

molten mass in this way; granite, porphyry, trap, basalt, and similar rocks were pressed up by subterranean heat, but did not reach the surface; they were intercalated as subterranean eruptive masses partially between pre-existing sedimentary rocks, or they spread as extensive sheets of rock-magma on the ocean-floor. Notwithstanding the strong support given to Hutton's theory by his friends and adherents, Hall, Playfair, and Watt, the theory of the Scottish genius found little recognition in his life-time. The Plutonic doctrines were slow to plant their roots in geological literature, and it was not until the third decade of the nineteenth century that they were universally accepted.

*Palæontology.*—The first two decades of the nineteenth century, which were remarkable for the great advances in petrography, were less fruitful in the domain of palæontology. In Germany, the Wernerian school was almost wholly absorbed in the study of rocks, and the petrified remains of plants and animals were in a measure neglected. The splendid work of Walch and Knorr had been followed by Schröter's *Introduction to the Knowledge of Rocks and Fossils*, the value of which rested chiefly upon its bibliographical merits (1774-84).

The famous Göttingen zoologist, Blumenbach, published in 1803 and 1816 two short treatises on fossils. He sub-divided fossils into four groups: (1) Fossils identical with existing species still represented in the same localities where the fossil forms existed; (2) fossils identical with existing species, but not with those at present inhabiting the particular localities where the fossils occur; (3) fossils indicative of some great climatic change in the localities where they are found—*e.g.*, cave-lion, rhinoceros, etc., which resemble but are not identical with living species; (4) marine fossils belonging to extinct species, and showing that the earth was once covered by the ocean.

It seems surprising that such crude and superficial conceptions of fossil groups should have been formulated by a zoologist of the reputation of Blumenbach, yet such was his fame that his opinions received far more attention than they deserved.

Baron Ernst von Schlotheim (1764-1832) was one of the few adherents of Werner who devoted himself to the study of fossils. His first work, published at Gotha in 1804, was a