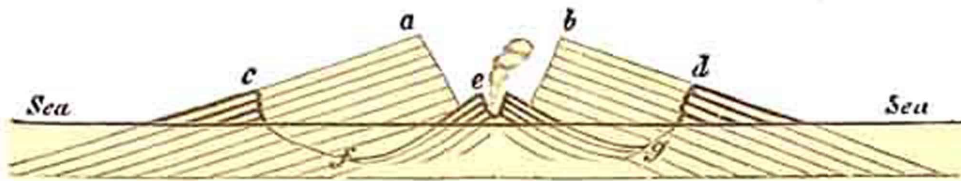


torin last described. When seen from the ocean, this island presents, on almost all sides, a surface of bare rocks, rising, with a moderate acclivity, towards the interior; but at one point there is a cleft, by which we can penetrate into the centre, and there discover that it is occupied by a great circular basin, filled by the waters of the sea, and bordered all around by steep rocks, in the midst of which rises a volcanic cone, very frequently in eruption. The summit of this cone is 1848 feet in height, corresponding to that of the circular border which incloses the basin; so that it can be seen from the sea only through the ravine. It is most probable that the exterior inclosure of Barren Island, *c, d* (fig. 51.) is nothing more than the remains of a trun-

Fig. 51.



Supposed section of Barren Island, in the Bay of Bengal.

cated cone, *c, a, b, d*, a great portion of which has been removed by engulfment, explosion, or denudation, which may have preceded the formation of the new interior cone *f, e, g*.

*Mineral composition of volcanic products.* — The mineral called felspar forms in general more than half of the mass of modern lavas. When it is in great excess, lavas are called trachytic: they consist generally of a base of compact felspar, in which crystals of glassy felspar are disseminated.\* When augite (or pyroxene) predominates, lavas are termed basaltic. But others of an intermediate composition occur, which from their colour have been called gray-stones. The abundance of quartz, forming distinct crystals or concretions, characterizes the granitic and other ancient rocks, now generally considered by geologists as of igneous origin: whereas that mineral is rarely exhibited in a separate form in recent lavas, although silica enters largely into their composition. Hornblende, so common in hypogene rocks, or those commonly called "primary," is rare in modern lava; nor does it enter largely into rocks of any age in which augite abounds. It should, however, be stated, that the experiments of M. Gustavus Rose have made it very questionable, whether the minerals called hornblende and augite can be separated as distinct species, as their different varieties seem to pass into each other, whether we consider the characters derived from their angles of crystallization, their chemical composition, or their specific gravity. The difference in form of the two substances may be explained by the different circumstances under which they have been produced; the form of hornblende being the result of slower cooling. Crystals of augite have been met with in the scoræ of furnaces, but never those of hornblende; and crystals of augite have been obtained by melting hornblende in a platina crucible; but hornblende itself has not been formed artificially.† Mica occurs

\* See Glossary.

† Bulletin de la Soc. Géol de France, tom. ii. p. 206.