

The fixed defences of the Forth in the Revolutionary and Napoleonic Wars, 1779–1815

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Introduction and background

The two authors of this paper have recently completed a major work of research on the defence of the Firth of Forth in modern times. The larger part of the project, covering the period from 1880 to 1977, will be published in 2018, as a book entitled '*The most powerful naval fortress in the British Empire: the fortification of the Firth of Forth, 1880–1977*'.

This paper describes earlier defences of the Forth, built to protect the commercial trade and the coast of the estuary from the ravages of the French and their American allies. In some cases we have felt it appropriate to include some information from periods before and after the late 18th and early 19th centuries.

Historically, the post-Viking era saw any threat of invasion of Scotland coming from England. On the other hand England had long faced threats of invasion from France and Spain. The Treaty between the Kingdoms of Scotland and France (the 'Auld Alliance'), to provide mutual assistance, in the event of an attack on either nation by England, was signed in 1295, and remained in effect until the Treaty of Edinburgh in 1560, which saw the end of substantial French involvement in and influence over the government of Scotland, in favour of improved relations with England.

In 1603 the Union of the Crowns saw James VI of Scotland acceding also to the English throne, as James I. This union set both countries on a course that would eventually lead through troubled times, including Oliver Cromwell's subjugation of Scotland in the 1650s, to the Union of the Parliaments in 1707. For Scotland, France became an enemy. Throughout the many wars of the 17th and 18th centuries, England and then Britain were periodically threatened by raids and possible invasion by European powers. The daring Dutch raid on the Medway in 1667 proved that such attacks were possible. The focus of the threat was, however, largely on the south coast of England, Scotland generally being considered too far away to be vulnerable. The 'Glorious Revolution' of 1688 saw the last successful large-scale invasion of England, when the Catholic King James II and VII was deposed by the Protestant Prince William of Orange (James's nephew) and James's elder daughter Mary. During the first half of the 18th century the French fomented a series of disturbances in support of the restoration of James's son (the 'Old Pretender') and his grandson Charles (the 'Young Pretender'), in 1708, 1715, 1719, 1745 and finally in 1759, two of which resulted in actual risings, in 1715 and 1745–6.

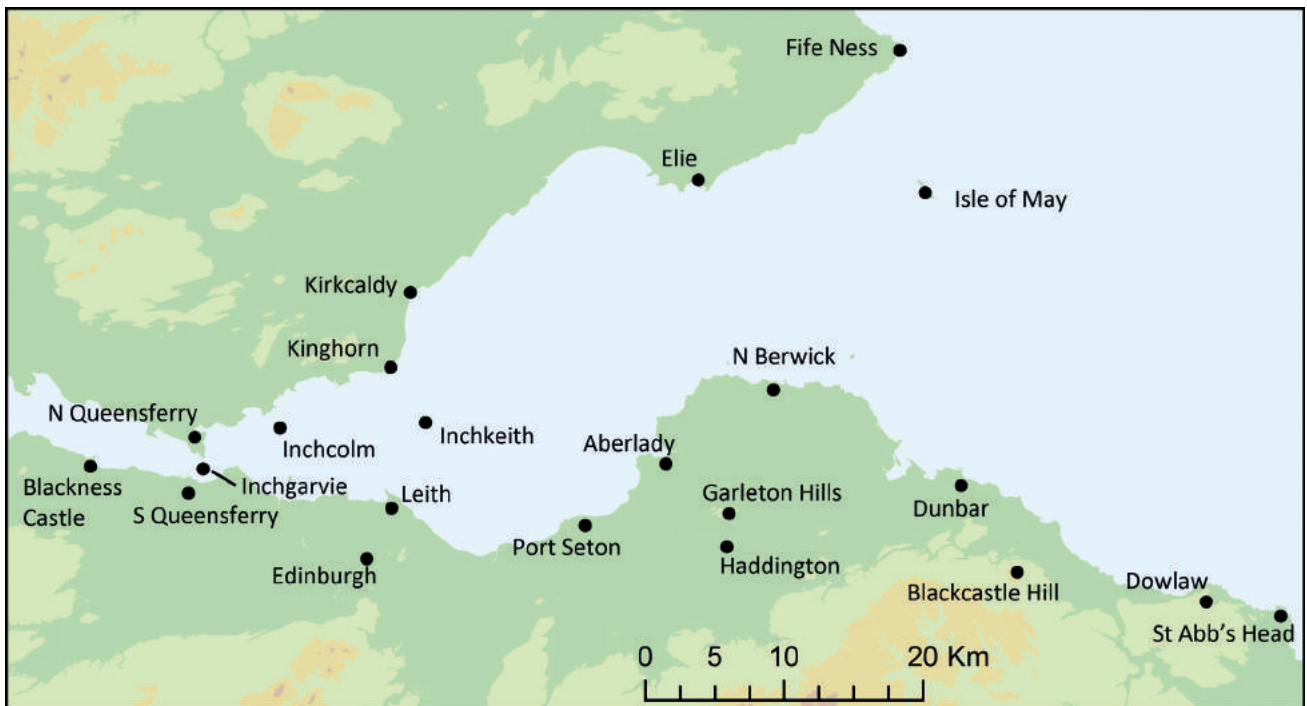
When France formed an alliance with the American colonial states in February 1778 against Britain, her chief goals were to assist the Americans gain their independence, force the British out of the West Indies and compel them to concentrate their main naval strength in the English Channel. In pursuit of this last aim, a large French fleet was assembled and maintained at Brest to suggest that an invasion was planned.

In 1779 Spain also joined the American cause and in the summer a Franco-Spanish fleet set off to invade Britain. A badly outnumbered Royal Navy squadron was preparing to engage near the Scilly Isles, but a massive epidemic of typhus and smallpox broke out on board the French warships, forcing the fleet to abandon its mission (Maurice-Jones 1959, 49–53; Morison 1959, 191–3).

John Paul Jones

The American naval commander, John Paul Jones, a Scotsman born in Kirkcudbrightshire, took the war to the shores of Britain on behalf of his adopted country and became the first American naval hero after capturing *HMS Drake* on 24 April 1778. He also led a surprise attack on the port of Whitehaven in Cumbria in the same year, causing great alarm throughout the country and revealing the weakness of the country's defences. This resulted in the fortification of many ports. Although Jones was an officer in his adopted home's navy, the British government regarded him as a traitor and pirate. Many of his actions were like those of 'privateers' operating out of French ports, taking ships and their cargoes as prizes for sale at home.¹ The Firth of Forth experienced its share of scares at their hands, resulting in guns being hastily erected at Dunbar, Leith, Inchgarvie and Queensferry, the details of which are explained later in the histories of these batteries.

On 14 August 1779 John Paul Jones sailed from Groix, France, with a squadron of seven warships, which included his flagship *Bon Homme Richard*, and two privateers, which separated from his squadron a few days later. The French government wanted to keep the British guessing about the movements of the 'pirate' Jones, to distract them from the Franco-Spanish invasion then being planned. Jones's orders were to engage only in destroying commerce, or in taking prizes, and not to stage any surprise attacks or landings on the British coast. Jones later recorded his frustration at these



Illus 1 *The Forth, with key locations mentioned in the text. Eyemouth lies a short distance south-east of St Abb's Head.*

limitations and justified himself in not feeling bound by them, in his 'Journals' of his Campaigns (Jones 1785, 101–10; Thomas 2003, 167).

Jones's frustrations were not limited to his official orders. He later wrote in his 'Memorial' to King Louis of France, regarding his squadron, that it was, 'a force which might have effected great services and done infinite injury to the enemy, had there been secrecy and due subordination' (Jones 1785).

By 3 September, when the weather started to deteriorate, Jones's squadron was down to three ships; the *Bon Homme Richard* (42 guns), *Pallas* (32 guns) and *Vengeance* (12 guns), but undeterred by this, Jones, 'did not abandon hope of performing some essential service.' The weather turned stormy and the reduced fleet did not sight land until off Dunbar, on the 13th. During the 14th Jones's squadron chased sundry vessels near the mouth of the Forth and took two prizes before passing the Isle of May to enter the estuary. His movements in the Forth are described below, in the various sections dealing with individual batteries (Jones 1785, 112–3; Morison 1959, 212–6; Thomas 2003, 173).

Under the terms of the Treaty of Paris in 1783, America became an independent nation. Nearly a decade of peace followed, and most of the defences were dismantled.

On 1 February 1793, Revolutionary France declared war on Britain and the Dutch Republic and on 7 February, Britain sent an expeditionary force to Flanders to assist her Dutch and Austrian allies. By late 1794 the Allied armies had been driven out of the Low Countries and across the Rhine by the victorious French. Thus, by the end of spring 1795, Britain faced

the French-held European coastline from the Ems to the Pyrenees.

From 1795 until 1805, apart from the year of peace (1802–3), Britain lived under serious threat of French invasion, although the threat ebbed and flowed with France's other preoccupations. Steps were taken to increase forces on the home front; the Militias of England, Wales and Ireland were quickly embodied and in Scotland men were raised for Fencible Regiments. In April 1794 an Act was passed authorising the raising of a large body of part-time Volunteer Corps for local defence but the number raised in Scotland was small.

The coast defence situation, however, was desperate. Although there was a chain of forts and batteries stretching along the coasts between Berwick and the Scilly Isles, they were too far apart and many of them were in a state of disrepair, disarmed and unmanned.

In December 1796, the French attempted an invasion of Ireland, which brought home the reality of the danger to Britain itself. On the 16th of that month a French force of 15,000 men under General Lazare Hoche and Vice-Admiral Morard de Galles, left Brest with a fleet of 43 ships and set sail for Bantry Bay, County Cork, where they intended to land and join forces with rebellious Irishmen. However, stormy seas, which had kept most of the British fleet at harbour in the Channel ports, dispersed the French fleet, and the ship carrying Hoche and de Galles was blown far out into the Atlantic. On 29 December, their ship finally sailed into Bantry Bay, to discover that the rest of the fleet had left for home and that their attempted invasion of Ireland had been thwarted. Despite its failure, this incident brought home the fact that it was possible

for the French navy to evade detection long enough to land an invasion force on the coasts of the British Isles (Maurice-Jones 1959, 86–7).

On the night of 22 February 1797, the French made another attempt and landed 1,300 men near Fishguard on the Welsh coast. This small force was intended to foment insurrection, interrupt commerce by striking at Bristol, and distract forces away from the primary invasion targets in the south-east (Maurice-Jones 1959, 87–90), but it came to naught and the force soon surrendered. These attempts, however, alerted Scotland to the threat of a French military invasion and the re-establishment of the Scottish militia by the Militia Act (Scotland) of 1797 (Genguide ND).

In the following year, during the Irish Rebellion of 1798, a small force of French troops was landed at Killala Bay and joined forces with Irish rebels on 23 August, but was defeated on 8 September.

By autumn 1797 preparations were being made for the direct invasion of Britain across the Channel. General Napoleon Bonaparte had been given Command of the 'Army of England' and all the harbours from Antwerp to Cherbourg were busy constructing gun-vessels and flat-bottomed boats. Troops assembled along the Channel coast spreading fear and panic throughout Britain. Napoleon, however, turned his attentions towards Egypt and the Levant. The final French expedition failed on 12 October 1798, when a squadron carrying troops was engaged and defeated by British warships near Tory Island, off the north-west coast of County Donegal.

On 25 March 1802, the Peace of Amiens was signed. Following the peace treaty most of the defensive works in Britain were abandoned and guns removed from emergency batteries. It became obvious, however, that French ambitions would make the renewal of hostilities unavoidable and on 18 May 1803, the British government declared war and the defensive measures abandoned just over a year before were reinstated. It was intended that the coast of Britain would be defended by a ring of batteries which could cover every likely anchorage or landing place.

From 1803 to 1805 the French army was again mustered along the western continental ports from Hamburg to Bordeaux and on the immediate invasion front, from Flushing to Havre, Napoleon massed 80,000 veterans with over 2,000 barges, pinnaces

and gun-vessels, ready to slip across the Channel when the opportunity arose.

