

and two marine, which were supposed to imply that the waters of the ocean, and of rivers and lakes, had been by turns admitted into and excluded from the same area. Investigations since made in the Hampshire and London basins have rather tended to confirm these views, at least so far as to show, that since the commencement of the Eocene period there have been great movements of the bed of the sea, and of the adjoining lands, and that the superposition of deep sea to shallow water deposits (the London clay, for example, to the Woolwich beds) can only be explained by referring to such movements. Nevertheless, it appears, from the researches of M. Constant Prevost, that some of the alternations and intermixtures of freshwater and marine deposits, in the Paris basin, may be accounted for by imagining both to have been simultaneously in progress, in the same bay of the same sea, or a gulf into which many rivers entered.

To enlarge on the numerous subdivisions of the Parisian strata, would lead me beyond my present limits; I shall therefore give some examples only of the most important formations enumerated in the foregoing Table, p. 222.

Beneath the Upper Eocene or "Upper marine sands," A, already spoken of (p. 194), we find, in the neighborhood of Paris, a series of white and green marls, with subordinate beds of gypsum, B. These are most largely developed in the central parts of the Paris basin, and, among other places, in the Hill of Montmartre, where its fossils were first studied by M. Cuvier.

The gypsum quarried there for the manufacture of plaster of Paris occurs as a granular crystalline rock, and, together with the associated marls, contains land and fluviatile shells, together with the bones and skeletons of birds and quadrupeds. Several land plants are also met with, among which are fine specimens of the fan-palm or palmetto tribe (*Flabellaria*). The remains also of freshwater fish, and of crocodiles and other reptiles, occur in the gypsum. The skeletons of mammalia are usually isolated, often entire, the most delicate extremities being preserved; as if the carcasses, clothed with their flesh and skin, had been floated down soon after death, and while they were still swoln by the gases generated by their first decomposition. The few accompanying shells are of those light kinds which frequently float on the surface of rivers, together with wood.

M. Prevost has therefore suggested that a river may have swept away the bodies of animals, and the plants which lived on its borders, or in the lakes which it traversed, and may have carried them down into the centre of the gulf into which flowed the waters impregnated with sulphate of lime. We know that the Fiume Salso in Sicily enters the sea so charged with various salts that the thirsty cattle refuse to drink of it. A stream of sulphureous water, as white as milk, descends into the sea from the volcanic mountain of Idienne on the east of Java; and a great body of hot water, charged with sulphuric acid, rushed down from the same volcano on one occasion, and inundated a large tract of country.