

Radiolarians and siliceous Sponge spicules. In some instances the pumice stones were completely coated with *Serpula*, *Polytrema*, and calcareous Algæ.

The ship passed between Pico and San Jorge, and on the 3rd obtained a dredging in 900 fathoms between Pico and San Miguel. The bottom was a Pteropod ooze, containing 52 per cent. of carbonate of lime, which consisted of Pteropods, Heteropods, Foraminifera, Coccoliths, Rhabdoliths, and fragments of Molluses and Echinoderms. The mineral particles were all of volcanic origin. The dredge contained a few Echinoderms, Annelids, Polyzoa, Hydrozoa, and Crustaceans.

It was noticed, during the time the ship was kept stationary, that the surface water ran to the westward in the forenoon and to the eastward in the afternoon. Now, on the 3rd it was high water at Fayal at 5.30 P.M., and consequently low water at 11.30 A.M., from which it would appear that the flood tide sets to the eastward and the ebb to the westward in the vicinity of the Azores.

On the 4th, at 6.40 P.M., the Challenger arrived at Ponta Delgada, the chief town of the island of San Miguel, and, there being no epidemic, remained there five days.

During the stay at San Miguel excursions were made to many parts of the island, but more especially to the Caldeira des Sette Cidades, or Cauldron of the Seven Cities, situated at the western, and the picturesque valley of the Furnas at the eastern, end of the island. The former is a marvellous hollow of enormous size, with two lakes at its bottom and a number of villages in it. One slowly climbs the mountains from the sea and suddenly looks down from the edge upon the lakes, 1500 feet below. On the flat bottom of the main crater, which is covered with verdure and cultivated fields, are several small secondary cones, the whole reminding one of the representation of a lunar volcano. One of the small craters has been so cut up by deep water-courses, that between them only a series of sharp radiating ridges is left standing, and it thus presents a very fantastic appearance.

The Furnas valley is a similar deep, nearly circular crater, in which there is a large lake, numerous boiling springs, and the Furnas village,—the fashionable watering place of San Miguel. Sir Wyville Thomson writes:—"The principal boiling springs are about half a mile from the village. Round them, over an area of perhaps a quarter of a mile square, there are scorched-looking heaps like those which one sees about an iron-work, only whitish usually, and often yellow from an incrustation of sulphur. Over the ground, among one's feet, little pools of water collect everywhere, and these are all boiling briskly. This boiling is due, however, chiefly to the escape of carbonic acid, and of vapour formed below, for the temperature, even of the hottest springs, does not seem to rise above 90° C. The largest of the springs is a well about twelve feet in diameter, enclosed within a circular wall. The water hisses up in a wide column nearly at the boiling point, bubbling in the centre to a height of a couple of feet, and sending up columns