

Fear of Invasion

Airfield Defences

When German forces moved on the offensive in the spring of 1940, their *blitzkrieg* (lightening war) tactics came as a complete surprise. Spectacularly successful attacks were carried out by airborne forces – paratroops followed by crack troops, guns and armour landed from Junkers 52 transport planes – which quickly seized airfields. From the captured airfields, invading forces moved overland to nearby ports where simultaneous seaborne assaults were mounted.

It was immediately obvious that Britain's airfields were prime targets for the anticipated invasion and equally obvious that they were woefully exposed to ground attack. Areas of open countryside within a five mile radius of RAF bases were identified as weak points and orders were urgently issued for them to be obstructed. This was done by digging trenches or lines of pits which, together with their upcast mounds, would prevent troop-carrying aircraft from landing and taking off to bring back more troops.



Aircraft obstruction pits at the site of the 1914-1918 war airship base at Bonython on the Lizard Peninsula. Much of the surrounding area, in the vicinity of Predannack airfield, was considered vulnerable to airborne landing of invasion troops and was criss-crossed by rows of these pits. © English Heritage (NMR) RAF Photography: 3G/TUD/UK/211/5224

At the same time the defensive strength of airfields was increased. Defensive positions were dispersed in small pockets sited to cover the airfield itself and the approaches beyond the perimeter. They were arranged around strong points surrounded by barbed wire. The strong points were centred on concrete pillboxes, supplemented by machine gun posts, fire trenches and rifle pits.

The primary objectives of the blitzkrieg attacks in Europe had been coastal ports. Consequently airfields within twenty miles of ports were considered to be particularly vulnerable to airborne assault. Most of Cornwall's airfields fell into this category and were furnished with stronger defences than larger inland airfields in other parts of the country. Satellite airfields, emergency landing fields and airfields still under construction were also provided with ground defences if they were in coastal areas.

The anti-aircraft training camp at RAF Cleave, although it was a grass airfield without solid runways, is a good example of the way certain airfields were prioritised for ground defences. Its position at the mouth of the Bristol Channel meant it was high on the list of potential targets. As a result it was provided with two specialised pillboxes known as Pickett-Hamilton forts.

Pickett-Hamilton forts were an innovative idea for airfield defence. Each fort consisted of two concrete cylinders, one inside the other, which were sunk into the ground. The inner cylinder was fitted with a concrete lid which lay flush with the ground surface when the 'fort' was not in use. When the 'fort' was in operation the inner cylinder rose nearly a metre above ground level by means of a hydraulic jack. Once raised three loopholes offered a range of fire for two men armed with heavy machine guns.

The tactical value of the Pickett-Hamilton fort rested on the fact that it could be sited in the middle of an aerodrome. Whilst in the retracted position it would not interfere with airfield traffic. In the event of enemy troop landings it could be brought up into service at the point when the landing forces were arriving, thereby achieving surprise and providing heavy close-range fire.



