

## EXPLANATION OF THE PLATES.

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### PLATES I. & II.

Illustrate Mr. Phillips's paper on a Group of Slate Rocks between the rivers Lune and Wharfe.

#### PLATE I.

The sections contained in this Plate are fully explained in the paper, and in the description accompanying each.

#### PLATE II.

Geological Map of part of Craven, included between the rivers Lune and Wharfe : p. 5.

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### PLATE III.

Illustrates Professor Sedgwick and Mr. Murchison's paper on Arran : p. 24.

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### PLATES IV. V. VI. VII. VIII. IX. X. XI. XII.

Illustrate Professor Sedgwick's paper on the Magnesian Limestone, &c.

#### PLATE IV.

Nos. 1. 2. 3. & 4. Geological Maps showing the range of the formation through certain parts of Yorkshire : pp. 45. 53. 54. 93. &c.

*Figs.* 1. 2. 3. Sections showing great dislocations : pp. 113. 114. &c.

#### PLATE V.

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- Fig. 2.* Coast section from Tynemouth to Cullercoats in Northumberland : p. 62.  
*Fig. 3.* Section through the Eppleton, Hetton, and Ellemore coal-pits in the county of Durham : pp. 60. 61. 72. 73. 112.  
*Fig. 4.* A. B. Concretionary structure of the Magnesian Limestone : p. 97.

### PLATE VI.

- Fig. 1.* Fault traversing the cliff at Tynemouth : p. 62.  
*Figs. 2. 3. 4. 5. & 6.* Sections showing the occasional want of conformity between the lower red sandstone and the magnesian limestone : p. 74.  
*Figs. 2. 3.* Bramham Moor : pp. 73. 74. 111.  
*Figs. 4. 5.* Quarries west of North Deighton : p. 74.  
*Fig. 6.* Position of the magnesian limestone on the beds of the lower red sandstone in the left bank of the Nid below Knaresborough : p. 74.

### PLATE VII.

- Fig. 1.* Section at Clack's Heugh on the south bank of the Wear : pp. 71. 73.  
*Fig. 2.* Quarry at West Bolden : p. 78.  
*Fig. 3.* Concretions of crystalline limestone in the magnesian limestone quarry near Ripon : p. 89.  
*Fig. 4.* Cellular magnesian limestone resting on marl-slate near North-point, east of Durham : p. 79.  
*Fig. 5.* Masses of magnesian limestone on the coast of Durham, south of Castle Eden-dean : p. 91.  
*Fig. 6.* Junction of the upper beds of magnesian limestone with the marls of the new red sandstone near Knottingley : pp. 103. 105. 110.

### PLATE VIII.

- Fig. 1.* *Palæothrissum magnum* : pp. 77. 117.  
*Fig. 2.* Scales of ditto enlarged.  
*Fig. 3.* Fragment of a fossil fish ; species not ascertained : p. 117.  
*Fig. 4.* Scales of ditto enlarged.

### PLATE IX.

- Fig. 1.* *Palæothrissum elegans*, S. N. : p. 117.  
*Fig. 2.* *Palæothrissum macrocephalum* : p. 117.  
*Fig. 3.* Operculum of a large fish : p. 118.

### PLATE X.

- Fig. 1.* Fossil fish ; not determined : p. 118.  
*Figs. 2. 3.* represent a part of the scales enlarged : p. 118.

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### PLATE XI.

Fossil fish : p. 118.

### PLATE XII.

*Fig. 1.* Fossil fish ; genus not determined : p. 118.

*Fig. 2.* Inner part of the scales magnified.

*Fig. 3.* Fossil fish of the same genus with the preceding, but apparently of a different species.

*Fig. 4.* represents part of the scales magnified.

N.B. All the preceding fossils, commencing with Plate VIII., were found in the marl-slate of Midderidge and East Thicklely\*.

*Fig. 5.* Unknown coralline body.

*Fig. 6.* *Retepora virgulacea* : p. 120.

*Fig. 7.* Internal cast of an unknown Coralline.

*Fig. 8.* *Retepora flustracea* : p. 120.

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## PLATES XIII. XIV. XV. XVI. XVII.

Illustrate the memoir by Professor Sedgwick and Mr. Murchison on the Structure and Relations of the Deposits between the Primary Rocks and the Oolitic Series in the North of Scotland.

### PLATE XIII.

Sketch of a Geological Map of the North of Scotland. The object being simply to carry the eye to the range of the secondary deposits, no subdivisions have been attempted. Thus in the red colour are included all the primary formations mentioned in this memoir : the pale brown represents the new red sandstone and conglomerate, bituminous schist, coal measures, old red sandstone and conglomerate ; and the dark brown the lias, the oolitic series, and its subordinate coal beds, as described in the present volume : p. 125.

