswehr
- Moncrieff, A 1871 *Defence of the Forth*. City of Edinburgh Archives.

### ***Published Sources***

- Admiralty 1914 *Torpedo Drill Book, 1914; corrected to May 1915*. London: HMSO.
- Admiralty 1938 *Handbook of Controlled Mining*. London: Admiralty.

## REFERENCES

- Anonymous 1908 'Wireless Telegraphy Appendix, 1908'. <http://www.rnmuseumradarandcommunications2006.org.uk/1908%20one.pdf>.
- Anonymous ND 'U-21', National Underwater and Marine Agency, accessed 22/2/2017. <http://www.numa.net/expeditions/u-21/>.
- Bailey, G B ND *The Military Role of Grangemouth in the First World War*. Falkirk: Falkirk Community Trust.
- Bailey, G B 2013 *The Forth Front: Falkirk District's Maritime Contribution to World War II*. Falkirk: Falkirk Local History Society.
- Baird, B & Baird, B 2009 *Shipwrecks of the Forth and Tay*. Dunbeath: Whittles.
- Baker, C ND 'Military hospitals in the British Isles 1914–1918', accessed 2/3/2017. <http://www.longlongtrail.co.uk/soldiers/a-soldiers-life-1914-1918/the-evacuation-chain-for-wounded-and-sick-soldiers/military-hospitals-in-the-british-isles-1914-1918/>.
- Barclay, G J 2013 *If Hitler Comes: Preparing for Invasion: Scotland 1940*. Edinburgh: Birlinn.
- Barclay, G J & Morris, R forthcoming 'The Anti-invasion Defences of the Forth and Tay: 1900–1918'.
- Bishop, C 2016 *The Illustrated Encyclopedia of Weapons of World War II: A Comprehensive Guide to Weapons Systems, Including Tanks, Small Arms, Warplanes, Artillery, Ships and Submarines*. London: Amber Books.
- Brown, W B 1910 *History of Submarine Mining in the British Army*. Chatham: Royal Engineers Institute.
- Buildings at Risk Register for Scotland 2015 'Signal Station Guard House, Battery Road, North Queensferry', accessed 02/03/2017. <http://www.buildingsatrisk.org.uk/details/995209>.
- Bureau of Ordnance 1944 *Net and Boom Defenses*. Washington, DC: Bureau of Ordnance.
- Campbell, G 1928 *My Mystery Ships*. London: Hodder & Stoughton.
- Chatterton, E K 1923 *The Auxiliary Patrol*. London: Sidgwick & Jackson.
- Childers, E 1903 *The Riddle of the Sands: A Record of Secret Service*. London: Sidgwick & Jackson.
- Clark, N H 1986 'Twentieth-century coastal defence of the Firth of Forth', *Fort* 14: 49–54.
- Cole, C & Cheesman, E F 1984 *The Air Defence of Britain, 1914–1918*. London: Putnam.
- Corbett, J S & Newbolt, H J 1920 *Naval Operations*. London: Longmans.
- Cowie, J S 1949 *Mines, Minelayers and Minelaying*. London: Oxford University Press.
- Delve, K 2010 *The Military Airfields of Britain: Scotland and Northern Ireland*. Marlborough: Crowood.
- DiGiulian, A 2015 'NavWeaps', accessed 04/03/2017. <http://www.navweaps.com/>.
- Dobinson, C S 2000 *Twentieth-Century Fortifications in England: Vol. VI Coast Artillery 1900–56*. York: Council for British Archaeology.
- Downie, J ND 'A Largo Bay Maritime Log & The Methil Convoys: a summary of maritime events before & after World War One & World War Two', accessed 6 June 2017. [http://www.scotfishmuseum.org/data/files/research/Largo\\_Bay\\_Maritime\\_Log.pdf](http://www.scotfishmuseum.org/data/files/research/Largo_Bay_Maritime_Log.pdf).
