

According to Tietze (1886), the *débris* in the sterile rainless mountain-territories of Persia is chiefly produced by the disintegrating influence of insolation. Again, in the region above the snow-line in mountain-chains, the accumulations of *débris* are attributable to the daily alternation of frost and warmth; but in most areas the strain is occasioned not so much by the rapid change of temperature as by the presence of water in the fine rock-fissures, and the pressure exerted during alternate freezing and evaporation of the water.

The geological effects of the wind are of importance. Neglecting here the disturbances caused by hurricanes, many striking phenomena have been traced to the influence of wind-borne sand or dust. As early as 1847, Naumann described polished and furrowed rocks near Hohburg, in Saxony, and erroneously ascribed the appearance to the action of ice. Heim in two papers, in 1870 and 1874, showed that the markings on the rocks had been produced by wind-swept grains of dust and sand. Similar wind scratches had been mentioned by Blake in 1855, and by Gilbert in 1874, from the western states of America. Zittel, Rolland, Walther, and others have reported how frequently one may observe wind-worn rocks in the Sahara with a polished glassy surface, dotted with cavities, or deeply scored and fluted.

Other phenomena of a more imposing nature in the great desert wastes and steppes owe their origin to the wind. In the Monument Park of Colorado, the numerous picturesque-looking rocky pillars with a narrow basis have been explained by Gilbert as remnants left by wind-weathering. The clouds of dust borne along by the wind attack chiefly the lower levels of the pillars, and reduce these so that the top-heavy upper portions are gradually undermined. Similar appearances in the Arabian desert have been described by Fraas, who called them "Fur-cap Rocks," on account of their characteristic form; Walther called them "Mushroom" rocks. More recently, "three-cornered" rocks in the dunes and steppes of Northern Europe, in the Rhone Valley, in the neighbourhood of Vienna, and other European localities, have been attributed to the work of the wind. In the Sahara, pillars or table-like eminences have been undercut by wind-borne dust and sand, and remain as "island rocks"—the so-called "gurs of the desert." Long-continued action of the wind may hollow out basin-shaped