

DESCRIPTION OF THE PLATES.

THE FRONTISPIECE is a bird's-eye view of the river that descends from the Falls of Niagara to where it issues from the channel which it has excavated, into the plain at Queens Town. The distant country extending to Lake Erie is introduced, to represent the physical structure of the country. See pp. 216, 217.

PLATE I.

Figs. 1, 2, 3, 4, 5, 6. Illustrations of plane and curved stratification. (See Chap. IV.)

PLATE II.

Fig. 1. Overlapping strata with straight edges.

Fig. 5. Overlapping strata with curved edges.

Fig. 2. Structure of a part of the Alps, representing the beds, nearly vertical, that approach the central range, and the bended stratification of the outer ranges. The dotted lines represent the supposed extension of the beds at the period of their elevation; *d d*, granite and mica-slate; *c c*, beds of soft slate; *b a, b a a*, beds of secondary limestone, sandstone, and conglomerate; *x y z* represent the arched stratification of the outer ranges.

Fig. 4. A section representing the arrangement of the rocks and strata at Charnwood Forest, in Leicestershire, from the manor of Whitwick, to near Barrow-on-Soar. In this section the proportions of distance are disregarded, in order to bring the different rock formations within the space of the plate. *a a a*, stratified red sandstone; *b b*, rocks of granite, sienite, and porphyry; *c c*, slate-rocks of Swithland quarry, the beds much elevated; *d d*, coal strata, rising towards the granitic and slate-rocks; *e*, lias, covering the red marl at Barrow: the elevated strata out of the line of section on the left hand side of the plate, represent limestone rocks of Clouds Hill and Bredon. It is obvious from this arrangement, that the strata of sandstone *a a a* were deposited upon the slate-rocks and granite, after the beds had been raised into their present position: whereas in fig. 2. the beds *a a* have evidently been deposited before the beds of granite in the Alps were elevated; and as these beds *a a, b a b*, are of more recent formation than the sandstone *a a* in fig. 4., their position proves decidedly, that the beds of granite in the Alps were elevated after the beds of granite and slate in Leicestershire. (See pp. 335, 336.)

Fig. 3. A granite vein in slate.

Fig. 6. The remaining portion of a thick bed of limestone, forming an isolated mass *b* on a mountain in Savoy. *a a*, the former extent of the bed; *c c*, a bed of soft sandstone.

PLATE III.

Fig. 1. The conformable position of rocks. *a*, granite; *b*, gneiss; *c*, mica-slate; *d d*, slate; *x x*, a subordinate bed of limestone in slate; *2*, a bed of conglomerate; *e e*, transition limestone and greywacke; *f f*, coal strata.

Fig. 2. *A*, unconformable massive rocks; a thick bed of porphyry or basalt *c c*, covering the transition rocks 1, 2, 3, and dykes of porphyry or basalt intersecting transition rocks.—N. B. The porphyry at Christiania, in Norway, occurs in this position; the lower part of it is amygdaloidal basalt; the middle part is porphyritic, which passes in the upper to beautiful sienite and common granite. (See page 131.) The rocks *B*, on the right represent the three modes of basalt; a columnar bed *d*, with a vertical dyke of basalt, and beds of interposed basalt; *b* is an isolated cap of columnar basalt.

Fig. 3. Unconformable strata of sandstone, covering coal strata on the side of the dip *B*, and on the side of the rise *D*. (See page 122.)

Fig. 4. A section of the strata near Dudley, Staffordshire. *A*, Wren's Nest Hill; the two beds of limestone are folded round the hill, as represented in the small compartment *B*, which is an horizontal section of the two beds of limestone *a, b*; the thirty feet bed of Staffordshire coal *c* is seen cropping