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

‘The most powerful naval fortress in the British Empire’

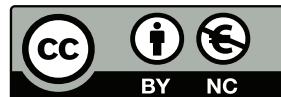
Gordon J Barclay and Ron Morris

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Part III

# THE BATTERIES

The third section of our book describes the individual batteries and some of the ancillary installations, from the Forth Bridge outwards, towards the east:

- the Inner Defences, also known as Carlingnose Fire Command and 21 (Forth) Fire Command;
- the Middle Defences, also known as Inchcolm Fire Command and 20 (Forth) Fire Command; known in the Second World War as the Inner Defences;
- the Outer Defences, also known as Inchkeith Fire Command and 19 (Forth) Fire Command, known in the Second World War as the Middle Defences;
- what we have termed the Outermost Defences, first developed in the First World War, and known during the Second World War as the Outer Defences.

We have, as far as possible, organised our material under these four groupings. Although the batteries were the teeth of the defences, and their massive emplacements are the most visible remnant, they were only a part of a complex fortress. Indeed, in some instances, the guns were in a sense secondary – for example, to cover a minefield or a boom. This reflects the military dictum that any obstruction, to be effective, must be covered by guns, to prevent the enemy clearing it away.

## Chapter 9

# THE INNER DEFENCES (CARLINGNOSE FIRE COMMAND; FIRE COMMAND (INNER); 21 (FORTH) FIRE COMMAND)

### 9.1 Carlingnose Battery and the Inner Defences Fire Command Post

The Inner Defences of the Forth were grouped together into No. 21 (Forth) Fire Command which, in April 1918, had an establishment of 14 officers and 254 other ranks of the Royal Artillery (the establishment list does not include the Royal Engineers or other arms).<sup>1</sup> The battery at Carlingnose was also the site of the Fire Command Post for the Inner Defences.

#### *Pre-First World War*

The battery at Carlingnose was established in the first decade of the 20th century as one of the heavier elements of the Inner Line of defence. Shortly after its establishment, the site also became the submarine mining base for the river, and then the HQ of the Edinburgh (Fortress) Royal Engineers Company (TF), which grew out of the disbanded submarine mining unit.<sup>2</sup> An area of 36 acres (14.5ha) was bought by the War Department in July 1896.<sup>3</sup> The battery was armed with two 6-inch BL Mk VII guns, mounted at about 58.5m above sea level (Fig 9.1). In 1911, it was stated that ‘the original object ... appears to have been the defence of the minefield just below the Forth Bridge’.<sup>4</sup>

The key source for the Carlingnose Battery as built is a series of Royal Engineer ‘Record Plans’ of the battery, dated 16 April 1904, recording the outline of the War Office land and the main structures of the battery: men’s quarters; barrack block; canteen; guardhouse; food and machine-gun stores; and caretaker’s quarters, as well as the guns themselves, with their arcs of fire (100°, centred east-south-east). The location of a further Royal Artillery Store is marked in pencil. The ‘top plan’ of the battery shows the two emplacements, detailed plans of the magazines and stores lying underneath, the location of the Battery Command Post and so on.<sup>5</sup> As was often the case, the main plan of the battery included detailed information

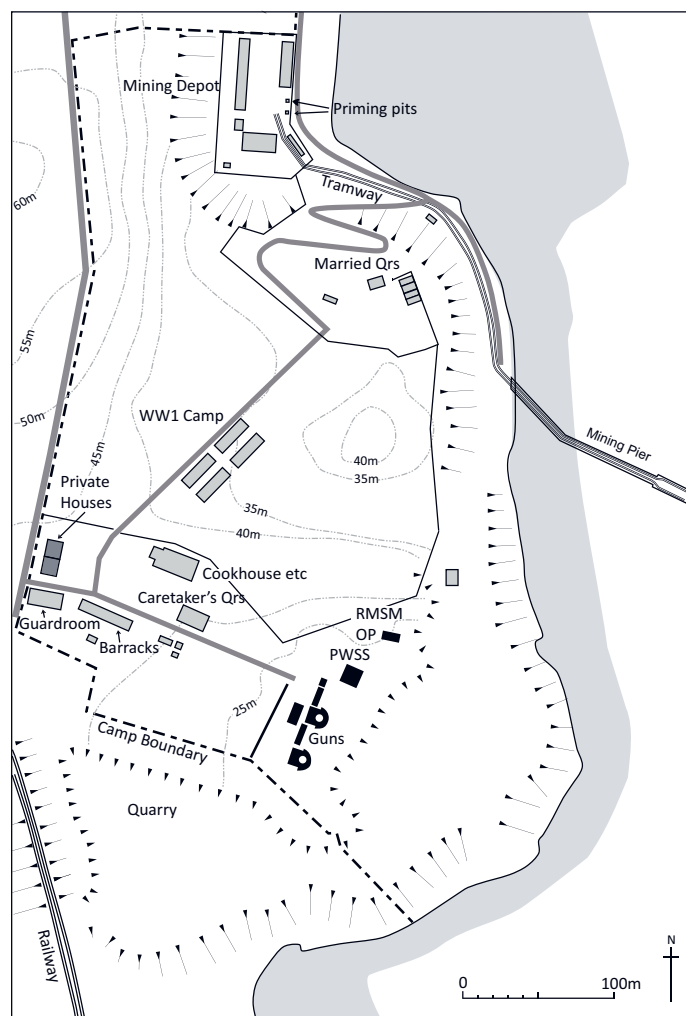
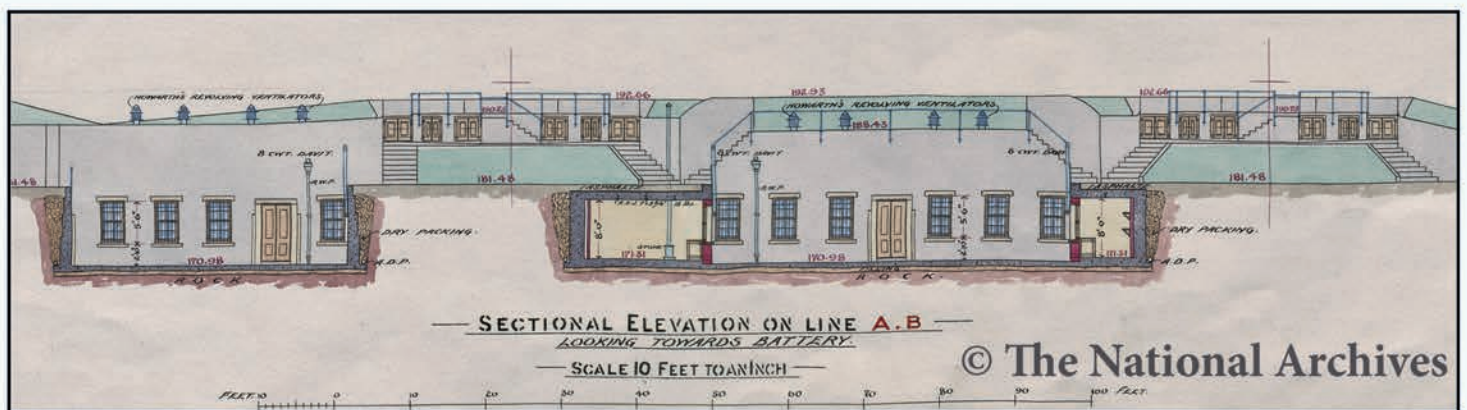
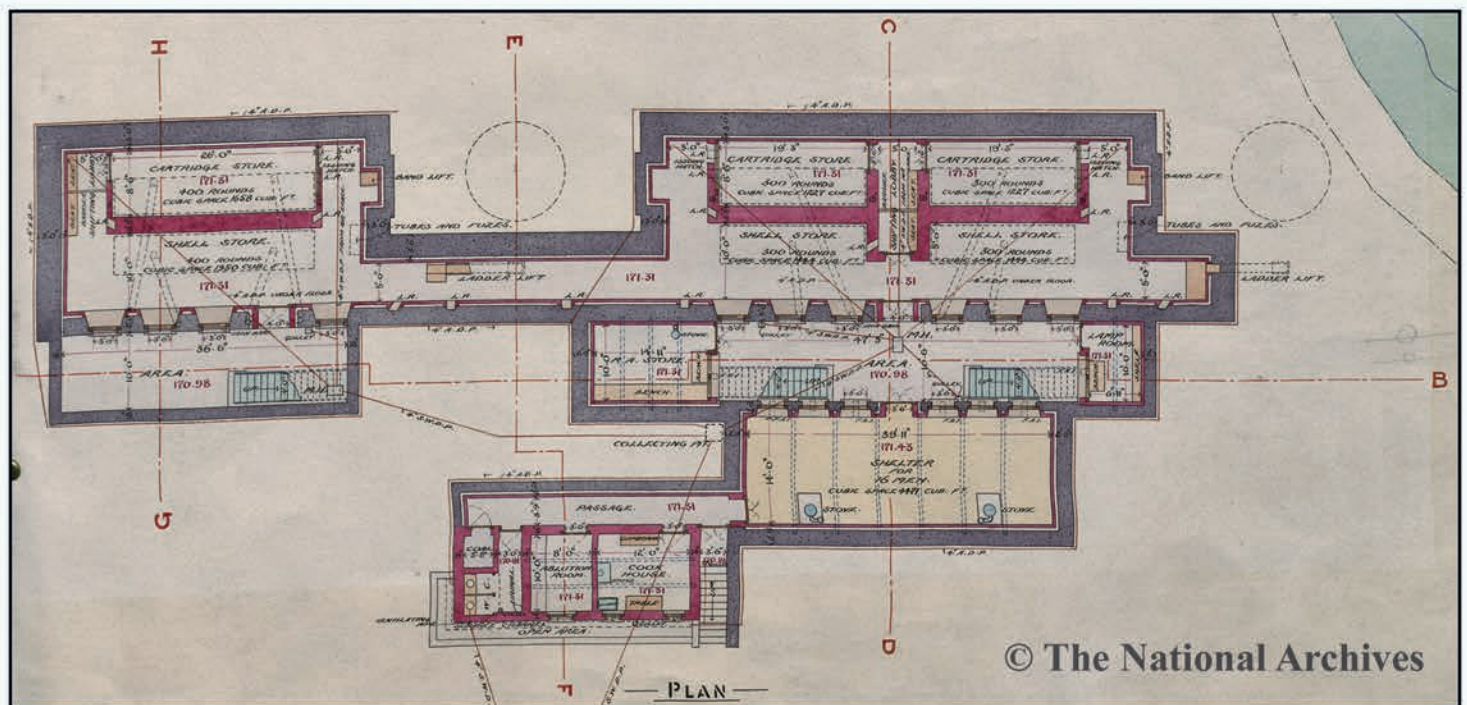
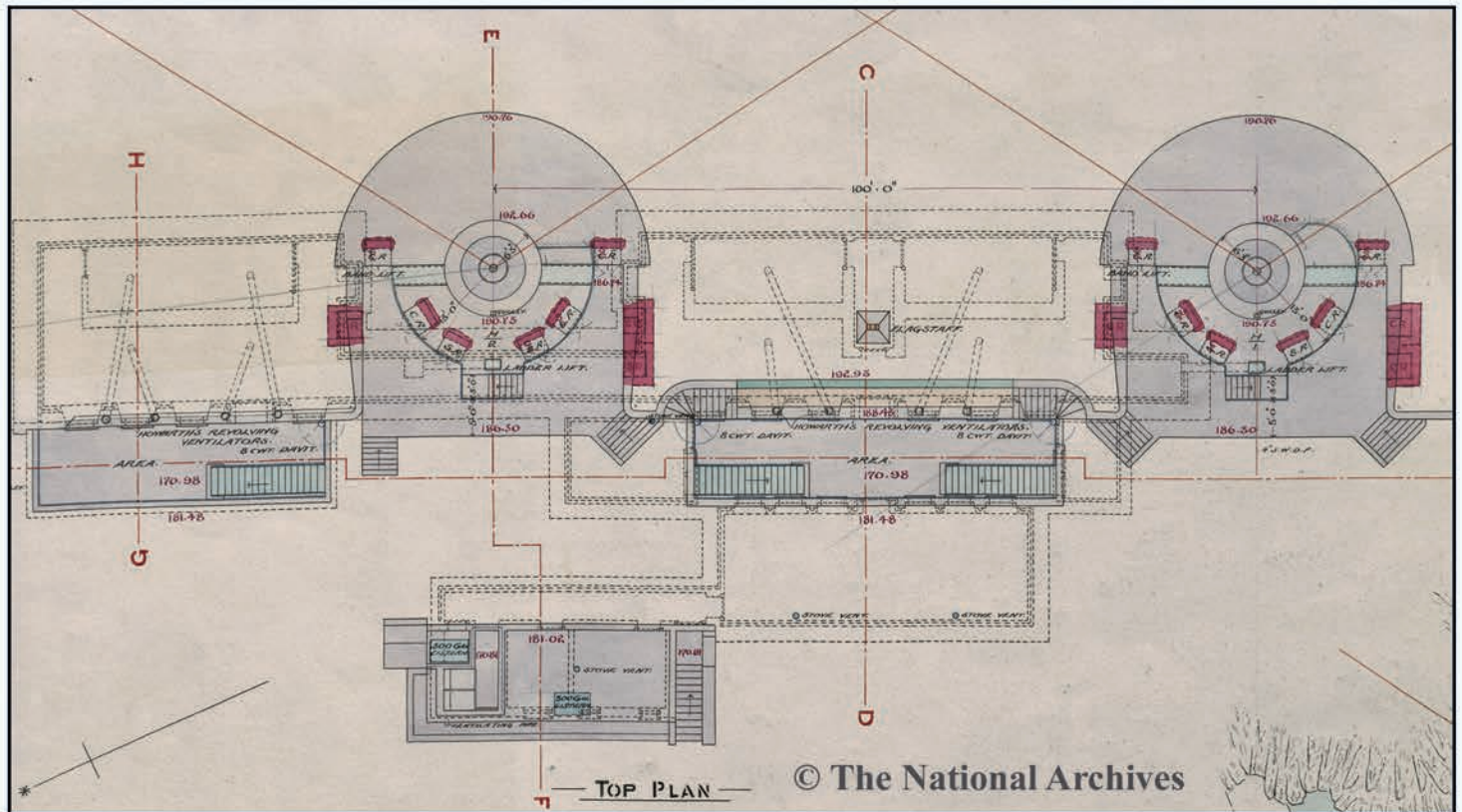


