

CHAPTER XIV.

ON CHALK, AND THE SUBJACENT BEDS OF GREEN SAND.

Extent of the Chalk Formation.—Green Sand divided into lower and upper Green Sand by a Bed of Clay called Galt.—Chalk Marl.—Chalk, its Mineral Characters.—Change of Character in the Alps.—Flints in the upper Chalk.—On the formation of Flints.—Remarkable Organic Remains in Chalk.—Recent Discovery of Beds belonging to the Chalk Formation, in the United States of America.—On the Scaglia of the Alps supposed to represent Chalk.

THE well-known mineral, chalk, with its subjacent beds of green sand, comprises a formation or series of strata of great depth, which are spread over a large portion of the south-eastern and eastern counties of England, and are found covering a large extent of surface in the northern parts of France, preserving nearly the same characters as the English chalk. Similar beds are found in Germany and in the north of Europe; but on approaching the mountain ranges of the northern chain of Alps, the mineral characters of chalk undergo a considerable change. Scarcely a trace of chalk is found in any part of Scotland; but it occurs on the north coast of Ireland.

The animal remains in chalk and its subjacent green sand, are exclusively marine, proving that this great calcareous and arenaceous deposition, a thousand feet or more in thickness, was formed under the ocean.

Chalk is regarded as the last, or uppermost, of the secondary strata; and there is a marked difference between the organic remains in chalk, and those in the tertiary strata that in many situations cover it. The geological position of chalk is over the oolite formation; but we have seen, in the last chapter, that in the counties of Sussex and Kent, chalk and green sand rest immediately upon the freshwater beds of the Wealden; and in the western counties of England, where the oolite is wanting, chalk covers lias and red marl. The thick beds of green sand under chalk are regarded as constituting, with the chalk, one marine formation, as they contain many of the same genera of fossil remains, both in England and on the continent of Europe; and the lower beds of chalk or chalk marl, pass gradually into the green sand, by a close intermixture with it, and have, on account of their greenish or yellowish colour, been denominated *Glaucanie crayeuse* and *Craie chloritée*, by the French.

Green sand has received its English name from its intermixture with particles of green earth; it is very variable in its mineral characters, being sometimes found composed of loose siliceous sand; in other situations, it forms sandstone, cemented by calcareous earth; it abounds in siliceous concretions, which vary from an opaque bluish white chert or hornstone, to flint and chalcedony. The geodes