

heat experienced by the crust and nucleus of the earth, occasioning ridges in the solid surface, local modifications of gravitation,* and, as a consequence of these alterations, in the curvature of a portion of the liquid element. According to the views generally adopted by geognosists in the present day, and which are supported by the observation of a series of well-attested facts, no less than by analogy with the most important volcanic phenomena, it would appear that the elevation of continents is actual, and not merely apparent or owing to the configuration of the upper surface of the sea. The merit of having advanced this view belongs to Leopold von Buch, who first made his opinions known to the scientific world in the narrative of his memorable *Travels through Norway and Sweden* in 1806 and 1807.† While the whole coast of Sweden and Finland, from Sölvitzborg, on the limits of Northern Scania, past Gefle to Tornea, and from Tornea to Abo, experiences a gradual rise of four feet in a century, the southern part of Sweden is, according to Neilson, undergoing a simultaneous depression.‡ The maximum of this elevating

* The opinion so implicitly entertained regarding the invariability of the force of gravity at any given point of the earth's surface, has in some degree been controverted by the gradual rise of large portions of the earth's surface. See Bessel, *Ueber Maas und Gewicht*, in Schumacher's *Jahrbuch für 1840*, s. 134.

† Th. ii. (1810), s. 389. See Hallström, in *Kongl. Vetenskaps-Academiens Handlingar* (Stockh.), 1823, p. 30; Lyell, in the *Philos. Trans.* for 1835; Blom (Amtmann in Budskerud), *Stat. Beschr. von Norwegen*, 1843, s. 89-116. If not before Von Buch's travels through Scandinavia, at any rate before their publication, Playfair, in 1802, in his illustrations of the Huttonian theory, § 393, and, according to Keilhau (*Om Landjordens Stigning in Norge*, in the *Nyt Magazine für Naturvidenskaberne*), and the Dane Jessen, even before the time of Playfair, had expressed the opinion that it was not the sea which was sinking, but the solid land of Sweden which was rising. Their ideas, however, were wholly unknown to our great geologist, and exerted no influence on the progress of physical geography. Jessen, in his work, *Kongeriget Norge fremstillet efter dets naturlige og borgerlige Tilstand*, Kjobenh., 1763, sought to explain the causes of the changes in the relative levels of the land and sea, basing his views on the early calculations of Celsius, Kalm, and Dalin. He broaches some confused ideas regarding the possibility of an internal growth of rocks, but finally declares himself in favor of an upheaval of the land by earthquakes, "although," he observes, "no such rising was apparent immediately after the earthquake of Egersund, yet the earthquake may have opened the way for other causes producing such an effect."

‡ See Berzelius, *Jahrsbericht über die Fortschritte der Physischen Wiss.*, No. 18, s. 686. The islands of Saltholm, opposite to Copenhagen, and Björnholm, however, rise but very little—Björnholm scarcely one foot in a century. See Forchhammer, in *Philos. Magazine*, 3d Series, vol. ii., p. 309