

Mills Historic Information Summary 6

Anti Aircraft, AA, Defences of the Royal Gunpowder Mills

Waltham Abbey WW1, WW2

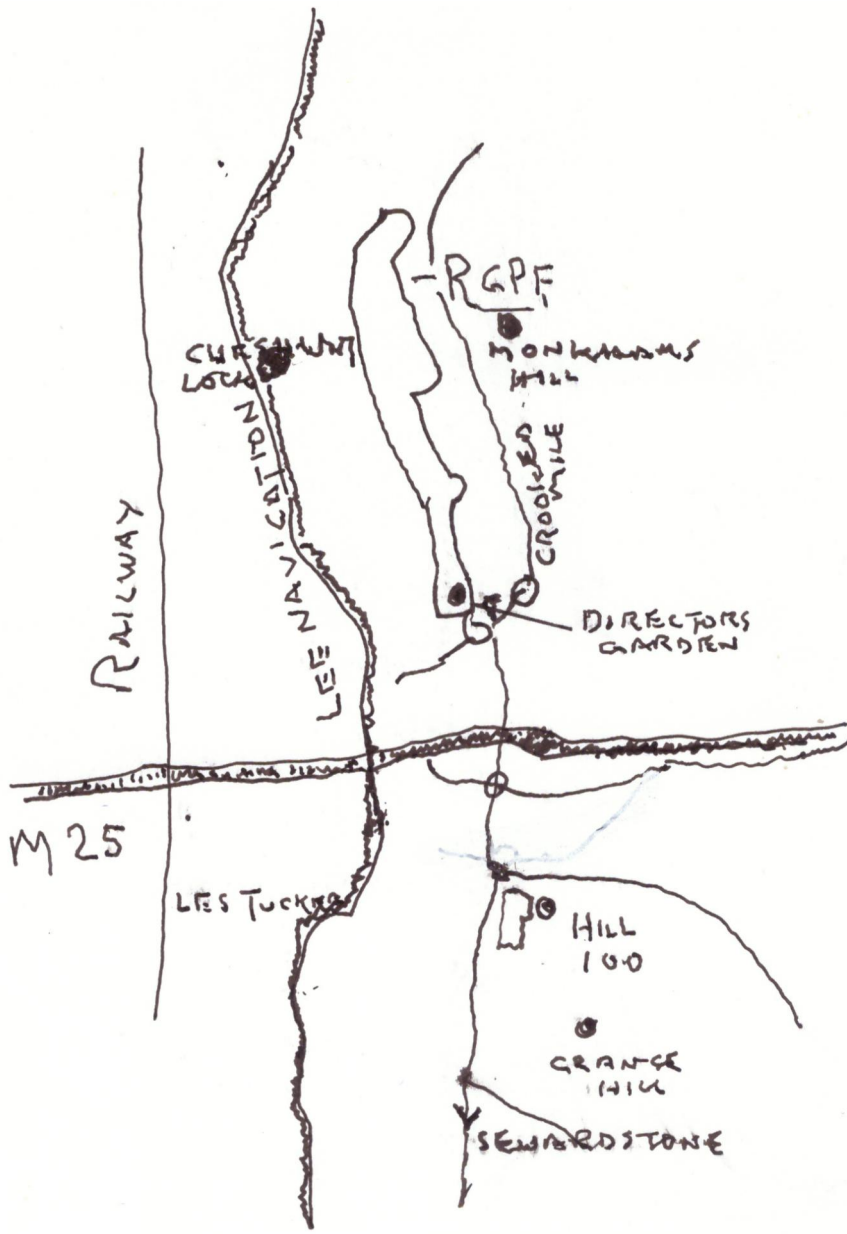
The Lea Valley was of vital strategic significance. It lay in the path of enemy bombers approaching London from the north east and housed major munitions industry, including the Royal Gunpowder Mills at Waltham Abbey and the munitions factories of Enfield, including the Royal Small Arms Factory.

The new form of warfare - attack from the air, was therefore certain and at the beginning of WW1 AA defences were speedily organised. The Lea Valley was protected by three gun barrages. One line ran down the Valley on the west, one from Enfield to Loughton and the third east closer to the Waltham Abbey Mills,

AA guns were sited either in fixed emplacements or in a mobile role mounted on lorries or later specialised chassis's or in lorry towed trailers from which the gun was dismounted at destination.

The location of some of the WW1 sites was still relevant to WW2 and these were brought back into use in the second conflict.

Inevitably many AA sites have disappeared. Fortunately although sketchy there is sufficient information / evidence available to enable the following summary of the five AA gun emplacements and their guns in the area of the Mills.