Figure 9.1

Plan of the Carlingnose site. The Submarine Mining Depot was repurposed in 1905, when mining was discontinued. The buildings shown are those in place by c 1908. The location of the First World War camp of four huts is also shown. The ‘RMSM OP’ is the observation post for the First World War controlled minefield; the PWSS is the Port War Signal Station (© Gordon Barclay)



## THE INNER DEFENCES

about the construction process: authority had been given for construction on 29 April 1899; work had commenced on 23 May 1899 and had been completed on 8 July 1901, at a cost of £7,856 1s 9d. Figure 9.2 shows the gun emplacements and subterranean structures, on plan and elevation.

The two 6-inch BL Mk VII guns were received from Woolwich on 21 May 1901 but not mounted until July 1902. The permanent peacetime garrison of the battery was 14 NCOs and men (the full complement of gunners being supplied by the volunteer Royal Garrison Artillery). This total included a detachment of one Regular NCO and five men for Inchgarvie. A large barrack building was also built for 10 NCOs and 40 men of the Royal Engineers (Volunteer) Submarine Miners.<sup>6</sup>

The Fort Record Book contains information about how the battery was to be manned and defended in the 'Precautionary Period' prior to the outbreak of war and in the 'War Period'. There is a plan, dated 22 May 1907, showing the physical defences – wire entanglements, firing trenches, loop-holes and so on, to be prepared in the Precautionary Period, as well as cross-sections and elevations of the defences. The 1905 Defence Scheme records that Carlingnose and Coastguard batteries would have 360 men for their defence, with two Maxim machine guns.<sup>7</sup> Shrapnel shell was to be provided for the 6-inch guns for close defence, and plans were put in hand for the destruction or temporary disablement of the battery if it had to be abandoned.

In 1902 to 1903, a new submarine mining depot was built at the northern end of the perimeter of the Carlingnose Battery compound, linked by a tramway to the pier (built in 1903<sup>8</sup>) provided with cranes for loading the mines. After the decision to abandon submarine mining, General Sir John Owen's Committee, in December 1905, recommended the retention of the Carlingnose guns, 'to deal with the attack of unarmoured cruisers by night on shipping above the bridge, against which form of attack the Outer Defences cannot be considered as providing an adequate security on account of the impossibility of illuminating the approaches'.<sup>9</sup>

The large area owned by the War Department at Carlingnose was also used for Territorial Army training camps.

In April 1908, proposals were made to alter the emplacements to allow the guns to fire on a much larger arc, in particular to fire on 'the landward fronts'. A map on file from 1913 shows that the guns, indeed, had very much wider arcs of fire, between them covering about 300°, from Inverkeithing, round by the south, to Dalgety Bay.<sup>10</sup>

At some point between 1909 and May 1913, a Naval Challenge Station was set up at the battery and located in the former Submarine Mining Look-out Post, located a short

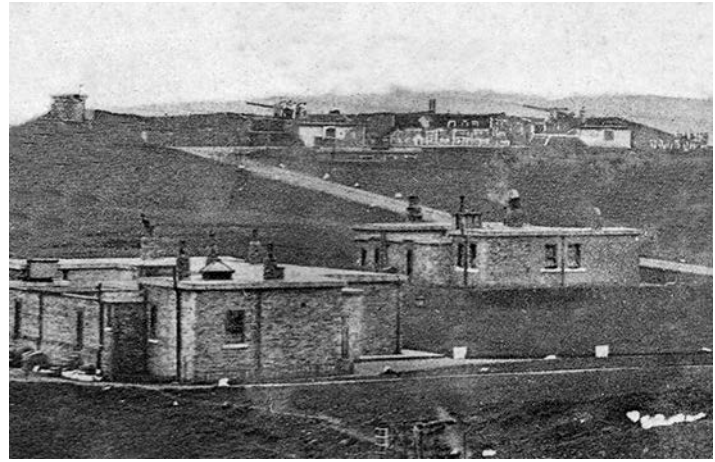


Figure 9.3

Detail of postcard showing the Carlingnose barracks and battery, at a date after 1908, but before the battery was disarmed in 1916. The building in the foreground contained men's quarters, canteen and cookhouse, with the caretaker's quarters behind. The Battery Command Post (see Figure 9.5) is on the horizon at the left (via Frank Hay)

distance north-east of the battery's north 6-inch gun. This Challenge Station is not mentioned in the Defence Scheme of 1909, but features on maps of 1913.

### *First World War*

On the outbreak of war, the approved armament of Carlingnose remained two 6-inch BL Mk VII guns on CP Mk II mountings and two .303-inch Maxim machine guns on field carriages.<sup>11</sup> Shortly after, the Naval Challenge Station was being referred to in naval correspondence as a Port War Signal Station with responsibility for dealing with sea traffic upriver from Inchkeith.<sup>12</sup> In 1917, a new signal tower was apparently built a short distance to the north of the existing buildings and it is presumed that Carlingnose PWSS was transferred to this location (Fig 9.1).<sup>13</sup>

In July 1916, the battery, at that time manned only at night, had a garrison of three officers (Battery Commander and relief, and a Gun Group Commander) and 42 other ranks (three men of the Depression Range Finder detail; 22 men in the gun detachment; eight ammunition supply men, storeman, lamp-man and so on). The Fire Command was a separate formation and had a staff of three officers (the Fire Commander and two assistants) and 16 other ranks (ten telephonists, three orderlies, Master Gunner and two officers' servants).<sup>14</sup>

In the general revision of the armament of the Forth, the two 6-inch guns at Carlingnose were removed to the new battery at Pettycur on 5 and 12 November 1916. The two Maxims were left in position to defend what was still the Fire Command Post for the Inner Defences, but the battery was never rearmed.<sup>15</sup>

Figure 9.2

Extracts from the plans, sections and elevations of the Carlingnose 6-inch battery, dated 1902 (© The National Archives, WO 78/5175)

## FORTIFICATION OF THE FIRTH OF FORTH



Figure 9.4

The northern gun emplacement at Carlingnose in 2016 (© Gordon Barclay)

### Inter-war

Although no longer an active battery, Carlingnose remained an important installation. The relatively large site allowed it to be used for training by the City of Edinburgh (Fortress) Engineers. For example, between 23 July and 6 August 1921, the Engineers held their first post-war training camp there. The Works Company was engaged in the practice construction of various works required for the defences, including fire trenches, entanglements, trestle bridging and shelter dug-outs, as well as demolitions with explosives, while the Electric Light Company manned several of the Defence Electric Light stations, running them on 'all night mannings' as in time of war.<sup>16</sup> In November 1927, Carlingnose was still listed as mounting a single concentrated moveable DEL.<sup>17</sup>



Figure 9.5

The Battery Command Post at Carlingnose in 2016 (© Gordon Barclay)

The final mention of Carlingnose as the 'home station' of the City of Edinburgh (Fortress) Royal Engineers was in 1938.<sup>18</sup>

### Survival

The Carlingnose Battery survives in good condition, although almost the whole of the original War Department site has now been built over. The magazines are in use as a holiday home and as the office of a water engineering consultancy. In the latter, many features survive, such as shell and cartridge lifts, now hidden behind removable modern hatches. The gun pits are in good condition and these examples are of considerable importance because they are the only surviving 'standard' 6-inch gun positions in the Forth without Second World War overhead protection.

Some of the ancillary subterranean buildings, however, are not in such good condition, showing considerable water penetration. The simple Battery Command Post (a single-roomed building with a Depression Range Finder on the roof) survives in good condition (Fig 9.5). To the north, the

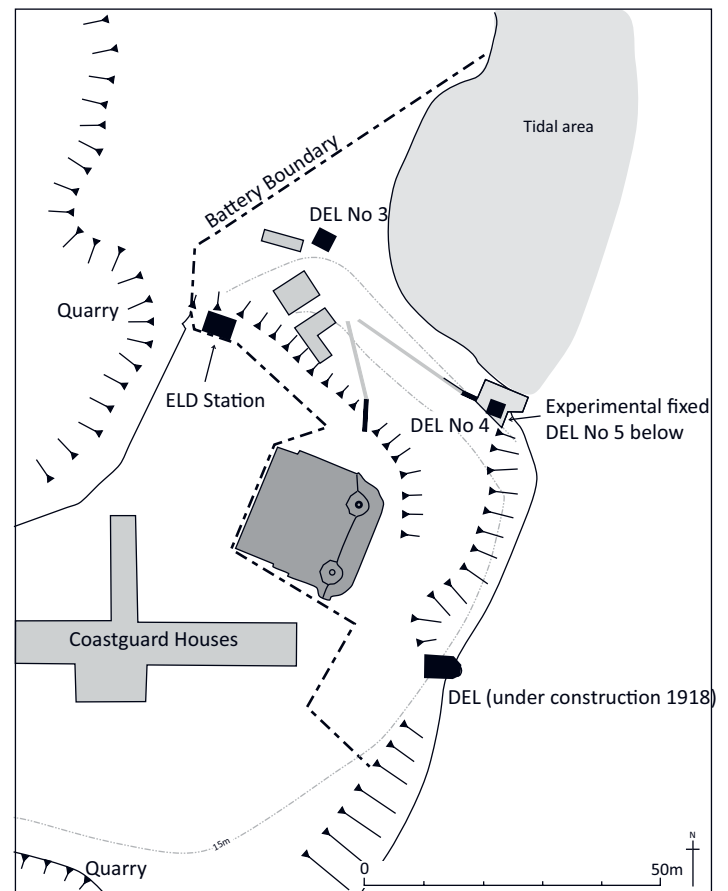


Figure 9.6

Plan of the Coastguard Battery site (© Gordon Barclay)

## THE INNER DEFENCES



Figure 9.7

The site of the Coastguard Battery from the water in 2016, showing the location of the battery. On the shore at the left is the brick-built DEL housing noted as being under construction in 1918; to the right is the 'experimental' DEL housing, which was a fixed beam protected on its seaward side by a solid 1.8m wall of concrete. On the top right is the War Signal Station, now incorporated into a house (© Gordon Barclay)

Submarine Mining Observation Station survives, albeit in a ruinous state.