At this period, permanent fortifications were the responsibility of (and were to be paid for by) the Board of Ordnance; 'field works' were the responsibility of the War Office. The Board of Ordnance, to save government money, tried to make cities, towns and small ports pay for the construction of their own defending batteries. Thus, when it was decided that Dunbar, lying at the mouth of the Firth of Forth, needed a fort to protect its approaches, the town was advised to build one at its own expense.

By August 1805 the French had never achieved even the temporary control of the Channel necessary to allow the invasion flotilla to cross. By 21 October 1805, when Nelson defeated the combined French and Spanish fleets at Trafalgar, Napoleon and his army were already on their way to Austria, towards his decisive victory at Austerlitz in December. Nevertheless, the fear of invasion persisted until Napoleon's final defeat on 18 June 1815 (Maurice-Jones 1959, 91–107).

The Board of Ordnance records for August 1805 reported the following 'coast' armament defending the Firth of Forth (Table 1). Interestingly, Dunbar, which was actually armed at that time, had no armament recorded against it. Bill Clements (pers comm) suggests that the guns at Dunbar were owned by the town, rather than the Board of Ordnance.

The Board of Ordnance produced a return for artillery in Northern Britain on 28 October 1806, listing the armament 'mounted' for the batteries in the Forth, which by this date included guns at Dunbar.

Table 1 *The recorded armament of the Forth in August 1805. (Maurice-Jones 1959)*

	24-pdr	18-pdr	6-pdr
Blackness Castle			5
Leith Fort	5	4	
Queensferry	8		
Inchcolm	7		
Inchgarvie		4	

Table 2 *The armament of the Forth as recorded on 28 October 1806. (TNA WO 44/540)*

	24-pdr	20-pdr	18-pdr	14-pdr	12-pdr	11-pdr	9-pdr	6-pdr
Blackness Castle								
Dunbar			1		4	2		
Edinburgh [Castle] for landward defence	6		12		13		8	
Leith Fort	5		6					
Inchcolm	10							
Inchgarvie				4				
Queensferry		8						

Individual sites

War Signal Stations in the Forth

During the French wars, naval signalling involved the use of visual means such as flag semaphore and mechanical telegraphy. In late 1795 the Admiralty began to set up a system of War Coast Signal Stations along the south coast of England to give early warning of a French invasion. There were two types, the 'Six-shutter Telegraph' and the 'Coastal Signal Station'. The former was designed by Lord George Murray who had been influenced by the success of the recently-invented French 'Chappe' system. Murray's system comprised a framework tower, with shutters that flipped between horizontal and vertical positions to give a signal which could be read by the next station using fixed telescopes. The towers were intended to be mounted on temporary wooden huts, but sometimes other buildings were used for this purpose (Benyon 2016).

The Coastal Signal Station was of a much simpler design, generally being a timber hut and a single flagstaff, which could be used to send only short, prescribed messages, such as the sighting of a potentially hostile warship. A naval Lieutenant was detailed to command each station, who was provided with the following printed instructions:

You will find upon your arrival at the Station a temporary building or signal house, with two rooms, one for the accommodation of yourself, and the other for your two assistants ... also a Telescope, one Red Flag, one Blue Pendant, and four Signal Balls (Knight 2014, 140)

The Coastal Signal Stations were erected in a series on high points on or near the coast and within sight of those next in the line, to enable them to communicate with each other, as well as with ships near the coast. Although they were a measure to give early warning of invasion, they were intended primarily for sightings of enemy privateers, which constantly preyed on small merchant ships on coastal voyages. The most frequently used signals were those to ships off the coast, requesting a secret password so that ships could be identified as friendly. If anything, suspicious was seen, a message was passed down the line of stations to warn and initiate a naval response. They were also used to give alert to the presence of suspected smuggling vessels (Knight 2014, 140–1).

During 1798 the construction began of Coastal Signal Stations on the east coast of England (Knight 2014, 138). In the summer of that year eight pre-fabricated timber War Coast Signal Stations were also built at Chatham Dockyard under the supervision of Captain Clements, to be erected along the south-east coast of Scotland as follows: St Abb's Head; Dowlaw, south of Fast Castle; Black Castle Hill, south of Skateraw Point; Dunbar Fort; North Berwick Law;

Garleton Hill, SW of North Berwick; Port Seton; and Calton Hill, Edinburgh.

The Treaty of Amiens, signed on 25 March 1802, resulted in the immediate stand-down of all defensive and volunteer forces, as well as reductions in the Army and Navy. The War Coast Signal Stations were dismantled and the pockets of land on which they had stood were returned to their owners. When war recommenced at the end of 1803 the system of stations had to be hurriedly re-established (Knight 2014, 300). The Sea Fencibles were re-established and the Signal Stations were again placed under their control until the abolition of the Fencibles in early 1810. It should be noted the Army maintained a separate system of signal stations which primarily dealt with communications over land.

The *New Statistical Account of Scotland* (NSA 1845 Vol. 2 Haddingtonshire, 318) recorded that ruins of a stone building at the summit of North Berwick Law in East Lothian were the 'residence' of a naval officer and three assistants in charge of the Signal Station established during the late war and dismantled on the return to peace.

For at least part of the time, a Lieutenant Leyden commanded a party of naval ratings stationed at North Berwick Law, who were instructed to light a beacon if they sighted enemy forces, which would start a chain of fires on high points across the country to raise the alarm (Seaton ND). The beacon itself was apparently an iron cage or wooden barrel which contained flammable material saturated with pitch. To light this in any kind of weather, special 'blue lights' were used. These were small, intense burning incendiaries made from saltpetre, yellow arsenic and sulphur, the same as used as rudimentary signal lights on ships at sea (Hendry 2011a, 2011b).

The structure is perched precariously on the north-east side of the summit at a height of 187 m above sea level. It has an east facing, single entrance, measures about 5 m in both length and breadth, and slightly more in height. The stone walls are over 0.5 m thick with the south side abutting against a large boulder in the hillside. There are no windows in the east or north walls and the west wall is missing. A chimney still stands with a huge gap in the wall where the fireplace would have been. The roof had timber rafters and was probably tiled, in view of the exposed location and to avoid the danger of fire.

A few paces east from the entrance are the remains of an outbuilding with internal measurements of 1.5 m x 0.85m. It has a small, west facing doorway. This may have been a toilet and/or store for flammable materials (Hendry 2011a, 2011b).

The Lieutenant in charge of a Coastal Station recruited a Petty Officer and two Signallers. Where possible an existing building was taken over and converted, but in most cases a wooden hut was built, with a canvas roof. Each had a mast and gaff on which to hoist a combination of balls and flags which would give warning of enemy movements to all concerned –



Illus 2 The accommodation hut for the Signal Station on the summit of North Berwick Law. (R Morris)

warships and merchantmen at sea, and the local army and Sea Fencible units in case of an invasion.

The re-established post-1803 line of eight Signal Stations closely followed the earlier 1798 line, with the stations listed as being located at: St Abb's Head; Downlaw [Dowlaw] near Eyemouth; Blackheath [Blackcastle?] Hill near Dunbar; Dunbar Pier; Garristone [Garleton?] Hills in East Lothian; North Berwick Law; and Calton Hill and Mill Stairs in Edinburgh.

According to a report of June 1805, the station at Calton Hill was 'so obscured by the smoke of Edinburgh passing down the valley between the Hill and Arthur's Seat that for days it is not to be seen from the next station at Mill Stairs.' This was a serious problem, as that station communicated directly with the Admiral in his flagship, and it was therefore recommended to be removed to Arthur's Seat; this, however, was going to be too expensive, and the signal station remained at Calton Hill (Lavery 2007, 128–9). The Shutter Telegraph and Coastal Signal Stations were closed down in 1814 (Knight 2014, 138). Of the eight signal stations set up in south-east Scotland, only North Berwick Law Station has surviving remains.

Dunbar Battery

The ruins of Dunbar Castle sit on a rocky headland at the west side of the entrance to Dunbar harbour, while

the site of the later battery is on a rocky islet known as Lamer Island located at the north-east of the harbour and which is accessible from the harbour by a small drawbridge. The castle was a very important one as it covered the most convenient landing place on the east coast, north of Berwick-upon-Tweed (RCAHMS 1924, 26). The castle was destroyed in 1488 on the orders of Parliament, which had experienced too much trouble from its keepers and withholders. However, in 1497 James IV began to re-fortify the site to protect the important port and burgh (Caldwell 1981). In the spring of 1560 the castle was re-fortified by the French but after April 1567, when Queen Mary was held prisoner in the castle by Bothwell, Parliament again ordered its demolition, as it was no longer an effective means of defence (RCAHMS 1924, 27). It played only a small part in the later defence of the Forth.

Thus, when John Paul Jones appeared off the coast at Dunbar on 14 September 1779 with five ships, causing great alarm along both shores of the Firth, Dunbar was undefended. The magistrates appealed for troops to defend the town in the event of a landing; a regiment of dragoons was sent from Edinburgh and most of the town's male inhabitants were enrolled as volunteers under Dr Hamilton.

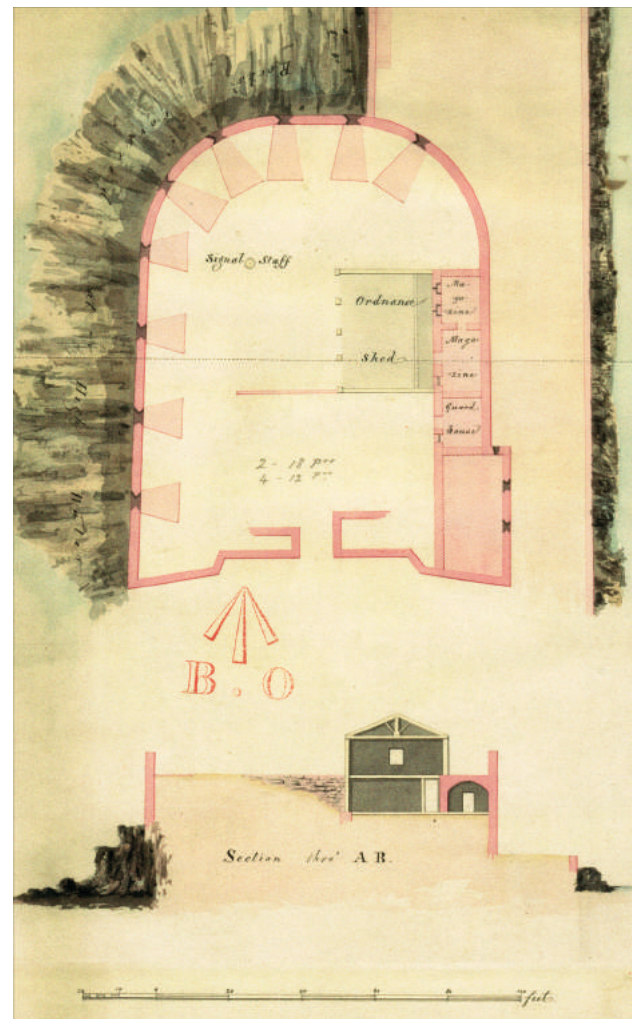
Four or five guns, belonging to ships owned by the Greenland Company, were mounted on the Kirkhill, where embrasures were made and a battery was formed during an afternoon; a 12-pdr was placed on

the roundel of the pier and two other guns were set at the harbour entrance overlooking the sands. Although hastily arranged, a considerable show of strength was mounted to repel Jones, whose squadron eventually moved upriver to stand off the port of Leith (see Leith Fort, below).

