

direction *a b*.⁴⁵ Amorphous crystalline rocks (pegmatite, granite, diorite) have been so crushed as to acquire a schistose structure (see Fig. 256, and Book IV. Part V., Part VIII. § i. § ii.).

Another illustration of the effects of pressure in producing deformation in rocks, is supplied by the so-called "lignilites," "epsomites," or "stylolites." These are cylindrical or columnar bodies varying in length up to more than four inches, and in diameter up to two or more inches. The sides are longitudinally striated or grooved. Each column, usually with a conical or rounded cap of clay, beneath which a shell or other organism may frequently be detected, is placed at right angles to the bedding of the limestones, or calcareous shales through which it passes, and consists of the same material. This structure has been referred by Prof. Marsh to the difference between the resistance offered by the column under the shell, and by the surrounding matrix to superincumbent pressure. The striated surface in this view is a case of "slickensides." The same observer has suggested that the more complex structure known as "cone-in-cone" may be due to the action of pressure upon concretions in the course of formation.⁴⁶

The ingenious experiments of M. Tresca⁴⁷ on the flow of solids have thrown considerable light upon the internal deformations of rock-masses. He has proved that, even at ordinary atmospheric temperatures, solid resisting bodies

⁴⁵ See D. Sharpe, Q. J. Geol. Soc. iii. (1846), p. 75. W. Hopkins, Cambridge Phil. Trans. viii. (1847), p. 466. S. Haughton, Phil. Mag. (1856), xii. p. 409. O. Fisher, Geol. Mag. 1884, p. 399. Harker, Brit. Assoc. 1885, Reports, p. 824.

⁴⁶ Proc. American Assoc. Science, 1867. Gumbel, Zeitsch. Deutsch. Geol. Ges. xxxiv. p. 642.

⁴⁷ Comptes Rendus, 1864, p. 754; 1867, p. 809. Mem. Sav. Étrangers, xviii. p. 733; xx. p. 75. Inst. Mech. Engineers, June, 1867; June, 1878. See also W. C. Roberts-Austen, Proc. Roy. Institution, xi. (1886), p. 395.