### 9.2 Coastguard Battery

#### *Pre-war*

Coastguard is one of the least well-documented batteries in the Forth, despite being the battery in the Inner Defences which was in the approved armament for the longest period (Fig 9.6). The Fort Record Book contains only five items: a plan of the battery; a delicately drawn panorama of the view from the battery in August 1923; a plan of the gun emplacements; a sketch-map of the arcs of fire of the guns; a 'History of the Work'; and, inexplicably, the best plan we have of Leith Docks Battery.<sup>19</sup>

The two 12-pdr QF battery had been part of the 'approved armament' of the Forth since 1898, to protect the controlled minefield just below the Forth Bridge.<sup>20</sup> Construction of the battery began on 21 June 1900. In 1905, it was considered superfluous by Sir John Owen's Committee, but was reinstated on 10 March 1908 at the request of the Admiralty to deal with the threat of attacking torpedo craft.<sup>21</sup>

In 1903, the battery was recorded as having two lights (Fig 3.4), one a fixed beam of 16° dispersion, the other a moveable beam covering an arc of 30°. The Coastguard battery was described in documents in 1911 and 1912 as having two fighting lights with moveable beams.<sup>23</sup> By May 1913, an additional



Figure 9.8

Aerial photograph of the compact Coastguard Battery in 1948. The emplacements are empty, but the structure survives in good condition. The Battery Command Post between the guns is an addition to the original arrangements (© Aerofilms/National Collection of Aerial Photography [www.ncap.org.uk](http://www.ncap.org.uk))



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light, described as an experimental dispersed beam, had been installed (Fig 9.7).

Unfortunately, no Royal Engineer drawings of the kind so helpful on other batteries survive for Coastguard; there are only two plans on the Fort Record Book, one of the site and one of the main structure. There is no cross-section. There is a 1948 aerial photograph (Fig 9.8) that shows the empty emplacements and, between them, a simple concrete Battery Command Post.

The battery was of a particularly compact design (Fig 9.9). On the topmost level were the two gun emplacements. Under the guns was a watch shelter; behind this superstructure was a platform on which there were a number of other buildings, including what seem to have been temporary barrack blocks for ten men and four NCOs. There was an open area (over which the Gun Group Commander's post was somehow suspended) with a staircase giving access to a lower floor, with shell and cartridge stores under the guns, and a handling lobby between them, an engine room, switch-room and stores, through one of which there was direct access to the outside.

Elsewhere in the battery compound there were relatively few other structures: to the north was an ELD post, and to the

north-east a fitter's workshop and two buildings of unknown function.

### *First World War*

The battery remained in service for the whole of the war, the only change being in September 1915, when newer guns of the same calibre, which were being removed from Inchgarvie, were exchanged with the older guns at Coastguard.

The complement of DELs varied (Fig 9.6): in 1911 and 1913 there were two moveable lights (known as Nos 3 and 4, Nos 1 and 2 being at Dalmeny), while the third dispersed 'experimental' beam was being used as a temporary measure.<sup>24</sup> In October 1916, the battery was described as having a single concentrated fighting light<sup>25</sup> but in May 1917 is recorded as having two, of which only one was 'approved'.<sup>26</sup> In February 1917, only one DEL was in action, with a RE garrison of two officers and 15 sappers.<sup>27</sup> In 1918, four DEL emplacements were mapped on the site, three of which had subsequently been annotated 'obsolete' are marked 'EL Empt. No 3' and 'No 4', square on plan, and marked 'Tempy', that is, temporary. Physically beneath No. 4, in the same building,

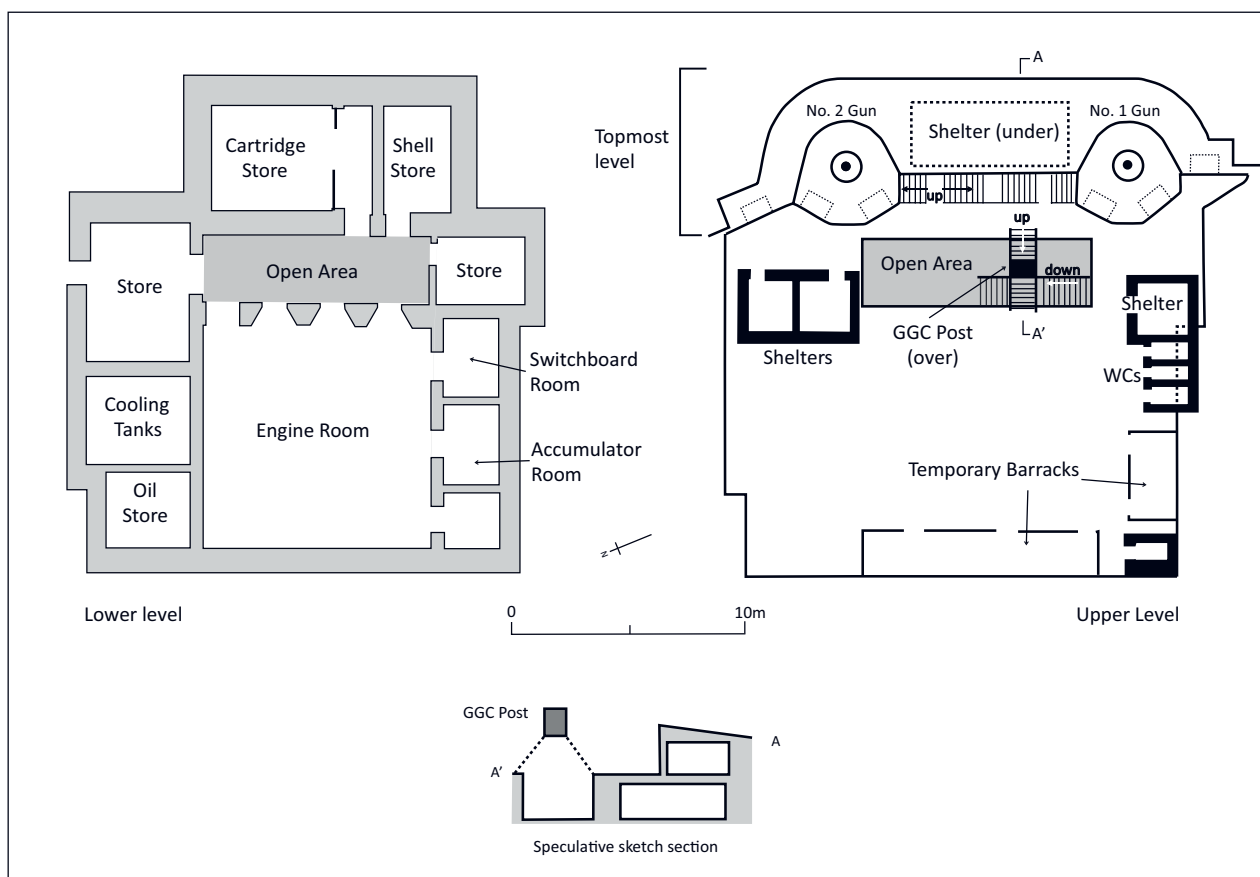


Figure 9.9

Plan of the main Coastguard Battery structure, with a speculative cross-section, after a plan dated February 1918, on file WO 192/104 (© Gordon Barclay)

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Figure 9.10

The Coastguard Battery in the 1930s (Douglas Grant. Reproduced with permission)

the experimental light was described as 'EL Empt No 5 Fixed Beam'; that is, a light capable of only limited traverse. Finally, to the south-east of the battery a more conventionally shaped emplacement for a moveable DEL (a rectangle with chamfered corners) was marked 'under construction' on the 1918 map (Fig 9.7). The EL Directing Post would not have been able to direct the light of this emplacement, as it was out of sight. This light probably dates from late in the war, or could even be for post-war training at the battery. This emplacement

survives as a substantial brick-built structure at sea level. The 'experimental' fixed beam emplacement also survives; it comprises a substantial concrete emplacement, with a wall c 1.8m thick facing the sea, and providing protection for the light, which shone through a simple rectangular embrasure (Figs 9.6 and 9.7).

In July 1916, the RA garrison numbered two officers and 24 other ranks.<sup>28</sup> The battery is recorded on 1 July 1918 as having had its personnel withdrawn.<sup>29</sup>

### Inter-war

In July 1920, authority was given for the work to be retained for drill and practice.<sup>30</sup> It was listed in January and September 1921 as mounted in reserve, and 'In action for drill' respectively.<sup>31</sup> It was listed as part of the 'approved armament' in November 1927, but to be removed 'ultimately'.<sup>32</sup>

The battery was listed as being part of the Interim Defence Scheme of 1930, and made its last known formal appearance in a list of the approved armament in June 1934, when it was one of the four batteries remaining in the river (with Inchkeith, Kinghorn and Leith).<sup>33</sup> In May 1938, two 12-pdrs were still listed as part of the armament of the Forth, and it is certain that these were the two at Coastguard.<sup>34</sup> There is a single photograph of the Coastguard battery, probably taken in the late 1930s (Fig 9.10). It would appear that the battery was disarmed in the autumn of 1939, when the two guns were moved to Cramond.<sup>35</sup>

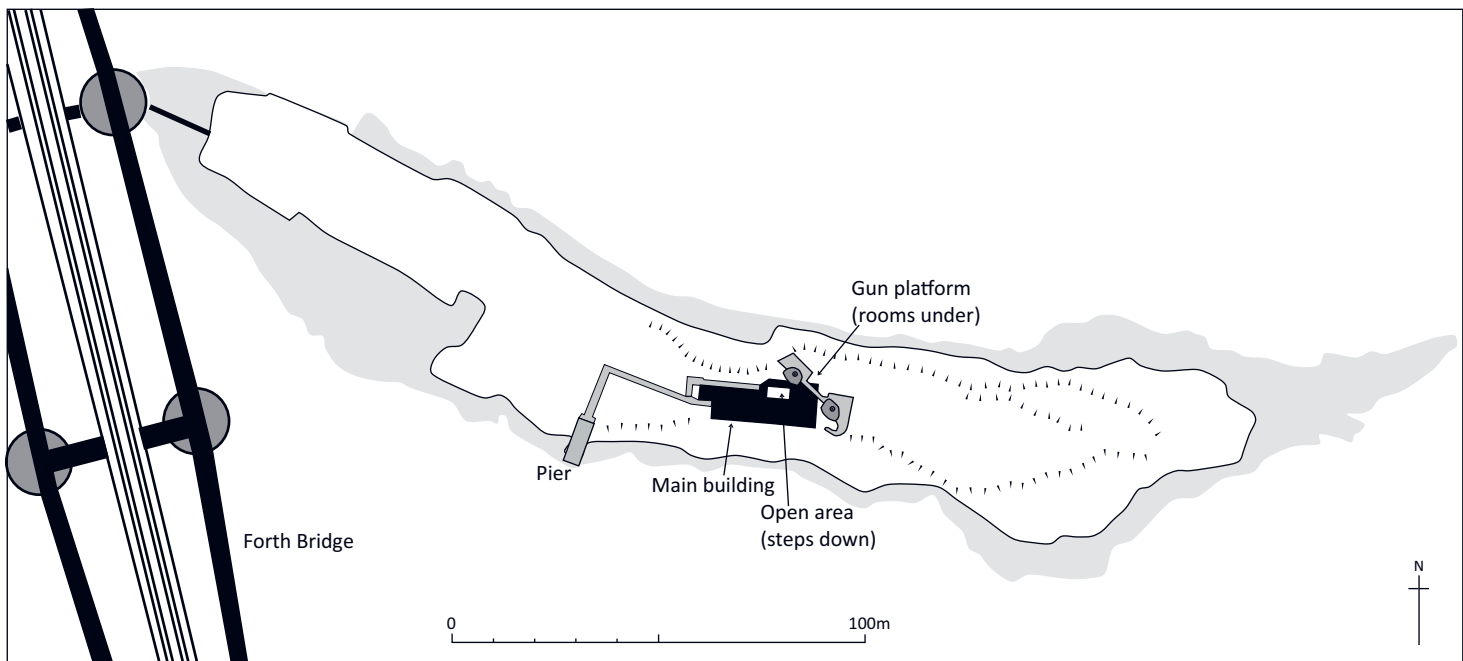


Figure 9.11

Plan of Inchgarvie in 1904, compiled from plans on files WO 78/4316, WO 78/5172 and WO 192/100 (© Gordon Barclay)

