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The Welsh Internationalist



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The Rebirth of an Industry — Copper from Parys

S.J.S. Hughes

The author is a mining historian. Amongst his publications are *The Cwmystwyth Mine* (1981) and *The Goginan Mine* (1988) in the series British Mining.

*Lewis Morris, Crown Steward of the Cardiganshire mines.

Properly called Mynydd Trysglwyn, "Parys Mountain" was a title bestowed on this hill to the south of Amlwch, Ynys Môn, after it was awarded to Robert Parys in 1406 for his assistance in quelling the Owain Glyndŵr rebellion. Certainly by this date there had been Roman exploitation of the copper deposits, as is evident by their cakes of metal found across the island. It would not be surprising if the site had been worked during the middle Bronze Age some 1500 years before the Romans reached our shores. Some minor interests during the sixteenth and seventeenth centuries all dwindled into insignificance after a few years and nothing came of these efforts until a Scotsman named Alexander Frazer, an employee of Sir Nicholas Bayly of the Plas Newydd Estate, discovered copper ore at Cerrig y Bleiddia farm. William Morris, brother of Llewelyn Ddu,* worked in partnership with Frazer at the Rhosymynach Mine and directed his partner to what he suspected were ancient workings on Parys Mountain. The Hughes family of the Llys Dulas Estate wholly owned Rhosymynach and held a half share in the Parys Mine. The other half of the title to Parys was held by Nicholas Bayly of Plas Newydd who also held sole ownership of the land around Cerrig y Bleiddia that was later to become the Mona Mine. Allegedly, on 2 March, 1768, Jonathan Roose made a great discovery of ore at Parys and set the wheels in motion for litigation between Bayly and Hughes. For many years there was the tradition of keeping this day as a festival in celebration of the discovery, but it appears to have been forgotten during the latter half of the nineteenth century.

Bayly, who had been working the Cerrig y Bleiddia Mine, started mining the deposit on the ground which he co-owned with the Hugheses at the time of the great discovery; however, despite being a co-owner he had no authority to commence mining. Edward

Hughes took exception to the encroachment and engaged Thomas Williams of Llanidan as his solicitor to resolve the problem. Ideally, the site should have been worked as a single venture but neither party was prepared to allow this and a multitude of Hughes vs. Bayly cases were dragged through the courts for several years much to the detriment of the mines.

Bayly eventually decided to lease his part of the mine and found an eager party in John Dawes, a wealthy London banker. A 21-year lease was granted to him on 12 November, 1778. Dawes immediately joined Hughes and Thomas Williams in forming the Parys Mine Co. so that the whole of the mountain could be properly worked as a single mine. Thomas Pennant visited the mine in that year and declared it to be "the most considerable body of copper ever known." The act of consolidation at a time of rising copper prices put the company in a strong position. Naval requirements for copper sheathing frequently exceeded supply and the eventual strategic demand for cladding warships during the Napoleonic Wars made the power of the company quite awesome. Williams took control of the company in about 1786 and then conspired with the Vivians of Cornwall to form a monopoly of the copper trade from 1787-1792. This was effectively a licence to print money and on account of the power which he controlled he was dubbed "The Copper King". To his miners he was known as "Twm Chwarae Teg" on account of his kindly disposition to the working classes.

During the years of this monopoly the Parys-Mona mine complex became the largest copper mine in the world where a staff of 1200 regularly produced in excess of 40,000 tons of copper ore. In order to produce this quantity of ore an even greater, though unrecorded, quantity of rock was blasted loose and the annual consumption of black powder rose to over 8 tons. The whole of the rock from the mine was then hand sorted and reduced in size by "ledis copper" armed with iron mallets. On average the ore contained 5-10 per cent of metallic copper but a higher grade was obtained from copper precipitates.

It had long been known that the water which drained from the mines contained a quantity of dissolved copper, about 70 parts per million, from which about 50 ppm (0.005 per cent) could be recovered by passing the pregnant solution over pits filled with scrap iron. The transmutation which took place resulted in a precipitate sludge which contained 20-30 per cent metallic copper. In 1799 Thomas Williams stated that the water which drained out of the workings contained 6d worth of copper in every gallon.

The workings had started as open-cast pits but soon the miners began burrowing underground, by 1790 about a million tons of rock had been extracted without any attention to the consequence of not supporting the excavation and a series of huge rockfalls started in

Parys in that year and later spread east to the Mona Mine.

After the death of Thomas Williams in 1802 the mines fell into a neglected state for want of a spirited adventurer. This was reflected in the decline of employment from 207 persons in 1806 to 122 by 1808.

In 1811, Lord Uxbridge (a descendant of the Baylys, later to become the Marquises of Anglesey) and the Vivians came to terms with the Rev. Edward Hughes of Llys Dulas and formed The New Mona Mine Company. Their manager was a Cornishman named James Treweek. Under the Cornish system of mining all key personnel received nautical titles such as steward or purser. Managers and deputies received the title of captain and Treweek was no exception. In his first year at Mona 383 tons of ore were raised and by 1815 output had escalated to over six-and-a-half thousand tons, though this was but a pale shadow of what Williams had achieved. Treweek also granted a monopoly of the haulage to William Hughes of Madyn Dysw who had undertaken not to desert the work during the harvest. William Hughes was granted this monopoly in 1811 and his sons, John and William, continued the business in the same form until Captain Treweek died in 1851. The monopoly caused something of a stir within the company as Treweek's son had married a daughter of Hughes's and it was felt that the work could have been done more cheaply by bidding. This was done after Treweek's death but John and William Hughes submitted the lowest bids for some years, before retiring to the Llangefni area to enjoy the fruits of their lucrative labour. John Hughes returned to the mine occasionally to stand in for the purser (whilst he returned to Cornwall to visit his family), who was responsible for the day to day financing and book keeping. William Senior appears to have been my great-great grandfather.

