



THE WILKIE COLLINS SOCIETY

Description of the visit by Wilkie Collins to Botallack mine by Pierre Tissot van Patot

Wilkie Collins visited Botallack mine on his walking tour of Cornwall in 1850. He gives a very lively description of his visit in his book *Rambles Beyond Railways*. It is challenging to compare Wilkie Collins's notes of his visit to the Botallack mine with what can still be seen today and to see what is left of what Wilkie Collins saw. Wilkie Collins gave some details but no names. Most of the present day remains of Botallack Mine were constructed after his visit and there is not much left of what Collins saw.

Botallack town is one mile north of St Just in Pendeen, six miles north of Lands End and close to Cape Cornwall. Botallack mine is situated northwest of Botallack town, between the small town and the sea and covers an area of one square mile. The Levant Mine and the Geever Tin Mine were just to the north and only a few minutes walk away.

Geological structure

The country rock is granite, overlain to the northwest (seawards) by the altered killas and greenstones. Inland, granite can be found at the surface. Close to the sea, only the altered killas and greenstones lie on the surface. The ore is found in vertical lodes that run mostly from SE to NW, so the lodes are crossing the coastline almost at a right angle into the ocean. The richest ore pockets are mostly found at the contact zone between the granite and the other materials. Further under the sea, to the north-west, this contact zone goes deeper. Close to the surface more copper is found: the richest tin pockets are found deeper.

Short history of Botallack mine.

Mining started very early in Cornwall with exports of tin to Southern Europe where it was needed to make bronze. Local mining in this area (either streaming or underground working) probably began as early as 300 BC. Tin was more difficult to find than copper and was essential for the Bronze Age economy. The prehistoric forts in the area were used to defend this rich mining area. Kendidjack Cliff Castle was a fort between Botallack and Cape Cornwall. Chun Castle was a few miles to the north-

east of Botallack, more inland on a high hill. Not much is left today of these old forts and Wilkie Collins did not mention these.

The remains of many small shafts that were developed by hand before 1700 can still be found near Botallack. These old mines were very small with only a few miners who worked only the shallow parts of the lodes. They could not pump away the water and close to the sea there is always a lot of groundwater in this area. The shafts close to the sea could sometimes use a natural drainage system in the upper levels to keep them dry. All labour was carried out by hand since explosives were not yet invented. The men had to work very hard, the work was very dangerous with insufficient support for the gangs and almost no ventilation. Only the lucky few made more than a mere living out of it. Farming must also have been very hard work in this area. The remains of a recently discovered small mine are now used in the exhibition of the nearby Geever Tin Mine Museum to allow visitors to see an old underground mine. All deeper mines in this area are flooded since they stopped pumping out the water. This small, old mine does not really give a good impression of an active mine in 1850 but is still interesting to visit.

The history of Botallack mine started in 1721 when the mining rights were granted by the Boscawen family. Between 1793 and 1813, £100,000 worth of ore was produced. Between 1814 and 1835, £53,000 of ore was produced. The steam engine that had been in use before 1816 was replaced with a more efficient one. The introduction of the steam engines and the nearby coal mines in Wales were very important for the development of tin and copper mining in Cornwall. They made deeper and more efficient mines possible. Before 1835 most of the shallow lodes of Botallack mine had been excavated and were exhausted. The proprietors thought of abandoning the mine and closed it in 1835.

In 1835 Stephen Harvey James organized a new company that took over the old mining works and started working it again in 1836. James became purser and manager of the new company. He kept that job until his death in 1870 although Wilkie Collins did not record meeting him.

The first few years were difficult for the new company, with not much tin or copper being produced. Until 1841 only £2,050 copper ore had been sold and in November 1841 the mine was almost closed again because they had been losing money every year since the reopening in 1836. But a few months later the mine was producing large quantities of copper. They had struck a few very rich copper lodes and made a profit of £24,000 in 12 months. The next few years were the most profitable in the long history of the mine. With today's modern techniques it is possible to sample the ore and to know where ore with good quality can be found. In the 19th century they

could only follow the lodes and pray that there would be ore left. A rich lode could dry up within a few meters or could be missed altogether because it started very poor and small.

In 1850 when Wilkie Collins visited the mine, these rich ore pockets were exhausted. £1,500 in three quarterly dividends was paid that year. Mines in Cornwall paid out all profits directly to the shareholders so that there was no capital as a buffer to pay for new investments in years when the mine was losing money. The prices of the tin and copper concentrates were not very stable. The quantities produced depended on the finding of rich ore pockets. The mine income was therefore very unstable and the shareholders had to pay for new investments in many quarters.

Boscawen Shaft

In 1838 the mine was 80 fathoms deep (480 feet). In 1851 they were working at the 150 fathoms level (900 feet) and in 1855 the shafts had reached the 200 fathoms (1,200 feet). In 1858 the new diagonal Boscawen shaft was sunk. The quantity of ore produced increased, but the quality declined. Modern mining techniques made it possible to work more cheaply and remain viable with greater quantities of lower grade ore. The deeper, rich ore pockets where the granite meets the killas and greenstones were situated further out under the sea. It was easier to reach these ore pockets by a diagonal shaft, especially since the newly installed underground tramway in this new shaft made it easier for the miners to descend and ascend to the deeper levels and to bring the ore to the surface.

