

CONTENTS.

CHAPTER I.—*On the different Classes of Rocks.*

Geology defined—Successive formation of the earth's crust—Classification of rocks according to their origin and age—Aqueous rocks—Volcanic rocks—Plutonic rocks—Metamorphic rocks—The term primitive, why erroneously applied to the crystalline formations - - - - Page 1

CHAPTER II.—*Aqueous Rocks—Their Composition and Forms of Stratification.*

Mineral composition of strata—Arenaceous rocks—Argillaceous—Calcareous—Gypsum—Forms of stratification—Diagonal arrangement—Ripple-mark 10

CHAPTER III.—*Arrangement of Fossils in Strata—Freshwater and Marine.*

Limestones formed of corals and shells—Proofs of gradual increase of strata derived from fossils—Tripoli and semi-opal formed of infusoria—Chalk derived principally from organic bodies—Distinction of freshwater from marine formations—Alternation of marine and freshwater deposits - - - 21

CHAPTER IV.—*Consolidation of Strata and Petrification of Fossils.*

Chemical and mechanical deposits—Cementing together of particles—Concretionary nodules—Consolidating effects of pressure—Mineralization of organic remains—Impressions and casts how formed—Fossil wood—Source of lime and silex in solution - - - - - 33

CHAPTER V.—*Elevation of Strata above the Sea—Horizontal and Inclined Stratification.*

Position of marine strata, why referred to the rising up of the land, not to the going down of the sea—Upheaval of horizontal strata—Inclined and vertical stratification—Anticlinal and synclinal lines—Theory of folding by lateral movement—Creeps—Dip and strike—Structure of the Jura—Inverted position of disturbed strata—Unconformable stratification—Fractures of strata—Faults - - - - - 44

CHAPTER VI.—*Denudation.*

Denudation defined—Its amount equal to the entire mass of stratified deposits in the earth's crust—Levelled surface of countries in which great faults occur—Denuding power of the ocean—Origin of Valleys—Obliteration of sea-cliffs—Inland sea-cliffs and terraces - - - - - 66

CHAPTER VII.—*Alluvium.*

Alluvium described—Due to complicated causes—Of various ages—How distinguished from rocks *in situ*—River-terraces—Parallel roads of Glen Roy 79

CHAPTER VIII.—*Chronological Classification of Rocks.*

Aqueous, plutonic, volcanic, and metamorphic rocks, considered chronologically—Lehman's division into primitive and secondary—Werner's addition of a transition class—Neptunian theory—Hutton on igneous origin of granite—The name of "primary" for granite and the term "transition" why faulty—Chronological nomenclature adopted in this work, so far as regards primary, secondary, and tertiary periods - - - - - 89