

Le Mans, Aurillac, and Limagne. Brard covered a wider field of research, and added still further to the investigation of the fresh-water deposits and their fossils (*Annales du Muséum*, 1809, 1810).

The zoologist, De Férussac, made a special research of the molluscan species in the fresh-water limestone near Mainz, in Quercy, and in Spain. His publications in the *Memoirs of the Institute* (1812 and 1813) proved that of about eighty-five species nearly all had become extinct; a few, however, could be identified with species still living in distant neighbourhoods or indigenous to Central Europe. Férussac confirmed Brongniart in his opinion that the molluscan species could be used to determine the age of fresh-water deposits.

So much interest had been aroused in these Oligocene deposits that Omalius d'Halloy,¹ the Belgian geologist, made an examination of the series in Auvergne, Velay, and in parts of Italy and Germany, and in all cases proved conclusively that the fossil remains had been imbedded in the deposits of fresh-water marshes, and were not remains which had been accidentally swept into marine deposits.

The Belgian geologist supplemented the observations of Cuvier and Brongniart with great success. With unceasing diligence, he conducted geological tours on foot during ten years, and as a result he was enabled to produce a geological map of France and the adjoining territories of Belgium, Germany, and Switzerland. The map gave a faithful representation of the distribution of the leading geological formations. It was first published in 1822, on the scale of 1:4,000,000, and was in later years improved and incorporated in D'Halloy's *Text-book of Geology*.

Early in his career, D'Halloy had regarded the position of the strata, their horizontal, slightly or highly inclined, or vertical position, of great importance in determining the age of the strata. He thought the horizontal strata corresponded to Werner's "Flötz formations," and all inclined strata to

¹ Jean Baptiste Julien d'Omalius d'Halloy, born 1783 in Liège, the only son of a rich aristocratic family, came under the influence of Brongniart, Cuvier, Faujas, and Lamarck in Paris; he devoted himself from 1804 to 1814 wholly to the pursuit of geological researches in France, Belgium, and the neighbouring districts; in 1815 was appointed Governor of the Province of Namur; afterwards a Member of the Belgian Senate, and President of the Academy of Sciences in Brussels; died 1875.