Less than two years later the town was threatened by Captain Fall, a privateer operating out of Dunkirk. At about 11 am on 22 May 1781, his cutter *Fearnought* gave chase to a Gravesend fishing-smack near St Abb's Head, which made for Dunbar. As the tide was on the ebb, the smack was forced to drop anchor at the harbour mouth beside Lamer Island. A small privateer, the *Thistle*, belonging to the burgh, which had arrived that morning and was lying in the bay, also became alarmed at the appearance of Fall's ship and anchored alongside the smack for protection. Fall prepared to launch his boats to cut out the two vessels, but the inhabitants of Dunbar did not stand idly by and watch him carry them off. They hurriedly brought three 12-pdr carronades, which were lying in a storehouse belonging to the Greenland Company, to Lamer Island. Provost Robert Fall (no relation) had the townsfolk transport every sack of flour in his granaries down to Lamer Island, where they were used to form improvised embrasures. The gunners were mainly sailors, directed by George Spiers, a carpenter, who had served in the Royal Navy. Some others dragged two 9-pdrs which had been left lying in Tyne Sands from the ill-fated *Fox* man-of-war. These guns had lost their carriages but were erected on a prominent place in the ruins of Dunbar Castle, at the harbour, opposite Lamer Island. These guns were under the direction of Baillies Simpson and Pringle.

Spiers fired three well-directed shots from the 12-pdrs, the first going under the enemy's bow; the second going between the mast and foresheet; and the third dropping into the sea, right astern. There was no shot large enough for the 9-pdrs at the castle, so those manning them put four or five 6 pound shot into one gun, but, because the powder was loose amongst the balls, they were scattered about the back of Lamer Island, to the consternation of the gunners there. Captain Fall's first response was to send a ball which landed in the garden of his namesake. Two further shots landed in the town without causing any damage. The valiant efforts of the Dunbar residents forced Fall to lay half a mile offshore for 90 minutes, before he eventually sailed away to a volley of musket shots fired by a party of volunteers. Fall then proceeded towards the Isle of May and carried off all its sheep. The following afternoon Fall anchored off the town of Arbroath and tried, as Jones had at Leith in 1779 (see below) to hold the town to ransom. The Town Council successfully stalled for time, armed as many townspeople as possible, and finally defied him (Miller 1859, 169–71).

As a result of Jones's and Fall's forays, the magistrates and council of Dunbar met on 22 June 1781, to decide what the burgh could do about defending itself against further incursions. A plan of a fortress proposed for



Illus 3 Dunbar Battery in 1811.

(Reproduced by permission of the National Archives, Kew, file *MPHH* 1/199)

Lamer Island was drawn up by Mr Fraser, engineer, and after it was adopted, a battery was erected and armed with 16 guns of different calibres, the largest being two long 18-pdrs. In the summers of 1782 and 1783 troops were encamped at Dunbar, in part to provide security against further attacks (Miller 1859, 172–3) (Illus 3, 4 and 5).

Following the end of the American War of Independence (1783), the battery at Lamer Island, although apparently remaining armed, was allowed to fall into a state of disrepair. Graham (1967, 188) reports that in 1793 the Provost advised the Town Council that, 'in the present state of this country, it was proper to put the Battery into proper order, and to procure a quantity of powder'. According to the *Old Statistical Account of Scotland* the number of guns that same year was 12, comprising, 9-, 12- and 18-pdrs (OSA Vol 5, 1793, Dunbar, 480).

During that year, Major George Hay raised the volunteer 'Dunbar Defensive Company', which was furnished with arms and accoutrements by the government. The corps consisted of one company of 73 men, later increasing to 100. At the same time a



Illus 4 *Dunbar Battery as it survives, viewed across the harbour.* (R Morris)



Illus 5 *The interior of Dunbar Battery as it survives* (R Morris)

company of gentlemen was enrolled, who provided their own uniform and served without pay. They were disembodied in April 1802 (Miller 1859, 173–4).

In 1795 the battery was inspected by a Royal Engineer lieutenant, whose report to Lord Adam Gordon, Commander-in-Chief in Scotland, has been preserved; details of the armament were evidently given in a separate statement, which has disappeared, but the lieutenant stated that there were 16 embrasures and mentioned 6-, 9- and 12-pdr guns and 18-pdr shot, together with four carronades for the defence

of the landward face of the battery. He added that, ‘if two of the 12-pdrs and the furnace’, which latter he had recommended for the heating of shot, ‘were placed in the castle they might either assist the effect of the guns of the battery or would command the bay to the westward’; and he noted that the furnace would be safer there than inside the battery and close to the magazine (Graham 1967, 188). During 1799 new works at the battery cost £336 9s 11d, with regular repairs taking place thereafter. Troops were also encamped at Dunbar in 1796 and 1797 (TNA WO 55/819).

The south-east coast of the Firth of Forth, especially near Aberlady Bay, was thought to be the likeliest place in Scotland for a French invasion attempt, and every precaution was made to guard against this. The previously described signal stations were erected on the heights at St Abb's Head and Blackcastle, communicating with Dunbar battery, North Berwick Law and Garleton Hill, thus commanding the whole extent of the coast and inland country all the way to Edinburgh (Miller 1859, 174).

After war broke out again in 1803, a great military force was encamped at West Barns Links to oppose any invasion, under the command of General Sir George Don. The volunteers were re-embodied in June 1803 by Major Middlemass, as the 'Dunbar Loyal Volunteers', comprising four companies of 80 men. Barracks were built at Dunbar and Haddington in the autumn. The infantry and artillery barracks were situated on the Heugh Heads, in an area of high ground overlooking the sea, west of the Castle Park, and could accommodate 1,200 infantry and 300 artillerymen. The cavalry barracks were situated in the park between the Gallowgreen and Belhaven and could accommodate 300 men. Dunbar was now quite well prepared to meet the threatened invasion (Miller 1859, 175).

In 1808 the Haddingtonshire Local Militia was embodied, upon which the volunteer regiments of the county transferred their services to that corps. That same year the magistrates of Dunbar were requested by the Office of Ordnance to 'cause the stone platforms of the Guns ... to be repaired and made fit for service.' They were further requested in 1814 to repair two 18-pdr and two 12-pdr gun-carriages (Miller 1859, 179; Graham 1967, 189).

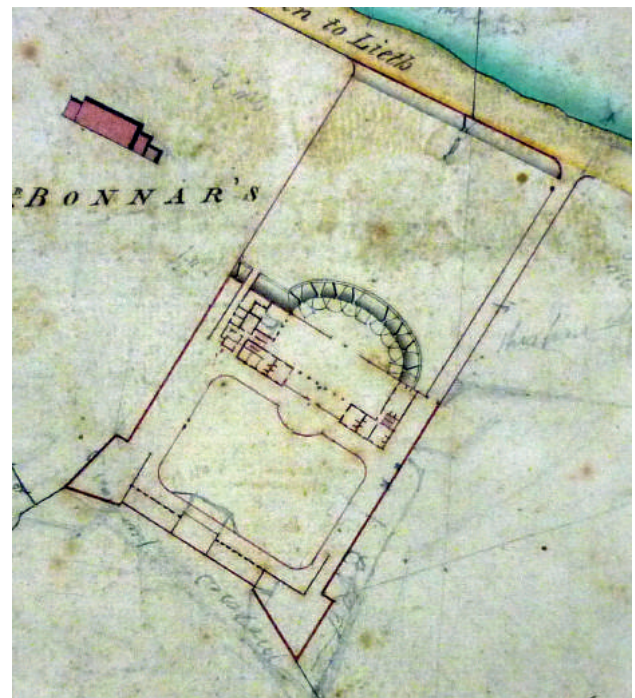
After Napoleon's abdication on 4 April 1814 brought the war to an apparent end, the barrack materials at Haddington and Dunbar were sold by public auction in October and, by November, the barracks themselves had been completely removed. The guns were removed to storage in Edinburgh at the 'general peace'.

On 14 August 1822, the guns having been brought temporarily from Edinburgh for the purpose, the battery fired a salute to welcome King George IV to Scotland, as his fleet passed Dunbar. On the evening of the 29th, as His Majesty was leaving, a bonfire was lit at the pier head and another salute was fired by the battery to mark the King's departure (Miller 1859, 181).

In later years, the buildings were used as a hospital, taking military patients during the First World War, but they were gutted in a Coronation bonfire in 1936, rendering the place derelict (Graham 1967, 189).

Leith Fort

On Wednesday morning, 15 September 1779, it was reported to the Commander-in-Chief, the Customhouse and the Lord Provost, at Edinburgh, that three apparently hostile ships (Jones's squadron) had appeared off Eyemouth and Dunbar on the previous day, and had taken two or three vessels in the mouth



Illus 6 The main battery at Leith Fort, 1780. (Reproduced by permission of the National Archives, Kew, file MPH 1/199)

of the Firth (the *London Evening Post* quoted in Seitz 1917, 49). The largest vessel was a frigate and supposed to carry 40 or 50 guns. On the same day, Jones captured the collier *Friendship* of Kirkcaldy, bound from Leith to Riga, and detained the captain to act as a pilot for the Firth. From him, Jones learned that there lay at anchor in Leith Road a coastguard ship of 20 guns, with two or three fine cutters. Armed with this intelligence Jones started to plan an expedition against Leith, to extort financial and material contributions, or to reduce it to ashes (Seitz 1917, 43; Jones 1785, 117–8).

This bold plan, however, was not only very risky, it also contravened Jones's orders. His two fellow captains agreed to the plan only when he mentioned that he was hoping to extract a ransom of £200,000 from the town (Morison 1959, 213).

Jones originally planned a dawn raid, going alongside the armed ship and cutters and quickly overpowering their crews. Lieutenant-Colonel Chamillard, Commander of his marines, would then lead a party of 130 men into the port and deliver a message from Jones to the town's Provost, demanding £200,000, half in cash and half in note. Six city councilmen were also to be taken as hostages, three of whom would be released on the payment of the cash, with the other three to be held to guarantee the payment of the note. Chamillard, however, had been told to settle for £50,000 if he could not extract more. If the Provost and councillors refused to pay the ransom, he was to burn the town (Morison 1959, 213; Thomas 2003, 173–6).

Despite a delay and contrary winds, Jones pressed forward. Once the squadron had regrouped, he entered the Forth and by 5 pm the ships were visible to the naked eye from Edinburgh. On the morning of Friday 17 September Jones's squadron stood to within a mile of Kirkcaldy, sending the population into a great panic. A local minister, Reverend Robert Shirra, led his congregation and a growing crowd down to Pathhead Sands where, sitting on a chair at the shore, he prayed fervently that the enterprise of 'the piratical invader Paul Jones might be defeated.' Jones's ships sailed on and when they were off the north side of Inchkeith a swift sailing cutter was sent out from Leith to reconnoitre the squadron. Although the cutter re-took one of the prize vessels, it was obliged to abandon her, when one of Jones's warships approached. In Leith and Edinburgh drums rolled and bugles and pipes sounded as men armed themselves with pikes, claymores and fowling pieces, and packed off their wives and children to the hills for safety. Leith begged for a hundred muskets from Edinburgh Castle (as there was no Militia following the Jacobite Rising). Sir Walter Scott stated it hurt his 'pride as a Scotsman' to reflect on how defenceless the capital was. When the squadron was abreast of Inchkeith, however, a 'Very severe gale of Wind came on, and being directly Contrary obliged [Jones] to bear away after having in Vain Endeavoured for some time to Withstand its violence'. Local legend ascribed the storm to the intercession of Mr Shirra. The squadron was driven under short sail to the mouth of the Firth. Although the gale abated by evening, Jones decided that with the element of surprise being lost he must abandon his assault on Leith. It seems, however, that Jones lingered close to the coast at Anstruther for a while before finally abandoning his plan (Jones 1785, 117–8; Morison 1959, 213; 216–8).

