

years submerged, they must have been upraised to the height of about twenty three feet above the level of the sea."

If we leave the ruins of the ancient temple, and turn our attention to the neighboring coast, the like evidence of upheaval, depression, and submergence of the land meets the eye. But still the ancient temple has a value of its own, which the cliff of Monte Barbaro and the low terrace of La Starza cannot supply. The rocky cliff, perforated by the *Lithodomi*, tells the same tale of former submergence as the pierced marble columns; but the rock, though inscribed with the same characters, cannot tell all that is revealed by the pillars of the ancient temple of Serapis. It is something of no slight importance to the geologist to ascertain that any great change in the relative levels of sea and land has taken place within the recent human era, and thus the temple columns establish at a glance. But if the date of the structure, and the uses of the edifice, can be established, far more accurate approximations may be made to a definite measurement of the period required for such geological phenomena as are there disclosed; and here it is that the scholar and the antiquary come to the aid of the scientific geologist; and from their combined labor a truth of great value, and with a mutual relation of peculiar significance, are deduced and rendered generally available.

Sir Edmund Head undertakes the solution of three questions, all of an antiquarian character, yet each of them possessing considerable importance in any discussion relating to the geological phenomena exhibited by the ruins of the so called Temple of Serapis at Pozzuoli. These are—

1st. Was it a temple of Serapis?

2nd. What is its proper age?

3rd. Can any light be thrown upon its history, or on the dates of the various changes of level?

To the first of these reference has been already made. Alexandria was the great seat of the worship of Serapis in its later Egyptian form; nor was his worship abolished in that famous commercial capital till the reign of Theodosius the Great,—the effective ally of orthodoxy against the Arian heresy,—when the ancient pagan rites were summarily abolished by Theophilus the archbishop of Alexandria, and the Alexandrian Temple of Serapis was demolished, or converted to the use of Christian devotees. The overthrow of the temple at Pozzuoli followed in like manner. "It served as a fortress when Olympius retreated to it, as the stronghold of paganism during those tumults, which led to the destruction of the temple itself under Theodosius."

Signor Carelli, who denies the sacred character of the ruined edifice, inclines rather to the idea of its having been public baths, but the Æsculapian attributes of Serapis render the bath room peculiarly compatible with the essential requisites or adjuncts of his temple; and on this subject Sir Edmund adduces some valuable evidence:

"At Pozzuoli a building of some sort occupied the centre of the area. Whether, as in Egypt, the image of the god was placed there, or behind the four columns to which the ruin owes its modern celebrity, may be uncertain. The lowness of situation must have deprived our temple of subterranean passages, and the underground arrangements so elaborately provided in the Egyptian model. The possession, however, of a natural hot spring just behind the temple must have made up for many disadvantages. No appendage could be more appropriate for the temple of a god who among his many attributes usurped those of Æsculapius.

"This warm spring, however, suggests another curious question with reference to a passage in Pausanias. After mentioning several cases of fresh springs in the sea, and the hot springs in the channel of the Meander, Pausanias proceeds as follows:—'Before Dicæarchia of the Tyreni (Pozzuoli) there is water boiling up in the sea, and for the sake of it an island made with hands, so that not even this water is wasted, but serves people for warm baths.'

"May not this spring be the very one now existing behind the Temple of Serapis?

"Had the hot spring of Pausanias originally discharged itself into the sea, it does not seem likely that it would have been used at all; but if its virtues had been long known to the inhabitants of Pozzuoli, and a gradual encroachment of the sea, or rather a depression of the land, deprived them of the benefit of the baths to which they had become accustomed, what could be more natural than that a small mound or island should be made by hand in the shallow water, in order that the baths might be again available?

"Pausanias does not indeed say that these baths were connected with a temple of Serapis, but this is immaterial.

"On this theory a number of curious questions present themselves.

"Which is the pavement of the building existing at the time of

Pausanias? What, relatively to the floor as now seen, was the level of the original building submerged in the sea? Is it represented by the mosaic pavement found five feet below the floor of the temple? If so, it would be important to examine the soil between the two pavements, and to ascertain whether it appears to warrant the supposition that it was a part of a mound constructed artificially."

Here accordingly we perceive that a new element comes in to complicate the question. Not only has the land, with the superimposed temple, been raised and depressed by natural causes, but the hand of man has also been working and counter working with nature; filling in and raising up when she depressed, as now digging down to ascertain her former operations. But on this also the researches of accurate scholarship can throw fresh light. Sir Edmund Head proceeds:

"It should be stated that, according to the general notion, mosaic pavements were not in common use at Rome before the time of Sylla—that is, about eighty years before Christ; but it does not follow that a mosaic pavement may not have been added after that date to a building existing before it: so that the mosaic pavement in question may have been part of the Temple of Serapis mentioned in the 'Lex Parieti faciundo.' Pausanias lived in the time of Adrian, as has been already stated, and, according to this view, the submergence of the first baths or temple, must have taken place between the time of Sylla and that date. We cannot, I presume, suppose that a mosaic pavement would be originally laid under water.

"The level below the water of the Mediterranean of the old mosaic pavement must correspond pretty accurately with that of the base of the columns of the submerged 'Temple of the Nymphs' in the neighboring bay. Did this submergence take place at the time of the great eruption of Vesuvius which over-whelmed Pompeii and Herculaneum, A. D. 79?

"Statius was born A. D. 61, and was therefore about nineteen at the time of the eruption of 79. As a native of Naples, he may be presumed to have been conversant with all the phenomena which then took place. His lines on the subject of the destruction of the cities are very striking:

Hæc ego Chalcidicus ad te, Marcellæ, sonabam
Littoribus, fractas ubi Vævius egerit iras,
Æmula Trinacriis volvens incendia flammis.
Mim fides! credetne virum ventura proago,
Cum segetes iterum, et jam hæc deserta virebunt.
Infra urbes, populosque premi? proavitaque toto
Rura abisse mari? necdum letale minari
Cessat apex—

"The latter part of this passage seems to me to mean 'lands tilled by our ancestors (proavita) have disappeared in the body of the sea' (toto mari). The commentator in the Variorum edition (Lugd. Bat. 1671) appears to understand the word 'proavita' as referring to the restoration of these districts hereafter 'proavita dicit respectu futuræ posteritatis'—which seems to me absurd. How were posterity to get the lands out of the sea again? Such is not the use of the word when applied to Hector:

Pugnantem pro se, proavitaque regna tuentem.

Orid. *Metamorph.*, xiii. 416.

"I infer from the expressions of Statius that considerable tracts of land had been sunk in the sea by some sudden depression of the ground.

"May not this have been the time when the temple of the Nymphs, and the first baths or temple of Serapis, were covered with shallow water? Is it not possible that between this convulsion and the time when Pausanias wrote, the inhabitants of Pozzuoli may have made the island in the sea, and have erected on it a second temple—the one of which the ruin still puzzles the geologist?"

Such are some of the ideas—disclosing the graceful union of science and scholarship by which both have been so materially benefited in modern times,—that reach us, towards the eve of a stormy session of our Canadian Parliament, from the pen of our Provincial Viceroy, and furnish a welcome example of relaxation amid the cares and responsibilities of Government, thus found among ourselves in the delightful seductions of scientific speculation and literary research.—*Canadian Journal of Science.*