

THE MINES OF CORNWALL AND WALES

5 September 1835

A correspondent has furnished us with a journal kept by him while on a tour to inspect the mines and smelting-works of Cornwall and Wales, from which we make the following extracts. The articles on the Mineral Kingdom in former numbers of the *Penny Magazine* will have prepared many of its readers to be interested in the following passages, which sometimes refer to places and processes more fully described in those articles.

Breaking Iron Ore—Eight miles from Falmouth are the Tresevean and Consols copper-mines; both are of great extent, the latter occupying an area of two miles and employing 2,200 persons. The surrounding country presents to view one vast scene of works, with a multitude of houses or cottages scattered in every direction, and denoting a considerable population. We occupied some hours in observing the mode of raising the ore, and also the manner in which it is broken or crushed: the process is extremely simple. The larger pieces or blocks are broken with hammers by women, called “Bal Maidens,” many of whom are very good-looking; but they seemed to require warmer clothing, and must find their occupation painful and tiresome; they were all without stays. When thus reduced to a small size, the ore is crushed by mills, and then smelted.

Submarine Mines—Near the Land’s End is a remarkable mine, now no longer worked, at the base of the cliffs, and extending some way under the sea. To show the fearless intrepidity of the miners, I need only state that they blasted the rock upwards till they reached within two feet of the bed of the ocean, and this they ascertained by boring through the rock with an auger. The fracas caused by the stones overhead when set in motion by the waves, was represented as quite astounding. The Levant Mine, not very far from this, was equally singular in respect of situation, the cliffs rising from 150 to 250 feet, and being so nearly perpendicular, that ladders are necessary to enable the miners to descend to the shaft. When the wind is high they are compelled to use great caution, for where there are no ladders the path is bad and slippery: it was a curious sight to observe the workmen emerge from the entrance, as they reminded us strongly of so many ants quitting their dark abodes. This, as well as the other mines in the neighbourhood, contains copper, iron, tin, &c. Its entire depth is stated at 170 fathoms, and it extends directly under the sea. As my fellow-travelers were otherwise engaged, I entered it alone, but there was little to excite attention, except the bursting of a boiler belonging to the steam-engine used for pumping, &c, previous to my descent, and a great rushing in of salt water while I was below. The quantity of water that continually flowed in by numerous crevices surprised me, as I could not conceive how an engine of no great power could keep the mine dry enough to admit of the people working. The way in which the guides here, and on this coast generally, approach the edge of a cliff, evinces great nerve, for they will stand on the margin of a formidable precipice, and from it regard the scene around with as much *sang froid* as if the height were only a few feet instead of being perhaps 200. But occasionally they pay by a dreadful death the penalty of their recklessness; and not unfrequently five or six are killed within the year.

Descending a Shaft—Twelve miles from the above place is Huel Vor, a tin-mine, into which we descended 1,200 feet; an affair of no trivial exertion, as the iron ladders were quite vertical, and their steps a foot asunder. The machinery for clearing the mine from water was in the same shaft, which rendered it necessary to use caution lest our dresses should be caught by the enormous rods, as an accident of this kind would have consigned one, a mangled corpse, to the bottom of the abyss. It is to be hoped that some plan will eventually be adopted to enable the miners to ascend and descend by a machine, instead of being compelled to undergo the violent labour caused by the present mode; for after six hours of hard work below, the additional exercise of an hour’s climbing by such a series of upright ladders, as it were, up a large chimney, is so exhausting, that the health of the people is injured, and the term of their existence shortened. The rushing of water and noise of the machinery, which it may be easily conceived is on a stupendous scale when I state that it raises water from a depth of 1,250 feet, together with the reverberation of the reports caused by the blasting of the rock, had an extremely awful effect.

Superstitions of Miners—Some of the superstitions of miners are curious, and it would be amusing to discover their origin. In Cornwall, for instance, no person is permitted to whistle while beneath the surface, though he may sing as much as he pleases: such is likewise the case in Mexico. In the former also a miner never says of one being precipitated down a shaft, &c., that he was killed, the expression he fell away being invariably substituted; and in Worcestershire, when an accident attended with death occurs, not a person employed in the pit or mine will work there until the body has been consigned to the grave.

