http://www.geology.19thcenturyscience.org/books/1859-Lyell-Elements/README.htm

and limestones in the upper part of that hill were introduced, like the dike, subsequently, by intrusion from below. They must have been thrown down like sediment from water, and can only have resulted from igneous action, which was going on contemporaneously with the deposition of the lacustrine strata.

The reader will bear in mind that this conclusion agrees well with the proofs, adverted to in the fifteenth chapter, of the abundance of silex, travertin, and gypsum precipitated when the upper lacustrine strata were formed; for these rocks are such as the waters of mineral and thermal springs might generate.

Cretaceous period. — Although we have no proof of volcanic rocks erupted in England during the deposition of the chalk and greensand, it would be an error to suppose that no theatres of igneous action existed in the cretaceous period. M. Virlet, in his account of the geology of the Morea, p. 205, has clearly shown that certain traps in Greece, called by him ophiolites, are of this date; as those, for example, which alternate conformably with cretaceous limestone and greensand between Kastri and Damala in the Morea. They consist in great part of diallage rocks and serpentine, and of an amygdaloid with calcareous kernels, and a base of serpentine.

In certain parts of the Morea, the age of these volcanic rocks is established by the following proofs; first, the lithographic limestones of the Cretaceous era are cut through by trap, and then a conglomerate occurs, at Nauplia and other places, containing in its calcareous cement many well-known fossils of the chalk and greensand, together with pebbles formed of rolled pieces of the same ophiolite, which appear in the dikes above alluded to.

Period of Oolite and Lias. — Although the green and serpentinous trap rocks of the Morea belong chiefly to the Cretaceous era, as before mentioned, yet it seems that some eruptions of similar rocks began during the Oolitic period;* and it is probable, that a large part of the trappean masses, called ophiolites in the Apennines, and associated with the limestone of that chain, are of corresponding age.

That some part of the volcanic rocks of the Hebrides, in our own country, originated contemporaneously with the Oolite which they traverse and overlie, has been ascertained by Prof. E. Forbes, in 1850. Some of the eruptions in Skye, for example, occurred at the close of the Middle and before the commencement of the Upper Oolitic Period.†

Trap of the New Red Sandstone period.—In the southern part of Devonshire, trappean rocks are associated with New Red Sandstone, and, according to Sir H. de la Beche, have not been intruded subsequently into the sandstone, but were produced by contemporaneous volcanic action. Some beds of grit, mingled with ordinary red marl, resemble sands ejected from a crater; and in the stratified conglomerates occurring near Tiverton are many angular fragments of trap porphyry, some of them

* Boblaye and Virlet, Morea, p. 23.

† Geol. Quart. Journ. 1851, vol. vii. p. 108.