

worked in those parts, where it is rendered rich by the junction with veins; the small veins are also worked for ore, and are very productive. The rock is what is called a free or soft killas, near the great cross course or vein; but further from it, it becomes a hard blue elvan (*flinty slate*.) The width of the vein varies from nine to twelve feet. It contains grey copper ore of a rich quality. Sometimes the sides of the vein are copper ore, and the middle is tin ore, as represented Plate VII. fig. 7. *c c*, which is a vertical section of part of the vein; fig. 6. is a horizontal section of the cross course and veins. The master of the mine furnished me with the above particulars; and under his direction, I made, on the spot, the two rough sections, which will serve to convey a better notion of this singular metallic repository, than can be obtained by verbal description.

Nor should it be omitted, that the entrance of this mine is at the foot of a precipice more than 200 feet in height, on the border of the Atlantic Ocean, and the workings of the mine extend two hundred and thirty yards under the sea. From this submarine recess I saw rise up, one of the best-formed and noblest-looking men I ever beheld,—a perfect model for the Apollo of a sculptor.

Particular metallic ores are peculiar to certain rocks. Thus, tin ore occurs in granite and some kinds of slate, but has never been found in limestone. Certain ores are not unfrequently associated together: thus, lead and zinc often occur in the same vein, but in different proportions. The same metal in various combinations is often found in one vein: thus, native copper, sulphuret of copper, carbonate of copper or malachite, sulphate of copper or blue vitriol, and copper combined with lead and iron, frequently occur together in the same mine.

Galena, a sulphuret of lead, is often associated with white lead ore, or carbonate of lead. The latter, though a rich ore containing seventy per cent. of lead, has no metallic appearance, and was mistaken for cawk, and thrown away, by the miners in Derbyshire, until the year 1803 or 1804. The mines of that county have been worked ever since the time of the Emperor Adrian, and the quantity of ore which has been wasted during that period must have been immense.*

* In 1810, few of the working miners could distinguish compact white lead ore, from cawk or sulphate of barytes; their specific gravity and appearance are not very different. The following test is of easy application, and will serve to discover the presence of lead:—If a small quantity of flowers of sulphur, mixed with a little potash or soda, be melted on the point of a knife, in a candle, and applied to the moistened surface of the stone, it will make a black spot if the mineral contains white lead ore.

The native carbonate of lead readily dissolves in dilute nitric acid, with effervescence, and it promptly yields metallic lead under the blowpipe on charcoal.—
B. S.