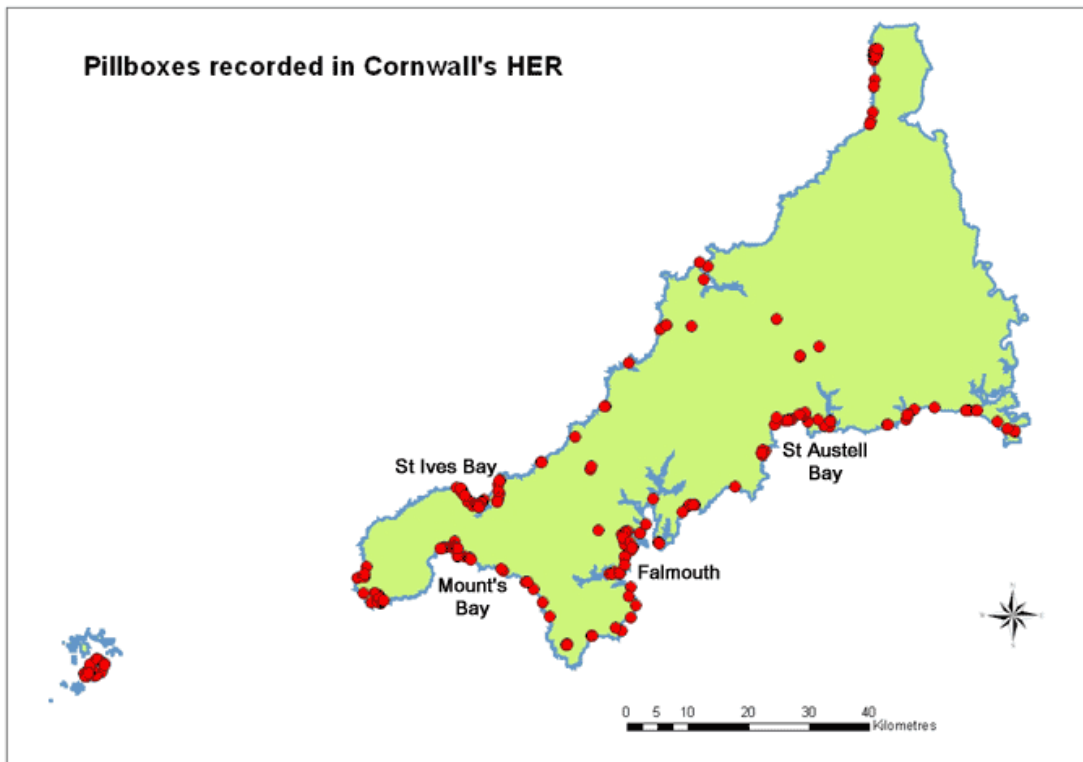
One of the Pickett-Hamilton forts at RAF Cleave showing how the concrete lid fits flush with the ground.

Beach Defences

With the fall of France it was widely expected that the next phase of German expansion would be the invasion of Britain. The question was from where would the invasion come?

Defences at ports were extended and plans drawn up for the defence of beaches suitable for amphibious troop landings. A survey identified a total of nearly 700 miles of coast where it would be possible to carry out landings of significant numbers of men and equipment. Resources and man power did not exist to cover all these beaches and priority was given to those where tanks could be landed, especially near ports or other important objectives.

Defences were established at many beaches in Cornwall between the summer of 1940 and 1942. The most vulnerable were laid with anti-tank mines; pillboxes were set behind lines of barbed wire above high water mark; the exits from beaches were protected by pillboxes and by anti-tank obstructions. Further defences were placed in a five mile zone inland of the coast, providing defence in depth. These defences were formed by integrated networks of pillboxes, anti-tank obstructions, anti-tank ditches and roadblocks.



Distribution of Second World War pillboxes surviving in Cornwall. Although many pillboxes were destroyed after the war, the importance of beach defence is clearly apparent in this map, particularly the vulnerable beaches around Mount's Bay, St Austell Bay and St Ives Bay. The extensive defences around the strategic ports of Falmouth and Fowey are also clear.



A surviving pillbox which formed part of the beach defences at Porthluney, --. Photo © Cornwall County Council Historic Environment Service



The site of a minefield which formed part of the beach defences at The Rushy Green, Crantock. The former position of the anti-tank mines can be seen as a series of parallel rows of small mounds following their removal at the end of the war. © English Heritage (NMR) RAF Photography: CPE/UK/2368/3097



Concrete blocks were used as anti-tank obstructions on Cornish beaches. These ones, left on the beach at Northcott near Bude are of a characteristic design. Large numbers of these blocks would be strategically placed in straight lines or rows and their appearance earned them the nickname 'dragon's teeth'. Photo © Cornwall County Council Historic Environment Service

Many beaches were protected by lines of tubular steel scaffolding braced from behind by steel struts. The scaffolding was arranged in lines along the front of the beach. Beach scaffolding was originally devised to impede landing craft, and trials showed that it was also effective against tanks. On beaches near particularly sensitive targets the defences were augmented by 'burning beach systems'. These comprised steel tubes laid out at the top of the beach and supplied with fuel oil to create a wall of fire. The beach at Porthcurno in West Penwith – near the site of a vitally important telegraphy communications station – was protected in this way.