The Jones scare resulted in a battery of nine guns being hastily erected to cover the entrance to Leith harbour. The authorities then decided that a more substantial defence should be built, and commissioned James Craig (designer of Edinburgh's New Town) to draw up plans for an 'Inclosed Battery or Redoubt near Leith, built for the protection of the Harbour' which was built in the year 1780 (Flintham 2013, 97). In September 1793, the 1st Royal Artillery Company occupied this fort, together with a detachment of infantry from Edinburgh Castle, and by 1803 guns had been mounted on the fort as part of the Firth of Forth defences. New works and repairs were regular features at the Fort – there are records of 13 separate substantial episodes of construction and repair between 1795 and 1815, at a total cost of £49,206 17s 4¾d,² including enlargement during the Napoleonic Wars to house French prisoners-of-war (TNA WO 55/819; Flintham 2013, 97).

A Board of Ordnance inventory of armaments in August 1805 listed five 24-pdr and four 18-pdr guns mounted at the Fort, while a similar inventory in October the following year listed five 24-pdrs and six 18-pdrs (Maurice-Jones 1959, 98; TNA WO 44/540

1808–28). By 1808, however, a report stated that, 'The present fort was erected for the protection of the harbour and roadstead and is situated between the town of Leith and the village of Newhaven so that the new docks intervene between it and the sea thereby rendering the Fort in a great measure useless as a work of defence' (Saunders 1984, 471). The fort later became a Royal Artillery Depot and was the principal depot for ordnance stores in North Britain (Flintham 2013, 97; Saunders 1984, 471). It also continued in service as a barracks. In the mid-1860s the local population became concerned by the large quantities of gunpowder stored there; in the 1870s Blackness Castle (see below) was converted to become the main powder store in Scotland. Leith Fort was the home of the Coast Artillery School from an unknown date until it was moved to Broughty Castle in 1908. The Fort fell out of military use in 1956 and was subsequently demolished, leaving only substantial parts of its high boundary wall, entrance gate and two guardhouses.

Leith Martello Tower

In 1806 new docks had been built at Leith and to defend the port, the Board of Ordnance, in 1807, proposed that a Martello Tower be constructed at the entrance to the harbour. The Board would provide the funding for the tower and Edinburgh City Corporation would be responsible for its construction. Because of what Flintham (2013, 98) described as 'a saga of procrastination and sharp practice', however, the tower was not completed for almost 30 years.

Martello³ Towers were small, thick-walled, circular built forts adopted for coast-defence purposes from the end of the 18th century, primarily because of the



Illus 7 *The Martello Tower, photographed from the air in 1951. (Reproduced by permission of the National Collection of Aerial Photography ncap.org.uk NCAP-000-000224-823)*

invasion threat from France. A total of 106 were built around the British Isles, mainly on the south-east of England, and about 50 in Ireland, but only three in Scotland, Leith being the only one on the mainland. These towers were usually built of stone or brick, containing vaulted first-floor accommodation for the garrison above a ground-level magazine and stores, with a platform or barbette on the roof for one to three guns to be fired over a low parapet.

Construction of the Leith tower began in 1809. It was to contain living quarters for a garrison of twelve men, with a store, magazine and water tank on the ground floor. The site chosen for the tower was the Beamer Rock, about 450 yards (411m) out to sea from the north-north-east end of the pier, which at that time flanked the east side of the mouth of the Water of Leith.⁴

The original specification called for a tower some 9.8 m in diameter, 16 m high (with 5 m being below sea level) and a base diameter of 13.5 m, tapering to the specified 9.8 m gun-platform diameter. In 1810, Lieutenant-General Morse, Inspector General of Fortifications, modified the design, increasing the diameter to 24.6 m and the height above sea level to 13.8m. The tower was not completed in time to form part of the defences of the Forth in the Napoleonic War. Its construction, however, continued.

Later history

By 1828, the interior was still incomplete, the lower part was not watertight and in 1848 the Inspection of Forts, Towers and Batteries commented that the tower 'is altogether useless'. In 1850 the interior of the tower was reconstructed, adding the trefoil gun-emplacement at the platform and reorganising the internal accommodation.

By 1853 the tower was reported as being able to accommodate one officer and 21 soldiers and to be armed with three 32-pdr guns. It was manned by Royal Artillery personnel from Leith Fort (Flintham 2013, 98; *The Morning Post* 4 May 1850). The Ordnance estimates (Scotland) for the year 1854–5 included the sum of £284 for providing the tower with armament (*Scotsman* 22 Feb 1854). In July 1854 it was reported that three 24-pdr guns had been mounted on the Tower (presumably these were the guns which had been lying at Leith). The calibre of these guns was criticised locally, 'What imaginable attack can these three guns of moderate calibre be supposed to resist? Do we expect that Russia would attack Leith with half a dozen gun boats, or a sloop of war ...?' (*Scotsman* 3 June 1854; *Caledonian Mercury* 10 July 1854).

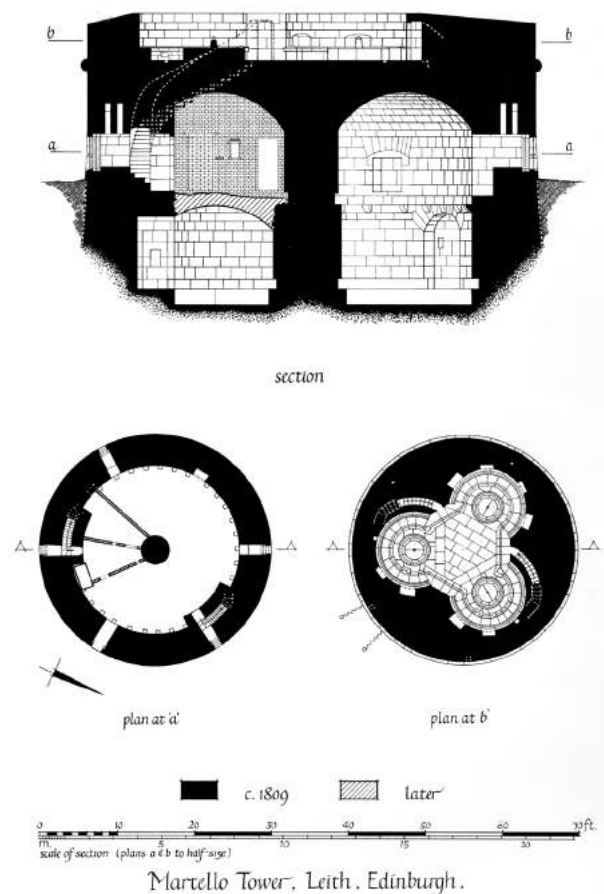
On 1 September 1858 three 32-pdr cannons, sent from Woolwich, were landed at Leith Docks to be placed in the tower (*Scotsman* 4 September 1858; 14 January 1859).

On 20 March 1869, a squad of artillerymen from Leith Fort with mechanical appliances dismantled the armament of the Martello Tower and removed the guns to the Fort (*Scotsman* 22 March 1869). The troops were



Illus 8 The trefoil arrangement of gun platforms on the summit of the Leith Martello Tower.

(SC 1048607 © Crown Copyright: Historic Environment Scotland)



Illus 9 Cross-section and plans of the Martello Tower, as recorded by RCAHMS in 1971.

(SC 495680 © Crown Copyright: Historic Environment Scotland).



Illus 10 The Ness battery at North Queensferry.
(Reproduced by permission of the National Archives, Kew, file MPHH 1/199)

withdrawn that year and the tower was abandoned for a while. On 8 June 1888, the Leith Dock Commission approved a request by Major Carey, RE, to store gun cotton in the tower for the use of the Volunteer Submarine Mining corps which was establishing training and operational minefields at Inchkeith (*Scotsman* 9 June 1888). This arrangement appears to have continued for a few years, until a magazine for the purpose was built on Inchkeith (*Edinburgh Evening News* 10 January 1934; *Scotsman* 22 March 1869; *Scotsman* 9 June 1888). At various times in the later 19th century different armaments were proposed for the tower, but it was never re-armed; it has been reported, however, that during the Second World War it housed an anti-aircraft gun.⁵ After the Second World War the dock area was extended seawards, absorbing the tower in reclaimed land. The lower regions of the tower have been buried to a depth of about 16 feet (c4.9m), while the visible portion stands 21ft 6in (c6.6m) above the new ground level (Graham and Stell 1971).

North Queensferry

During Cromwell's invasion of Scotland in 1650, North Queensferry and the island of Inchgarvie, lying mid-channel between the two Queensferreries, were fortified to prevent Cromwell's army, based at Linlithgow, from crossing to the north side of the Forth. North Queensferry was equipped with a 'Great Sconce' or battery which consisted of five guns at the East Ness, below Battery Hill and another twelve guns at either the summit of Battery Hill, or near Carlingnose, to the north. Some further details are reported under the Inchgarvie section.

In the aftermath of the incursion by John Paul Jones's squadron into the Forth in 1779, Captain Andrew Fraser, Chief Engineer for Scotland, met with members of the Guildry of Dunfermline on 9 June 1781, to discuss his proposal that a battery should be reinstated on the point of the East Ness. Two days later it was agreed that not only should a battery be built there, but also on top of Castle Hill (later Battery

Hill), to protect ships venturing upriver. The Guildry, which owned the land, agreed to forgo use of the land temporarily, for the establishment of a battery and access road, on condition the tenant was indemnified for any damage caused (Dennison et al. 2000, 23). If it turned out that the government needed the ground after the end of the War of American Independence, then it was to purchase it (Dean 1981, 34).

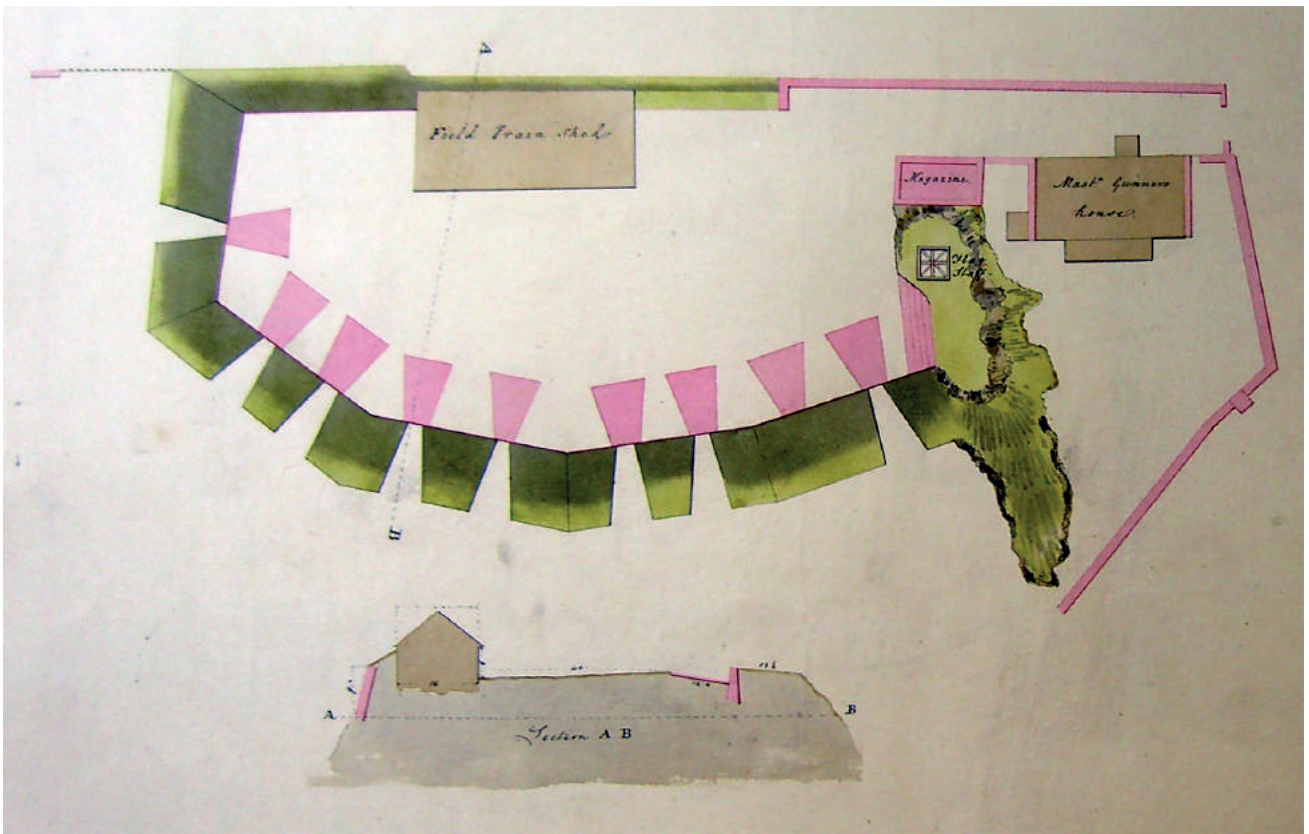
The *Lloyds Evening News* (and several other newspapers) reported on 13 June 1781 that a battery was to be erected at 'the Ferry' and another opposite to it at Inchgarvie. Three days later the *Caledonian Mercury* reported, 'About 200 men are now busy in building the battery at the Ferry and Inchgarvie.' On 10 September, the same newspaper further reported, 'Tomorrow, a company of the South Fencible men, will take possession of the battery lately erected on Inchgarvay [sic] and the North and South Queensferries.'

