

ate.* This mass was afterwards covered, in great part, by the matter ejected from the crater of a twin-island formed simultaneously, and called Black Island, consisting of brown trachyte. The trachytic lava which rose on this spot appears to have been a long time in an intumescent state, for the New Kaimeni was sometimes lowered on one side while it gained height on the other, and rocks rose up in the sea at different distances from the shore and then disappeared again. The eruption was renewed at intervals during the years 1711 and 1712, and at length a cone was piled up to the height of 330 feet above the level of the sea, its exterior slope forming an angle of 33° with the horizon, and the crater on its summit being 80 yards in diameter. In addition to the two points of subaërial eruption on the New and Little Kaimenis, two other cones, indicating the sites of submarine outbursts of unknown date, were discovered under water near the Kaimenis during the late survey.

In regard to the "White Island" which was described and visited by Goree in 1707, we are indebted to Mr. Edward Forbes for having in 1842 carefully investigated the layer of pumiceous ash of which it is constituted. He obtained from it many shells of marine genera, *Pectunculus*, *Area*, *Cardita*, *Trochus*, and others, both univalve and bivalve, all of recent Mediterranean species. They were in a fine state of preservation, the bivalves with the epidermis remaining, and valves closed, showing that they had been suddenly destroyed. Mr. Forbes, from his study of the habits of the mollusca living at different depths in the Mediterranean, was able to decide that such an assemblage of species could not have lived at a less depth than 220 feet, so that a bodily upheaval of the mass to that amount must have taken place in order to bring up this bed of ashes and shells to the level of the sea, and they now rise five or six feet above that level.†

We may compare this partial elevation of solid matter to the rise of a hardened crust of scoriæ such as is usually formed on the surface of lava-currents, even while they are in motion, and which, although stony and capable of supporting heavy weights, may be upraised without bursting by the intumescence of the melted matter below. That the upheaval was merely local is proved by the fact that the neighbouring Kaimenis did not participate in the movement, still less the three more distant or outer islands before mentioned. The history, therefore, of the Kaimenis shows that they have been the result of intermittent action, and it lends no support to the hypothesis of the sudden distension of horizontal beds blown up like a bladder by a single paroxysmal effort of expansive gases.

It will be seen by the accompanying map and sections that the Kaimenis are arranged in a linear direction, running N.E. and S.W., in a manner different from that represented in the older charts. In their longest diameter they form at their base a ridge nearly bisecting the gulf or crater (see sections, figs. 48, 49.).

* Phil. Trans. No. 332.

† E. Forbes, Brit. Association, Report for 1843.