

Location & Access: West Cornwall coast between Pendeen Lighthouse and Cape Cornwall. Reached via A3071 from Penzance, or the B3306 from St Ives.

Area is served by Kernow Bus – route A3 from St Ives to Pendeen and through to Botallack and St Just, and from Penzance route A2 to Pendeen and A17 to Geevor.

There are National Trust car parks at Levant, Botallack and Cape Cornwall.

Key Geography: Granite Cliffs, industrial archaeology (19th Century mining), marine wildlife.



The Crowns, Botallack

Description: The 'Tin Coast' runs for approximately 7 miles in West Penwith, from Pendeen Lighthouse to Cape Cornwall, and is part of the Cornwall and West Devon Mining Landscape World Heritage Site designated by UNESCO in 2006. The route takes you through at least 700 years mining history, all the way from Medieval tin streaming to 20th Century extraction techniques.

Much of the landscape of this area was transformed in the 18th and early 19th centuries as a result of the rapid growth of pioneering copper and tin mining – and in the early 19th century, two-thirds of the world's supply of copper came from this region.

The mining area of Cornwall and west Devon made a massive contribution to the Industrial Revolution in the rest of Britain and also had fundamental influence on mining techniques throughout the world. This was the heartland from which mining technology rapidly spread.

You could start your walk from the National Trust car park at Levant Mine, or you may prefer to begin at the unmanned Pendeen Lighthouse and walk the mile or so along the coast path to Levant. From the car park at Levant, walk past the ruins of the Count House - which contained the mine offices and from where the miners were paid their wages – and head towards the sea to find the engine houses.

On the left is the pumping engine house for Engine Shaft, and behind this is Michell's Engine House, which contains a working Cornish beam engine as well as the headgear for the Skip Shaft. The beam engine can be seen in action on selected 'steaming days' held throughout the year. Next to the engine houses are the old dressing floors where women and children once broke up the copper ore with long hammers. A number of information boards explain what went on here during the boom times of Cornish mining.

(continued overleaf)

Curiosity Questions:

What is a beam engine? # What is a dressing floor? # What metals are extracted from the following ores: (a) cassiterite? (b) chalcocite? (c) arsenopyrite? # What famous American canned food company bought Cape Cornwall for the nation in 1987 to celebrate their centenary?

Further information:

www.nationaltrust.org.uk/tincoast

www.nationaltrust.org.uk/walks

www.geevor.com

"5 Circular Walks on the Tin Coast" (National Trust)

Reviewer: Paul Berry B Ed (hons) M Sc FRGS

Former Assistant Vice Principal and Head of Geography at South Molton Community College with 35 years of classroom experience.

Now an Iceland Field Studies Tutor with Rayburn Tours.

Blog: www.devongeography.wordpress.com Twitter: @unicorn4275

At its peak, Levant Mine was one of the richest in Cornwall, and between 1848 and 1913, it produced over 100,000 tonnes of copper ore and 18,500 tonnes of tin ore. More than 60 miles of inter-connected tunnels run underground and under the sea from here.

You can now continue southwards on the coast path towards Botallack, or you may wish to take a short detour of only half a mile or so to walk inland to visit the Geevor Mine. Geevor is the larger preserved mining complex in the country, and was the last working mine in West Cornwall – surviving until the late 20th century. It is possible to book an underground tour here to find out about the working conditions faced by the miners.



Levant Mine

Walking south from Levant, you will pass the cliffs of Carn Du where the Wheal Unity was once worked. The area is riddled with old shafts, and some are unfenced – so stay clear. Further south, you will pass through the ruined buildings and shafts of Wheal Cock, a 16th century submarine copper mine. By 1778, the miners here were working 150 metres beyond the cliffs, often only a few metres from the sea bed. It is said that during storms, the miners could hear the waters raging above them.

When you reach a trig point on the headland, you will get your first view of the mine workings at Botallack. Continue on until you come to the steel headgear of the Allen's Shaft – erected when the Geevor Mine attempted to rework the shaft in 1985.

Take the steps to the right down to the coast path besides the ruins of the 1907–1914 phase of the Botallack mining operation. You should be able to pick out the only surviving wall (with an arched window) of the power plant, the circular buddles of the new mill (where tin ore was processed), and the bricked archway of the calciner.

In total, the mines at Botallack yielded 14,500 tonnes of tin, 20,000 tonnes of copper, and 1,500 tonnes of refined arsenic through their working lives. Botallack was nearly abandoned as a business venture in the early 1840s, but was saved when a rich lode of copper was discovered in 1842. Within a year, monthly profits exceeded £1,000 – or £15 million in today's prices. In its 1860s heydays, Botallack employed 550 workers, with 340 of them toiling underground. It fell into decline when world tin prices fell, and it eventually closed in 1895. It did reopen briefly in 1907 in response to a rise in tin prices, but no new ores were found, and great losses were suffered.

Below the tall chimney, you can descend the track towards the Crowns, the evocative ruins of old engine houses perched precariously on the cliff edge. This engineering miracle is probably the most photographed mining building in the county, and defines Botallack. Miners used to travel by wagon down a diagonal shaft that ran from the upper engine house for nearly half a mile beneath the sea.

