

**III.—Notes on the Coast West of Penzance, and
on the structure of the Scilly Islands.**

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THE granitic veins which traverse the Killas of Cornwall, have been often noticed as among the most interesting geological phenomena of this district. I beg to call the attention of the Society to one remarkable instance. A little south of the pier at the village of Mousehole, and about three miles S.W. from Penzance, the clay slate ceases and the granite commences, forming a promontory which runs out in a southern direction from the central ridge. The slate is of a grey colour: it is in strata nearly horizontal, but having a slight dip to the east; it increases in hardness near the junction. The granite, which is generally coarse and porphyritic from the large imbedded crystals of felspar, becomes here of a finer grain, with black mica, and light flesh-red felspar. On the north it laps over the schistus.

At this spot numerous granite veins, varying in width from about a foot to less than an inch, pass through the slate; the two principal veins proceed nearly east from the hill above, for more than fifty yards, until they are lost in the sea. One of these, not far from its first appearance, is divided and *heaved* several feet by a cross vein, consisting of quartz intermingled with slate; fragments of slate appear also in the granite veins. The most remarkable vein, after proceeding vertically for some distance, suddenly forms an angle, and continues in a direction nearly horizontal, having slate above and below. Now one of the theories advanced on this subject, supposes that ridges of granite were left, and the slate subsequently deposited on the sides, giving the appearance of veins: the facts I have stated seem utterly irreconcilable with such an idea, and seem only explicable on the notion of a formation of granite, secondary to, or contemporaneous with, the slate.

Slate occurs again beyond Lamorna Cove, and then granite, which forms the most western promontory at the Land's End, and continues nearly to Cape Cornwall. By descending to the sands on the west side of the Loggan Rock at low water, the porphyritic granite may be observed in great perfection; the surface being polished by the action of the waves, the form of the felspar appears distinct; here also are numerous granite veins which are probably

contemporaneous, being tortuous in their course, sometimes horizontal, and the walls indistinct and irregular: there are also many concretions of finer grained granite and schorl rock. These, which, on a slight view, might be taken for fragments, appear to be contemporaneous also; being often penetrated by large crystals of felspar proceeding from the granite mass.

Near Porth Just, a vein is worked for tin; and having been informed by Mr. Chinhalls, the agent, that there was a continual formation of stalactites in that vein, Dr. Davy and myself descended to a part of the mine under the sea, which had been closed for two years, and from which all the stalactites had been removed. We here found numerous stalactites of oxide of iron, some eighteen inches in length, of the diameter of about half an inch, and hollow. The water which percolates is salt to the taste.

The site of the 'Crown' Engine at Botal-lack, is a spot of great interest, as well from the curious nature of the rocks, as their singularly wild and picturesque appearance; the steam engine is on a rock at the foot of an immense precipice, over which the waves break in stormy weather, and the ore is partly drawn up the face of the precipice and partly carried by mules, by a path worked out on the brink. A vein of Garnet Rock runs in the slate, accompanied by thallite. The lowest rock is a compound of garnet, tourmaline, and axinite.

The cliff of Trewellard, at a short distance, contains the latter substance most abundantly, both amorphous and crystallized. It may be worthy of consideration how far the occurrence of garnet and axinite, which are usually found in primitive rocks, bears on the question of the antiquity of the killas of Cornwall, in which they occur.

The Scilly Islands consist almost entirely of granite, resembling that of the chain which runs through Devonshire and Cornwall, containing also veins of red granite. A beautiful variety occurs at the Lizard Point, Trescow Island, in which the felspar is of a pure white, and the mica crystallized in the primitive form. In the same island is a remarkable cavern, in the center of which is a pool of fresh water: the dimensions may be seen in the report of Mr. Tucker, proposing the formation of a break-water.

There is one part of the Island of St. Mary which I much wish should be visited by some geologist of eminence, as there appears, in my opinion, an undoubted case of stratified granite. It is at the eastern part of St. Mary's, near a small brook, where are to be found beds of a porphyry, consisting of a base of felspar, with crystals of quartz and felspar. These beds are stratified; they pass by slow gradations into true granite, which also is stratified, dipping north-west at an angle of about 45° .

A small quantity of tin was raised in St. Mary's about 20 years ago, but I saw nothing to render it probable that any large workings had taken place in more ancient times. The granite of Scilly is very liable to decomposition; this seems to be the cause which has formed the Druidical rock basins of some zealous antiquaries; if there be any doubt on this subject, it may be satisfied by observing, that many of these basins are situated vertically, according to the direction in which the storm proceeded. These islands are now undergoing that diminution which has already reduced them so much. At no great length of time, St. Mary's will probably be divided by the sea; and a channel formed through the low land, between the New Town and the S. E. side of the garrison. This might be prevented by throwing down masses of granite from a neighbouring hill to form a barrier against the sea: the object may be worthy of attention, as the sea in winter, with a high tide, has been known to pass over this land, and the effect of its forcing a channel there would be to divide the garrison from the rest of the island.