

kettles," characteristic of glaciated rock-surfaces in Sweden, Silesia, and Switzerland (p. 722), is another mark of the same process of erosion.

Ice-crumpled Rocks.—Not only has the general surface of the land been abraded by the ice-sheets, but here and there more yielding portions of the rocks have been broken off or bent back, or corrugated by the pressure of the advancing ice. Huge blocks 300 yards or more in length have been bodily displaced and launched forward on glacial detritus. Such are some of the enormous masses of chalk displaced and imbedded in the drift of the Cromer cliffs, and the transported sheets of Lincolnshire Oolite found in Leicestershire.⁶ The laminæ of shales or slates are observed to be pushed over or crumpled in the direction of ice-movement. Occasionally tongues of the glacial detritus which was simultaneously being pressed forward under the ice have been intruded into cracks in the strata, so as to resemble veins of eruptive rock.⁷

Detritus of the Ice-sheet—Boulder-clay--Till.—Underneath the great ice-sheet, and probably partly incorporated in the lower portions of the ice,⁸ there accumulated a mass of earthy, sandy, and stony matter (till, boulder-clay, "grundmoräne," "moraine-profonde," "older diluvium") which, pushed along and ground up, was the material wherewith the characteristic flowing outlines and

⁶ Mr. Fox Strangways has noticed one such sheet near Melton which measures at least 300 yards in length by 100 in breadth, but may extend beneath the boulder-clay to a greater distance. Report of Geological Survey of the United Kingdom, Science and Art Report for 1892, p. 249.

⁷ On the disruption of the Chalk below the Till of Cromer see O. Reid on Geology of Cromer, Mem. Geol. Surv. 1882. For analogous phenomena at Möns Klint, off the coast of Denmark, see Johnstrup, Zeit. Deutsch. Geol. Ges. xxvi. 1874, p. 533. Compare also H. Credner, op. cit. xxxii. 1880, p. 75. F. Wahnschaffe, op. cit. xxxiv. 1882, p. 562.

⁸ Brückner, Penck's Geographische Abhandl. Band I. Heft 1.