Following the recognition of American independence, a war with France seemed possible, resulting in Mr Thomas Fyres, Overseer of His Majesty's Works and the now Major Fraser meeting with the Guildry in 1782 to discuss the purchasing of Castlehill and East Ness. The area measured 7 acres, 2 roods and 8 falls (Dean 1981, 34). However, the Guildry's asking price of £750 was considered to be too high and instead it was agreed to continue with the yearly rental of £53 15s (Dennison et al. 2000, 23).

A large plan of the fortifications in the Firth of Forth prepared by Major A Fraser RE in 1785 shows the battery on two levels, on the southward projecting peninsula known as Ness Point. The lower battery, known as 'Ness Battery' was located just above sea level, at the point itself and appears to have been the main battery. A plan of the Ness Battery in 1812 shows embrasures for nine guns, Field Train Shed and Flag Staff and Master Gunner's house. Today, the caissons of the north section of the Forth Rail Bridge lie on the site, although some of the walling in the area may date from the battery's life. To the north-east, on the summit of the ridge behind Hill Battery and at its eastern end, was the upper or 'Hill Battery'. Directly below the Hill Battery was a new pier, which the guns protected (TNA MPH 1/286; MPH 1/199).

In 1793 repairs to the battery cost £79 7s 2d. Two years later, new works at the battery cost £200 6s 5¼d, while a further £51 10s was spent on repairs. More substantial repairs were required in 1798 which cost £429 3s 7½d and during 1801 the sum of £96 11s 6¾d was spent (TNA WO 55/819).

The *Old Statistical Account for Scotland* (OSA 1794. Vol. 10, Inverkeithing, 514) states, 'There was a battery erected, upon the point of land (Battery Hill) to the east of the ferry, after Paul Jones appeared, with his small squadron, and alarmed the coasts. There is a higher and a lower battery, mounting together, 8 iron pieces, 20-pdrs, and 8 field pieces.' It would appear that 20-pdr



Illus 11 The batteries at North Queensferry in 1785.

(Reproduced by permission of the National Archives, Kew, file MPH 1/199)

guns had been added to the original ordnance as well as another tier, the battery being described here as having a higher and a lower battery.

On 3 March 1797, 32 boatmen and other inhabitants of North Queensferry wrote to the Lord Provost of Edinburgh, that, having been informed of the threat of a foreign invasion, they offered themselves in defence of the King, country and constitution, for service at the North Ferry Battery, Inchgarvie, or Inchcolme [*sic*]. Their letter was forwarded to Lord Adam Gordon, Commander of the Forces, who duly wrote back accepting their offer which did ‘them much credit and will accordingly be acknowledged in the newspapers.’ Impressed by the selflessness of these men, Sir Walter Scott wrote to them, thanking them for their patriotic action in coming forward as volunteers for the defence of their country (Cunningham 1903, 164–5).

It is unclear if anything came of this, as a similar offer was made by the male inhabitants of North Queensferry early in 1801, and, as there were no troops in the neighbourhood, Lt Colonel Rivington at Leith Fort thought they might be of great service. He stated that as the batteries mounted 22 guns, each of which would require at least five men, this Company should consist of 113 officers and men (TNA HO 50/351).

The threat from French warships visiting the Firth of Forth was brought home during the night of 15 October 1793, when a French sloop of war and a brig were seen taking soundings a considerable way up the ‘frith’. They also sent a boat ashore at Inchkeith where they carried off some sheep (*Caledonian Mercury* 17 October 1793). A Captain Munro Ross appears to have organised a volunteer force in North Queensferry and he recruited an elderly, retired seafarer amongst the volunteers, as he was the only one available who was well qualified to instruct the others in big-gun practice (Cunningham 1903, 164).

The Queensferry Volunteers were disbanded in 1802, after the Treaty of Amiens. However, when war broke out again in 1803 the Volunteers reformed. In addition to the North Queensferry Artillery Volunteers, the County of Fife alone furnished six regiments of Volunteer Infantry, one of Yeomanry Cavalry as well as the County Militia of over 850 men (TNA HO 50/69 1803). Similar forces were established across the country. Captain Ross received his commission on 25 June and formed the Royal Queensferry Artillery Volunteers to re-man the batteries at Battery Hill, Inchgarvie and Inchcolm (War Office 2005).

There were intermittent payments for repairs and new works at the battery between 1793 and 1814. A description of it in 1806 shows that it was an open earthwork battery with embrasures in which were mounted eight 12-pdr guns of foreign origins, whose carriages were serviceable. One NCO and three gunners of the Invalid Artillery were in charge and were lodged in permanent barracks, with support from the local Volunteer Company (Saunders 1984, 471).

On Monday 20 June 1812, the Queensferry Regiment, still under the command of Captain Ross,



Illus 12 *The surviving remnants of the Ness Battery, 2016 (G Barclay)*

was inspected by Major-General Laye, commanding the Royal Artillery in North Britain. After the corps went through the different manoeuvres in marching and firing, they were ordered to load with ball, and to point their 20-pdr guns at a small fishing boat, anchored 2,000 yards (*c* 1,840m) from the battery. By the time the 24th gun was discharged, the boat had sunk to the gunnels: on examination, no fewer than ten of the 24 balls were found to have gone through her (*Caledonian Mercury* 13 July 1812).

The sum of £139 5s was spent on repairs in 1814, and then in 1817 the Board of Ordnance ordered that the batteries at North Queensferry, Inchgarvie and Inchcolm be dismantled, although the guns remained on skids (Saunders 1984, 471). The battery grounds were apparently retained, as the sum of £6 12s 1¼d was authorised in 1823 for repairs to both North Queensferry and Inchgarvie batteries. The property was eventually advertised to let, although the terms of the advertisement in the *Caledonian Mercury* (30 April 1835) were such that the government could re-occupy it: ‘The ordnance property of North Queensferry Battery consisting of a house and some pasture land, with a range of wooden sheds, which are not to be taken down, and will be let ... on the understanding that the premises may be resumed at any time by government when required for the public service.’

Only a small part of the battery now survives, adjacent to the northern pier of the Forth Bridge.

To date no evidence has been found which would substantiate the *Caledonian Mercury’s* report of a battery having been erected at South Queensferry at this time.

Inchgarvie

Inchgarvie is a small island lying mid-channel in the River Forth between North and South Queensferry, where the estuary narrows. The island is a long narrow ridge of whinstone extruded from the sea bed, dividing the deepest part of the estuary into two

channels. The sub-tidal rocks at its western extremity provided the foundation for the central cantilever of the Forth Rail Bridge, which opened in 1890. Long before the building of the Forth Bridge the tactical importance of this small and seemingly insignificant rock was recognised, to protect shipping from pirates. We describe the history of the fortifications from the 15th century, as elements of the early structures were incorporated into the more modern defences.

Originally, it was a Crown possession, held as a fief by John Dundas of Dundas, who on 20 March 1490, was granted a licence by James IV to erect a castle or fortalice on it. The terms of the licence are contained within the Great Seal of Scotland and of the Charter of Conveyance dated 14 May 1491. Unfortunately, John Dundas died before any work had begun, although his son William, who succeeded him, apparently gave some attention to carrying out the provisions of the charter. Progress on the works was, however, halted by his death at the Battle of Flodden in 1513. His widow, Margaret Wauchope of the Niddrie family, undertook to carry out the work if the Treasury gave weekly in advance as much as would pay the workmen. An agreement must have been reached, as in December 1514, Captain Charles Dennistoun arrived at Inchgarvie with masons and other workmen and work proceeded expeditiously. On 20 July 1515, the Duke of Albany sent representatives to the island to determine how best the castle could be utilised as a stronghold. The castle was a stone tower with machicolated battlements surmounting curtain walls. It appears to have ranked in much the same importance as Tantallon, Dunbar and Dumbarton.

Almost from its completion Inchgarvie was used as a state prison, with Andrew Towris being appointed Constable of the island in 1517, during the reign of James V. At this time, John Stewart, 2nd Duke of Albany, acting as Regent in Scotland, when he was about to make a state visit to the Pope and the French King, took the precaution of installing a garrison of French soldiers at Inchgarvie and other strongholds in the land, as he did not trust the nobility in his absence. The French garrison appears to have been under the command of Alan Stewart of Upsettlington, who was Captain of the Castle at that time, who may have been removed soon after Albany's return. James Glen, Keeper of the Castle between 1523 and 1526 left the place 'desolat with twa puir bodies,' during his absence, when he was supposed to have seven men in it. The castle continued as an occasional place of confinement for over 150 years until the government purchased the Bass Rock for this purpose in 1671.

Inchgarvie was captured by the English during the Earl of Hertford's invasion of Scotland in 1543–4. At first, they decided it was a stronghold worth keeping but later changed their minds and razed the fortress to the ground. However, it was rebuilt prior to 1548 and provided a safe anchorage for French warships operating out of the Forth against the English. Two years later the castle was abandoned.

During 1582 the island was used as a lazaretto when the plague-stricken *William of Leith* arrived in the firth from Danzig. The Privy Council had ordered the ship to anchor off Inchcolm, where all on board who were afflicted were to be confined. The majority of the crew of 40 died, but the survivors were ultimately removed to Inchkeith and Inchgarvie until they had fully recovered their health (Dickson 1899, 11–12).