Dangers in Smelting—At Nant y Glo (Wales) we had an opportunity of witnessing the effect produced by the numerous fires at night; and certainly the pitchy darkness was such, that we could not have chosen a more fitting

time. The strong variations of light and shade, as the bright flames from the furnaces rose and sunk, with the intense glare of the fluid metal, produced an appearance which might almost have justified a spectator in fancying himself in Pandemonium. It is in vain to attempt to convey even the remotest idea of this cyclopean scene by description. A large quantity of the iron ran into a mould, the bottom of which happened to be wet; and the moisture being instantly converted into steam, an explosion took place, by which the metal was thrown nearly to the roof of the lofty building, from whence it descended in a fiery shower, somewhat alarming to those unaccustomed to this kind of firework. But the most singular circumstance that presented itself to our notice was the fused iron flowing under water, which thus occurred:--To each furnace there are two orifices, one of which is kept closed until the metal is sufficiently fused to be run out into the moulds, the other is for the pipe or nozzle of the bellows. Upon the latter a small stream of water is allowed to fall to prevent it from becoming red hot, and the waste forms a pool. Now, in consequence of the man appointed to tap the furnace at the proper time having neglected to do so, the iron boiled up and run out from behind, beneath the water, which I considered so curious a phenomenon that I called my companions to see it. Luckily a workman observed it also, and desired us to quit the spot immediately, which we did without waiting to inquire the reason. It seems the same circumstance had happened no long before, when a violent ebullition was the consequence, and one man was entirely deprived of his sight by the heated water being thrown with force into his face.

Another way of Descending a Shaft—There was nothing particularly worth noticing in the appearance of the mine at Merthyr Tydvil; but we descended one shaft in a way I had not previously seen, and it may perhaps be as well to describe it. Let the reader imagine two large iron tubs secured to a strong chain, in the manner of draw-buckets, one being drawn up as the other descends, and worked in the following ingenious though simple mode. On each tub is a frame for a cart to rest upon, and we will now suppose that it is required to raise up a load of coals; to accomplish this a cock is turned, and the upper tub becomes rapidly filled with water, which, by counterbalancing the weight below, descends, and of course the coals are drawn up. As soon as the tub comes in contact with the bottom of the shaft a valve opens which lets out the water, and the empty cart sent down is replaced by a full one. In this way we descended thirty-five yards in twenty-one seconds; and it was our intention to have returned similarly, but the chain happening to break, the whole apparatus came down with a tremendous crash, and greatly damaged the walls of the shaft. Fortunately no person was in the way at the moment.

Effects of Copper Works near Swansea—The fumes of the copper blight vegetation, cover the glass of the windows with an efflorescence which prevents one from seeing through it, and impart a melancholy and forbidding aspect to the country; and this is greatly increased by the dense volumes of smoke which rise in every direction. Mr. Vivian (the proprietor of very extensive works in this district) has judiciously erected his house beyond the influence of these fumes, as it is four miles from the works, which are concealed by intervening eminences.

Inclination of Buildings in a Mining District—Our correspondent having concluded his researches in Wales, crossed the Bristol Channel, and proceeded to Wolverhampton. The account then proceeds: A week spent at Ettingshall Park afforded me an opportunity of exploring the works and mines of coal and iron in this neighbourhood. I observed nothing very different from what I had previously seen, except that the houses and stacks, or chimneys, of the steam-engines used for clearing mines of water or raising ore, often sloped in a manner that could hardly fail to cause apprehension in a spectator, who, from not being aware of the cause, naturally imagines it impossible that they can long maintain such an apparently unstable position. The reason of the inclination so frequently observed is the sinking in of the ground owing to the excavations made in searching for coal, &c. These being carried under, the buildings sometimes gradually fall in; and I was informed that a family, on rising one morning, found that their habitation had sunk considerably at one end, though it still remained uninjured.

Our correspondent, in conclusion, speaks highly of the amusement and instruction he received during his journey, and warmly recommends a similar excursion to those who have the requisite means and leisure.