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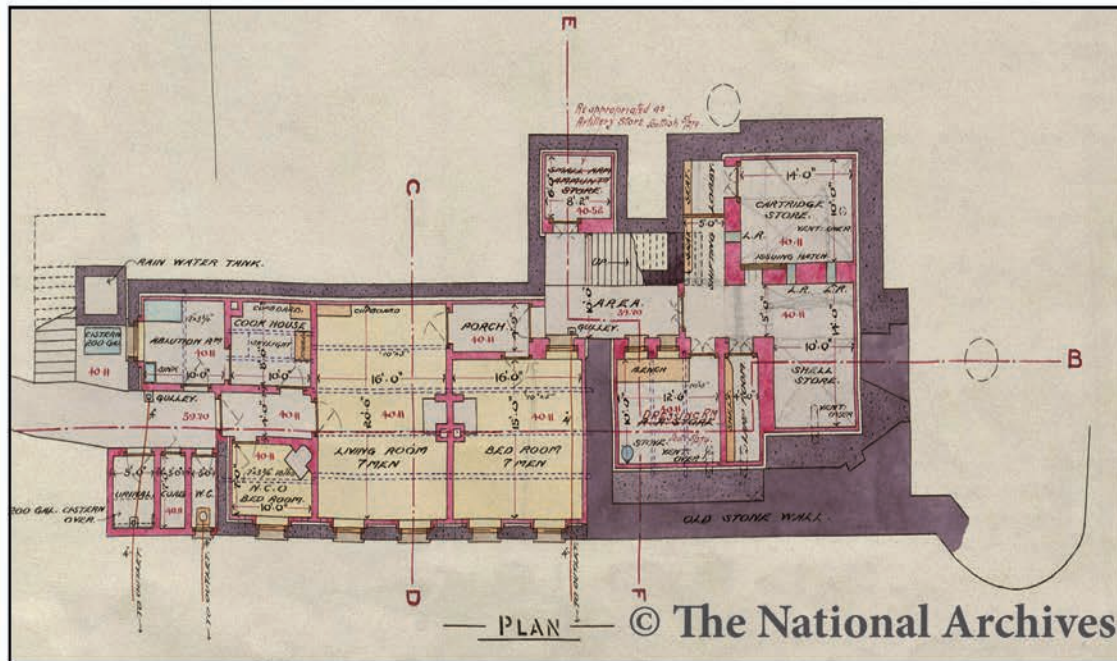
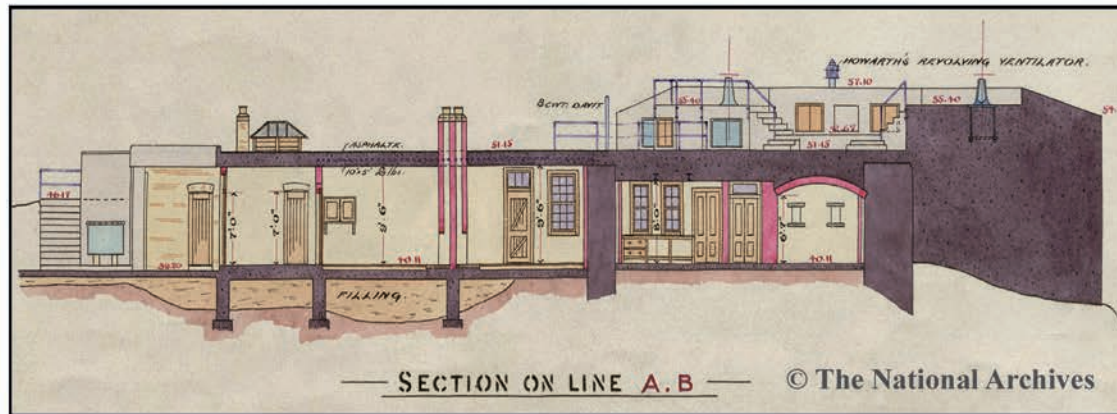
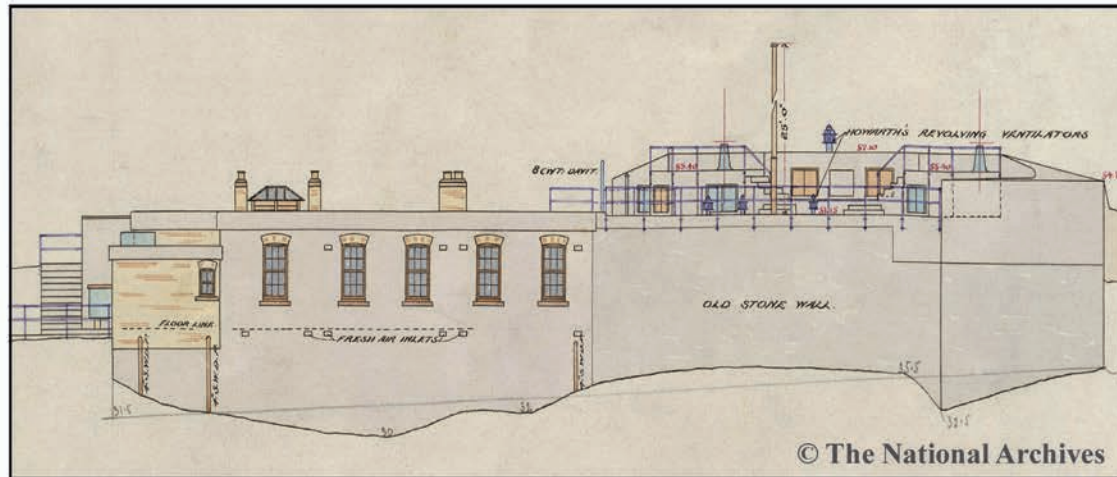


Figure 9.12

Plans, elevations and cross-sections of the main building on Inchgarvie, below the original 2x12-pdr, 12cwt, guns, 1904, with the original functions of the rooms indicated. At this date the entire permanent garrison of the battery was accommodated in this building (The National Archives, WO 78/5172)

## THE INNER DEFENCES

### 9.3 Inchgarvie

#### *Pre-war*

Inchgarvie is an island in the middle of the Forth, which has the middle pier of the Forth Bridge built upon its western end. It was fortified at the beginning of the 16th century and again in the Revolutionary and Napoleonic Wars.<sup>36</sup>

The battery on Inchgarvie was built in 1900–1 to protect the controlled minefield just below the bridge (according to a document of 1911), the necessary portions of the island having been purchased in March and October 1900.<sup>37</sup> It was armed with two 12-pdr QF guns with two .303-inch Maxim machine guns for close defence (Fig 9.11).<sup>38</sup>

According to the annotations on the Royal Engineers Record Plan, authority was given for the construction of the battery on 6 February 1900; work began on 27 June 1900 and was completed on 31 October 1901 (different pages of the Fort Record Book state February or May 1902, but this may refer to different stages of the finishing of the work). The work cost £2,846 10s 1d for the battery and £476 8s 1d for the pier. The completed battery was recorded on a series of plans dated 16 April 1904, which show it occupying only part of the eastern half of the island, with a clearly defined boundary (marked by two boundary stones) between War Department property and that of the 'Forth Bridge Railway Coy'. A path was marked crossing the company's property for use of War Office personnel to reach the shore on the bridge 'when weather renders access by boat impracticable'.<sup>39</sup>

The part of the island used for the battery had a steep rocky spine into which the northern parts of the structures were cut, and over which the southern parts of structures were built up. Part of the wall of the earlier castle was reused in the eastern part of the complex. The battery comprised a pair of gun emplacements built partly over the eastern end of a dense complex of rooms (Fig 9.12).<sup>40</sup> The eastern 'working' end of the building contained the cartridge and shell store, with the accompanying handling and lamp lobbies; machine-gun ammunition and small arms stores were later repurposed as dressing rooms and an artillery store. Separated by a small internal lobby were, to the west, a bedroom and living room for the permanent Regular garrison of seven men, and beyond that the bedroom for the NCO, a cookhouse, ablutions, WC and urinal, with a rainwater tank. At this stage, the guns of the island had to rely on the DELs sited at Coastguard and Dalmeny batteries for illumination.

In 1905, the battery was considered superfluous by General Sir John Owen's Committee but it was reinstated in 1908 at the request of the Admiralty, to deal with the threat of torpedo craft attacking the anchorage to the west of the bridge.<sup>41</sup> The guns had remained in place in the intervening years (Table 6).<sup>42</sup>

The Home Ports Defence Committee recommended, in December 1912, that deficiencies in the anti-torpedo defences near the bridge should be addressed by rebuilding Inchgarvie to take four 4-inch guns and three 45° or 30° defence lights, with the lights at Dalmeny and Coastguard being adjusted to take account of the new ones.<sup>43</sup>

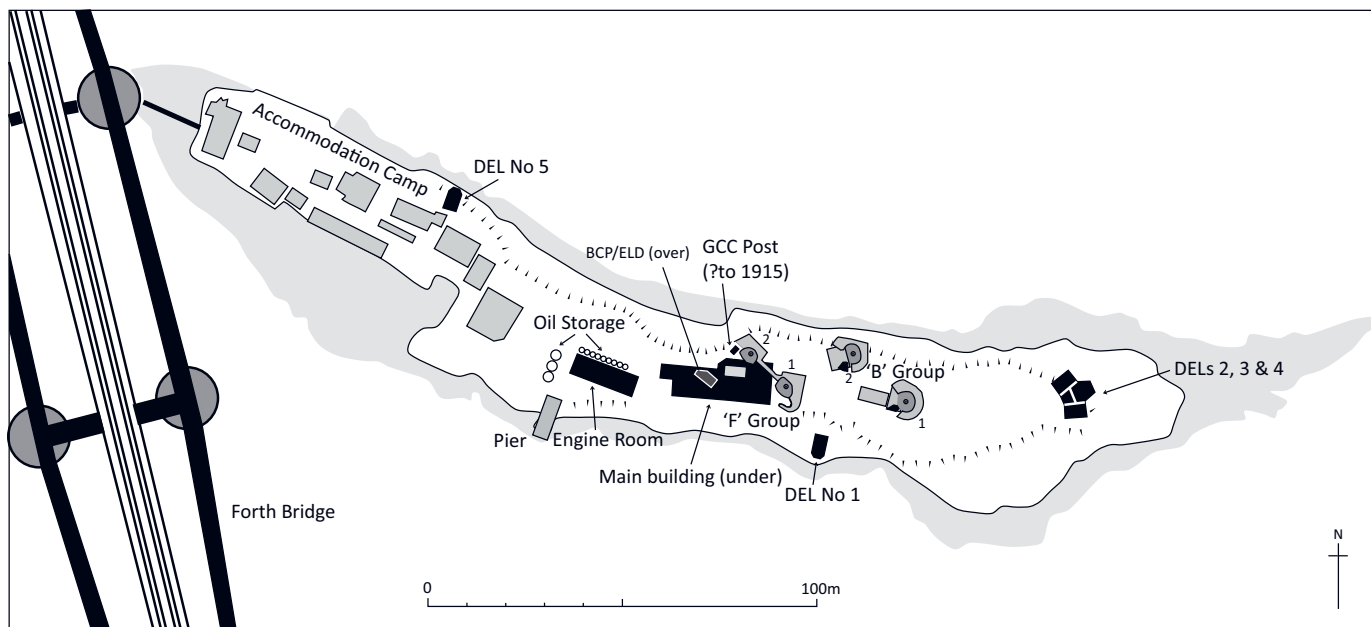


Figure 9.13

Plan of Inchgarvie in 1916, collated from plans on files WO 78/4316, WO 78/5172 and WO 192/100 (© Gordon Barclay)

## FORTIFICATION OF THE FIRTH OF FORTH



*Figure 9.14*

The two easterly (later) emplacements on Inchgarvie. The housing for three DELs and a telephone room is visible on the easternmost point of the island. This image shows the island as it was in the 1980s (© Ron Morris)



*Figure 9.15*

The rear of the western (older) pair of guns on Inchgarvie, as it survived in the 1980s (© Ron Morris)



*Figure 9.16*

The Battery Command Post and Electric Light Director in 1915-16 (© Bruce Stenhouse Collection)

The proposals were developed in a series of plans, although what was built differed again: the accommodation was built further west than originally proposed, in wooden huts on the flat western half of the island. The accommodation comprised three huts for 82 men of the RGA, a hut for eight NCOs, a dining room (with cookhouse and drying room included), ablutions and a food store. One hut was provided for 40 men of the Royal Engineers, one for four NCOs, with dining room. Officers' quarters were also built. Between the old building and the new huts, an engine room was built to power the DELs and the battery.



