



Our mining culture  
shaped your world

## Delve Deeper

# Hayle: Feuding firms forge engineering genius

# Port of Hayle

If you wish to delve deeper into the history of Hayle's links with Cornish Mining then this short guide will provide you with more information.

With its beautiful beaches and peaceful pools, it's hard to believe that Hayle was once a major industrial port. It supported two iron foundries, the rivalry between them fuelling excellence in the design of mining machinery. As a result, some of the largest steam pumping engines in the world came from Hayle.

### A world of water

The town takes its name from Heyl, the old Cornish word for estuary. Look at a map of the town (page 2) and you'll see that it is dominated by water. All along these waterways, you can find evidence of the town's industrial history, from creeks, pools and ponds, to docks, quays and wharves.

### Mining boom drives growth of Hayle

During Cornwall's copper and tin mining boom in the 18th and 19th centuries, Hayle was perfectly placed as a mineral port. The estuary provided shelter and ready access to Welsh smelters. Ore could be shipped to the banks of smelters in south Wales to be turned into copper metal, while Welsh coal was brought back to Hayle to fuel the mining machinery. As the port grew in importance, related industries were attracted to the town.

But it was the arrival of two firms that propelled Hayle into the worldwide engineering market – the Cornish Copper Company and Harvey & Co.

### Thirty years of feuding

Rivalry between the Cornish Copper Company (later Sandys, Carne & Vivian) and Harvey & Co was so bitter and long lived that it was sometimes dubbed 'the thirty years war'. It led to many legal disputes, as well as gang fights and petty sabotage. But it also resulted in fierce competition that drove the two companies to international success.



Royal Standard Inn. Photo: Audio Trails





## FEUDING FIRMS: THE CORNISH COPPER COMPANY

The Cornish Copper Company was the first firm in Cornwall to smelt copper in large quantities, under the title 'Copperhouse Foundry'. After 1819, it concentrated solely on foundry work, manufacturing some of Cornwall's largest and finest steam beam engines.

The company's contracts extended as far afield as Spain, Jamaica, Australia and Russia. Its main achievements included the building of the 'Cornubia', the first true railway locomotive manufactured in Cornwall and built for the Hayle Railway in 1838. It also manufactured chain links for the Hungerford Bridge, Brunel's Royal Albert Bridge across the Tamar, and the Clifton Suspension Bridge.

Although expanding into shipbuilding, the company was severely hit by the decline of local mining fortunes, and it was finally wound up in 1869.

## Working the water

The company enclosed Copperhouse Pool in 1788 (audio track 4). It was used as a storage reservoir to retain water at high tide. This was later released so that the rush of water scoured out the accumulated silt, thereby keeping the shipping channels clear. In Copperhouse, you can still see remains of the company's impressive floating dock, quay and one kilometre long canal.



Photo: Graham Coad

As part of the Hayle Oral History Project, local resident Mervyn Sullivan describes the sluicing:

*'That was a terrifying sight to see, the sluicing. You imagine now, both those sluice gates open – one out from Carnsew Pool and one from Copperhouse Pool. When those two rivers of water met off the end of the weir, a torrent'd go straight into the bay. The water wasn't blue or green, it was yellow with sand.'*



Scoria Blocks. Photo: Audio Trails

## Scoria blocks - early recycling

Many buildings in Hayle are made from scoria, a waste product from the Cornish Copper Company's smelters. The shiny black blocks were given to employees to build their homes. As you explore, look out for them in houses or the retaining walls of Copperhouse Pool and Dock.

## Spot the difference!

Although it's not on the audio tour, you might want to visit Black Bridge in Copperhouse, also built of scoria. You'll notice that one of its arches is bigger than the other. When the first arch had been completed, Parson Hockin of Phillack complained that it was too low. He cited an ancient law that gave him the right to row under the bridge. The second arch was built so that he could go under it in his boat (wearing his hat!).

Today Black Bridge is a perfect place for bird watching. Copperhouse Pool is now owned by the RSPB.



## FEUDING FIRMS: HARVEY AND CO

Harvey and Co supplied pumping engines and equipment to mines worldwide. It constructed the major wharves of Hayle Harbour, built ships and developed a fleet of freight and passenger vessels.

The company began in 1779 as a small iron foundry, established by blacksmith John Harvey. By the 1840s, it employed nearly 1,000 people and was internationally renowned for engineering excellence and innovation. Harvey's also worked with the eminent Cornish engineers Richard Trevithick, Arthur Woolf and William West.

### Harvey's most celebrated engines



Photo: [www.cruquiusmuseum.nl](http://www.cruquiusmuseum.nl)

By the mid 1850s, Harvey's engines were pumping three quarters of London's water supply. It made the beam pumping engines which drained the Severn Tunnel in the 1880s. But perhaps it's most famous engine was that at Cruquius, north Holland, which was used from the early 1840s to pump water from a huge lake. Its 144" diameter cylinder was so massive that when laid on its side, a horse and carriage could be driven through it!

Harvey's engineering works and shipyard were to suffer from steadily falling orders during the latter years of the 19th century and eventually closed in 1903. The audio tour takes you through the heart of Harvey's former empire, passing through the original archway entrance to the foundry (audio track 7).

### Shipping operations

Harvey's Foundry built the first Cornish boiler to be used at sea. It also developed a steam packet service – a fleet of passenger and freight vessels – from Hayle to Bristol and Wales. By 1834, it was building ships of up to 4,000 tons. Carnsew Pool was constructed to sluice out the shipping channels (working in a similar way to Copperhouse Pool to the east). The water needs to flow at four knots to carry sand.