Retrace your steps back up the slope to the main mine ruins, and enter through the brick archway into the ruins of the Brunton Calciner. This was effectively a giant oven where ore was heated to 600 degrees Celsius to extract the valuable tin. Arsenic and sulphur gases were released from the baking of the ore, and sucked out of the oven through tall chimneys. The gas bi-product was channelled into the labyrinth of 30 arched chambers that can still be seen next to the calciner. As the gas cooled, it deposited a grey-white crust of pure arsenic on the walls. This was scraped off by miners, protected only from the poison by cotton wool in their nostrils and clay smeared on their skin.

Continue inland, and look in the undergrowth for the remains of the old tin dressing floors where women and children would have broken, sorted and washed the tin ore before it went to be crushed. Keep going until you reach the count house which is now used as an information centre by the National Trust, and is open from Easter to October for refreshments.

Pick up the southbound coast path again, and continue until you reach the engine house of West Wheal Owles. This building may seem familiar, as it was used as the location of Wheal Leisure in the BBC TV series 'Poldark'. Don't **(continued overleaf)**

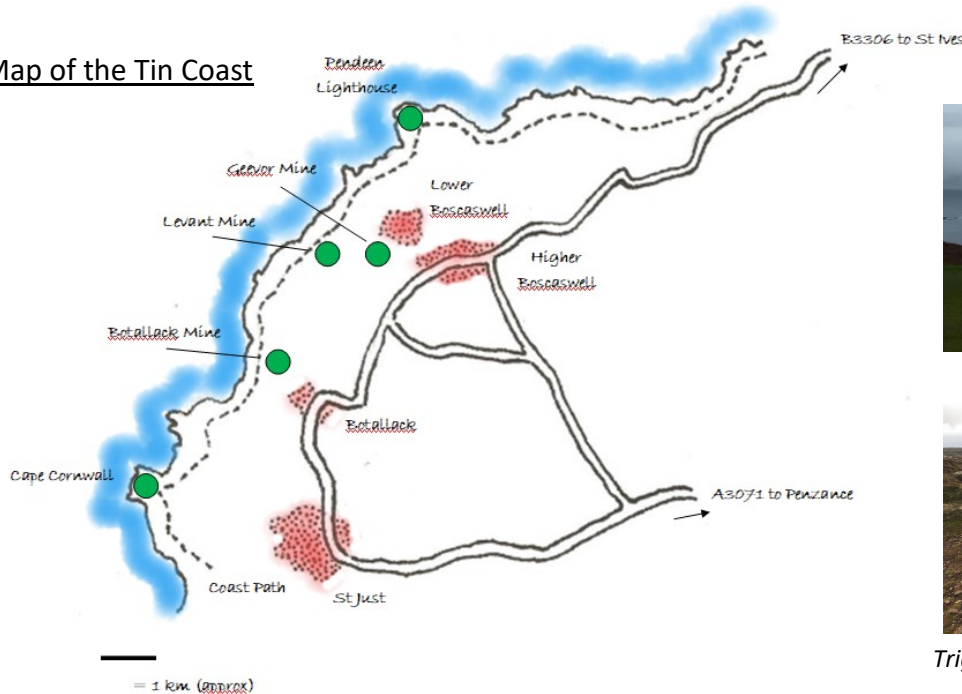
be fooled though, as it's appearance was altered on TV with the addition of a shed and a horse whim (winch).

Head a little further along the path towards a tall finger of masonry – all that is left to mark the winding engine house which worked the tramway of the shaft on the cliffs below. Nearby, you can spot the engine house constructed in 1869 to power the whim and tin stamps of the Wheal Edward, one of the earliest recorded mines in the area.

You could end your walk here, or if you are feeling energetic you could continue on the coast path for just over 2 miles to the headland of Cape Cornwall. On the way, the path passes 19th Century carbine rifle ranges which last saw action in the 1940s when the Home Guard used them for practice. You can then continue winding your way through old engine houses and chimneys towards Cape Cornwall, or cut back inland towards the village of Botallack.

At Cape Cornwall, you could explore the engine houses, dressing floor and count house, or end your journey at the old chimney stack on the summit of the headland. From here, there are fine views out to sea of the Brisons - reefs that have ripped open the hulls of countless ships over the centuries. To the south, you may be able to make out the Longships Lighthouse and Land's End, and on a clear day may be able to pick out the distant Isles of Scilly, 28 miles away.

Map of the Tin Coast



Cape Cornwall



Trig point near Botallack Head

Answers to Curiosity Questions:

- # What is a beam engine? (A steam engine rocked a beam to pump water from the mine, drive stamps for crushing ore, or operate a whim (winch) for lowering men or goods and also hauling up buckets of ore).
- # What is a dressing floor? (Where tin was broken into small rocks by children and bol maidens. Copper was sorted by hand).
- # What metals are extracted from the following ores: (a) cassiterite? (b) chalcocite? (c) arsenopyrite? ((a) tin; (b) copper; (c) arsenic).
- # What famous American canned food company bought Cape Cornwall for the nation in 1987 to celebrate their centenary? (Heinz Ltd).