AA Gun Emplacements in RGPF area

1) AA Gun Emplacements in RGPF area

Hayes Hill

Emplacement demolished, Gun mounting ring embedded in concrete apron

Gun: WW2 Bofors 40mm

Hayes Hill Farm is a Lee Valley Park visitor centre. When we visited we were allowed to go through a sheep paddock to gaze down at this mute reminder of war. There is something unreal about these war relics in peaceful surroundings – did it all really happen?

Cheshunt Lock

WW2 Bofors tower survives

Gun: WW2 Bofors 40mm

Built in 1942 on the east bank of the Lee Navigation close to the Powdermill Cut join to the Navigation is a very rare surviving example of a full scale concrete Bofors gun tower, this site and the technology which it contained is of high interest, Again the contrast between the present peaceful surrounding and the wartime function of this monolithic concrete structure is almost surreal. The site is inaccessible, but unfortunately this has not deterred modern graffiti vandals (someone told me it is n fact now a sanctuary for bats, run by a bat society, but I have been unable to verify this).



Cheshunt Lock Bofors tower under construction

Monkhams Hill

Some brick structures and concrete gun platform with embedded mounting ring survive

Gun: WW1 3in - 20 cwt

WW2 40mm Bofors

Again a marked contrast between present day circumstances and war. The site is on the hill near to Monkhams Hall and can be reached after negotiating / crossing a short stretch of the Crooked Mile from the Cornmill Meadows car park to get to the Eagles Gate House and the track upwards. Its location gives a peaceful airy panoramic view of the RGPF and Enfield / Valley and is well worth the walk on a sunny afternoon and even a picnic.

Hill 100

Emplacement demolished – no trace

Gun: WW1 3in QF 5cwt

WW2 Bofors 40 mm

This site lies on the 100ft contour, hence the title, on the east of the South Site. The WW1 gun, made by the Elswick Ordnance Company, was a technical curiosity but operational failure, with low muzzle velocity, only fourteen examples were made.

Grange Hill

Emplacement demolished

Gun: WW1 3in- 20cwt

WW2 Bofors

This site is now just a concrete apron in a grassy field with mounting ring removed

RGPF Waltham Abbey

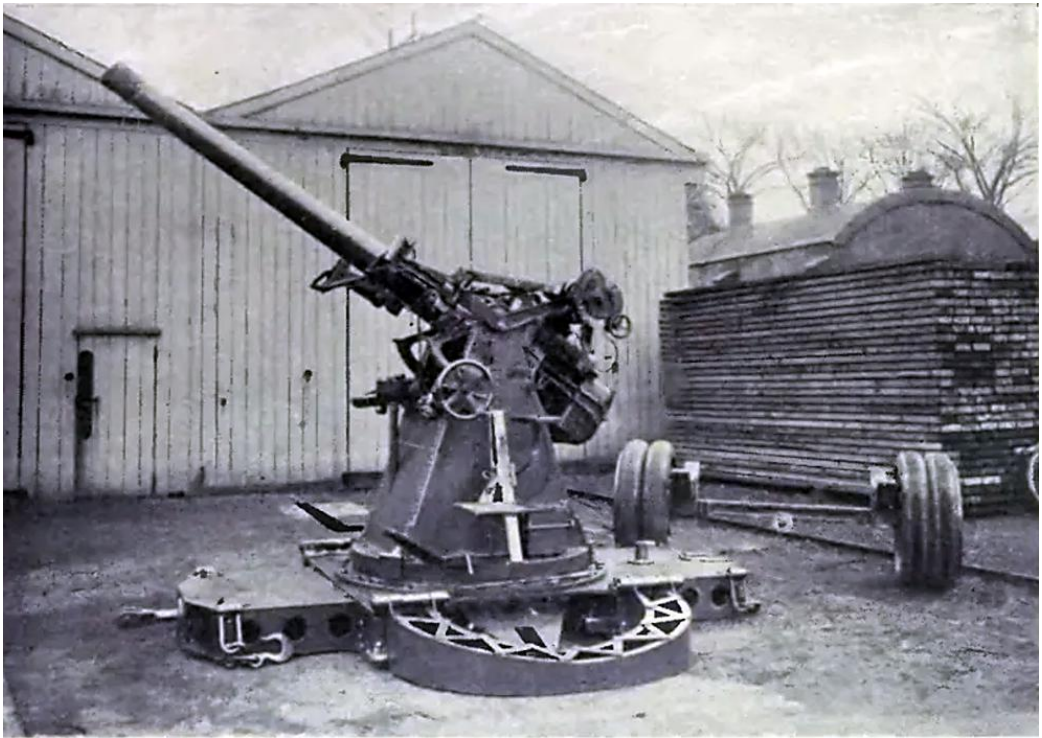
Emplacement demolished

Gun:? Correspondence from an RA gunner exists which talks about an 'experimental' gun, but with no further detail, The Bofors was hardly experimental by 1942, stemming from the 30's, but was new to Britain in 1942, which could account for the description,

An octagonal brick built emplacement in the factory area itself – actually in the Director's garden! The main features including gun mounting ring survived until demolition of the site fairly recently.