Photo: Cornwall Centre Collection

### One stop shopping

Harvey's had a monopoly over its staff which extended to their leisure time. Workers were paid in company tokens which could only be used in Harvey's Emporium (now Barclays Bank). So there were no other shops in Foundry. In the 1870s, Harvey's were forced by law to allow outside trading. By this time, there was no building space left, so shops were built in the front gardens of houses on Penpol Terrace.

You'll pass these shops on the audio tour (track 6).

## RICHARD TREVITHICK – INSPIRED ENGINEER BUT ERRANT HUSBAND

Hayle's most celebrated engineer was Richard Trevithick. He developed the first high pressure steam engine and the first full-scale railway steam locomotive. He worked at Harvey & Co, and

married into the family.

Trevithick married Jane Harvey, daughter of John Harvey in 1797. He worked at the foundry alongside its other engineers to perfect numerous inventions, which were then manufactured by the company, including his high pressure boiler which was well in advance of anything in the world at the turn of the 19th century.



Photo: Cornwall Centre Collection

However, relations with the family deteriorated after 1816, when Trevithick travelled to Peru to install his high-pressure steam engines, the first practical use of this technology in Latin America. He spent the next 10 years there as a mining consultant. Meanwhile, back in Cornwall, he was accused of neglecting his wife and six children.

To provide a means of financial support for his sister, Henry Harvey built the White Hart Hotel, which later became the Masonic Hall in Foundry Square. The current White Hart Hotel, adjoining, was built by Harvey in 1838 to impress his growing business clientele.

Trevithick's children weren't the only ones that Henry Harvey had to provide for. Records show that he was responsible for 21 children – nine of his own plus 12 nieces and nephews (six of these when his sister and brother in law died in quick succession, and six belonging to the Trevithicks).

## STEAM TRAINS REPLACE MULE TRAIN

In 1758, up to 1,000 mules and packhorses passed through Hayle each day, transporting coal and supplies to the mines and returning laden with copper ore. The search for a more efficient and cost effective transport system led to the establishment of the Hayle Railway.

The line opened in 1837, with its terminus adjoining the present-day Isis Gardens on the seaward side of the viaduct. The route was from Hayle to Redruth, with branches to Portreath, Crofty Mine, North Roskear Mine and Tresavean. In 1852, the new West Cornwall Railway opened from Penzance to Truro, including the Hayle Wharves branch which ran from the present Hayle station to the Quays.

The audio trail follows the route of the branch line, past the unusual ramp embankment designed to decelerate runaway trains (track 3). This is believed to be one of the earliest of its kind in Britain.

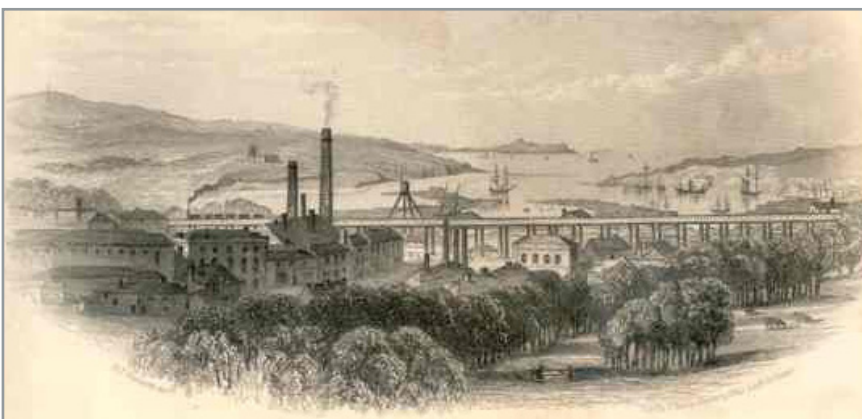


Photo: Cornwall Centre Collection

## Unique viaduct

Hayle's original viaduct was built in 1852 by the West Cornwall Railway. It was designed by Isambard Kingdom Brunel. The viaduct stood for 34 years before being rebuilt with granite supports in 1886. It is said to be the only viaduct in Britain that a main road passes under twice. With 37 spans, the viaduct still carries the main railway line from London to Penzance.



## TO FIND OUT MORE

### Harvey's Foundry Trust

Harvey's Foundry Trust is a charitable organisation based in Hayle, which works to promote Hayle's rich history and turn the nationally important site Harvey's Foundry into a vibrant multi-use centre.

[www.harveysfoundrytrust.org.uk/index.html](http://www.harveysfoundrytrust.org.uk/index.html)

### Hayle Oral History Project

Co-ordinated by Lucy Frears, The Hayle Oral History Project has collected stories and old photographs from the local community and used them to produce a book and archive. 'Churks, Clidgy & Doodle-Dashers Hayle Tales and Trails' is available as a book, multimedia disc or free download. It contains archive photos, memories, expert articles and new historical walks around the Hayle area including St. Erth, the Dynamite Works at Upton Towans, Gwithian Tin Streams, and Godrevy.

<http://hayletaleshome.blogspot.com/>

Hayle Townscape Initiative Heritage Trails

Hayle Discovery Map leaflet and online version - [http://www.haylemap.org/index\\_hayle.html](http://www.haylemap.org/index_hayle.html)

Hayletowncouncil.net

Haylearchive.org

The Hayle Town guide

For more information on Cornish Mining visit [www.cornishmining.org.uk](http://www.cornishmining.org.uk)

## With thanks

The Cornish Mining World Heritage Site thanks Harvey's Foundry Trust volunteers for their help in proofing the information in this guide and the audio trail.