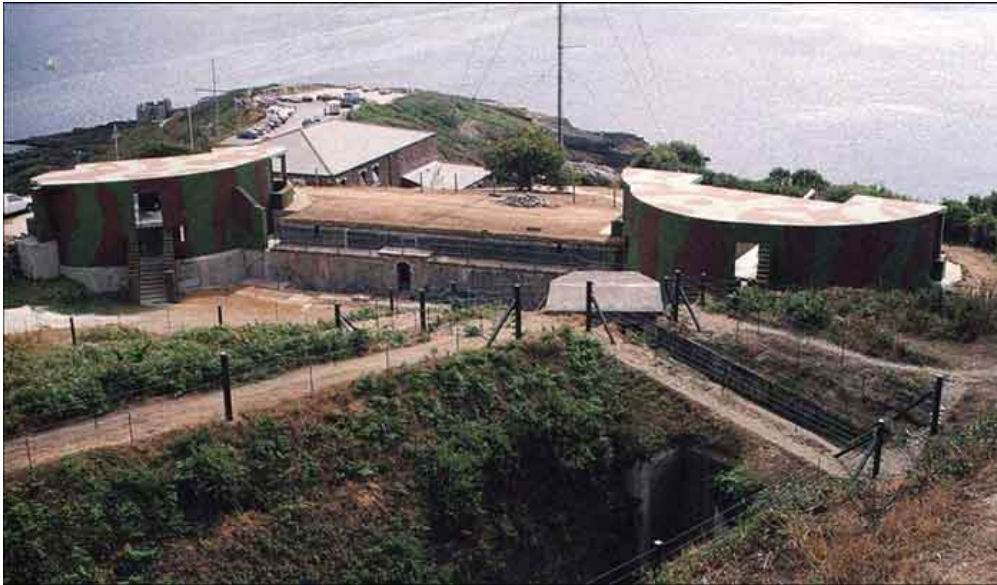


The site of beach scaffolding at Hayle Towans. Defences such as these were in use for only a few years before being dismantled and have left little trace. At Hayle the scaffolding posts have left an imprint forming a line parallel with the coastline; the supporting steel struts have left lines at right angles to this. © English Heritage (NMR) RAF Photography: S747/6009

Harbour defences

Ports were critical locations in Britain's anti-invasion defence strategy. Whatever form the impending invasion might take the securing of a port would be essential for landing the huge numbers of men, weaponry, vehicles and supplies needed for a German victory in Britain. Coastal defences around ports were strengthened and plans put in place for the demolition of their infrastructure, such as the disconnection of electricity and destruction of fuel supplies in the event of their capture. A series of emergency coastal batteries were established at many of Cornwall's ports and harbours. The main deep water harbour in Cornwall at Falmouth was protected on its seaward side by the coastal battery at St Anthony Head, a battery at St Mawes and four on Pendennis Headland.

Also at St Anthony Head was a heavy anti-aircraft battery; this was one of six such batteries dotted around the estuary of the Fal in addition to at least twelve light batteries armed with Bofors guns. The port itself and its inland western approaches were ringed by barrage balloons.



Half Moon battery on Pendennis Headland. It was armed during the Second World War with two MK5 breech loading guns, and later MK24s, for the defence of Falmouth harbour. Photo © Cornwall County Council Historic Environment Service