*Figure 9.17*

The Battery Command Post and Electric Light Director as it survived in the later part of the 20th century. The roof of the tower has been changed since 1915-16, and an external stair and steel screen had been added (both have since fallen) (© Ron Morris)

### **First World War**

Construction of the two new 4-inch emplacements to the east of the original pair, each with its own shell and cartridge stores, was already in hand when war broke out in August 1914, the plan being to leave the two existing 12-pdrs in position until the first two 4-inch emplacements were ready. Two 4-inch guns were delivered on 14 September 1914 and were ready for action in December (Fig 9.13 ('B' Group); Fig 9.14). The other two 4-inch guns were, through the use of specially designed plates, mounted in the two existing 12-pdr emplacements between July and September 1915 (Fig 9.15). The two 12-pdrs, originally due to be returned to store, were exchanged with the two at Coastguard, which were wearing out.

The Gun Group Commander's post, at the north-east edge of the westward guns, was replaced at some point by a combined Battery Command Post and Electric Light Director

## THE INNER DEFENCES

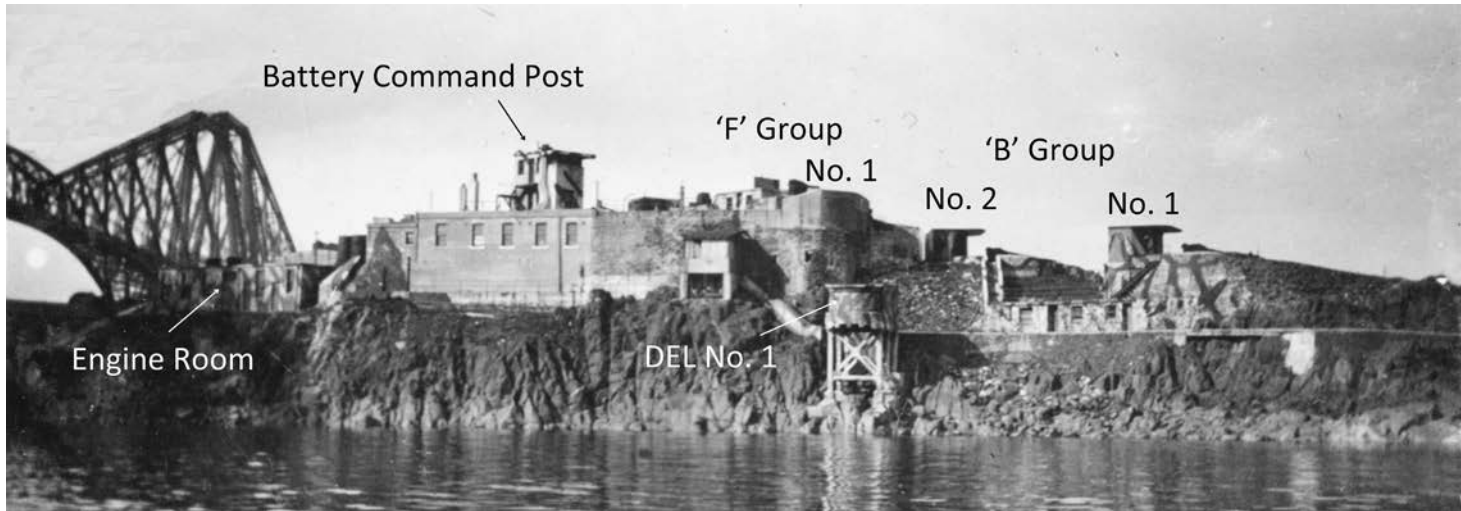


Figure 9.18

Inchgarvie from the south, annotated to show the location of significant features, 1915–16. Note that the emplacements of 'B' Group seem to be empty at this date. The original image is titled 'The point and gun groups' (© Bruce Stenhouse collection)

in a tower, sitting above the original accommodation building just behind the guns. By the time the battery was abandoned, the BCP had been reworked with a differently shaped roof and an external steel structure; that is, largely the form in which it survives (Fig 9.16; Fig 9.17).<sup>44</sup>

In 1915, a mains water supply was taken along the bridge from the North Queensferry town main.<sup>45</sup> A series of photographs was taken of Inchgarvie and its officers in the middle of the First World War; the layout of the battery visible in the photographs conforms to the layout after the number of

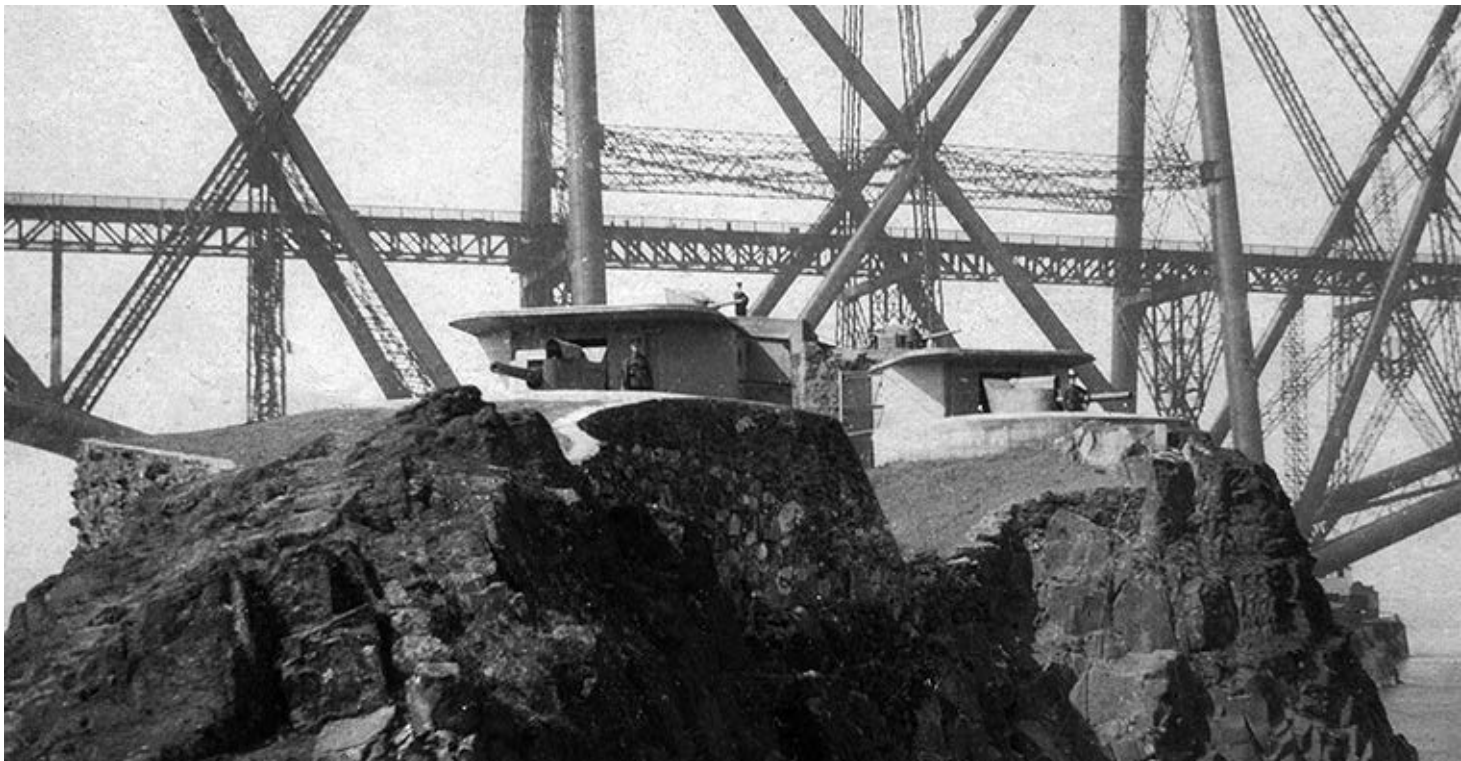


Figure 9.19

An undated view of the two eastern guns on Inchgarvie ('B' Group), post-1915 (Sgt J B Adams, Forth RGA. Bob Adams collection. Reproduced with permission)

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Figure 9.20

Undated image of the 'domestic' end of the island, during the First World War  
(© Bruce Stenhouse Collection)

guns was increased to four, and the guns pictured appear to be the 4-inch Mk III weapons in place between September 1915 and August 1916.

In the image reproduced here (Fig 9.18), the two eastward emplacements ('B1' and 'B2') are shown as having partial cover, but seem not to be armed, placing the photograph either around September 1915 or August 1916. An undated photograph shows the two easternmost (that is the 'new') emplacements, armed, apparently, with 12-pdr guns (Fig 9.19). Another photograph shows the more 'domestic' end of the island (Fig 9.20). In July 1916, the garrison of the island was organised in two Gun Groups, both with two officers

each (Gun Group Commander and relief) and 32 and 36 other ranks respectively.<sup>46</sup>

In the general revision of the Forth defences, four 12-pdr QF (Naval) 18cwt guns (two from Inchmickery and two from Inchcolm) were moved to Inchgarvie between August 1916 and January 1917. The four 4-inch guns were moved to Inchmickery. No major reconstruction seems to have been necessary.

Inchgarvie started off with no DELs of its own, relying on those mounted at the Coastguard and Dalmeny batteries to north and south. The precise sequence of development of the lights on Inchgarvie is not entirely clear, as important documents are not dated. There were apparently five lights, although the island's generators had the capacity to run only four for any length of time, and the fifth was to be used only in emergencies. A single building containing three fixed lights with dispersed beams was built at the eastern end of the island; the central light was the one only to be run in emergencies. An emplacement for a further single moveable light was built on a concrete platform on the southern side of the island (Fig 9.18). A fifth light was built on the northern shore of the island, apparently housed in a wooden shed. The lights were under the control of Fire Command (Inner) at Carlingnose, but the Battery Commander could move the northern and southern lights to illuminate the booms under the bridge.

Even after the removal of the guns, four DELs on Inchgarvie were listed as being ready for action in February 1917, with a RE garrison of two officers and 60 sappers. Three RE telephone operators were also stationed there.<sup>47</sup>



Figure 9.21

Inchgarvie from the south in 2016, from a position similar to Figure 9.18 (© Gordon Barclay)

## THE INNER DEFENCES



Figure 9.22

One of the Maxim machine guns used for close defence, in a post on the northern side of the island (Sgt J B Adams, Forth RGA. Bob Adams collection. Reproduced with permission)

Despite its position in the middle of the river, the island was provided with close defences: the two Maxim machine guns already mentioned and barbed wire entanglements round the lighthouse at the island's western end, extending south-east, to restrict access from the bridge to the island and vice versa (Fig 9.22).

