

having two pair of horns resembling those of antelopes. The number of species of the genus *Antelope* is also remarkable. In the same fauna appear many carnivorous beasts, often belonging to existing genera, and several species of monkey. Among the reptiles are crocodiles, some larger than any now living; and an enormous tortoise, *Testudo Atlas*, the curved shell of which measured twenty feet across.

CHAPTER XV.

UPPER EOCENE FORMATIONS.

(*Lower Miocene of many authors.*)

Preliminary remarks on classification, and on the line of separation between Eocene and Miocene strata—Whether the Limburg and contemporaneous formations should be called Upper Eocene—Limburg strata in Belgium—Strata of same age in North Germany—Mayence basin—Brown Coal of Germany—Upper Eocene of Hempstead Hill, Isle of Wight—Upper Eocene of France—Lacustrine strata of Auvergne—Indusial limestone—Freshwater strata of the Cantal—Its resemblance in some places to white chalk with flints—Proofs of gradual deposition—Upper Eocene of Bourdeaux, Aix-en-Provence, Malta, &c.—Upper Eocene of Nebraska, United States.

Preliminary remarks.—In the last chapter it was stated that as yet we know of no marine strata in the British Isles contemporaneous with the faluns of Touraine, or those shelly deposits of the valley of the Loire which I selected as the type of the Miocene period. There have, however, been recently discovered in the Isle of Wight certain fluvio-marine deposits, which many continental geologists would call “Lower Miocene,” the “faluns” being termed by them “Upper Miocene.” A few preliminary remarks on this difference of nomenclature, bearing as it does on questions involving the first principles of classification, will be necessary before I treat of the Upper Eocene formations.

The marine strata, which in the north of France come next in chronological order to the “faluns,” or which immediately precede them in age, are the sands and sandstones, called the “Grès de Fontainebleau,” or “sables marins supérieurs.” (See General Table, p. 104.) They constitute the uppermost beds of the Paris basin, and are overlaid by a freshwater limestone called “Calcaire de la Beauce.” The upper marine sands contain no fossil shells common to the faluns, or extremely few species; and no shells of living species, or, if so, they are about as scarce as in the Middle or typical Eocene groups. In consequence of this distinctness in the fossils, and for other reasons presently to be mentioned, I excluded these “upper sands” from the Miocene period in former editions of this work, availing myself of the hiatus between the Grès de Fontainebleau and the faluns to draw a line of separation between Eocene and Miocene.