

felt above ground as earthquakes. In subsiding to fill up hollows from which the rock has been removed in solution, the overlying strata may be greatly contorted and fractured, those underneath remaining undisturbed.

2. Mechanical Action.—In its passage along fissures and channels, underground water not merely dissolves and removes materials in solution, it likewise loosens finer particles and carries them along in mechanical suspension. This removal of material sometimes produces remarkable surface-changes along the sides of steep slopes or cliffs. A thin porous layer, such as loose sand or ill-compacted sandstone, lying between more impervious rocks, such as masses of clay or limestone, and sloping down from higher ground, so as to come out to the surface near the base of a line of abrupt cliff, serves as a channel for underground water which issues in springs or in a more general oozing at the foot of the declivity. Under these circumstances the support of the overlying mass of rock is apt to be loosened; for the water not only removes piecemeal the sandy layer on which that overlying mass rests, but, as it were, lubricates the rock underneath. Consequently, at intervals, portions of the upper rock break off and slide down into the valley or plain below. Such dislocations are known as *landslips*.¹⁰¹ The movement may be gradual, as in the case of the Bec

¹⁰¹ Baltzer, in his work "Ueber Bergstürze in den Alpen" (Zürich, 1875), classifies Swiss landslips into four categories, viz., 1st, Rock-falls (Felsstürze); 2d, Earth-slips (Erdschliffe); 3d, Mud-streams (Schlammströme), where soft strata saturated with water are crushed by the weight of overlying rock and move down in mass, like lava; 4th, Mixed falls (gemischte Stürze), where, as in most instances, rock, earth and mud are launched down the declivities. More recently he has offered another classification of landslips, according to the dimensions of the mass moved and the solid or muddy condition of the material, Neues Jahrb. 1880 (ii.), p. 198. See A. Rothpletz, Zeitsch. Deutsch. Geol. Ges. 1881, p. 540; also op. cit. 1882, pp. 430, 435. E. Buss and A. Heim, "Der Bergsturz von Elms," Zurich, 1881.