

found in the green sand near Sidmouth, are composed of opaque chert on the outside, and contain within, mammillated concretions of beautiful chalcedony, and occasionally perfect minute rock crystals. Some of the sandy concretions near Sidmouth have a beautiful green colour, which I found to proceed from green sulphate of iron.*

The total thickness of the green sand where it is fully developed, is more than 400 feet. The lower sand is generally ferruginous, and has been called iron sand, from the large quantity of oxide of iron disseminated through it; but the lowest beds often contain green particles like those in the upper green sand. The upper and lower green sand are, in many situations, separated by a "bed of stiff marl, varying from a light grey to a dark blue." According to Mr. Mantell, its greatest thickness in the south of Sussex is about 250 feet. This bed has been called the Folkstone Marl, but is more generally known by the provincial name of Galt. The marine shells, in which it abounds, are generally distinguished by their brilliant pearly lustre; they consist of ammonites, nautilites, a small species of belemnite, and various other shells.

The upper green sand is remarkable for the chalcedonic appearance of the flint or chert which it contains. This sand has been sometimes called fire stone, to distinguish it from the lower green sand. The green particles are composed chiefly of the protoxide of iron and siliceous matter, denominated by M. Berthier a silicate of iron. In some parts of the Savoy Alps, the beds analogous to green sand are of enormous thickness, and are nearly black, but contain many of the same fossils as the English green sand. From these beds I obtained hamites, scaphites, and various species of small echinites. The upper green sand, as before observed, becomes intermixed with an argillaceous and calcareous bed called chalk marl, which may be regarded as the lowest bed of the under chalk. It is of a darker colour than common chalk, but burns into useful grey lime.

Chalk.—In England and the northern parts of Europe, this rock is better known by its mineral characters than any other of the secondary strata. Its prevailing colour is nearly white; it has an earthy texture, and is generally so soft as to yield to the nail. These are, however, not the universal characters of chalk. The lower beds in Yorkshire are red, and the scaglia of the northern Alps, which is a mode of chalk, has also a red colour; in some parts of the Alps this rock is highly indurated, and resembles more, white statuary marble than English chalk. The greatest thickness of the chalk strata in England may be estimated at from 600 to 800 feet. The upper beds contain numerous nodules and short irregular veins of flint; the lower chalk contains fewer flints; it is, generally, hard-

* On the east of Sidmouth, immediately above the town, I observed green sand, intermixed with black particles which I ascertained to be the black oxide of manganese, as they gave a violet colour to glass when fused.