

Adria was a seaport in the time of Augustus, and had, in ancient times, given its name to the gulf; it is now about twenty Italian miles inland. Ravenna was also a seaport, and is now about four miles from the main sea. Yet even before the practice of embankment was introduced, the alluvium of the Po advanced with rapidity on the Adriatic; for Spina, a very ancient city, originally built in the district of Ravenna, at the mouth of a great arm of the Po, was, so early as the commencement of our era, eleven miles distant from the sea.\*

The great bar or line of sand banks before alluded to, which divides the lagunes from the gulf, consists in part of materials carried into the sea by the rivers which the sea has cast back again towards the land. There are several bars running parallel to the coast, or in a N. and S. direction, to the southward of the great lagune of Comacchio. They mark the repeated displacement or successive seaward progress of the off-shore sand-banks.†

The greatest depth of the Adriatic, between Dalmatia and the mouths of the Po, is twenty-two fathoms; but a large part of the Gulf of Trieste and the Adriatic, opposite Venice, is less than twelve fathoms deep. Farther to the south, where it is less affected by the influx of great rivers, the gulf deepens considerably. Donati, after dredging the bottom, discovered the new deposits to consist partly of mud, and partly of rock, the rock being formed of calcareous matter, incrusting shells. He also ascertained, that particular species of testacea were grouped together in certain places, and were becoming slowly incorporated with the mud or calcareous precipitates.‡ Olivi, also, found some deposits of sand, and others of mud, extending half way across the gulf; and he states that their distribution along the bottom was evidently determined by the prevailing current.§ It is probable, therefore, that the finer sediment of all the rivers at the head of the Adriatic may be intermingled by the influence of the current; and all the central parts of the gulf may be considered as slowly filling up with horizontal deposits, similar to those of the Subappennine hills, and containing many of the same species of shells. The Po merely introduces at present fine sand and mud; for it carries no pebbles farther than the spot where it joins the Trebia, west of Piacenza. Near the northern borders of the basin, the Isonzo, Tagliamento, and many other streams, are forming immense beds of sand and some conglomerate; for here some high mountains of Alpine limestone approach within a few miles of the sea.

In the time of the Romans, the hot-baths of Monfalcone were on one of several islands of Alpine limestone, between which and the mainland, on the north, was a channel of the sea, about a mile

\* See Brocchi on the various writers on this subject. *Conch. Foss. Subap.* vol. i. p. 118.

† E. de Beaumont, *Gcol. Pratique*,

vol. i. p. 351. 355.

‡ Brocchi, *Conch. Foss. Subap.* vol. i. p. 39.

§ *Ibid.* vol. ii. p. 94.