### Inter-war

The Fort Record Book records that the 12-pdr (18cwt) guns (which were Royal Navy property) were removed to the Royal Naval depot at Crombie on 12 May 1920, and the mountings to Rosyth on the day before.<sup>48</sup> An armament table dated January 1921, however, still listed Inchgarvie as fully armed.<sup>49</sup> A further table, dated September 1921, suggested that 'B' Group may have been still in place, but that 'B2' might be the only active gun; the entry, however, is annotated 'Guns returned to Navy'. By 1927, Inchgarvie was shown as disarmed, but it was proposed that it be armed in future

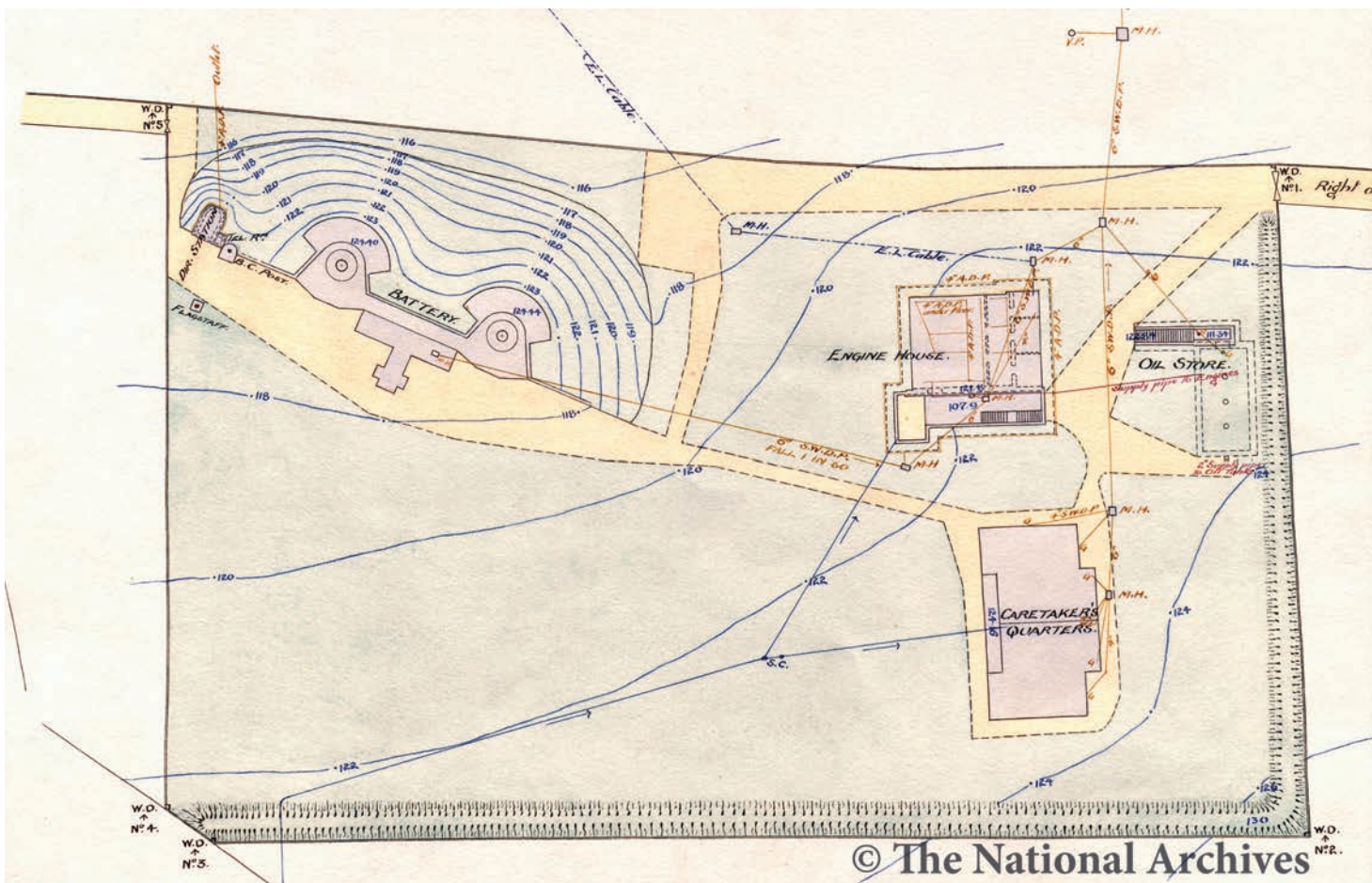


Figure 9.23

Part of one of the Royal Engineer Record Plans of Dalmeny, dated 23 January 1903, showing the detailed layout of the battery. Note that there was no permanent accommodation, apart from the caretaker's quarters, as the gun was manned by volunteers (© The National Archives, WO 78/5166)



## FORTIFICATION OF THE FIRTH OF FORTH



Figure 9.24

Rear view of the Dalmeny battery, as restored, 2016 (© Gordon Barclay)

with a 6-pdr twin gun of the kind eventually mounted in the Second World War on what was then the Inner Line (Inchcolm, Inchmickery, Cramond Island and Charles Hill). The same document showed proposals to withdraw one of its two moveable searchlights.<sup>50</sup>

In 1930, the Interim Defence Scheme for Inchgarvie was still recorded as having four active DELs.<sup>51</sup>

Two 12-pdr guns were recorded as being mounted in 1933, although not part of the approved armament, and two old .303-inch Lewis guns were also noted as being on the island on 14 November 1936;<sup>52</sup> all were mounted for drill purposes. Charles Grant (pers comm), who was a gunner on Inchkeith in 1940, said that the only other island that he landed on was Inchgarvie, where he went for a 'practice shoot' on a 'couple of 12-pdrs' prior to the beginning of the Second World War.

### 1939–45

When Inchgarvie was reoccupied in 1939, Douglas Grant was sent to become Battery Commander of the island and the armament at that time comprised only a single 'Drill Purpose' Lewis machine gun. When he and his fellow servicemen arrived at the island, they found the conditions very basic.<sup>53</sup> The DELs were still operational.<sup>54</sup>

On 16 October 1939, nine German bombers flew over the Forth Rail Bridge at c 300m, before turning around

and dropping bombs on the cruisers HMS *Southampton* and *Edinburgh*, then moored east of Inchgarvie. Grant gave instructions for the 'drill' Lewis gun on Inchgarvie to open fire, as did the Battery Commander at Coastguard. They were, thus, the first gunners to open fire on enemy aircraft over Britain during the war. Their bullets went up only to 200–250m, not nearly high enough to reach the German aircraft. Grant recalled, 'It was like using a pea-shooter'. About 750 rounds had been discharged at the aircraft, with most of the spent shell casings falling over the cliff on which the gun was mounted and ending up in the sea, leaving Grant with only 300 cases to return. He was 'severely reprimanded' for losing the shell casings, as the Army was still on peacetime accounting for its ammunition. About February 1940 Grant was transferred to Charles Hill Battery, where he took command. Apparently Inchgarvie was finally abandoned at this time.<sup>55</sup>

### Survival

The defence structures on Inchgarvie are very well preserved: the gun platforms, control tower, searchlight housings and the original accommodation/magazine complex all survive, albeit in a dangerous condition, and deeply befouled by bird excrement. As the pier has collapsed, landing should not be attempted.

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Figure 9.25

The original unusually decorative 'unclimbable fence' round Dalmeny, as restored, 2016 (© Gordon Barclay)

### 9.4 Dalmeny

Two batteries bore the name 'Dalmeny'. This, the first, was in use from 1901 and disarmed in December 1916; the second 'Dalmeny Battery' (see Section 10.3 below) was one of the batteries built on Cramond Island in the Second World War. A battery on the south shore had been in the approved armament of the Forth since 1888 (as 'South Queensferry').<sup>56</sup> Authority for the commencement of construction was finally given on 1 May 1900: work started on the 21st and was completed four months later, at a cost of £4,807 1s 4d (Fig 9.23).<sup>57</sup>

Originally designed to be armed with two 12-pdr QF guns, the 1899 Joint Committee on Armament (see above) recommended that the two 4.7-inch guns, at that time being removed from Inchkeith, would serve better. Dalmeny was first recorded in the June 1903 armament table as mounting two 4.7-inch QF guns and a .303-inch Maxim machine gun on a parapet mounting, for close defence.

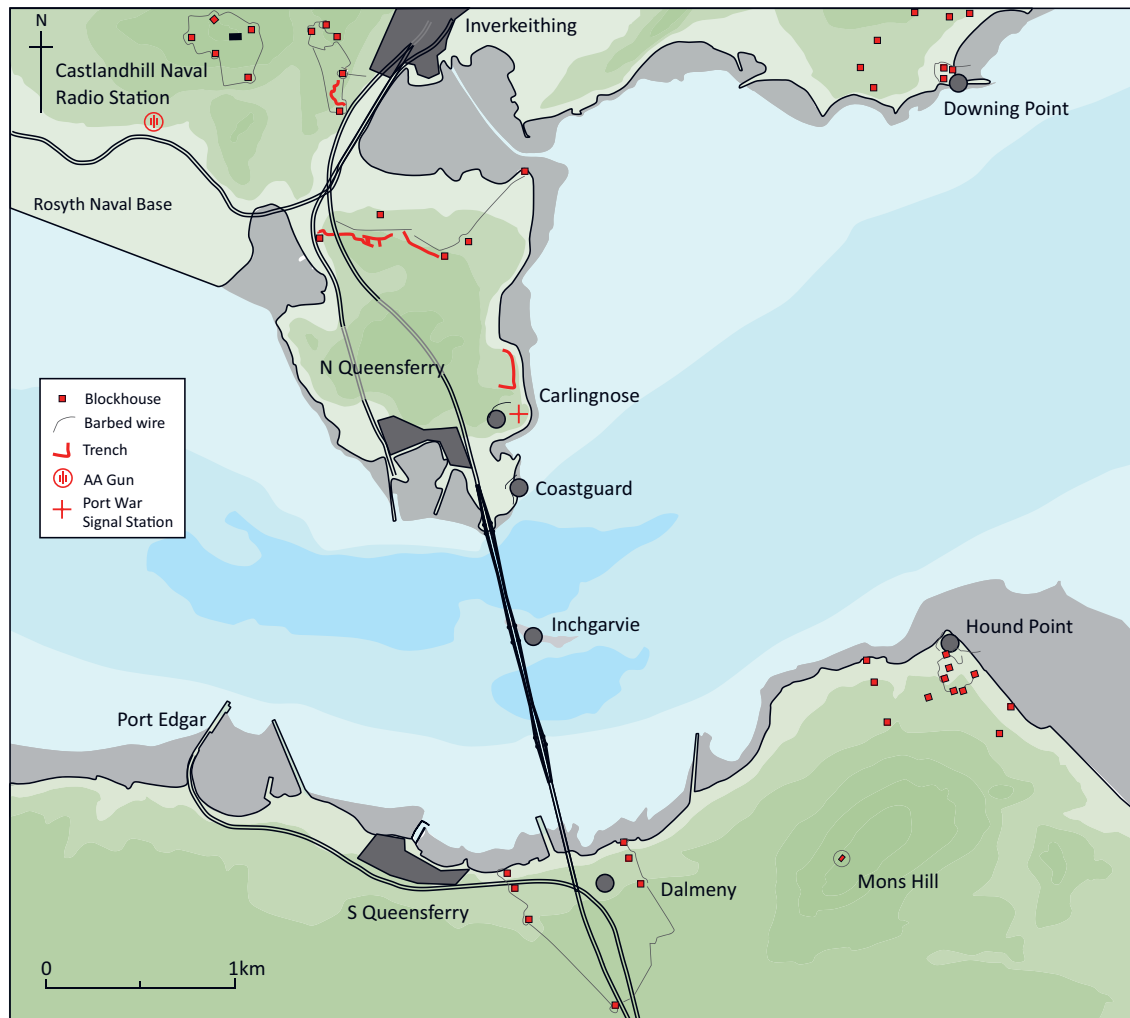


Figure 9.26

The defences of the approaches to the Forth Bridge and nearby coast batteries in the First World War (© Gordon Barclay)

## FORTIFICATION OF THE FIRTH OF FORTH

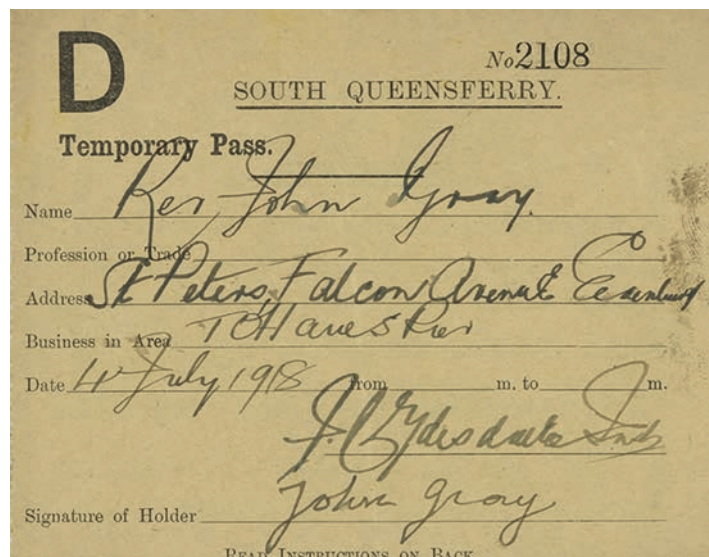


Figure 9.27

A pass issued to the Reverend John Gray, a prominent Roman Catholic clergyman in Edinburgh, to enter the restricted area at South Queensferry in the First World War (English Province of the Order of Preachers. Reproduced with permission)

The battery compound was sited on the cliffs at an elevation of *c* 19m, and contained the gun positions, with the magazine beneath and the Battery Command Post just to the west. The engine house, oil store and caretaker's quarters completed the structures (Fig 9.23). A cable ran down the hill to provide power to the two DEL emplacements situated on the seashore, almost beneath the rail bridge;<sup>58</sup> they were recorded in January 1913 as 'fixed' with an arc of coverage of 16° (No. 2 being able to traverse by a few degrees).<sup>59</sup>

