

the state of marl, and are used as manure. This formation is characterised by containing, exclusively, freshwater and land shells, similar to what are found in the neighbouring marshes; they belong to a small number of genera or species, being chiefly lymnites, planorbes, turbinated shells, (allied to *cerithæa*,) cyclostomæ, and helices.

Having described the tertiary strata round Paris and London, I shall proceed to the tertiary strata in the Isle of Wight, which contain many beds that are wanting in the London strata. The formations of the north of France and of England, do not, as it was once imagined, compose the whole of the tertiary deposits, but only the lower and middle parts. A brief account of the tertiary formations, in other countries, will be subsequently given.

For the first accurate account of the tertiary strata in England, we are indebted to Mr. Webster, who published, in vol. ii. of the Transactions of the Geological Society of London, a description of these strata in the Isle of Wight, and their connection with the subjacent chalk. The chalk, covered by the London clay, passes under the channel, called the Solent, and rises in the middle of the island, forming a range of hills which extends from Culver Cliffs on the east, to the Needles on the west. Here we meet with a remarkable derangement of the beds of chalk, and of the superior strata; part of the strata of this range of hills from the western to the eastern side of the island are thrown into a position nearly vertical, evincing the action of a mighty disturbing force, which can be so often observed to have broken or upheaved the secondary and tertiary strata, in the vicinity of the Alps. Evidence of the same dislocation of the strata, extends from the Isle of Wight into Dorsetshire.

The whole thickness of the beds at Alum Bay, in the Isle of Wight, which are nearly vertical, comprising fourteen hundred and eighty one feet of strata above the chalk, about nine hundred and eighty seven feet of chalk, and five or six hundred feet of lower strata, is according to Mr. Webster's measurement, not less than three thousand feet. Farther south the strata under chalk are seen again in their original horizontal position; and on the northern side, there are hills composed of horizontal strata, evidently of a formation posterior to the time when the chalk strata were overturned. That the latter were once nearly horizontal, may be inferred from their generally occurring in that position in the southern counties, and this conclusion is rendered certain, from the following circumstance, described by Mr. Webster. In one of the vertical beds consisting of loose sand are several layers of flints, extending from the bottom to the top of the cliff. "These flints have been rounded by attrition, are from an inch to eight inches in diameter, and appear to have belonged to the chalk. Now it is inconceivable that these flints could have been originally deposited in their present position: they distinctly point out the former horizontal direction of this series. There are no