

the sea, which shows a versatility not possessed by subaërial agents, and which can breach through and overcome almost any exception to its main mode of action. Many detached hills near escarpments appear to be *decapitated headlands*, and can be at once explained by the well-known tendency in the sea to enlarge bays laterally, until connecting passages are formed. D. MACKINTOSH.

TRIGNMOUTH.

P.S.—As the work of excavation for villas proceeds, the proofs of the marine denudation of the hills and valleys of the Torbay district assume a more and more demonstrative character. On this subject you will soon hear from me again.

GRAPTOLITES.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—I am sorry to have again to beg for a portion of your space, but I am unwilling to let pass, without brief comment, certain statements advanced by Mr. W. Carruthers in his letter on Graptolites in your last number (page 187).

I do not find it necessary to enter here into any further discussion, as to the nature, or connexions, of what I consider to be the ovarian capsules of the Graptolites. I am now in the possession of a large number of specimens, proving, as I think, conclusively, that there is, in some species, an actual organic connexion, and I trust shortly to publish the results of my investigations on this point.

As to the error, whereby Mr. Carruthers inserted the name of *D. Whitfieldii* for that of *D. marcidus*, I should be inclined to think that this change does not much improve his position, as *D. marcidus* does not seem to agree with *D. tricornis* in anything except the common character of possessing three processes at the base.

Mr. Carruthers appears not to be fully acquainted with the true nature of a "radicle," as defined by Hall, or, I think, he would not assert that *D. Whitfieldii* is provided with more than one. The two lateral spines, to which he alludes, are found in *D. pristis*, and in various other species, and are simply processes from the first two cellules on each side, and not "radicles" in any sense of the term. My statement, that *D. tricornis* possesses three "mucronate" radicles, was simply made in deference to Mr. Carruthers's figure of this Graptolite, where the nature of the lateral spines cannot be made out; and, also, on the supposition that he would not have chosen a specific name expressive of a character common to several species.

Mr. Carruthers still seems to think that the cellules in *D. pristis*, of Hisinger, are mucronate. My assertion to the contrary, if wrong, is at any rate supported by all the descriptions of this species to which I am able to refer. In neither the figures nor descriptions of Salter, Hall, M'Coy, Harkness, or Geinitz, is there any mention of anything of the nature of spines to the cellules of *D. pristis*. As Mr. Carruthers has simply repeated his statement, and has not seen fit to bring forward any proofs of its accuracy, he must permit me in

the meantime to adhere to the opinion I formerly expressed; since I am constrained to believe that the above-mentioned palæontologists must have had opportunities of studying this Graptolite as good as those enjoyed by Mr. Carruthers.

Finally, I am sorry that anything I have said should have led Mr. Carruthers to the belief that I wished in any way to dogmatize as to there being a connexion between the capsules and the Graptolites; and I should have thought I had stated with sufficient plainness that I considered that my views were as yet conjectural, and that Mr. Carruthers' opinions might "ultimately be proved to be correct." I am likewise sorry that I should need to recal to Mr. Carruthers' recollection, that the existence of capsules, "vertically compressed," does not rest simply upon my "ipse dixit;" but that Professor Harkness had seen my specimens, and had come to the same conclusions about them as I had. I am, Sir, etc.,

H. ALLEYNE NICHOLSON.

EDINBURGH, *April 13th*, 1867.

A WAVE OF VOLCANIC DISTURBANCE IN THE MEDITERRANEAN.

To the Editor of the GEOLOGICAL MAGAZINE.

SIR,—The accounts of Earthquakes, Volcanic Eruptions, etc., which have reached us from the Mediterranean coasts and islands, during the latter part of the past, and the earlier part of the present year, have been so numerous that they lead me to suspect that they are attributable to one common origin, and are the result of a plutonic agent which convulses the whole Mediterranean.

These disturbances seem to date from the eruption of the islands at Santorino last year. Professor D. T. Ansted was the first to point out the connection of this phenomenon with the eruptions of petroleum, which soon after took place at the sides of Mount Etna. Again, M. Mauget recently sent a paper to the Paris Academy of Sciences, stating that last July the wells and springs of Naples and the neighbourhood suddenly diminished their supply; whilst, by the injection of carbonic acid from the fissures diverging from Mount Vesuvius, the fish were poisoned. This year the earthquake at Algiers has been succeeded by the eruption of a "geyser;" i.e., a column of steam, fifteen or twenty yards high, has burst forth from an aperture three feet in diameter, near the sources of the Ain-Bada. Earthquakes at Cephalonia and Malta I mentioned in my last letter. A more fearful shock, killing thousands of persons, and submerging great part of the land, has been felt at Mytilene, on March 6th. This earthquake was even experienced as far as Constantinople and Smyrna. A volcanic eruption has occurred very lately at Pantellaria, between Sicily and Africa. Recent telegrams announce an earthquake at Naples. The ship "Sidon" announced that on March 7th, being seven miles off Mytilene, they experienced two shocks of a submarine earthquake.

Now does it not seem that all these phenomena point to a great wave of volcanic agency disturbing the Mediterranean, its coasts,