

CHAPTER IX.

ON UNCONFORMABLE TRAP ROCKS AND BASALTIC DYKES.

Different Positions of Trap Rocks, as overlying, imbedded, or intersecting other Rocks.... Varieties of Trap Rocks.... Porphyry, Porphyritic Trap, Sienite, Greenstone, Clinkstone, Basalt, Amygdaloid, and Wacke.... Passage by Gradation into each other, and into Volcanic and Granitic Rocks.... Remarkable Instance of this Passage at Christiania in Norway.... Mountains of Porphyritic Trap and Clinkstone with deep Craters.... High Stile, Cumberland; Cader Idris, Monmouthshire.... Basaltic Dykes: Extent of the Cleveland Basalt Dyke.... Isolated Caps of Basalt.... On interstratified Basalt.... Remarks of Professor Sedgwick on the Protrusion of Basalt between regular Strata.... On columnar Ranges of Basalt.... Organic Remains enveloped in Basalt.... Remarkable Basaltic Districts in Europe and America.... Experiments on Basalt.... Theory of Werner.... On the relative Age of Trap Rocks, - - - - - 127

CHAPTER X.

A RETROSPECTIVE VIEW OF CERTAIN GEOLOGICAL FACTS AND INFERENCES.—RELATIVE AGES OF MOUNTAIN RANGES.—PRELIMINARY OBSERVATIONS ON THE SECONDARY STRATA, - - - - - 150

CHAPTER XI.

TABULAR ARRANGEMENT OF SECONDARY STRATA.—RED SANDSTONE.—MAGNESIAN LIMESTONE.—ROCK SALT AND GYPSUM.

Relative Geological Position of the Secondary Class of Rocks.... Their Mineral and Zoological Characters.... Tabular Arrangement.... New Red Sandstone and Red Marl.... Upper, Middle, and Lower Beds, chiefly formed of the Fragments of more ancient Rocks, broken by some great Convulsion.... Lowest Red Sandstone, or Rothe-todte Liegende of the German Geologists.... Separated from the Middle Beds, by Beds of Magnesian Limestone.... Middle and Upper Beds of Red Sandstone and Marl; their Accordance with those of France and Germany.... Muschel Kalk wanting in England, but probably exists in Ireland, as the Lily Encrinite has recently been discovered there.... Magnesian Limestone of the Northern Counties.... English Red Marl and Sandstone formed of more ancient Rocks, particularly of Porphyry and Trap.... Gypsum accompanying Rock Salt originally Anhydrous.... Rock Salt Deposits, in different Formations, 157

CHAPTER XII.

ON THE LIAS AND OOLITIC SERIES.

Geological Position of Lias Clay and Limestone.... Their Mineral Characters.... Alum-Slate in Lias.... Remarkable Organic Remains and Characteristic Fossils.... Extent of the Lias Formation in England.... Interesting Junctions of Lias and Red Marl.... Lias of France and the Alps.... Oolite or Roestone, the Jura Limestone of Foreign Geologists.... Mineral Characters, and remarkable Organic Remains.... Lower Oolite.... Oxford or Clunch Clay.... Middle Oolites.... Kinmeridge Clay.... Upper or Portland Oolites.... Stonesfield Slate with Organic Remains of Insects, Birds, Flying Reptiles, and small Land Quadrupeds.... Extent of the Oolite Formation in England, and its abrupt Termination.... Sections of the Oolitic Series of Beds in Yorkshire and the West of England, compared with a Section of the Secondary Strata in Germany, - - - - - 178

CHAPTER XIII.

ON THE SUSSEX BEDS, OR WEALDEN, CONTAINING REMAINS OF LAND PLANTS, AND AMPHIBIOUS AND FRESH-WATER ANIMALS.

Extent of the Sussex Beds.... Their Geological Position and Mineral Characters.... Remarkable Organic Remains of enormous Lizards and Plants, analogous