Botallack became famous with the visit of the Prince of Wales and Princess Alexandra to the mine on Monday 24 July 1865. They went down in the tramway to the 205 fathom level in the diagonal Boscawen shaft, much deeper than Wilkie Collins had gone some years earlier. After the Royal visit Botallack mine became a tourist attraction. They even had to ask an entry fee because all these visits disrupted the production.

The shafts at Botallack mine were not sunk as deep as in the neighbouring Levant mine, situated just to the north. It is very likely that a large amount of ore could still be found in these lodes today.

Imports of tin and copper from other mining areas at the end of the 19th Century caused a drop in prices. Botallack closed in 1895 after losing money for several years. After 1895 the old tailings were reworked for 10 years to extract the tin and copper that had been left behind. The mine was reopened in 1910, when ore prices had risen again but after a further fall in the price of copper the mine was finally forced to close in 1914. These last few years were not very profitable.

Wilkie Collins

'The counting-house was built on a projection of earth about midway between the top of the cliff and the sea.'

The old counting house was on the track down to the Crowns, but when the dressing floors were expanded in the 1860s a new office was built next to the track from Botallack to Levant. The area of the old counting house was used for expansion of the ore treatment plant and the building was demolished.

Wilkie Collins went down in the Crowns shaft. Currently there are the remains of two engine houses at the cliff near sea level. The lower engine house was constructed with the diagonal Boscawen shaft in 1858. Wilkie Collins saw only the upper engine house and went underground in a shaft close to it. The upper of the two engine houses was constructed around 1835 for a pumping engine. The lower engine house was used for the winding engine of the Boscawen shaft.

'We left the counting-house, and ascended the face of the cliff. Then, walked a short distance along the edge, descended a little again, and stopped at a wooden platform built across a deep gully. Here, the miner pulled up a trap-door, and disclosed a perpendicular ladder leading down to a black hole, like the opening of a chimney. "This is the shaft; I will go down first, to catch you in case you tumble; follow me and hold tight," saying this, our friend squeezed himself through the trap-door, and we went after him as we had been bidden.'

The present day counting house was constructed on top of the cliff in 1865, several years after Collins's visit. It was recently restored by the National Trust and is now an information center.

'The process of getting down the ladders was not very pleasant. They were all quite perpendicular, the rounds were placed at irregular distances, were many of them much worn away, and were slippery with water and copper-ooze. Add to this, the narrowness of the shaft, the dripping wet rock shutting you in, as it were, all round your back and sides against the ladder - the fathomless-looking darkness beneath - the light flaring immediately above you, as if your head was on fire - the voice of the miner below, rumbling away in dull echoes lower and lower into the bowels of the earth - the consciousness that if the rounds of the ladder broke, you might fall down a thousand feet or so of narrow tunnel in a moment - imagine all this, and you may easily realize what are the first impressions produced by a descent into a Cornish mine.'

The wooden platform is gone now. The shaft is probably still there but it is very dangerous to descend now. Even if the old wooden ladders are still in place it would be too dangerous to use them. Opening old coal mines would be too dangerous. These old tin and copper mines could be reopened but it would be very expensive. The old shafts and the levels are still open since the surrounding rock is very strong. But the old wooden structures like the ladders and the platforms are not very safe after such a long time. And the whole mine is flooded.

'Having lighted our candles he stuck them against the front of our hats with the clay – in order, as he said, to leave both our hands free to us to use as we liked.'

At that time, light in the mine came from candles. These were paid for by the miners and deducted from their wages. The underground tunnels must have been very dark since it would have been expensive to pay for many candles. The miners also had to pay for their own explosives and other materials. The mining companies were making a good profit on these materials since they had a monopoly.

It was still necessary in Collins's time to ascend and descend using the ladder which was both very hazardous and hard work. It was only after the construction of the Boscawen shaft and the use of the tramway that the ladders became superfluous.

'We are now four hundred yards out, under the bottom of the sea; and twenty fathoms or a hundred and twenty feet below the sea level. Coast-trade vessels are sailing over our heads. Two hundred and forty feet beneath us men are at work, and there are galleries deeper yet, even below that!'

Wilkie Collins went down to the 70 fathoms level. There were main levels at 60 and 85 fathoms. On the map, the 70 fathom level looks very small. The main production level was at 150 fathoms in 1851. Wilkie Collins only saw a part of the mine that was no longer productive. Visiting a working part of the mine would have been dangerous both for Collins and for the miners. It could also have disrupted the production.

In the 19th century Open Stopping mining was used in many of the deeper mines of Cornwall. In this process, the ore in the pockets is broken and extracted from the lower production levels where most activities are concentrated and where the preparation of future levels is prepared. The upper levels are mainly used for the ventilation. This type of mining is only possible because the surrounding rock is strong enough to support the open spaces. No artificial support is needed in the open spaces. Collins would not have seen anything of these activities since he did not go deep enough.

