

survey, to occur round a great part of these islands, attesting the recent progress of denudation. M. Virlet also remarks, in regard to the separation of the three islands forming the walls of the crater, that the channels between them are all to the W. and N. W., the quarter most exposed to the waves and currents.

Mr. Darwin, in his work on volcanic islands, has shown that in the Mauritius and in Santiago there is an external circle of basaltic rocks of vast diameter, in the interior of which more modern eruptions have taken place, the older rocks dipping away from the central space in every direction, as in the outer islands of Santorin. He refers the numerous breaches, some of them very wide in the external ramparts of those islands, to the denuding action of the sea. Every geologist, therefore, will be prepared to call in the aid of the same powerful cause, to account for the removal of a large part of the rocks which must once have occupied the interior space, in the same manner as they attribute the abstraction of matter from elliptical "valleys of elevation," such as those of Woolhope on the Wealden in England, to the waves and currents of the sea.

Thera, Therasia, and Aspronisi are all composed of volcanic matter, except the southern part of Thera, where Mount St. Elias rises to three times the height of the loftiest of the igneous rocks, reaching an elevation of 1887 feet above the sea.\* This mountain is formed of granular limestone and argillaceous schist, and must have been originally a submarine eminence in the bed of the Mediterranean, before the volcanic cone, one side of the base of which now abuts against it, was formed. The inclination, strike, and fractures of the calcareous and argillaceous strata of St. Elias have no relation to the great cone, but, according to M. Bory St. Vincent, have the same direction as those of the other isles of the Grecian Archipelago, namely, from N. N. W. to S. S. E. Each of the three islands, Thera, Therasia, and Aspronisi, is capped by an enormous mass of white tufaceous conglomerate, from forty to fifty feet thick, beneath which are beds of trachytic lava and tuff, having a gentle inclination of only 3° or 4°. Each bed is usually very narrow and discontinuous, the successive layers being moulded or dove-tailed, as M. Virlet expresses it, into the inequalities of the previously existing surface on which showers of cinders or streams of melted matter have been poured. Nothing, therefore, seems more evident than that we have in Santorin the basal remains of a great ruined cone, or flattened dome; and the absence of dikes in the cliffs surrounding the gulf would indicate that the eruptions took place originally as they have done in the last two thousand years, not near the margin but in the centre of the space now occupied by the gulf. The central portions of the dome have since been removed by engulfment, or denudation, or by both these causes.

An important fact is adduced by M. Virlet, to show that the gentle dip of the lava-streams in the three outer islands towards all points

\* Virlet, Bull. de la Soc. Géol. de France, tome iii. p. 103.