

as a general phenomenon, apart from the appearance of visible eruptive rocks, and in such cases serves to unite local and regional metamorphism. In zones of contact-metamorphism round granite and other eruptive bosses many minerals have crystallized out in the altered limestone, such as tremolite, zoisite, and garnet.

One of the earliest described examples of this change is that at Rathlin Island, off the north coast of Ireland (Fig. 309). Two basalt dikes (20 and 35 feet thick respectively) ascend there through chalk, of which a band 20 feet thick separates them. Down the middle of this central chalk band runs a tortuous dike one foot thick. The chalk between the dikes and for some distance on either side has been altered into a finely granular marble.¹⁴ On the east side of the



Fig. 309.—Dikes of basalt (a a a) traversing chalk (b b), which near the dikes is converted into marble (c c), Rathlin Island, Antrim

great intrusive mass of Fair Head the chalk is likewise marmorized. Another smaller but interesting illustration of the same change occurs at Camps Quarry near Edinburgh.

The dull gray Burdie House limestone (Lower Carboniferous), full of valves of *Leperditia* and plants, has there been invaded by a basaltic dike, which, sending slender veins into the limestone, has inclosed portions of it. The limestone is found to have acquired the granular crystalline character of marble, each little granule of calcite having its own orientation of cleavage planes (Fig. 310).



Fig. 310.—Section of limestone (a) (Burdie House) converted into granular marble by basalt (b). Magnified 20 diameters.

Production of New Minerals.—One of the results of the intrusion of eruptive rock has been the development of

¹⁴ Conybeare, Trans. Geol. Soc. iii. p. 210 and plate X. One of the most remarkable examples of marmorosis is the alteration of the (Triassic) limestone of Carrara into the well-known statuary marble (see Part VIII. "Summary").