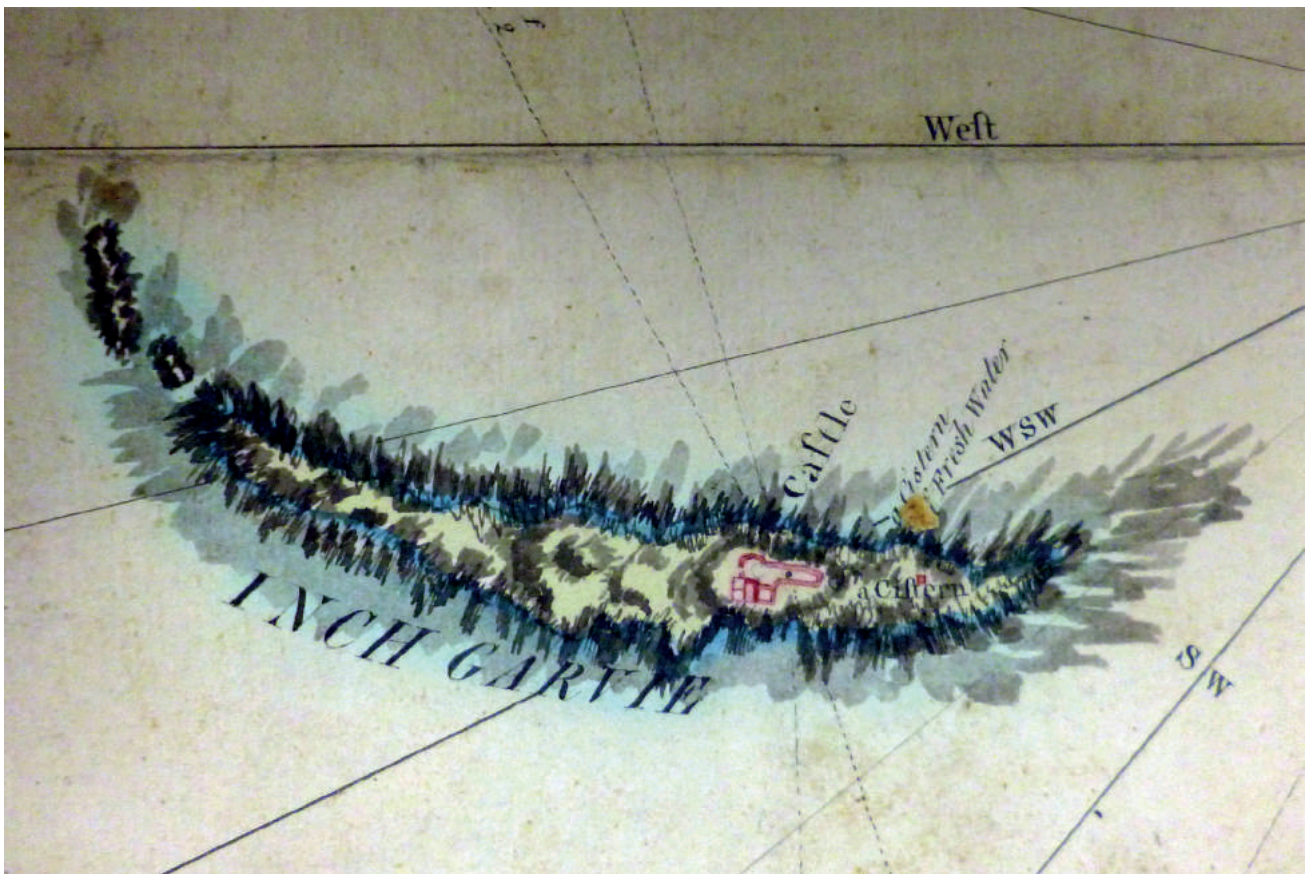
During the war with France in 1627, the Earl of Kinghorn was commissioned to build forts at Burntisland and Inchgarvie (Saunders 1984, 470). What works took place at Inchgarvie during that period, if any, has not been established,

In 1632 Charles I sent Alexander, Earl of Linlithgow, Lord Admiral of the Kingdom, a letter charging him to build and keep a fort upon the island. However, following the execution of Charles I (30 January 1649), the Scottish military authorities recognising the value of Inchgarvie Castle for defending the passage at the Queens Ferry, expressed dissatisfaction at the condition of the fortifications. They petitioned the Scottish government to have the castle put into a proper state of repair. Sir James Halkett of Pitfirrane, General of Artillery for Scotland, was appointed to determine what was necessary for repairing the works and, on 19 June 1650, a scheme of restoration was approved by Parliament. Sir James was placed in command of the castle and in March of the following year, a surgeon and a Chaplain were appointed (Stephen 1921, 385–6).

On 21 June 1650, the Scottish Parliament ordered the fortification and victualling of Inchgarvie 'and that 20 musketeers and a commander be put therein, that the Provost of Edinburgh furnish the said garrison with coles out of Duke Hamilton's cole heugh, and he to be payed for them.' Sixteen guns were provided, including two 'minions' and three 'saikers' from a vessel belonging to a Queensferry ship owner, Robert Pontoune (Beveridge 1888, 23; Stephen 1921, 386).

Shortly after his coronation at Scone on New Year's Day of 1651, Charles II became Commander-in-Chief of the army and, in this capacity, he visited both North Queensferry and Inchgarvie to inspect the fortifications and inspire the garrison in their impending struggle against the forces of the English Parliament (Dickson 1899, 14). At Inchgarvie, Charles, who had signed the Solemn League and Covenant, addressed the garrison, 'I am confident that none present shall distrust me, as I have as much at stake as any of them, forbye the oath of God to which I have bound myself as your King – your covenanted King' (Robertson 1979, 83).

In the Spring of that year Cromwell decided to force a crossing of the Forth at either Burntisland (also strongly fortified) or North Queensferry. Cromwell made simultaneous seaborne attempts against these strongholds, but both attacks were repelled. Cromwell persisted with his attempts against Inchgarvie, but Sir James' garrison was able to resist him (Dickson 1899, 18). Admiral Deane decided to use the 55 ships and flat-bottomed boats at his disposal to force a landing at the



Illus 13 *Plan of Inchgarvie 1785.* (Reproduced by permission of the National Archives, Kew, file **MPHH 1/199**)

Queensferry Straits. In the first six months of 1651 his warships made repeated bombardments on Inchgarvie, but these proved unsuccessful. However, by July he appears to have crippled the island, as a contemporary report stated, ‘the great ships go next the island and shoot all the while; the boats pass under the wing and receive no harm.’ On 13 July a three-day bombardment on the fortifications at North Queensferry and Inchgarvie began, which paved the way for the landing on the 16th by an advance party under the command of Colonel Overton. Within two hours of their landing, they had captured North Queensferry and its forts. One English account stated: ‘if by the Lord’s mercy we can make this place good, Ennisgarvy [Inchgarvie] must yield for want of fresh water, and then we have a brave way of possessing our whole army into Fife if we see occasion’ (Dean 1981, 21). Now surrounded on land and by sea, the garrison at Inchgarvie surrendered four days later.

Soon afterwards, Cromwell had the Firth of Forth under his control. The English placed a garrison on Inchgarvie and used it as a prison. In 1654, Mr Kay, a Minister of Dunfermline, was imprisoned on the island, after praying for the King (Stephen 1921, 387; Cunningham 1903, 155).

On 17 August 1655 Thomas Tucker, Registrar to the Commissioners for the Excise in England, was sent to Scotland to give assistance in settling the excise and

customs there, as part of the incorporation of Scotland into one commonwealth with England. In his report later that year he stated, ‘Queensferrye (South), a small town where formerly goods have been landed but not of late because Inchgarvy lying over against it in the middle of the river and that being furnished with soldiers and an officer or two, to examine and search all ships in their passage have kept them from that practice thereat.’ It seems that not long afterwards the English evacuated the island, leaving the castle to fall into a ruinous state (Brown 1891, 387; Stephen 1921, 387).

The Old Statistical Account (OSA Vol. 10, 1794, Inverkeithing, 514) informs us that Inchgarvie’s fortifications were repaired about that time, and were mounted with four iron guns, 20-pdrs. Each gun had 100 rounds of ammunition and one man belonging to the Corps of Artillery lived there. Inchgarvie remained in the possession of the Dundas family until the beginning of the 18th century when it seems to have reverted to the Crown. According to the Ordnance Gazetteer of Scotland, Inchgarvie Castle was refortified in 1779 after the alarm occasioned by the appearance of Jones’s squadron in the Firth and was provided with four iron 24-pdr guns.

A survey for national defence some time after John Paul Jones’s foray (September 1779) recorded in respect of ‘Garvy Ile ... that upon the top of it are the remains of an old tower and fortress happily enough

situate (if truly improven) to prevent the insults of an enemy.' Unfortunately, the date of this survey has not been recorded and so far a copy has not been traced. According to Cunningham, North Queensferry received armament for the first time in 1781, at the same time as Inchgarvie's fortifications were being strengthened, implying that at some point after September 1779, a battery had been hastily erected on the island.

A plan of the defences in the Forth prepared by Major A Fraser, RE, dated 1785, shows that there were no other structures on Inchgarvie than the castle and a cistern, implying that the battery was within the castle at that time. New works were put in place in 1795 at a cost of £282 19s 6½d, presumably the small, open round-ended battery to the west of the castle. Further works followed in the following year, costing £195 5s 10d, apparently to make the old castle serviceable. Repairs were required in most years up to 1814 (Dickson 1899, 7; TNA MPH 1/199; TNA WO 55/819).

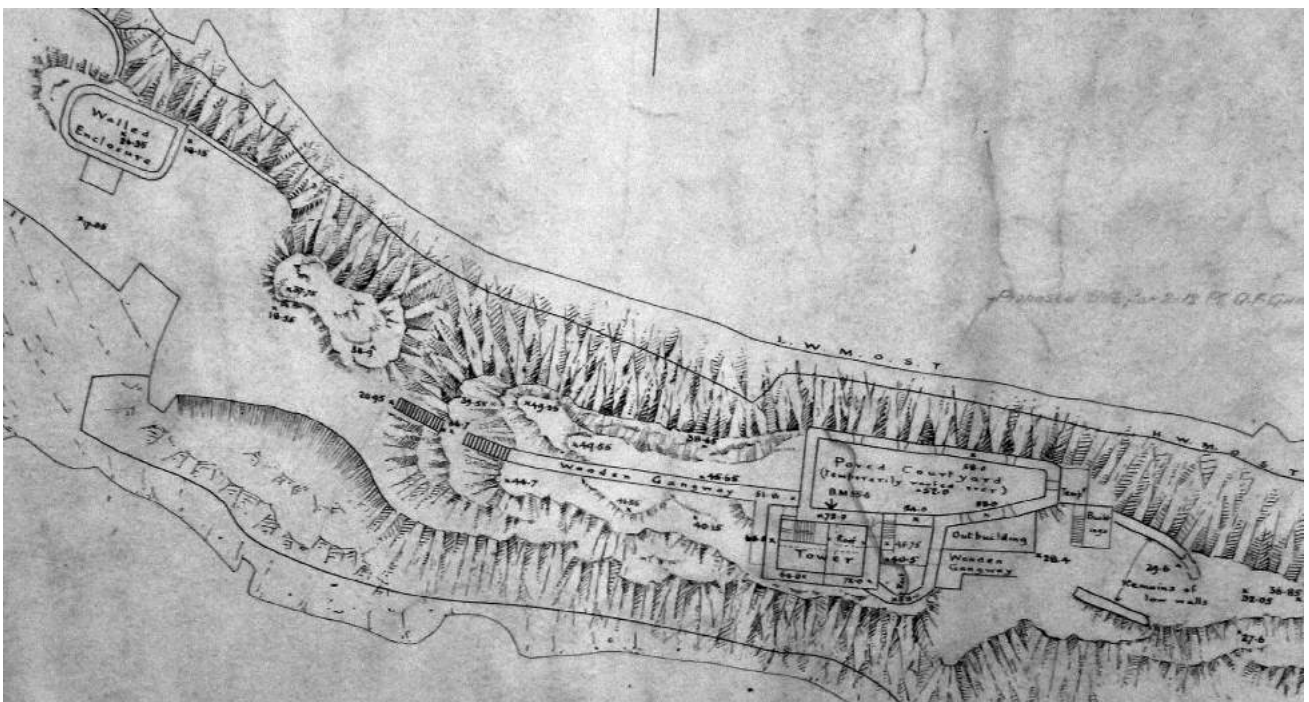
During 1805 Inchgarvie's 24-pdr guns were replaced with four 18-pdrs. The following year the battery was restored; it was described at that time as an open battery of masonry on a small rock opposite Queensferry. New works in 1815 cost £94 5s 7d, but in 1817 the Board of Ordnance ordered the battery to be dismantled and the guns were put on skids. The battery was clearly retained for a number of years, as on 21 July 1823 the Board of Ordnance authorised the Commanding Royal Engineer in Scotland to proceed with some repairs at both Inchgarvie and North Queensferry.



