

observations from Oct. 1822 to July 1838, by which means he ascertained that the ground has been and is sinking, at the average rate of about seven millimetres a year, or about one inch in four years; so that in 1838, fish were caught every day on that part of the pavement where, in 1807, there was never a drop of water in calm weather.*

By the excavations carried on in 1828, below the marble pavement of the temple, on which the columns stand, another costly pavement of mosaic was found, at the depth of about six feet below the other. The existence of these two pavements, at different levels, clearly implies some subsidence previously to all the changes already alluded to, which had rendered it necessary to construct a new floor at a higher level. From this fact, and from other analogous proofs, derived chiefly from the architectural investigations of Niccolini, we may infer that the soil forming the foundation of the Temple of Serapis has, in the course of the last nineteen centuries, undergone the following oscillations:—First, about eighty years before the Christian era, when the ancient mosaic pavement was constructed, it was about twelve feet *above* its actual level, or that at which it stood in 1838; secondly, towards the close of the first century after Christ, it was only six feet above its actual level; thirdly, by the end of the fourth century, it had nearly subsided to its present level; fourthly, in the middle ages, and before the eruption of Monte Nuovo, it was about nineteen feet *below* its present level; lastly, at the beginning of the present century, it was about two feet two inches above the level at which it stood in 1838.

Signor Niccolini has, indeed, embraced the opinion that it is the sea which has risen and fallen, which Signor Capocci has successfully controverted, appealing to many appearances which attest the local character of the movements of the adjoining country, besides the historical fact, that in 1538, when the sea retired permanently 200 yards from the ancient shore at Puzzuoli, there was no simultaneous retreat of the waters from Naples, Castelamare, and Ischia.†

Mr. Babbage had arrived, as I before stated, by perfectly independent evidence, drawn from ancient calcareous deposits of the hot spring within the area of the temple, and from marine deposits associated with the same, and from lines of water-level at various heights, to the conclusion, that the subsidence of the temple was gradual, and that it continued until the pavement was at least nineteen feet below the level of the sea.‡

Permanence of the ocean's level.—In concluding this subject, I may observe, that the interminable controversies to which the phenomena of the Bay of Baiæ gave rise, have sprung from an extreme

* *Tavola Metrica Chronologica*, &c. Napoli, 1838. More recently (1846), I learn from the Rev. Dr. Hamilton, of Mobile, and other travellers, that the water continues to gain on the temple and adjoining low coast. Mr. Smith, of Jordan Hill, writing in 1847, estimates

the rate of subsidence at *one inch* annually. *Quart. Journ. Geol. Soc.* vol. iii. p. 237.

† *Nuove Ricerche sul Temp. di Serap.*

‡ *Proceedings Geol. Soc.* vol. ii. p. 73.