

tions, and his introduction of a number of new and precise terms for stratigraphical purposes, marked an advance in the study of the earth's crust scarcely less important than his masterly classification of the rocks according to their mineral constitution.

Unfortunately, Werner's field observations were limited to a small district, the Erz mountains and the neighbouring parts of Saxony and Bohemia. And his chronological scheme of formations was founded upon the mode of occurrence of the rocks within these narrow confines. To him in that rich mining district the minerals seemed all-important, and the occurrence of organic remains fell into insignificance. Again, he held strong convictions that the ores present in veins and layers had separated out from supersaturated aqueous solutions of the metals, and he sought to explain in a similar way the origin of the massive granitic and schistose kinds of rock. The Wernerian doctrine was all the more attractive as it seemed so simple. It taught that all the rocks of the crust, like the earth's body itself, had taken origin from aqueous solutions, either as chemical or as mechanical precipitates; while volcanic lavas and scorïæ represented rock-material that had been so precipitated but had subsequently been melted and ejected.

Werner was equally narrow in his ideas about the stratigraphical relationships of the rocks. As a fundamental principle he held that all varieties of rock had been deposited in the same horizontal or tilted positions as they now occupy. But strata inclined at an angle of more than 30° owed their high inclination to local disturbances, such as the collapse of crust-cavities, landslips, etc. These local inthrows and slips exerted little influence upon the connection of the strata as a whole; rather, the successive deposits enveloped the earth with the uniformity of the integuments of an onion.

Werner gave little credence to the opinions of Pallas and Saussure regarding the elevation of wide continental territories and the upheaval of mountain-chains. Like De Maillet and Buffon, he ascribed the inequalities of surface conformation exclusively to the erosive agency of water, more especially to the strong currents created during the retreat of sea-water after its periodic inundations of the land.

Similarly, with regard to the origin of basalt, he came into conflict with the results obtained by the leading authorities on