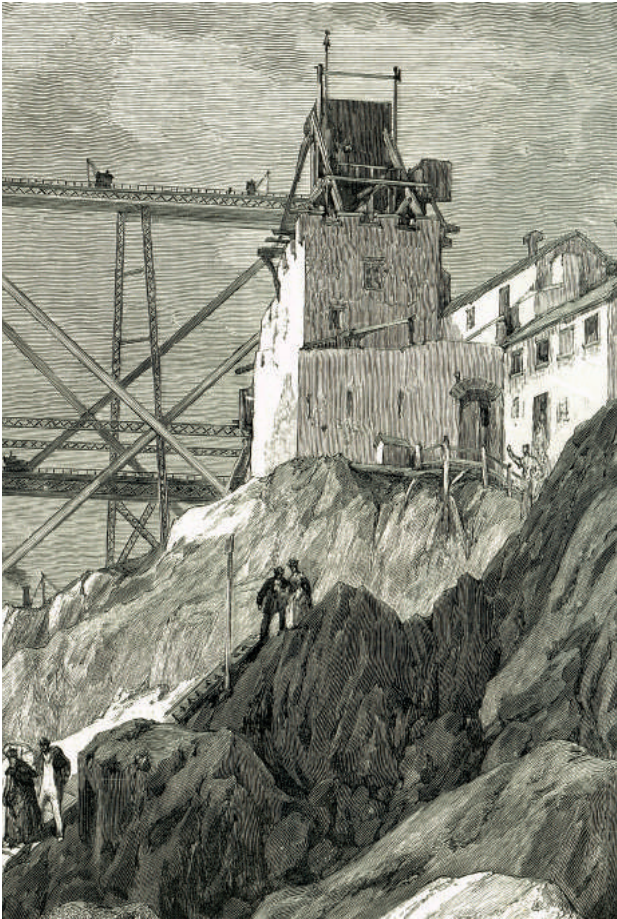
Illus 14 The remains of the battery built to the west of Inchgarvie Castle in 1795. (R Morris)



Illus 15 Detail of the Ordnance Survey 1:10,560 map of Inchgarvie showing the locations of the Castle and the 'Fort'. The remains of a 'Battery' are also marked at the eastern end of the island. (Reproduced by permission of the National Libraries of Scotland. Ordnance Survey Linlithgowshire, Sheet 3, 1856)



Illus 16 Plan of Inchgarvie, 1898, showing the defensive structures as they were immediately before the construction of the 20th-century battery. (Reproduced by permission of the National Archives, Kew, file WO 78/4167)



Illus 17 A detail from a rather over-dramatic illustration of the Forth Bridge under construction, with Inchgarvie Castle in the foreground, published in the Illustrated London News, 19 October 1889, 504.



Illus 18 A detail from a photograph of the Forth Bridge under construction, 1886–7, showing Inchgarvie Castle from the south shore. (Reproduced by permission of the National Library of Scotland, RB.I.229)



Illus 19 Inchgarvie Castle's fabric incorporated into the 20th-century defences. (G Barclay)

There is a suggestion of a further battery structure, to the east of the castle. The Ordnance Survey map (Sheet 3), scale 6 inches to one mile, published in 1856, depicts the 'Castle in ruins,' with 'Remains of Fort' to the west of the castle and 'Remains of battery' to the east, suggesting that later works of the battery were built on sites outside the castle (Saunders 1984, 471; *New Statistical Account* 1845, Vol. 9, Inverkeithing 240; TNA WO 55/819; TNA MPH 1/199).

The most reliable plan of the castle, showing it as it survived into the later 19th century, but apparently relatively untouched, was drawn in 1898, as part of the preparation of the building of the modern battery (TNA WO 78/4167).

There are few images of the castle prior to the construction of the modern battery. The *Illustrated London News* of 19 October 1889 published a rather dramatised image of the Forth Bridge under construction, with the castle looming in the foreground, as if upon an alpine precipice! A number of views of the island and castle were included in a set of 40 photographs of the construction of the bridge.

A substantial part of the castle structure survives within the 20th-century battery structure (Illus 19).

Inchcolm

Inchcolm is listed amongst the stations in a Board of Ordnance Return showing the expenses incurred in erecting and repairing fortifications in North Britain during the years 1793–1815. No expenditure, however, appears on the list for the station until 1795, when the owner, the Earl of Moray, granted permission for a fort to be erected on the island. In that year expenditure for new works was £2,383 7s 3d. The following three years saw further expenditure, totalling £229 10s 6d (TNA WO 55/819; Saunders 1984, 470).

The fort was arranged on the upper and lower levels on the eastern portion of the island, with one battery being constructed at the summit (100ft above sea level) and the other being located a little above sea level at the east-most point. Initially seven 24-pdr guns

were mounted at the batteries, with the upper battery receiving four guns and the lower battery receiving three. Fernie, erroneously, stated that these guns had a range of 2,700 yards (c2,470m), sufficient to cover the channel south of the island, but in fact their maximum range was 1,850 yards (c1,690m), with an effective range of 1,000–1,200 yards (c910–1,100m), if that (NLS Fernie 1813; Proof Office documents 1832, via Bill Clements).

Both batteries were of open style, constructed of an earthwork, with their embrasures faced with stone and their parapets lined with wood. Each gun revolved on a circular stone shaft hewn out of a stone block. The fort was so designed that the guns in the upper battery dominated those in the lower battery (Dickson 1899, 82).

At the rear of the upper battery there was a wooden guard-room, a magazine for powder and a storehouse. Large sums were spent on repairs in 1800 and 1801, totalling £466 10s 5d. The upper battery was approached by a road which led up from the landing place below, and a connecting road between the two batteries wound around the east of the hill (NLS Fernie 1813; Saunders 1984, 470).

Initially one NCO and three gunners were stationed on the island to maintain the guns, but later the fort was manned by personnel of the Royal Queensferry Artillery Volunteers (later Local Militia) from North Queensferry. Between 30 and 40 men formed the island's garrison (Saunders 1984, 471).

Writing in 1802 Campbell observed that some of the buildings of Inchcolm Abbey had been repaired and converted into barracks for the new batteries (Campbell 1802, 69; Dickson 1899, 82–3).

During 1806, when the threat of invasion was at its height, an additional three 24-pdr guns were sent to Inchcolm and installed in the upper battery, giving the fort an overall strength of ten such weapons. It is possible that the three additional guns came from Inchgarvie, which about that time had its four 24-pdrs replaced by 18-pdr guns. Works connected with the fort apparently continued into the following year, as according to General George Henry Hutton's account, about 1807, some men were employed in repairing the Inchcolm battery and collected stones for this purpose from the abbey church. Expenditure for repairs between 1806 and 1815 totalled £616 19s 2¼d, for new work, £673 4s 10d (Saunders 1984, 471; Metcalfe and Erskine 1895; TNA WO 55/819).

In 1817, the Board of Ordnance ordered the battery to be dismantled and the guns retained on skids (Saunders 1984, 471). By 1820 Inchcolm Fort was considered abandoned and no provision for repairs was made in the annual estimates after that time. Nevertheless, a sergeant remained in charge of the battery (presumably as caretaker) who resided in part of the abbey. In August 1824 the Board of Ordnance made enquiries as to the tenure of the battery site and whether it was necessary to be retained for the public service, or whether it could be surrendered to the proprietor. It appears that by March 1825 the lease of



Illus 20 *The defences of Inchcolm, 1822; a detail of a drawing by George Henry Hutton.*

B 'Magazine'

C 'Store shed'

D 'Guard House'

E 'Upper battery of four 24Prs. On Traversing Carriages'

F 'Lower or Three Gun Battery'.

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Scotland, Adv.MS.30.5.23)



Illus 21 *The surviving retaining wall of the east lower battery on Inchcolm. (G Barclay)*

Inchcolm had run out, as Lord Moray offered to grant a new lease of the ground on the island necessary for Ordnance purposes at a rent of £25 per annum. In a separate letter about the same time Lord Moray's agent required immediate possession of the ancient monastery in which the sergeant in charge of the battery resided. On 13 May 1825 the Board of Ordnance informed the Master General of their desire to give up the battery and pointed out they had no right to the materials at the battery. It would appear that the battery site was returned to Lord Moray soon afterwards (TNA WO 55/819).

At the end of the 19th century considerable portions of the fortress remained, showing the escarpments of the upper and lower batteries (Reid 1901, 16). Dickson has left us with a reasonable account of their condition at that time, 'Much of the masonry and stonework of the Fort remain; but all the embrasures for the cannon are built up. The guns appear to have rested and revolved on circular stone shafts, each hewn out of one solid block. Many of the shafts are still intact (Dickson 1899, 82)'.

Musham and Erskine (1895) state that at the upper battery some ruined buildings and a dilapidated old flag-staff with its guy ringbolts let in to outcropping rocks, were still visible, and at the lower battery a line of parapet wall some 20 yards (c18m) long with an earthen embankment in front, the stone platform and iron pivots for three guns, were still in situ. A War Office map of 1839 shows only the outline of the upper battery, and nothing of the lower (TNA MPH 1/128/1 1839). Both batteries are shown in outline on the Ordnance Survey 1:10,560 maps surveyed in 1854 and 1896, and on the War Office Special Survey maps of the island surveyed in 1904 (TNA WO 78/4396; WO 78/4417). The construction of the First World War defences, and possibly also those of Second World War, all but obliterated these earlier remains. However, a supporting stone wall on the north flank of the lower

battery site, traces of the parapet wall of that battery and a section of stonework on the service route between the batteries, appear to date from this period (Illus 21).

Blackness Castle

Blackness Castle sits on a narrow, rocky promontory, on the south shore of the Firth of Forth, at the seaport which formerly served the Royal Burgh of Linlithgow (Illus 22). Its current appearance is the result of almost continuous reconstruction over five centuries, which we summarise here.

It is believed that the original castle was built by Sir George Crichton, Earl of Caithness during the 15th century. Three sides of the castle were protected by sea and salt marsh and the landward side was protected by a rock-cut ditch; the castle was enclosed by a defensible wall with a south facing, blunt polygonal front, tapering northwards to a point at the tip of the promontory, giving the castle its ship-like shape. It is believed the tower in the centre of the courtyard was built at the same time, together with residential accommodation against the curtain walls, including the great or banquet hall along the south side: It is believed that the main residential accommodation for Sir George, his family and personal servants, was in the central tower. The two bottom storeys were constructed to serve as a double prison (MacIvor and Tabraham 1993, 4–5, 15).

The castle was burned and seriously damaged during 1443–4 but it was restored and in 1449 the castle became a state prison, a role it continued to fill for the next two and a half centuries (Tranter 2012, 9). In 1453 Blackness became a Royal Castle when the surrounding lands of Sir George Crichton were annexed by King James II, and it has remained a Crown property since. During the troubled reign of James III, the castle was burned by the English fleet in 1481, but was later rebuilt (MacIvor and Tabraham 1993, 6; Tranter 2012, 9).



Illus 22 Blackness Castle from the north-west, from the end of the pier. (R Morris)



Illus 23 Board of Ordnance plan of the 'Ground Walls' of Blackness Castle,
 probably dating from the first half of the 18th century.
 (Reproduced by permission of the National Library of Scotland, MS.1650 Z.46/61a)

During the 16th century, the growing threat from artillery necessitated that Blackness be substantially strengthened, and its guns were positioned to afford all round fire. In August 1536 Patrick Hepburn, of Waughton Castle in East Lothian, along with others, was forced to pay a penalty in two instalments, ‘... for the reparacioun and bigging of [King James V’s] castell at Blacknes ...’. The works commencing in 1537 were concentrated at the south end of the castle, the most vulnerable to landward bombardment. Large gun-ports were punched through the 15th-century curtain wall, which was massively thickened internally, to 5.5m. At the same time the whole of the southern part was almost doubled in height to form the present South Tower.

With the vulnerable south front greatly strengthened, work was extended to upgrade the curtain walls along the east and west sides. The east curtain wall had further gun-ports punched through it before it too was massively thickened. Both the south and east curtain walls were vulnerable to artillery bombardment from the high ground on the south and east.

The main entrance gateway was relocated from the east to the west side of the courtyard. A heavily defended artillery forework, called the Spur, was built against the west curtain wall to protect the new entrance gateway as well as to provide a wing battery to supplement the firepower of the South Tower. The Spur was originally approached by a drawbridge crossing over the rock-cut ditch.

