

drous), and may then be more prone to further change. Anhydrite becomes, by addition of water, gypsum, the change being accompanied by an increase of bulk to the extent of about 33 per cent. Local uplifts of the ground and crumpling or fracture of rocks may sometimes be caused by the hydration of subterranean beds of anhydrite (p. 506). Many substances on oxidizing likewise become hydrous. The oxidation of ferrous oxide in damp air gives rise to hydrous ferric oxide, with its characteristic yellow and brown colors on weathered surfaces.

Weathering.—This term expresses the general result of all kinds of meteoric action upon the superficial parts of rocks. As these changes almost invariably lead to disintegration of the surface, the word weathering has come to be naturally associated in the mind with a loosened crumbling condition of stone. But the influence of the atmospheric agents is not invariably to destroy the coherence of the integral particles of rocks. In some cases, stones harden on exposure. Certain sandy rocks, for example, like the “gray-weathers” and scattered Tertiary blocks in the Ardennes, become under meteoric influence a kind of lustrous quartzite. In other cases, there may be more complex molecular rearrangements, such as those remarkable transformations to which Brewster first called attention in the case of artificial glass.⁵⁵ He showed that in thin films of decomposed glass, obtained from Nineveh and other ancient sites, concentric agate-like rings of devitrification are formed round isolated points, closely analogous to those above described as artificially produced by the action of heated alkaline waters (p. 526), and that groups of crystals or crystal-

⁵⁵ *Trans. Roy. Soc. Edin.* xxii. 607; xxiii. 193. See ante, p. 537.