

easily traceable are the slow pulsations of the crust, which in many cases are periodic, and may depend on such causes as the diurnal oscillation of the thermal or barometric conditions of the atmosphere, the rise and fall of the tides, etc. So numerous and well marked are these tremors and pulsations, that the delicate observations which were set on foot to determine the lunar disturbance of gravity had to be abandoned, for it was found that the minute movements sought for were wholly eclipsed by these earth tremors.<sup>170</sup>

The term Earthquake denotes any natural subterranean concussion, varying from such slight tremors as to be hardly perceptible up to severe shocks, by which houses are levelled, rocks dislocated, landslips precipitated, and many human lives destroyed. The phenomena are analogous to the shock communicated to the ground by explosions of mines or powder-works. They may be most intelligibly considered as wave-like undulations propagated through the solid crust of the earth. In Mr. Mallet's language, an earthquake may be defined as "the transit of a wave of elastic compression, or of a succession of these, in parallel or intersecting lines through the solid substance and surface of the disturbed country." Mr. Milne has since remarked that the disturbance may also be due to the transit of waves of elastic distortion. The passage of the wave of shock constitutes the real earthquake.

Besides the wave of shock transmitted through the solid

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<sup>170</sup> A. d'Abbadie, "Etudes sur la verticale," 1872. Plantamour, *Comptes rend.* June, 1878, February, 1881; *Archives Sciences Phys. Nat.* Geneva, ii. p. 641; v. p. 97; vii. p. 601; viii. p. 551; x. p. 616; xii. (1884), p. 388. G. H. Darwin, *Brit. Assoc.* 1882, p. 95. In this paper Prof. Darwin discusses the amount of disturbance of the vertical near the coasts of continents, caused by the rise and fall of the tide. J. Milne, *Trans. Seismological Soc. Japan*, vi. (1883), p. 1; *Geol. Mag.* 1882, p. 482; *Nature*, xxvi. p. 125. The numerous observations made by Rossi in Italy are summarized by G. Mercalli in his work cited above, p. 332.