

endogenous (granite, sienite, porphyry, greenstone, hypersthene, rock, euphotide, melaphyre, basalt, and phonolithe); sedimentary rocks (silurian schist, coal measures, limestone, travertino, infusorial deposit); metamorphosed rock, which contains also, together with the detritus of the rocks of eruption and sedimentary rocks, the remains of gneiss, mica schist, and more ancient metamorphic masses. Aggregate and sandstone formations. The phenomenon of contact explained by the artificial imitation of minerals. Effects of pressure and the various rapidity of cooling. Origin of granular or saccharoidal marble, silicification of schist into ribbon jasper. Metamorphosis of calcareous marl into micaceous schist through granite. Conversion of dolomite and granite into argillaceous schist, by contact with basaltic and doleritic rocks. Filling up of the veins from below. Processes of cementation in agglomerate structures. Friction conglomerates—p. 269 and note. Relative age of rocks, chronometry of the earth's crust. Fossiliferous strata. Relative age of organisms. Simplicity of the first vital forms. Dependence of physiological gradations on the age of the formations. Geognostic horizon, whose careful investigation may yield certain data regarding the identity or the relative age of formations, the periodic recurrence of certain strata, their parallelism, or their total suppression. Types of the sedimentary structures considered in their most simple and general characters; silurian and devonian formations (formerly known as rocks of transition); the lower trias (mountain limestone, coal measures, together with *todtliegende* and zechstein); the upper trias (bunter sandstone, muschelkalk, and keuper); Jura limestone (lias and oolite); freestone, lower and upper chalk, as the last of the flötz strata, which begin with mountain limestone; tertiary formations in three divisions, which are designated by granular limestone, lignite, and south Apennine gravel—p. 269-278.

The faunas and floras of an earlier world, and their relations to existing organisms. Colossal bones of antediluvian mammalia in the upper alluvium. Vegetation of an earlier world; monuments of the history of its vegetation. The points at which certain vegetable groups attain their maximum; cycadæ in the keuper and lias, and coniferæ in the bunter sandstone. Lignite and coal measures (amber-tree). Deposition of large masses of rock; doubts regarding their origin—p. 285 and note.

f. The knowledge of geognostic epochs—of the upheaval of mountain chains and elevated plateaux, by which lands are both formed and destroyed, leads, by an internal causal connection, to the distribution into solids and fluids, and to the peculiarities in the natural configuration of the earth's surface. Existing areal relations of the solid to the fluid differ considerably from those presented by the maps of the physical portion of a more ancient geography. Importance of the eruption of quartzose porphyry with reference to the then existing configuration of continental masses. Individual conformation in horizontal extension (relations of articulation) and in vertical elevation (hypsometrical views). Influence of the relations of the area of land and sea on the temperature, direction of the winds, abundance or scarcity of organic products, and on all meteorological processes collectively. Direction of the major axes of continental masses. Articulation and pyramidal termination toward the south. Series of peninsulas. Valley-like formation of the Atlantic Ocean. Forms which frequently recur—p. 285-293 and notes. Ramifications and systems of mountain chains, and the means of determining their relative ages. Attempts to determine the center of gravity of the volume of the lands upheaved above the level