This major building campaign continued after the king’s death in 1542 and was completed during the reign of his daughter, Mary. By 1543 the castle was being described as formidable and impregnable and was considered to be one of the strongest artillery fortifications in Scotland. Between 1542 and 1567, however, the South Tower was further strengthened by the addition of a second spur to the west, with gun-ports covering the new entrance into the castle. These major changes resulted in a reorganising of the castle’s accommodation. With the principal residential accommodation moving to the South Tower, the Central Tower was converted into more secure prison accommodation. The walls were heightened at the same time, building up from the old parapet, which like the parapet of the South Tower, may be seen ‘fossilised’ in the later work.

Blackness’s garrison held out for Mary Queen of Scots from the time of her abdication in 1567 until 1573, during which time they harried shipping in the Forth and carried out raids on the shore of Fife, until they were overcome by guile rather than siege.

Blackness Castle’s strength was not properly tested until 1650, when it was besieged from land and sea, by the forces of Oliver Cromwell. Gunfire from Cromwell’s forces caused heavy damage to the castle’s walls, forcing the garrison to surrender. The castle lay in ruins and was not restored until 1667, during the reign of Charles II, when alterations and additions to the defences and

accommodation were made. The west curtain wall was altered to its present width and height, while in the South Tower the ground level gun emplacements were abandoned and blocked. The castle was then used as a place of confinement for Covenanter prisoners.

In 1693 further work was carried out to improve the defences. The Spur was raised in height and given an upper battery and wall-walk facing south and west, while the North Tower was reduced in height and platforms provided for three heavy guns covering the seaward side (MacIvor and Tabraham 1993, 8, 14–22).

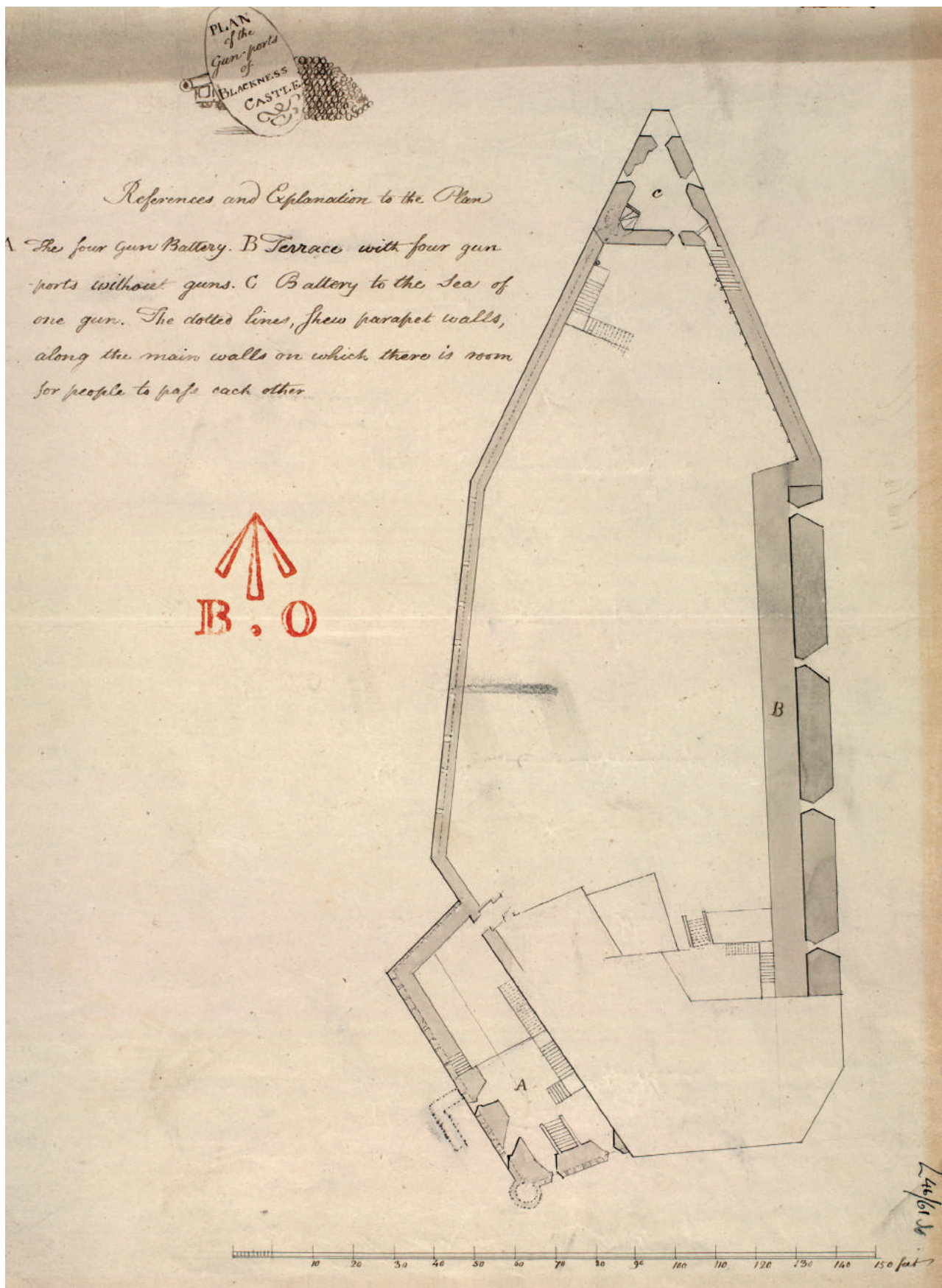
The castle was the subject of a detailed plan in the 1690s, which now exists in two copies made in 1741 and now held in the National Library of Scotland (NLS MS.1647 Z.02/75a & 75b).

Following the Treaty of Union in 1707, the castle was no longer used as a prison and housed only a small garrison, to maintain and man the castle’s guns. It was still regarded, however, as one of the chief forts in Scotland, to be maintained permanently as a national strength (Fenwick 1976, 108). The South and Central towers were adapted as barracks. Three rooms each provided accommodation for up to eight men sleeping two to a bed. The soldiers drew their daily rations from the castle stores but cooked and ate their meals in their rooms (MacIvor and Tabraham 1993, 23).

The National Library of Scotland holds two undated Board of Ordnance plans of the castle, probably from the first half of the 18th century; one shows the layout of buildings and rooms, the other the location of the gun batteries. The key to the latter notes the presence of, ‘The four gun battery’ (located at the entrance – identifiable as the Spur of former times); facing east, a ‘Terrace with four gun ports without guns’; and, at the ‘tip’ of the castle, a ‘Battery to the sea of one gun’.

During the French Wars between 1759 and 1815, the castle was used to hold prisoners of war in transit to and from Edinburgh Castle. It appears that no substantial works or adaptations were carried out in order to receive them, although there was expenditure for repairs during the years 1794–8 and again in 1815. In 1795 there were two gunners, a sergeant, two corporals and about twelve privates. The posts of Governor and Deputy-Governor were held by non-resident officers as virtually honorary titles (MacIvor and Tabraham 1993, 23; TNA WO 55/819).

Board of Ordnance records list Blackness as being mounted with five 6-pdr guns in 1805, but a review of coast artillery in October the following year listed no armament. Guns of some description were at Blackness over a decade later, although they may not have been serviceable. In early January 1818, following a visit from the Ordnance Storekeeper on 16 December, Mr A Watson, Master Gunner, wrote to the Office of Ordnance, reminding them of the poor standard of his quarters. He also informed them there was a one-gun battery where the platform wanted fresh laying, water ran down the walls of the storehouse and the magazine under it. Also, two days previous, part of the arch at the sally port had fallen in. He also suggested that if



Illus 24 Board of Ordnance plan of the gun-ports of Blackness Castle, probably dating from the first half of the 18th century.

(Reproduced by permission of the National Library of Scotland, MS.1650 Z.46/61b)

the place was strong enough to carry guns, he could wish to have serviceable guns sent as well as stores. The outcome of Mr Watson's letter has not been established (TNA WO 55/819).

As noted above, during the mid-1860s there were concerns about the large amount of gunpowder then being stored at Leith Fort. In the 1870s a new powder magazine was completed within the Castle walls between the former barracks and the flagstaff tower, which formed the extreme seaward portion of the Castle.

In 1912 the castle was handed over to the Office of Works as an ancient monument. However, it was re-occupied by the military during World War I, but afterwards it was finally abandoned by the military and the Office of Works removed the depot buildings, seeking to restore the castle to its medieval state. Between 1926 and 1935 most of the late Victorian works were demolished, with the only structures to survive being the barracks to the south of the castle, the water tank in the ditch, the drawbridge and the pier. The roof of the courtyard was removed and the upper parts of the towers were rebuilt to resemble their original form (TNA WO 78/4396; MacIvor and Tabraham 1993, 11).

Abandonment and reconstruction

As described above, the defences of the Forth were abandoned, fell into neglect, or became obsolete in the years after 1815. It was not until 1880, after 30 years of local agitation, that the Forth was once again defended. The threat and the weapons available to counter it were very different; in particular, the range of naval and coast guns had radically increased. The need to be able to close the Forth at the Queen's Ferry was again recognised in the late 19th century, with the establishment of batteries at both sides of the river, and on Inchgarvie; Leith Docks was provided with a new modern battery in 1916; Inchcolm was re-armed in 1914. Inchkeith and Kinghorn became the new mainstay of the defence, and Dunbar and Blackness were not rearmed.

The story of the defences from 1880 to 1956 is an immense subject, which we address in our forthcoming book.

Endnotes

- 1 Privateers were privately-financed warships licensed by their government under 'letters of marque' to prey upon the commerce of specified enemy states.
- 2 The modern value, depending on the calculation method, would be between £43m and £237m.
- 3 A corruption of the place-name Mortella in Corsica, where in 1794 two British warships were successfully resisted (and indeed badly damaged) by a tower of this kind, armed with only one 24-pdr and two 18-pdr guns and a very small garrison.

- 4 There were two Beamer Rocks in the Forth, the western now the site of a pier of the new Queensferry Crossing bridge; the Leith Beamer Rock has now been absorbed into the reclaimed land around the docks.
- 5 The presence of the anti-aircraft gun (always referred to in the same terms, and as a 'battery', implying a single source from which all other accounts were copied) is referred to on a number of web pages, but we have found no primary evidence.

Acknowledgements

We are grateful to Lt Col Bill Clements, John Graham, Andrew Kerr and Dr Mike Osborne for their comments on an earlier draft of this paper. Our thanks also to Richard Dickens and James Lawson for information generously provided and Dr Richard Fawcett, for alerting us to the existence of the Hutton Inchcolm plan. Our thanks also to the staff of the National Archives, Kew, the National Library of Scotland, Historic Environment Scotland and the National Collection of Aerial Photography for assistance in retrieving images. The National Archives and the National Library kindly allowed the publication of their images gratis.

Bill Simpson skilfully conveyed us to and from the islands. Ron Morris wishes to express his thanks to the late Bruce Stenhouse, who first kindled his interest in the Napoleonic fortifications, and provided useful documents and information. The research on the defence of the Forth from 1779 to 1977 was generously funded by a Small Research Grant from the British Academy / Leverhulme Trust with funds from the Honor Frost Foundation.

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Abstract

Defences were built at the turn of the 18th and 19th centuries, in response to threats from France, Spain and the rebelling American colonies, to protect the commerce and shipping of the Forth. The American colonies allied with France in 1778, and, with a brief peace in 1802–3, Britain was at war with one, two or all of these enemies until 1815.

Gun defences were built at Dunbar, Leith, North Queensferry and Blackness Castle, and on two of the Forth islands, Inchgarvie and Inchcolm. Signal Stations were also built along the southern shore, from near Eyemouth to Edinburgh.

Keywords

coast defence
Firth of Forth
Napoleonic War
Revolutionary Wars
18th century
19th century

This paper was published with the aid of a grant from Historic Environment Scotland's Open Access Gold programme 2017.