

do not extend beyond a vertical depth of somewhat more than 2000 feet (about one third of a geographical mile) below the

point) and the *relative depth* (or that beneath the level of the sea). The greatest relative depth that man has hitherto reached is probably the bore at the new salt-works at Minden, in Prussia: in June, 1844, it was exactly 1993 feet, the absolute depth being 2231 feet. The temperature of the water at the bottom was 91° F., which, assuming the mean temperature of the air at 49°·3, gives an augmentation of temperature of 1° for every 54 feet. The absolute depth of the Artesian well of Grenelle, near Paris, is only 1795 feet. According to the account of the missionary Imbert, the fire-springs, "Ho-tsing," of the Chinese, which are sunk to obtain [carbureted] hydrogen gas for salt-boiling, far exceed our Artesian springs in depth. In the Chinese province of Szü-tschuan these fire-springs are very commonly of the depth of more than 2000 feet; indeed, at Tseu-lieu-tsing (the place of continual flow) there is a Ho-tsing which, in the year 1812, was found to be 3197 feet deep. (Humboldt, *Asie Centrale*, t. ii., p. 521 and 525. *Annales de l'Association de la Propagation de la Foi*, 1829, No. 16, p. 369.)

The relative depth reached at Mount Massi, in Tuscany, south of Volterra, amounts, according to Matteuci, to only 1253 feet. The boring at the new salt-works near Minden is probably of about the same relative depth as the coal-mine at Apendale, near Newcastle-under-Lyme, in Staffordshire, where men work 725 yards below the surface of the earth. (Thomas Smith, *Miner's Guide*, 1836, p. 160.) Unfortunately, I do not know the exact height of its mouth above the level of the sea. The relative depth of the Monk-wearmouth mine, near Newcastle, is only 1496 feet. (Phillips, in the *Philos. Mag.*, vol. v., 1834, p. 446.) That of the Liege coal-mine, *l'Espérance*, at Seraing, is 1355 feet, according to M. von Dechen, the director; and the old mine of Marihaye, near Val-St.-Lambert, in the valley of the Maes, is, according to M. Gernaert, Ingénieur des Mines, 1233 feet in depth. The works of greatest absolute depth that have ever been formed are for the most part situated in such elevated plains or valleys that they either do not descend so low as the level of the sea, or at most reach very little below it. Thus the Eselschacht, at Kuttenberg, in Bohemia, a mine which can not now be worked, had the enormous absolute depth of 3778 feet. (Fr. A. Schmidt, *Berggesetze der öster Mon.*, abth. i., bd. i., s. xxxii.) Also, at St. Daniel and at Geish, on the Rörerbühel, in the *Landgericht* (or provincial district) of Kitzbühl, there were, in the sixteenth century, excavations of 3107 feet. The plans of the works of the Rörerbühel are still preserved. (See Joseph von Sperges, *Tyroler Bergwerksgeschichte*, s. 121. Compare, also, Humboldt, *Gutachten über Herantreibung des Meissner Stollens in die Freiburger Erzrevier*, printed in Herder, *über den jetzt begonnenen Erbstollen*, 1838, s. cxxiv.) We may presume that the knowledge of the extraordinary depth of the Rörerbühel reached England at an early period, for I find it remarked in Gilbert, *de Magnete*, that men have penetrated 2400 or even 3000 feet into the crust of the Earth. ("Exigua videtur terræ portio, quæ unquam hominibus spectanda emerget aut eruitur; cum profundius in ejus viscera, ultra fluorescentis extremitatis corruptellam, aut propter aquas in magnis fodin. tanquam per vevas scaturientes aut propter aeris salubrioris ad vitam operariorum sustinendam necessarij defectum, aut propter ingentes sumptus ad tantos labores exantlandos, multasque difficultates, ad profundiores partes penetrare