In the 1905 Defence Scheme, an infantry garrison of 159 men was to be detailed for the defence of the battery.<sup>60</sup>

### First World War

At the outbreak of war, the two 4.7-inch QF guns were still there.<sup>61</sup> In late 1915, the War Office asked whether the battery could be dispensed with as it was 'somewhat retired' and in thick weather so out of the way as not to be able to participate in the defence. Admiral Lowry, however, wished it to remain in action until improvements were made in the defences of Inchcolm Fire Command.<sup>62</sup> In July 1916, the garrison of the battery comprised three officers (one Battery Commander, Gun Group Commander and GGC relief) and 38 other ranks (including a three-man DRF detachment and 18 men in the gun detachment).<sup>63</sup>

In the general revision of the Forth defences, the two 4.7-inch QF guns were transferred to Inchcolm in December 1916, leaving only the Maxim machine gun. One searchlight was

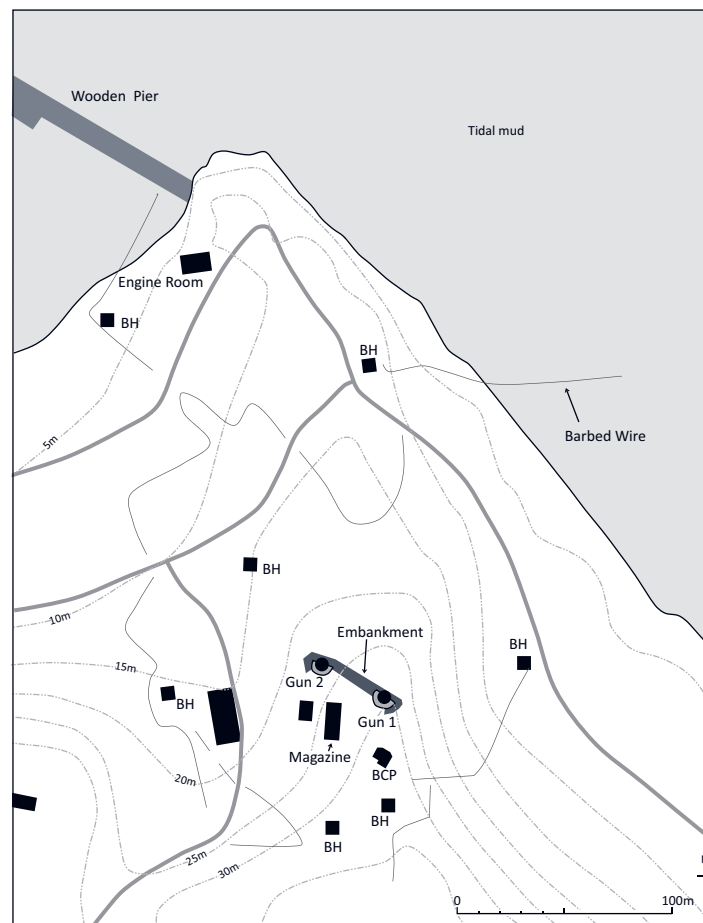


Figure 9.28

Plan of Hound Point in 1915. 'BH' marks a blockhouse (after WO 79/4396) (© Gordon Barclay)

still recorded as being in position on 30 May 1917, but was due to be moved shortly thereafter.<sup>64</sup> The battery was never rearmed.

### Survival

The gun positions and most of the underground buildings have been cleaned out and carefully restored by the present owner (including renovating old safety railings and making matching replacements) (Fig 9.24). A unique feature of the site is that the original 'unclimbable fence' has been renovated around most of the battery perimeter (Fig 9.25).<sup>65</sup> In 2017, the battery site was sold to Network Rail, to be part of their 'Forth Bridge Experience'.

### 9.5 Landward defences of the Forth Bridge

The battery and PWSS at Carlingnose had close defences, as did Coastguard and, in the First World War these

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were incorporated into the overall defence of the northern approach to the Forth Bridge.<sup>66</sup> The main defence line lay across the isthmus from West Ness (at the entrance to Inner Bay) and was formed of barbed wire entanglements, entrenchments and five blockhouses. To the north there were two further defended areas, to the east and west of the main road towards North Queensferry. The larger, to the west, was around the naval wireless station at Castlandhill, the large barbed wire enclosure of which was defended by five blockhouses (Fig 9.26).

The whole area around the southern end of the bridge, including the Dalmeny battery, was surrounded by a barbed wire entanglement and seven or eight blockhouses.<sup>67</sup> About mid-way between Dalmeny and Hound Point Batteries there was a strong point, named 'Mons Hill', which was connected to the defence's telephone system.<sup>68</sup>

Access to the defended area around the Forth Bridge was restricted in the First World War, and a special pass had to be issued to a non-resident seeking to enter (Fig 9.27).

In April 1914, a small detachment of three officers and 40 men of the 6th Battalion (Territorial Force) The Black Watch

spent a few days at their War Station near the Forth Bridge for the purpose of testing the mobilisation scheme and railway arrangements. This proved of great value, and when the real call came on 4 August, the scheme of mobilisation ran without a hitch. On the 5th, men were pouring into their Company HQ, and by the evening of the 6th, Battalion had become an organised unit. In the busy first few weeks at Queensferry, the men built blockhouses, dug-outs and fortifications, and guarded the approaches to the Forth Bridge, landing places and other points as far west as the dockyard at Rosyth. The Special Service Section under Captain J Hally maintained a continuous coast patrol from the week preceding the outbreak of war.<sup>69</sup>

### 9.6 Hound Point

#### *First World War*

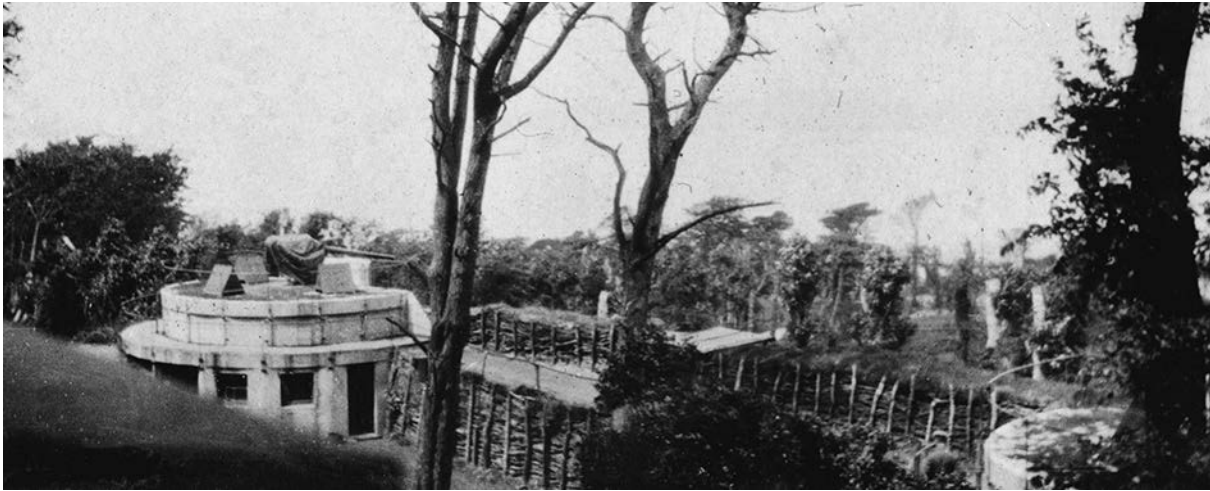
In December 1912, the Home Ports Defence Committee, in reviewing the anti-torpedo craft defences of the Forth, recommended that 'sentry and search beams' be installed



Figure 9.29

Hound Point, gun tower No. 2, at the northern end of the battery. The gun was on the top level; on the storey below were the ready-use lockers for ammunition; on the bottom floor was the shelter for the crew (© Gordon Barclay)

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*Figure 9.30*

First World War photograph of Hound Point, when armed with 12-pdr (18cwt) Naval guns (© Bruce Stenhouse Collection)

at Hound Point.<sup>70</sup> None of the plans show exactly what was built.

The construction of a battery for two 6-inch guns here had been approved before the war. Construction was in hand when war was declared and the guns were mounted in November 1914. There is no Fort Record Book for Hound Point, but there is a brief history of the battery on the Fort Record Book for Inchcolm Fire Command. The extant plans

do not show what was actually built.<sup>71</sup> The emplacement is of a kind unique in the defences of the Forth: the two gun emplacements, situated on the crest of the north-north-west end of a hill (at *c* 25m over sea level) take the form of cylindrical concrete towers, with the gun holdfasts set into their tops. More substantial towers were built than had been shown on plans, with a concrete lower storey larger than the platform area above (Fig 9.29). A single photograph of the



*Figure 9.31*

The Hound Point magazine. The steel doors on the left closed off niches which were glazed on their inner side, giving light safely into the powder store. The shell store was to the right (© Gordon Barclay)

## THE INNER DEFENCES

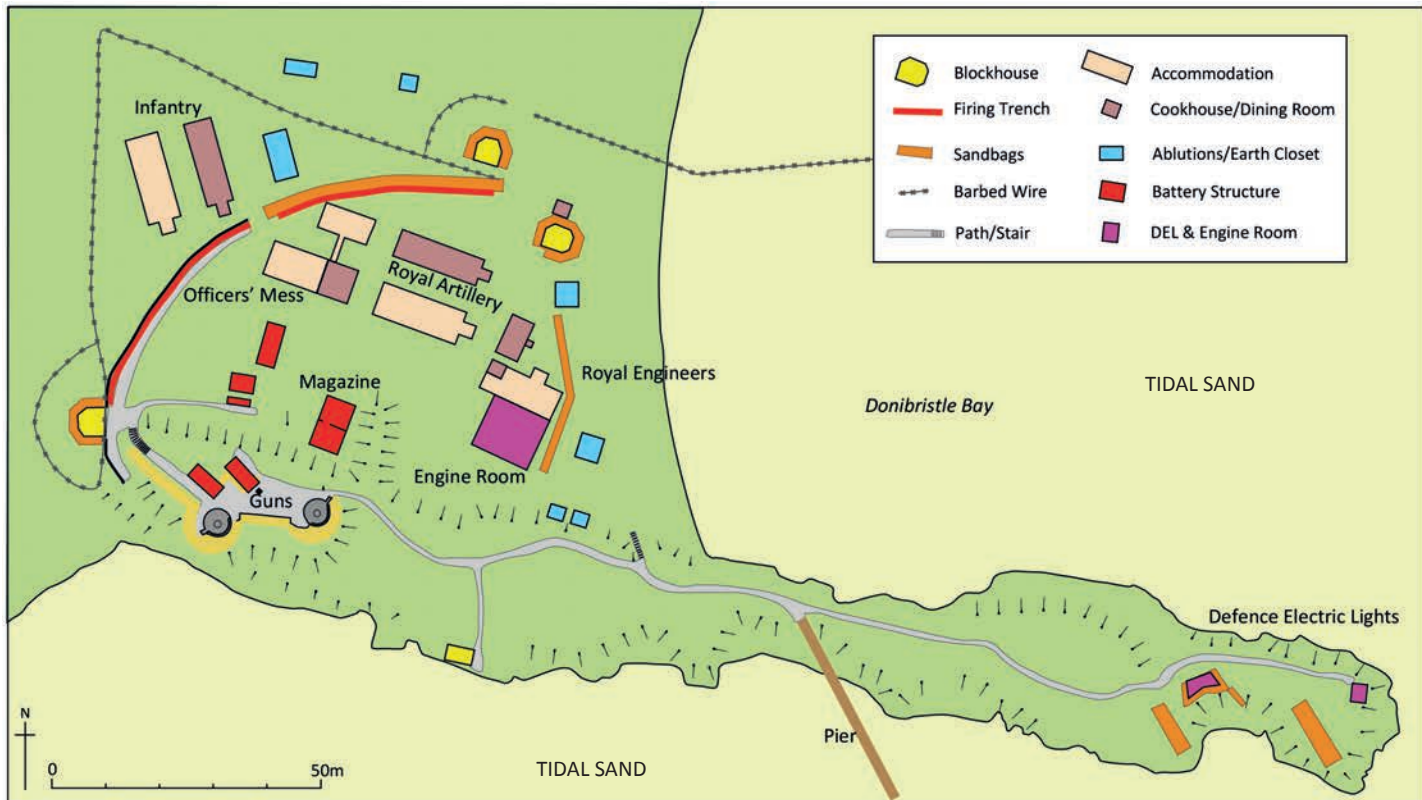


Figure 9.32

Plan of the Downing Point battery and camp in 1915. Accommodation for the Royal Artillery, Royal Engineers and infantry garrisons was provided in three separate complexes. The whole area below the high tide mark was exposed sand at low tide (© Gordon Barclay)

battery from the First World War shows it fitted with 12-pdr (Naval) 18cwt guns after 1916 (Fig 9.30). The photograph also shows that the two emplacements were linked by a flat-topped earthen bank, faced by vertically set timber fencing, which provided partly protected access between the guns. There were shelters for the crews in both towers at the lower level.

