CHAPTER IX .- On the different Ages of the Aqueous Rocks.

On the three tests of relative age—superposition, mineral character, and fossils—Change of mineral character and fossils in the same formation—Proofs that distinct species of animals and plants have lived at successive periods—Distinct provinces of indigenous species—Similar laws prevailed at successive geological periods—Test of age by included fragments—Frequent absence of strata of intervening periods—General Table of Fossiliferous strata

Page 96

CHAPTER X .- Classification of Tertiary Formations .- Post Pliocene Group.

General principles of classification of tertiary strata—Difficulties in determining their chronology—Increasing proportion of living species of shells in strata of newer origin—Terms Eocene, Miocene, and Pliocene—Post-Pliocene recent strata

Charger XI.—Newer Pliocene Period.—Boulder Formation.

Drift of Scandinavia, northern Germany, and Russia—Fundamental rocks polished, grooved, and scratched—Action of glaciers and icebergs—Fossil shells of glacial period—Drift of eastern Norfolk—Ancient glaciers of North Wales—Irish drift

CHAPTER XII.—Boulder Formation—continued.

Effects of intense cold in augmenting the quantity of alluvium—Analogy of erratics and scored rocks in North America, Europe, and Canada—Why organic remains so rare in northern drift—Many shells and some quadrupeds survived the glacial cold—Alps an independent centre of dispersion of erratics—Meteorite in Asiatic drift

CHAPTER XIII.—Newer Pliocene Strata and Cavern Deposits.

Pleistocene formations—Freshwater deposits in valley of Thames—In Norfolk cliffs—In Patagonia—Comparative longevity of species in the mammalia and testacea—Crag of Norwich—Newer Pliocene strata of Sicily—Osseous breccias and cavern-deposits—Sicily—Kirkdale—Australian cave-brecçias—Relationship of geographical provinces of living vertebrata and those of Pliocene species—Teeth of fossil quadrupeds

CHAPTER XIV .- Older Pliocene and Miocene Formations.

Red and Coralline crags of Suffolk—Fossils, and proportion of recent species—Depth of sea, and climate—Migration of many species of shells southwards during the glacial period—Antwerp crag—Subapennine beds—Miocene formations—Faluus of Touraine—Depth of sea and littoral character of fauna—Climate—Proportion of recent species of shells—Miocene strata of Bordeaux, Belgium, and North Germany—Older Pliocene and Miocene formations in the United States—Sewalik Hills in India

CHAPTER XV .- Upper Eccene Formations. (Lower Miccene of many authors.)

Remarks on classification, and on the line of separation between Eocene and Miocene—Whether the Limburg strata in Belgium should be called Upper Eocene—Strata of same age in North Germany—Mayence basin—Brown Coal of Germany—Upper Eocene of Isle of Wight—Of France—Lacustrine strata of Auvergne and the Cantal—Upper Eocene of Bordeaux, &c.—Of Nebraka, United States

CHAPTER XVI.-Middle and Lower Eocene Formations.

Middle Eocene strata of England—Fluvio-marine series in the Isle of Wight and Hampshire—Successive groups of Eocene Mammalia—Fossils of Barton Clay—Of the Bagshot and Bracklesham beds—Lower Eocene strata of England—London Clay proper—Strata of Kyson in Suffolk—Fossil monkey and opossum—Plastic clays and sands—Thanet sands—Middle and Lower Eocene formations of France—Nummulitic formations of Europe and Asia—Eocene strata at Claiborne, Alabama—Colossal cetacean—Orbitoid limestone—Burr stone