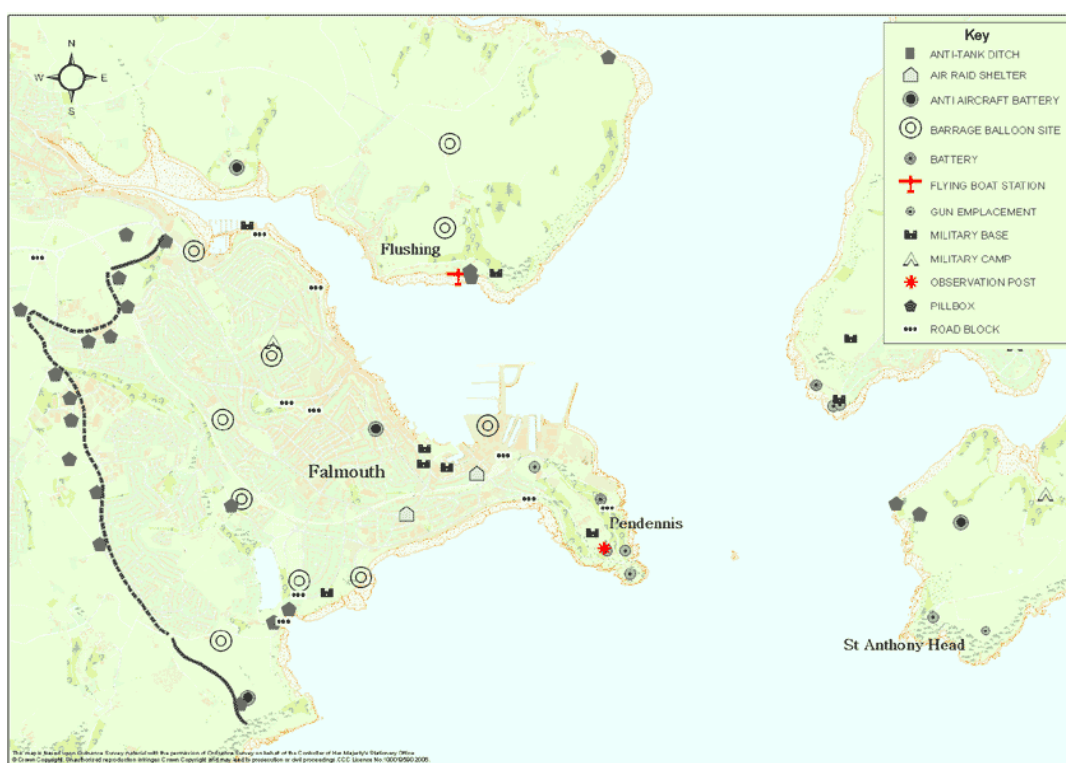


An observation post at St Anthony Head battery. The gun emplacements and other operational buildings of Second World War coastal batteries were protected against aerial attack by reinforced steel and concrete roofs. Photo © Cornwall County Council Historic Environment Service

Equally important was the defence of ports and harbours from landward attack in the event of airborne landings. Analysis of the German blitzkrieg warfare in northern Europe recognised that its success depended on the speed and violence with which it was delivered. The main thrust of Britain's defensive strategy was aimed at impeding the rapid advance of tanks - the key element in the speed of the blitzkrieg attacks. German tanks advanced into Holland and France along main roads so anti-invasion defences focused on the road network.

Towns and villages were defended by integrated rings of concrete pillboxes and other strengthened positions. Roadblocks were placed at crossroads and bends in roads. Their aim was to force advancing columns to slow down or stop. They could then be attacked by defenders from pillboxes or from positions defended by earthworks strategically sited by the roadblocks. The defenders would be armed with heavy and light machine guns, light mortars, rifles, even shotguns.

Various flame weapons were sited at these defensive positions or 'nodal points'. Flame was highly effective against the rubber tyres and transmission gear of armoured vehicles. The most widespread was known as the 'flame fougasse'; it was a crude type of flame-thrower which could direct a spout of flame towards a target from a buried barrel of fuel.



The wartime defences of Falmouth. The port itself was ringed by coastal and anti-aircraft batteries and barrage balloons; the landward approaches from the west were heavily defended by a fortified line. This ran northwards from Newport Head, where there was a large anti-tank ditch on the golf course, and followed the line of the Penryn road which was heavily obstructed and guarded by a chain of pillboxes. There were further sections of anti-tank ditch at the northern end of the defensive line.

The landward defence of Falmouth typifies the overall home defence strategy of late 1940 when a German invasion seemed imminent. Britain's defence was arranged in a series of fortified lines known as 'Stop Lines'. The landward defence of Falmouth typifies the overall home defence strategy of late 1940 when a German invasion seemed imminent. Britain's defence was arranged in a series of fortified lines known as 'Stop Lines'. The South West peninsula west of the Axe and the Parret was cut off by the Taunton Stop Line. There was a Stop Line running from Exeter to Launceston and in Cornwall itself a line running from Fowey through Lostwithiel to Wadebridge.

Much of the emphasis of the Stop Lines was on chains of pillboxes. Thousands were built during the summer and autumn of 1940; at the height of pillbox construction one was built every 20 minutes on average, and they are by far the most numerous anti-invasion structures to survive. Concrete pillboxes had proved effective defensive strong points in the latter stages of the Great War, but the highly mobile warfare of 1940 led to the concept of static defensive lines being discredited and by 1942 pillboxes were viewed as obsolete.