‘Botallack is a copper mine but tin and occasionally iron are found in it as well.’

‘In former times, it produced enormous profits to the speculators; but now the case has altered. The price of copper had fallen of late years; the lodes have proven to be neither so rich nor so extensive, as at past periods; and the mine, when we visited Cornwall, had failed to pay the expenses of working it.’

Over the complete history of Botallack mine, tin was the largest source of income. Wilkie Collins probably called Botallack a copper mine because copper was the predominant source at that time.

In most mines in Cornwall, not only were tin and copper found but also arsenic. Arsenic was not sold at Botallack until 1875 and was never a main product. But the arsenic in the tailings of Botallack mine polluted the area. This is still an environmental problem and no farming is possible.

Wilkie Collins also mentions iron. This is a very common and cheap metal. It cannot be produced unless it is found in a large concentrate. Here it only makes the mining costs higher.

Ore sold from Botallack from 1836 – 1895

Tin ores	£829,664
Copper	£220,701
Arsenic	£6,481

‘Immense wealth of metal is contained in the roof of this gallery, throughout its whole length; but it remains, and will always remain, untouched. The miners dare not take it, for it is part of the rock which forms their only protection against the sea.’

At the end of the lode, close to the sea, a little ore has to remain. When the Geever Tin mine tried to expand to the South in the 1960s they started pumping the water out of the old Levant mine. They found that the water level was going up and down with the tide. They had to close the leak with concrete before they could get the old mine dry again. The safety wall had given way after the Levant mine was closed because the miners should have left more ore. The Levant mine was situated between Botallack mine and the Geever tin mine. The roof of the galleries that had to remain was formed by the killas and greenstones. This is not where the richest ore pockets were found so that leaving this material was not too expensive.

‘Although the occupation of smelting the copper above ground is, as may well be imagined, unhealthy enough, the labour of getting it from the mine, seems to be

attended by no bad effect on the constitution. The miners are a fine-looking race of men - strong and well proportioned'

'Serious accidents are rare in the mines of Cornwall'

Wilkie Collins was very optimistic about the working conditions because the mines were in fact extremely dangerous. There were no coal dust explosions as in coal mining, but the explosives used at that time were still very unstable and dangerous. It was not uncommon to have premature or late explosions. There was no good ventilation system in most parts of the mine and the air was very unhealthy to breathe. Fine stone dust particles were very bad for the miners' health as was the dust from the frequent blasting. Silicosis must have been a common disease if the miners lived long enough. Also the climbing of the ladders at the end of a long working was very hard. Heart failures of miners climbing the ladders were not uncommon. Many miners died very young especially since they started working underground as boys at a very young age. All miners took a young boy down with them to help underground and they started working when 10 years old. These lines of Wilkie Collins are more like a fairytale.

'Two or three causes concur to make us doubt the wisdom of going lower. There is a hot, moist, sickly vapour floating about us, which becomes more oppressive every moment; we are already perspiring at every pore, as we were told we should.'

'We ask the miner what is there to see lower down. He replies, nothing but the men breaking ore with pickaxes; the galleries of the mine are alike, however deep you may go; when you have seen one you have seen all.'

Wilkie Collins did not like the climate underground during his own visit and was very happy to return to the surface. This rather contradicts his description of the healthy underground environment for the miners.

The average life expectancy in St Geer dropped from 45 years in 1830 when a mine was opened there to 22 in 1860. One out of five miners died from an accident.

'As we neared the mouth of the shaft, the daylight atmosphere looked dazzlingly white, after the darkness in which we had been groping so long; and when we once more stood out on the cliff, we felt a cold, health-giving purity in the sea-breeze, and, at the same time a sense of recovered freedom in the power that we now enjoyed of running, jumping, and stretching our limbs in perfect security and with full space for action, which it was almost a new sensation to experience. Habit teaches us to think little of the light and air that we live and breathe in, or, at most, to view them only as the ordinary conditions of our being. To find out that they are more than this, that they

are a luxury as well as a necessity of life, go down into a mine, and compare what you can exist in there, with what you do exist in, on upper earth!'

These words of Wilkie Collins showed that he was very happy to return to the surface after his experience. He does not tell how long they had been underground but it was probably less than two hours since he did not descend very far.

Collins hardly mentions what he saw above ground where at all mining sites there is a great deal of activity going on. Producing the ore concentrates was very labour intensive work. The ore had to be broken and upgraded to get the required concentrates. The actual tin and copper was not produced at the mining site.

The privately organized Carn Brea Mining Society restored part of the Botallack mine site. The Crown's engine houses were restored in 1984 and 1985. The Society is still very active today and is continuing with the restoration and survey work. The site is now owned by the National Trust.

References

Botallack, Cyril Noall, Bradford Barton, 1972.
Rambles Beyond Railways, Wilkie Collins, 1982 edition.

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