

## Digging into metal mining

### Mineralisation and Mining (1850-1900)

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An ore is a rock that contains concentrations of minerals suitable for mining and processing into an economically valuable product. The formation of ore is called ore genesis. This is often the result of hydrothermal fluids bringing up elements from deep within the Earth and concentrating them into a mineral deposit near the surface. Metals ores are generally found as oxides, sulphides or silicates, which include a concentration of metal-rich minerals along with other minerals which have no economic value, although sometimes noble metals such as gold will be found in a state which does not require processing. Often metal ores are related and mines will yield more than one product.

There is much archaeological evidence to show that metal ores have been mined from mineral veins since Roman Times and even earlier. These early miners would have used hand tools to excavate the ore minerals from surface pits or shallow shafts with short adit levels. However, with advances in mechanisation mines grew deeper and ore production increased. The revolution in mining came with the introduction of steam power in the early eighteenth century. Steam powered pumping engines meant that deep excavations were now possible as mines could be kept dry and ore could be brought up by mechanical means. The advancement of the railways also meant that ore could be transported from places that were previously difficult to access. The middle part of the nineteenth century was the heyday of steam power and this coincided with the heyday of many metalliferous mining areas in Britain.

Due to its varied geology and geological history Britain had many mining areas producing a range of different metals. The main metals produced included lead, zinc, silver, copper and tin. Other subsidiary metals/metalloids included iron, manganese, arsenic and tungsten.

During the nineteenth century mining was active in Wales, the Pennines, Cumbria, the Durham area, the Mendips and South West England. South West England was a world renowned mining area at this time and produced a substantial amount of tin and copper, along with lead, zinc, arsenic and many other metals and minerals. As well as being a significant producer this region also supplied many good examples and rare specimens of minerals that were shipped to mineral collectors and museums around the world.

Many British metalliferous mines record the most profitable years as being during the 1850's to 1860's when production was good due to the advances in mechanisation, and the price of the ore was steady and high. However, during the late 1870's the prices of all metal ores were falling drastically, mainly due to the opening of huge Australian and American mines, which caused a glut in the market. This created a crisis within the British mining industry.

Many of the smaller, less profitable mines were eventually forced to close and the miners were left to find other work. Some of the miners from the mid-Wales orefields

travelled south to find work in the more profitable coalfields of the South Wales valleys. Inevitably it was only the largest and richest mines that survived the slump, which lasted through into the twentieth century, and even these were forced to cut costs and look at the most efficient ways of working to extract and process the ore.

Overall, the latter part of the nineteenth century saw the boom and then the gradual disintegration of the British metalliferous mining industry, which would never again experience the same prosperity.