

"AIRY, B.G. (GEORGE BIDELE). - WEIGHTING THE EARTH.

Account of Pendulum Experiments undertaken in the Harton Colliery, for the purpose of determining the Mean Density of the Earth. Received December 26, 1855, - Read January 24 and 31, 1856. (+) Supplement to the "Account of Pendulum Experiments...." " " ...

Référence : 46373

(London, Taylor and Francis, 1856). 4to. No wrappers as extracted from "Philosophical Transactions" 1856 - Vol. 146 - Part I. Pp. 297-342 a. pp. 343-355. Clean and fine.

Commentaire : First printing of the paper in which Airy describes his remarkable experiments aiming at finding the density of the earth. His approach to the problem was to determine the differences of gravity at the top as well as at the bottom of a suitable deep mine. "One of the most remarkable of Airy's researches was his determination of the mean density of the Earth. In 1826, the idea occurred to him of attacking this problem by means of pendulum experiments at the top and bottom of a deep mine. His first attempt, made in the same year, at the Dolcoath mine in Cornwall, failed in consequence of an accident to one of the pendulums. A second attempt in 1828 was defeated by a flooding of the mine, and many years elapsed before another opportunity presented itself. The experiments eventually took place at the Harton pit near South Shields in 1854. Their immediate result was to show that gravity at the bottom of the mine exceeded that at the top by 1/19286 of its amount, the depth being 383 m (1,256 ft) From this he was led to the final value of Earth's specific density of 6.566.[This value, although considerably in excess of that previously found by different methods, was held by Airy, from the care and completeness with which the observations were carried out and discussed, to be "entitled to compete with the others on, at least, equal terms." (The currently accepted value for Earth's density is 5.5153 g/cm.). (Wikipedia).

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