2) The Guns

The advent of fast moving motor torpedo boats from the late 1880's and later the new aerial warfare created a need for rapid firing guns – termed Quick Firing –QF, The French were quick off the mark with the introduction of the 'cannon rapide' in 1886.



3in – 20cwt AA Gun

3in – 20cwt QF WW1

Although the Navy already had a QF gun, in 1914 a design was produced for Army use, termed 3in- 20cwt

The 3in gave good service and was the staple of British AA defence in WW1 and on into the 1930's, even surviving over WW2 in a home defensive role. It was superseded in 1938 by the 3.7in heavy HAA gun and for lighter conditions the LAA 40mm in 1942.



Bofors 40mm Gun L60

Bofors 40mm Automatic Gun L60 WW2

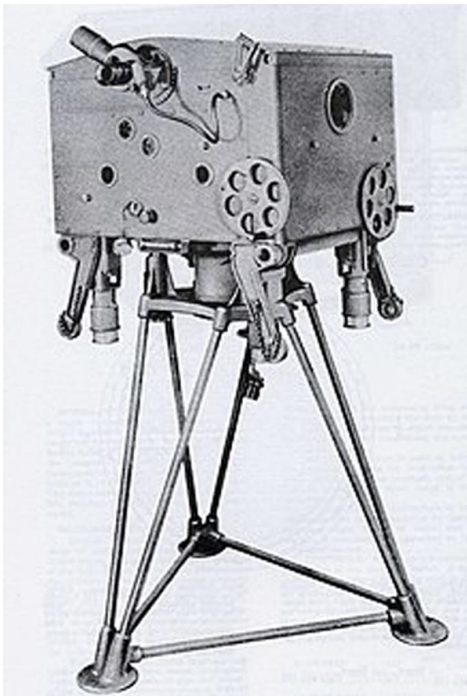
In WW2 anti aircraft regiments were formed into Heavy Anti-Aircraft regiments – HAA, designated by numbers preceded by HAA, operating the new 3.7in gun and Light Anti-Aircraft regiments – LAA, with numbers preceded by LAA, operating the new 40mm Bofors.

This gun was designed by the Swedish AB Bofors company in the 1930s; a British version was designed and manufactured in large numbers under licence and in Canada.

Brought into British service in 1942, it was extremely effective and was generally regarded in its day as one of if not the leading AA guns in the world.

Kerrison Director

The fundamental element in the Bofors automatic system was gun aiming, initial tests revealed that the Vickers Predictor already in use for aiming on Navy ships was not suitable for the Bofors – it was designed for higher altitudes than the Bofors. This problem was identified around the same time as the enemy had introduced low level high speed tactics.



**Kerrison Director on
tripod**

Over the 30's Army Major A.V. Kerrison had been working in Army Liaison at the Admiralty Research station on aiming devices for Navy ships and he was deputed to find a solution for the problem. He produced what became the Kerrison director or Predictor, Basically an electro mechanical analogue computer took input from optical telescopes operated by gun layers of target range, speed etc. and performed the calculations necessary to predict the target's position for fire control. The data was then transmitted via gear wheels to elevation and traversing mechanisms to operate the gun without manual intervention,

Major Kerrison's device created a totally automated Bofors gun system, and was notably successful against the demanding conditions of short engagement high speed low level attacks.

His endeavours were recognised after the War, being appointed director of Research and Engineering at the Admiralty.

Les Tucker

Footnote:

The WW2 anti aircraft regiments were formed into HAA or LAA units. Members of AA Command had a rather imaginative sleeve badge logo in the shape of an archers up pointed arrow.

I well remember it and excitedly going round after a raid picking up still hot what I imagine were pieces of shell shrapnel.

What fun war was for schoolboys.

There is a document in the Waltham Abbey Special Collection on WWI air defences:

https://www.wargm.org/archive_viewer/wasc-record.php?record=&item=3280

Ed.