

plants; then amphibians appear, and finally, whole skeletons of terrestrial mammals and birds are imbedded in the sands and clays. "Accordingly fragmentary historical testimony of the beginnings and further stages of living organisms on the face of the earth has been indelibly preserved in the successive strata. It must be left to posterity, by means of the united observations and efforts of many enquirers, to solve the secrets of the earth's structure and read aright the sequence of organic remains interred in the crust" (vol. ii., p. 412).

The periodicity in the recurrence of certain physical conditions and the repetition of similar deposits were favourite themes with Ebel. He showed that the same varieties of rock occur repeatedly in the lateral zones of the Alps, and clearly represent deposits gathered during different geological epochs. Then he cited evidences, both from the central and lateral Alpine zones, of recurrent paroxysms of the crust; these, in his opinion, had been caused by the sudden transgression of the ocean over terrestrial areas and the consequent devastation of the land, erosion of valleys, and accumulation of fine and coarse mechanical deposits at the base of the mountains.

According to Ebel, the last and most violent inundations had advanced in a direction from south-west to north-east, and had transported the huge erratic blocks and the material of the nagelflue and other pebble deposits to the northern band of the Alps, and even as far as the North German plain.

This same idea of periodicity led Ebel further astray when he ventured into philosophical speculations. He compared the body of the earth with a voltaic pile in spherical form, in which a living element analogous with the electrical current not only called forth the plant and animal kingdoms, but also regulated the origin and arrangement of the minerals and rocks.

Such theoretical speculations were always kept apart from the descriptive portion of Ebel's work, and scarcely affected it, although they produced so unfavourable an impression that they caused his work to be undervalued by his contemporaries. At the same time, Ebel's work undoubtedly marks the high level of geological research as it was represented in the Alpine literature at the beginning of the century. Unfortunately, Ebel had no deep insight into stratigraphical details, and he lacked the genius to follow up the indications