

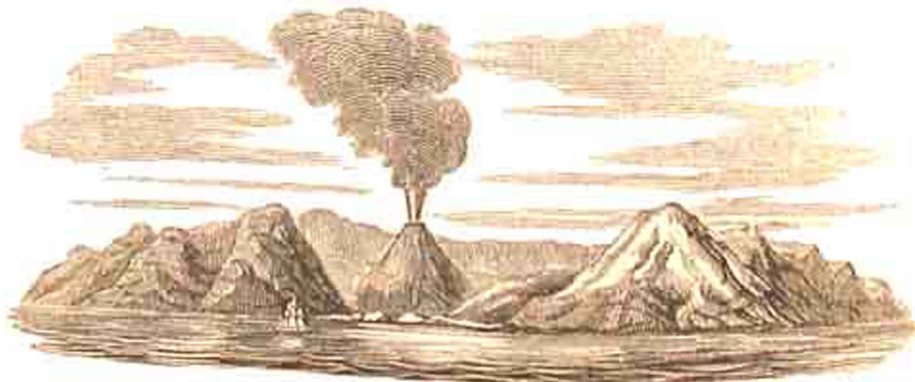
of the compass, away from the centre of the gulf, has not been due to the upheaval of horizontal beds, as conjectured by Von Buch, who had not visited Santorin.* The French geologist found that the vesicles or pores of the trachytic masses were lengthened out in the several directions in which they would have flowed if they had descended from the axis of a cone once occupying the centre of the crater. For it is well known that the bubbles of confined gas in a fluid in motion assume an oval form, and the direction of their longer axis coincides always with that of the stream.

On a review, therefore, of all the facts now brought to light respecting Santorin, I attribute the moderate slope of the beds in Thera and the other external islands to their having originally descended the inclined flanks of a large volcanic cone, the principal orifice or vents of eruption having been always situated where they are now, in or near the centre of the space occupied by the gulf or crater, in other words, where the outburst of the Kaimenis has been witnessed in historical times. The single long and deep opening into the crater is a feature common to all those remnants of ancient volcanos the central portions of which have been removed, and is probably connected with aqueous denudation. This denuding process has been the work of ages when the sea was admitted into an original crater, and has taken place during the gradual emergence of the island from the sea, or during various oscillations in its level.

The volcanic island of St. Paul in the midst of the Indian Ocean, lat. $38^{\circ} 44'$ S. long. $77^{\circ} 37'$ E., surveyed by Capt. Blackwood in 1842, seems to exemplify the first stage in the formation of such an archipelago as that of Santorin. We have there a crater one mile in diameter, surrounded by steep and lofty cliffs on every side save one, where the sea enters by a single passage nearly dry at low water. In the interior of the small circular bay or crater there is a depth of 30 fathoms or 180 feet. The surface of the island slopes away on all sides from the crest of the rocks encircling the crater.†

Barren Island. — There is great analogy between the structure of Barren Island in the Bay of Bengal, lat. $12^{\circ} 15'$, and that of San-

Fig 50.



Cone and Crater of Barren Island, in the Bay of Bengal. — Height of the central cone 1848 feet. (Von Buch.)

* Poggendorf's Annalen, 1836, p. 183.

† See Admiralty Chart, with views and sections, 1842.