During the mid nineteenth century the firm of John Taylor & Son took over the management of the mines and extended the network of shafts and levels to a depth of over 900 feet below the surface. Apart from the four major veins, a further eight were being exploited in various parts of the mine. The whole mountain was honeycombed and this allowed an ever increasing quantity of water to percolate into the workings. Whilst this was highly undesirable, as it increased the cost of pumping, it was not without some benefit since the cupiferous waters were then ducted along the Dyffryn Adda adit to be stripped of copper by the precipitation process. Some of the duty of clearing the water was done by a windmill as can be seen in the watercolour by J. "Warwick" Smith of the Mona Mine in 1790. The remains of the windmill, still visible near Cairn's Shaft, date from 1878. It was used to assist a steam engine in operating the pumps and was of an unusual design in that it carried five sails.*

As the mine got deeper so the profits started falling and when the highgrade ore had been taken away there was little alternative but to

*A photograph from the 1920s of the abandoned structure is reproduced in C.J. Williams, *Metal Mines of North Wales* (1980).

cease mining. Parys Mine closed in 1871 and was followed by the Mona Mine in 1883. To the west of the Parys Mine an attempt was made at exploiting the Morfa Ddu mine in 1881 but this had petered out by 1904. The precipitate plant continued to work until the end of the Great War when Rhosymynach was briefly re-assessed but dismissed.

During a century and a half the mountain is estimated to have yielded 3.5 million tons of ore from which 130,000 tons of metallic copper were recovered and the quantity of precipitate recovered amounted to 19,000 tons.

It is important to realise that when the mine was abandoned it was not for want of ore, it was merely a case of not being able to mine ore that contained less than 3.6 per cent metallic copper and make a profit. By 1955 Anglesey Mining Exploration, later absorbed into the New Consolidated Goldfields Co., thought that mining economics and techniques had changed sufficiently to make the re-working of the Parys Mountain mines a viable proposition. W. Manning was appointed as the engineer in charge and spirits ran high with optimism that the good days would soon return again. The geology was studied closely and some of the workings were opened to permit a sampling programme, a geophysical anomaly was detected to the west of the Great Pit and a proposal to de-water the mine was being considered. Manning was of the opinion that there was no shortage of ore providing that the price of copper was sufficiently high to enable these grades to be mined. He also estimated that 3.5 million tons of 4.5 per cent copper ore had been taken out of the top of the orebody and that there was no reason to suspect that the next 1000 feet would differ greatly.

Since the company relinquished their licences in 1957, a string of ten companies have continued this interest and have conducted drilling investigations to the value of about £1.5m. The local community's hopes have been raised several times, before being dashed to pieces once again; but at the signing of every new lease the prospect came closer to fruition.

In 1985 the Imperial Metals Corporation, a Canadian firm with gold mining interests in Mexico and Nevada, drilled ten holes to the west of the Great Pit as part of the final investigation of the White Rock and Engine ore zones. Based on the results of these and the previous 134 holes, their engineers felt that it was warranted to form Anglesey Mining PLC to carry the exploration through to exploitation as part of their corporate plan to enter into the European metal market. By June, 1988, a handsome prospectus was issued to allow the public to vet thirty years of investigation: 5.28 million tons of polymetallic ore containing 6 per cent zinc, 3 per cent lead, 1.5 per cent copper and a hint of silver. It is proposed to extract the ore at the

rate of 400,000 tons per annum thus giving the mine a lifespan of less than fourteen years. Kleinwort Grievson Securities raised the £4.5m necessary to fund phase 1 of the project which included the sinking of a new shaft to 420 metres (1380ft) to permit final definition of the orebody prior to mining. Phase 2 of the project will include the construction of the plant and final underground development at a cost of a further £13.9m.

To date, phase 1 is on schedule and budget, and into the bargain has come upon a lucky find of ore during the sinking of the shaft. 35 staff are employed at present but this is likely to increase to 150 in 1992 providing that all goes well. Further buoyancy has been given by the upsurge in the price of zinc since the formation of the company. A rapid analysis of the figures presented show that the mine will produce over £50m worth of various metals per annum, however the value of the ore will be less on account of it being unrefined. Anglesey Mining PLC will receive less than half this sum for its annual concentrate sales, providing that prices remain stable. We are informed that the mine will have a low operating cost, but no figures have been hypothesized that I am aware of. Less than £25 per ton would be a reasonable figure for mining and milling costs and is slightly below operating costs of a Cornish tin mine. The cost of producing the ore is therefore likely to be in the region of £10m per annum. Even if we add on the annual £4m wages bill there seems to be sufficient margin to pay up to £3m in dividends as has been predicted.

Metal prices will no doubt increase at a greater rate than inflation and as the mine is opened up, further reserves are likely to be discovered. These will have the effect of lengthening life-span rather than increasing output. Should Parys Mountain flourish it will no doubt prompt a revival at the neighbouring Rhosymynach Mine to the east where there is potential for deepening the old workings, and indeed there are a dozen others in Wales which are worthy of re-examination if Parys succeeds.

The paintings reproduced on our covers represent the mines at Mynydd Trysglwyn.



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M WYNGLODDIC
AGORED.