The magazine and engine room were built in the shelter of the hill (Fig 9.31). The ammunition was manhandled from the magazine up the hill to the ready-use storage below the gun platforms. The combined Battery Command Post and Electric Light Director Post was built south of the eastern gun, on the nose of the hill (Fig 9.28).

In July 1916, the Royal Artillery garrison comprised three officers (Battery Commander, Gun Group Commander, GGC relief), 22 gun crew, eight men in the ammunition supply detachment, storeman and lamp-man – in total 42 other ranks.<sup>72</sup> In February 1917, the Royal Engineer garrison for the two active DELs comprised two officers and 30 sappers, with an additional three RE telephonists.<sup>73</sup> The officers' mess was accommodated in the estate cottage on the shore, to the east.<sup>74</sup>

A map dated May 1916 shows that Hound Point was surrounded by a double ring of 12 wooden blockhouses, six in each ring.

In the general revision of the defences of the Forth in 1916–17, it was decided that the two 6-inch guns would be removed from Hound Point to arm the new battery at Leith Docks. They were replaced by two 12-pdr QF (Naval) 18cwt guns removed from Inchcolm, in action 22 and 27 November 1916.

### Post-war

The 'history' of the defences states that the 12-pdrs were dismantled and returned to naval store, but on an unspecified date. In July 1919, the battery was recorded as having had its personnel withdrawn.<sup>75</sup> A list of armaments dated January 1921 shows the battery still fully armed but, by September, the approved armament was recorded as only one of the guns ('A2' Group), but later annotated 'Guns returned to Navy. Site disposed of'.<sup>76</sup>

### Survival

The battery is now in mature woodland and no modern survey of the site exists; fortunately, modern OS mapping has fixed the exact positions of the gun towers and magazine. The two

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gun towers (marked 1 and 2 in faded white paint) survive in good condition, although the safety handrails on the top and lower floors have now mostly collapsed. Both holdfasts are visible. The BCP seems to have been bulldozed into a heap of concrete to one side of its site. The magazine building is the only other structure which has survived. It is a simple rectangle with a central door leading into a short passage separating two rooms. The left-hand room was clearly the cartridge store; in the absence of a lamp passage, the illumination was provided through four internally glazed niches, the outer sides of which were sealed by steel doors. The external wall below the niches bears the impression of a corrugated iron-roofed lean-to reaching to below waist height, where lamps, fuel and other stores were probably kept. The right-hand room, probably the shell store, has large barred windows.

### 9.7 Downing Point

#### *First World War*

A battery in this part of the Fife coast to strengthen the Inner Defences was first suggested at Middle Point in 1912, 315m to the west of Downing Point.<sup>77</sup> The history of the defences of the Forth on the Inchcolm Fort Record Book<sup>78</sup> notes that the GOC Forth Garrison had, in 1914, suggested the construction of a modified form of 4.7-inch QF battery at Downing Point, and an allocation of £450 was approved for this by the War Office on 5 September. The holdfasts were to come from Northern Command, while the guns and carriages were to come over from Kinghorn, where they had been part of a battery reduced to 'drill and practice'. Work proceeded very quickly on what was a very simple structure, and the guns arrived and were mounted on 11 October 1914.<sup>79</sup>

The guns were set in two shallow pits provided with a concrete glacis and, raised on a platform behind, a concrete pillar for a Depression Range Finder (Fig 9.32; Fig 9.33).



Figure 9.33

The battery at Downing Point viewed from behind the Direction Finder (visible on the left) towards the eastern emplacement, showing ready-use storage between the emplacements (© Gordon Barclay)

Behind the rocky ridge on which the guns were placed, the magazine and the ancillary buildings of the battery lay protected, surrounded by a barbed wire fence and defended by four blockhouses.

In July 1916, the Royal Artillery garrison comprised three officers (Battery Commander, Gun Group Commander and GCC relief) and 34 other ranks (including 18 in the gun detachment, and eight handling ammunition).<sup>80</sup> The Royal Engineer garrison for the operation of the DELs was recorded in February 1917 as two officers and 32 other ranks (there were also three RE telephonists).<sup>81</sup>

In the general revision of the Forth defences, it was decided that the two 4.7-inch QF guns should be swapped with a pair of 12-pdr (Naval) 18cwt guns from Inchcolm. Over a busy few days in mid-June 1917, the pairs of guns were exchanged; the 12-pdrs were mounted on 9 July and ready for action on the 11th.<sup>82</sup>

Although there is no Fort Record Book, two maps dated 17 January 1915 and a further map and plan of 1916 provide a very detailed layout of the guns, buildings, barbed wire perimeter,

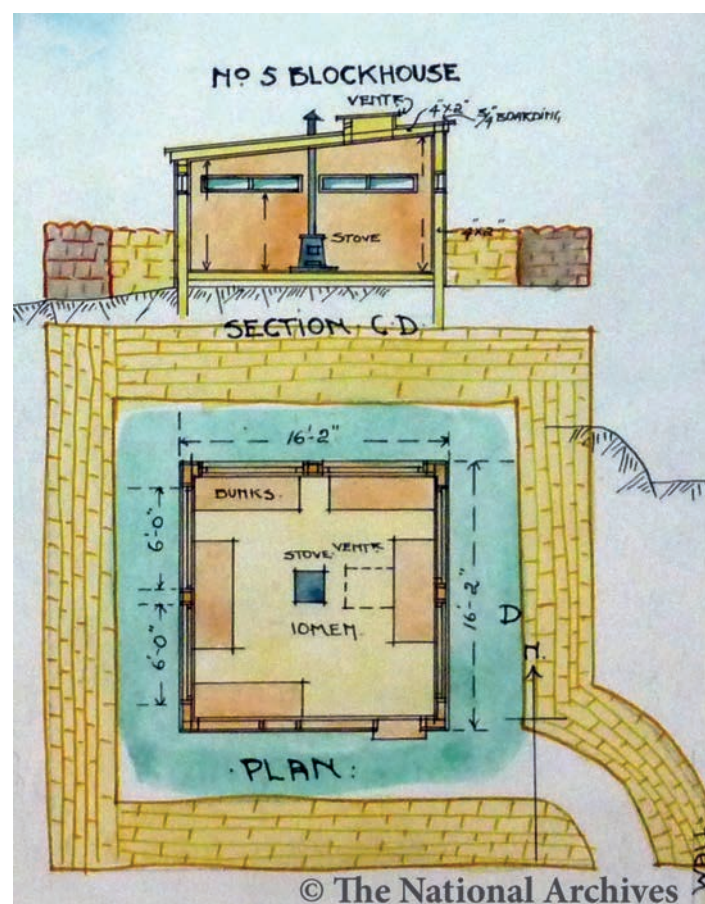


Figure 9.34

Blockhouse No. 5 of the defences of Downing Point. The blockhouses were clearly intended to provide accommodation for their small garrisons (© The National Archives, WO 78/4396)

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four blockhouses within the perimeter, the location of the two DELs, and six further blockhouses forming an outer line of defence, some 300m to 450m out from the battery. The 1916 map also has a series of exquisite plans and sections of the six outer blockhouses, showing their internal arrangements. All the blockhouses were designed to accommodate resident garrisons of ten men (Fig 9.34).<sup>83</sup>

The information on the Defence Electric Lights is contradictory. The plan of the battery dated 17 January 1915 shows one DEL as a fixed-beam, the other as a moveable fighting light. On the armament table attached to a chart dated October 1916, the DELs are both described as concentrated fighting (that is, moveable) lights.<sup>84</sup>

### *Inter-war*

In July 1919, the battery is recorded as having had its personnel withdrawn,<sup>85</sup> but it was still armed with two 12-pdrs in January 1921. By September, in the history of the Forth Defences on the Inchcolm Fort Record Book, only one of the 12-pdrs ('Group L2') is listed as still in the approved armament of the river: an undated note in the 'Remarks' column states 'Guns returned to Navy. Site disposed of'. It is likely that the final abandonment took place in the early 1930s, as elsewhere in the Forth. The site was not reoccupied in the Second World War.

### *Survival*

The gun positions and ancillary DRF position survive in good condition. The rest of the battery structures have been demolished. The battery and the site of the camp are now in the care of an active local community group which is managing the site.

### Notes

- 1 WO 33/873.
- 2 CAB 13/1.
- 3 Registers of Scotland search sheet 2714.
- 4 CAB 38/19/53.
- 5 WO 78/5175.
- 6 WO 192/101; WO 78/5175.
- 7 WO 33/381.
- 8 Registers of Scotland. Fife, search sheet 14771.
- 9 WO 32/6295.
- 10 WO 78/5179.
- 11 WO 192/108.
- 12 ADM 137/994.
- 13 Buildings at Risk Register for Scotland 'Signal Station Guard House, Battery Road, North Queensferry'.
- 14 WO 33/766.
- 15 WO 192/108.
- 16 *The Scotsman*, 2 August 1921.
- 17 CAB 36/18.
- 18 *The Scotsman*, 2 July 1938.
- 19 WO 192/104.
- 20 CAB 18/19.
- 21 CAB 38/19/53.
- 22 WO 78/5179.
- 23 CAB 38/19/53; WO 33/3264.
- 24 WO 33/510; WO 33/626.
- 25 WO 78/5179.
- 26 ADM 137/1892.
- 27 WO 33/810.
- 28 WO 33/766.
- 29 WO 199/2672.
- 30 WO 192/104.
- 31 WO 78/5179; WO 192/108.
- 32 CAB 36/18.
- 33 WO 192/252.
- 34 ADM 116/4113.
- 35 WO 192/108.
- 36 Morris and Barclay 2017.
- 37 Registers of Scotland. Fife, search sheet 12357.
- 38 WO 192/100.
- 39 WO 78/5172.
- 40 WO 78/5172.
- 41 CAB 38/19/53; WO 192/100.
- 42 WO 33/444.
- 43 WO 78/4316; WO 78/5172.
- 44 WO 192/100.
- 45 WO 78/5172.
- 46 WO 33/766.
- 47 WO 33/810; WO 33/861.
- 48 WO 192/100.
- 49 WO 78/5179.
- 50 CAB 36/18.
- 51 ADM 116/2493.
- 52 WO 192/104.
- 53 Douglas Grant, pers comm.
- 54 Grant ND.
- 55 Douglas Grant, pers comm.
- 56 CAB 7/6.
- 57 WO 78/5166.
- 58 WO 78/5166.
- 59 WO 33/626.
- 60 WO 33/381.
- 61 WO 192/108.
- 62 ADM 137/1170.
- 63 WO 33/766.
- 64 ADM 137/1892.
- 65 Bill Clements has drawn our attention to other surviving examples of 'unclimbable fences' which are far less decorative than that preserved at Dalmeny.
- 66 WO 192/101.
- 67 WO 78/4396.
- 68 WO 78/4396.
- 69 Wauchope 1925: 125–8.
- 70 CAB 13/1.
- 71 WO 78/4331; 78/5173.
- 72 WO 33/766.



## FORTIFICATION OF THE FIRTH OF FORTH

- |   |                |
|---|----------------|
| 73 WO 33/810.   | 79 WO 192/108. |
| 74 There is an annotated image of the cottage in the Bruce Stenhouse<br>Collection. | 80 WO 33/766.  |
| 75 WO 33/873.   | 81 WO 33/810.  |
| 76 WO 78/5173.  | 82 WO 192/108  |
| 77 CAB 13/1.  | 83 WO 78/5165. |
| 78 WO 192/108.  | 84 WO 78/5179. |
|   | 85 WO 33/873.  |