- Dunlop, J K 1938 *The Development of the British Army 1899–1914*. London: Methuen.
- Evans, W E 1950 *The History of Canty Bay and Bass Rock*. MS in North Berwick Library.
- Fife, M 2007 *Scottish Aerodromes of the First World War*. Stroud: Tempus.
- Finlayson, C 1983 'Just the kitchen sink', *University of Edinburgh Journal* 31.2.
- Forbes, J W 2009 *Kincraig Battery*. Memoir transcribed by R Morris.
- Friedman, N 2014 *Fighting the Great War at Sea: Strategy, Tactics and Technology*. Barnsley: Seaforth.
- Fullinwider, S P 1920 *The Northern Barrage and Other Mining Activities*. Washington, DC: Government Printing Office.
- Girvin, B & Cosens, M 1919 *Log of HMS 'Gunner'. Granton Naval Base. From 14th August 1914 to 15th July 1919*. Edinburgh: Darien Press.
- Grant, D 2004 Notes from conversation with Douglas Grant, Battery Commander, Inchgarvie in 1939. Edited by John Dods.
- Grant, D ND 'The Inner Line of the Forth – 1939', *University of Edinburgh Journal*: volume not known
- Grant, J 1884 *Cassell's Old and New Edinburgh: Its History, Its People, and Its Places*. London: Cassell & Co.
- Hackmann, W 1984 *Seek & Strike: Sonar, Anti-submarine Warfare and the Royal Navy 1914–54*. London: HMSO.
- Hague, A 2000 *The Allied Convoy System 1939–1945: Its Organization, Defence and Operation*. London: Chatham.
- Heddle, G & Morris, R 1997 'Charles Hill Gun Battery', *Tayside and Fife Archaeological Journal* 3: 207–15.
- Hogg, I V 1974 *Coast Defences of England and Wales, 1856–1956*. Newton Abbot: David & Charles.
- Hogg, I V 1978 *British and American Artillery of World War 2*. London: Arms and Armour.
- Hogg, I V 1998 *Allied Artillery of World War One*. Marlborough: Crowood.
- Hogg, I V 2002 *Anti-aircraft Artillery*. Marlborough: Crowood.
- Hough, R 2000 *The Great War at Sea*. Edinburgh: Birlinn.
- Hunter, R B 2005 *Rosyth: The Building of a Royal Naval Dockyard, 1903–1922, Including the People Involved and Related Naval Activities*. Banbury: Four Bears.
- Hurd, A 1921–29 *The Merchant Navy*. London: John Murray.
- Jeffrey, A 1992 *This Present Emergency: Edinburgh, the River Forth and South-East Scotland and the Second World War*. Edinburgh: Mainstream Publishing.
- Jellicoe, J R 1918 *The Grand Fleet, 1914–16: Its Creation, Development and Work*. London: Cassell & Co.
- Johnson, F A 1960 *Defence by Committee. The British Committee of Imperial Defence 1885–1959*. London: Oxford University Press.
- Kennedy, P M 1974 'The development of German naval operations against England, 1896–1914', *English Historical Review* 89: 48–76.
- Kent, B 1993 *Signal!: A History of Signalling in the Royal Navy*. Clanfield: Hyden House.
- Kindell, D 2012 'British and Other Navies in World War 2 Day-by-Day. Naval Events, May 1940 (Part 2 of 4) Wednesday 8th – Tuesday 14th', accessed 23/2/2107. <http://www.naval-history.net/xDKWW2-4005-14MAY02.htm>.
- King, L 2005 *Levenmouth at War*. Kelty: Windfall.
- Lavery, B 2007 *Shield of Empire: The Royal Navy and Scotland*. Edinburgh: Birlinn.
- Light, S ND 'Military Hospitals 1899', accessed 2/3/2017. <http://www.scarletfinders.co.uk/175.html>.
- Macpherson, W G & Mitchell, T J 1921 *Medical Services General History*. London: H.M.S.O.

