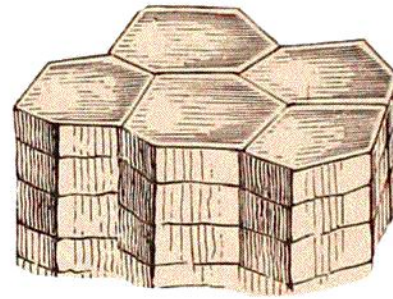


temperature 200° F., would have its upper surface elevated 10 feet; and that a portion of the earth's crust 50 miles thick, raised 600° F. to 800° F., might become elevated 1000 to 1500 feet. Cooling would tend to reverse the result.

(a) *Contraction from cooling in case of fusion* generally produces fractures at right angles to the cooling surfaces; and in this way, "basaltic" columns have been produced. Besides such transverse fractures, there frequently exist longitudinal fractures along the middle or sides of dikes due to transverse contraction; and transverse fractures of columns are very common.

One of the most noted localities of "basaltic columns" is that of the Giant's Causeway on the northern coast of Ireland. The columns (Fig. 217) are divided transversely and have usually the upper surface of each section slightly concave. In the columnar structure the form is often six-sided, but five to nine sides are common, owing to irregularities of texture and cooling.

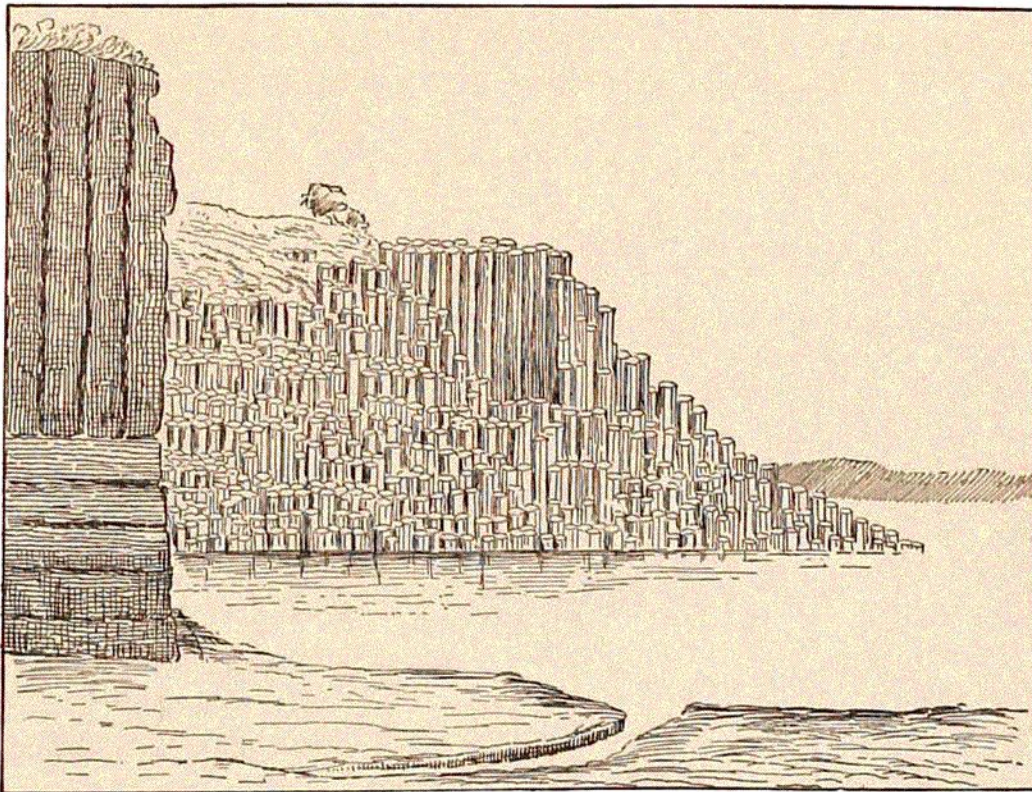


217.

Giant's Causeway.

Fig. 218 represents a scene from the coast of Illawarra, in southeastern Australia, in which there are columns of two outflows, the nearer less per-

218.



Basaltic columns, at Kiama, on the coast of Illawarra, New South Wales. D., Note-Book, '39.

fect in form resting on horizontal stratified rocks, the other a larger outflow in regular vertical columns five to eight feet in diameter.