

The range of mountains in Italy, called the Apennines, that rise in some parts to the height of from six to eight thousand feet, and extend north and south from the borders of Piedmont to Calabria, are accompanied, both on the Adriatic and Mediterranean flanks, by ranges of lower hills, which have, from their position, received the name of sub-Apennine. The sub-Apennine hills rise to the height of from one to two thousand feet; they are composed of tertiary beds of marl, sand, clay, and calcareous tufa, and abound in marine shells, many of which are identical with existing species in the Mediterranean sea, or with other existing species of tropical climates. It is observed that the upper beds contain the greatest proportion of species similar to what exist in the neighbouring seas. The sub-Apennine beds rest unconformably upon the inclined beds of the Apennine range. It has been ascertained by dredging the bed of the Adriatic sea, that there are beds now forming at the bottom, which closely resemble beds in the sub-Apennine hills, more than a thousand feet high. There can be no doubt that these sub-Apennine beds have once formed the bottom of an ancient sea, and have been raised to their present elevation by subterranean action. The occurrence of numerous volcanic vents, in the whole of that part of Italy, can leave little doubt respecting the agent by which this elevation has been effected.

In the third edition of this work; I had, on the authority of M. Brongniart, referred a great part of the sub-Apennine beds to the upper marine sandstone of the Paris basin, above the gypseous marl. Whether any portion of the sub-Apennine strata belong to the same epoch as the upper strata in the Paris basin, may be doubtful; but we may safely infer, both from their organic remains and position, that the superior sub-Apennine beds, belong to a far more recent epoch than that in which the tertiary strata round Paris and in England were deposited. Mr. Lyell, who has recently examined this interesting range of tertiary hills, and from whom geologists may expect much valuable information respecting them, has extended his researches into Sicily, where he found that "there were many places in which the extinct species had nearly disappeared; and that amid vast accumulations of marine shells, entering into the composition of mountains of no inconsiderable altitude, nearly all were specifically identical with those now inhabiting the adjoining sea." According to the principles of M. Deshayes, these Sicilian beds must be more recent than the sub-Apennine.

One thousand species of shells have been collected by Signor Guidotto from the sub-Apennine beds; and if the rules laid down by M. Deshayes, respecting this formation, can be relied upon, the greater number of the species of shells belong to existing species; and of these the *greater proportion* belong not only to existing species, but to species inhabiting the neighbouring sea. In Sicily, however, we approach much nearer to the present state of things, as *nearly all* the shells in the tertiary strata are identical with living spe-