## FORTIFICATION OF THE FIRTH OF FORTH

- Massie, R K 2004 *Castles of Steel: Britain, Germany and the Winning of the Great War at Sea*. London: Jonathan Cape.
- Maurice-Jones, K W 1959 *The History of Coast Artillery in the British Army*. London: Royal Artillery Institution.
- Maxwell, D 2014 *Listen Up!: Memories of the Hawkraig Admiralty Experimental Station, Aberdour, Fife, 1915–1919*. Aberdour: Aberdour Cultural Association.
- Moore, D 1995 'Firing the Guns – 2 Watkin Depression Range Finders', *Redan* 34: 5–16.
- Moore, D 1998 'Major Watkin's Position Finder', *Redan* 43: 29–31.
- Morris, R 2004 *Aboard H.M.S. May Island: The Story of May Island's Role in Wartime*. East Wemyss: Save Wemyss Ancient Caves Society.
- Morris, R & Barclay, G J 2017 'The fixed defences of the Firth of Forth in the Revolutionary and Napoleonic Wars, 1779–1815', *Tayside and Fife Archaeological Journal* 23: 109–33.
- Morris, R & Bruce, B 2006 *The Bass Rock: Its History and Wildlife*. East Wemyss: Save the Wemyss Ancient Caves Society.
- Morris, R, Bruce, B, Davies, J C, Ross, D, & Wal, R v d 2007 *The East Lothian Emeralds: The Story of Bass Rock and the Neighbouring Islands of Craighleith, Lamb, Fidra and Eyebroughty*. East Wemyss: Save the Wemyss Ancient Caves Society.
- Morris, R & Ramage, M 2009 *Kincraig and Shell Bay*. East Wemyss: Save Wemyss Ancient Caves Society and Elie & Earlsferry History Society.
- Morrison-Low, A D 2010 *Northern Lights: The Age of Scottish Lighthouses*. Edinburgh: National Museums Scotland.
- Office of Naval Intelligence, Navy Department 1917 *Notes on Anti-submarine Defenses: Notes Bearing on the Design and Construction of Anti-submarine Defenses* (reprint of British publication). Washington: Government Printing Office.
- Osborne, B D 2009 *The People's Army: The Home Guard in Scotland 1940–1944*. Edinburgh: Birlinn.
- Osborne, M 2017 *If the Kaiser Comes*. Stroud: Fonthill.
- Paterson, L 2008 *Dönitz's Last Gamble: The Inshore U-boat Campaign, 1944–45*. Barnsley: Seaforth.
- Pollard, T & Banks, I 2008 'Archaeological investigation of military sites on Inchkeith Island', *Journal of Conflict Archaeology* 4: 109–36.
- Pratt, E A 1921 *British Railways and the Great War: Organisation Efforts, Difficulties and Achievements*. London: Selwyn & Blount.
- Redfern, N 1998 *Twentieth-Century Fortifications in the United Kingdom: Vol IV Site Gazetteers: Scotland (i)*. York: Council for British Archaeology.
- Robinson, D H 1971 *The Zeppelin in Combat: A History of the German Naval Airship Division, 1912–1918*. Henley-on-Thames: Foulis.
- Royal Regiment of Artillery 1903a *Handbook for the 10-inch R.M.L. Guns. (Land Service)*. London: War Office.
- Royal Regiment of Artillery 1903b *Handbook of the 12-pr. of 12cwt., A. quick-firing gun. Land Service. 1903. (With plates.)*. London: War Office.
- Royal Regiment of Artillery 1913a *Drill for 6-inch B.L. marks VII and VIIv gun. Land Service. 1913*. London: War Office.
- Royal Regiment of Artillery 1913b *Drill for 12-pr. 12-cwt. Q.F. gun. Land Service. 1913*. London: War Office.
- Royal Regiment of Artillery 1913c *Drill for 9.2-inch B.L. marks X, Xv and X\* gun on mark V mounting. Land Service. 1913*. London: War Office.
- Royal Regiment of Artillery 1917 *4-inch Q.F. guns, marks III & III\*. Land Service. Gun drill. 1917*. London: War Office.
- Ruckley, N A 1984 'Inchkeith: the water supply of an island fortress', *Fort* 12: 67–81.
- Saunders, A 1984 'The defences of the Firth of Forth', in Breeze, D J (ed), *Studies in Scottish Antiquity Presented to Stewart Cruden* Edinburgh: John Donald: 469–80.
- Saunders, A D 1989 *Fortress Britain: Artillery Fortification in the British Isles and Ireland*. Liphook: Beaufort.
- Scott-Moncrieff, G K 1922 'The islands of the Forth in War', *Chambers's Journal* 13: 497–500; 515–18.
- Seaton, D C ND 'Royal Burgh of North Berwick. Harbour and Fishing', accessed 17 February 2017. [http://www.northberwick.org.uk/story\\_3.html](http://www.northberwick.org.uk/story_3.html).
- Smith, V 1985 'Defending the Forth: 1880–1910', *Fort* 13: 89–102.
- Stevenson, I 2014 'Some defences of the Firth of Forth', *The Redan* 75: 49–96.
- Tarrant, V E 1995 *Jutland: The German Perspective: A New View of the Great Battle, 31 May 1916*. London: Arms and Armour.
- Taylor, L 2010 *Luftwaffe over Scotland: A History of German Air Attacks on Scotland 1939–1945*. Dunbeath: Whittles.
- UK Fortifications Club 2005 'Inchkeith Island, Firth of Forth, betwixt Fife and East Lothian, Scotland', UK Fortifications Club. <http://web.archive.org/web/20070714182822/http://www.ukfortsclub.org.uk/>.
- Walding, R 2009 'Bragg and Mitchell's Antisubmarine Loop', *Australian Physics* 46: 140–5.
- War Office 1940 *Forth Defences (Class 'A' Port). Inchcolm Fire Command. Home War Establishment (VII/1931/80B/1)*. London: War Office.
- War Office 1942 *Forth Defences. Inchkeith Fire Command. Home War Establishment. VII/323/1*. London: War Office.
- War Office 1943 *Military Engineering: (Vol 2) Supplement (Coast Defence)*. London: War Office.
- Wauchope, A G E 1925 *A History of the Black Watch, Royal Highlanders, in the Great War, 1914–1918*. London: Medici Society.
- Whelan, H M 1918 'A general description of the Royal Naval Hospital, Granton', *Journal of the Royal Naval Medical Service* 4: 184–92.
- White, J F 2008 *Endgame: The U-boat Inshore Campaign*. Stroud: History Press.