

maps, and sections. The stratigraphical succession was slightly changed; eleven sub-divisions were recognised instead of nine, the millstone quartz in No. 8, and the marine oyster beds in No. 4, being erected into independent sub-divisions.

Upon the basis of their measurements of the thickness of individual deposits, Brongniart and Cuvier were able to arrive at definite conclusions regarding the configuration of the chalk surface before the deposition of the plastic clay. They demonstrated that the clay had been deposited upon an irregular surface of pre-Tertiary hills and valleys, and that, owing to the inequalities of the base of deposit, neither the clay nor the succeeding coarse limestone series extended over the whole area as connected layers. After the deposition of the coarse limestone, the sea withdrew, and the Paris area then became a fresh-water basin in which calcareous, gypsiferous, argillaceous and marly sediments successively accumulated. The gypsiferous strata were thickest in the middle of the basin, but neither they nor the fresh-water sediments were smooth layers. It was only when the sea once more had ingress and brought into the basin immense quantities of sand that an even surface of deposit was attained. Again the sea retreated, and the area became one of marshes and lakes in which the younger calcareous and siliceous deposits gathered; as the area continued to emerge the surface was eroded, and valley depressions and uplands took shape which were quite independent of the pre-Tertiary configuration.

The importance of this work for geology will be realised when it is remembered that with the exception of formations 1 and 9, all other formations in Brongniart and Cuvier's Table were unknown in Werner's system of the rock-succession (p. 58). Afterwards it was demonstrated that many of the fossils of the Paris basin agreed with the fossils in the deposits near Verona which Arduino had termed *Tertiary deposits*. And the series was then incorporated in the chronological succession of the rocks as the Tertiary formations.

This was also the first French work which adopted the method introduced by William Smith in England ten years previously, of determining the respective ages of the rocks by means of the fossils contained in them. And in this sense the work had a revolutionary effect on French geology.

In a later publication Brongniart extended his observations to the fresh-water deposits of other neighbourhoods—Orleans,