### PLATE XIV.

*Fig. 1.* Section from the north coast of Caithness : p. 132.

\* The two fossil fish figured in this Plate were found during the passage of the paper through the press, and only one of the specimens is alluded to above (p. 118). No generic and specific names are given to these imperfect specimens : but it may be observed that they do not belong to the genus *Chætodon*, or to the genus *Stromateus*. It may be proper to state, that a fossil fish of the genus *Palæothrissum* occurs abundantly in the coal formation of Saarbruck ; an additional fact to show the near connexion between the fossils of the magnesian limestone and those of the inferior formations. (See p. 99.)

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- Figs. 2. 5.* Sections from the Ord of Caithness and the Maiden Paps to the upper red sandstone of Dunnet Head : pp. 135. 141.  
*Fig. 3.* Section from Ben Wyvis to the North Sutor of Cromarty : pp. 145. 148. 149.  
*Fig. 4.* Section from the hills of Spey through the extreme point of Tarbet Ness to the granitic hills of Sutherland : p. 150, &c.  
*Fig. 5.* Section through the Maiden Paps and Scarabins : pp. 138. 139.

### PLATE XV.

- Figs. 1. 2. 3.* *Dipterus macropygopterus*. Of these fig. 1. is the most perfect specimen, showing a pointed anal fin prolonged nearly as far as the inferior lobe of the caudal fin : p. 143.  
*Fig. 2.* This specimen is represented with the belly upwards, and the double fin of the back downwards. (See the bend of the lateral line.)  
*Fig. 3.* In this the caudal fin is less clearly seen than in No. 1., although the generic and specific characters are not wanting.  
*Fig. 4.* The genus *Dipterus* restored in all its parts. (A sketch by the hand of Baron Cuvier.) : p. 142.

### PLATE XVI.

- Figs. 1. & 3.* *Dipterus Valenciennesii* : p. 143.  
*Fig. 2.* *Dipterus macrolepidotus* (young) : p. 143.  
*Figs. 4. & 5.* Fragments of *Dipterus macrolepidotus* : p. 143.  
*Fig. 6.* Fragment of *Trionyx* : p. 144.  
*Fig. 7.* Operculum of *Dipterus*.

### PLATE XVII.

- Figs. 1. 2. 3.* *Dipterus brachypygopterus* : p. 143.
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## PLATES XVIII. XIX. XX.

Illustrate Mr. De la Beche's paper on Tor and Babbacombe Bays.

### PLATE XVIII.

Contains a Geological Map of the coasts of Tor and Babbacombe Bays, and Sections.  
pp. 162. 163. 166. 169.

### PLATE XIX.

Examples of contorted carboniferous limestone near Torquay, showing that the curvature of the strata has been effected in all directions : p. 165.

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### PLATE XX.

An undescribed fossil from the carboniferous limestone in the vicinity of St. Mary Church, probably allied to the *Tunicata*: p. 164, note.

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## PLATES XXI. XXII. XXIII. XXIV.

Illustrate Mr. De la Beche's paper on Nice.

### PLATE XXI.

Geological Map of the environs of Nice, and of the coast thence to Vintimiglia. The dolomite and compact, light-coloured limestone are represented of one colour, as they are so intermingled that they could not be separated without rendering the Map confused. These rocks, together with the gypsum, are considered as an equivalent of some part of the oolite formation of England; but recent observations have shown that they may also be some modification of the great green sand series. As this point has not yet been cleared up, the original reference to the oolite formation has been retained: p. 175.

### PLATE XXII.

A general view of the coast of the Mediterranean as seen from Mont Moron near Nice: p. 171.

### PLATE XXIII.

Various sections, showing the relative positions of the compact limestone, dolomite with gypsum, the green sand, and the tertiary rocks.

*Fig. 1.* Section from the sea near Nice to Mont Revel.

*Fig. 2.* Section from the Var near Ste. Marguerite to St. Sauveur: p. 176.

*Fig. 3.* Section from the Fanal or light-house at the point of St. Hospice peninsula to Drap on the Paglion Torrent.

*Fig. 4.* Coast section from Roccabruna to the river Nervia, on the road from Vintimiglia to Genoa: p. 178.

### PLATE XXIV.

*Fig. 1.* Natural section of the contact of the sub-Apennine clay-marl and rolled-pebble-conglomerate in the valley of la Maddelaine (the conglomerate resting apparently unconformable upon the clay-marl). There are two or three exhibitions of the same nature in the neighbourhood. The more general character, at least on the

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points of contact of these rocks, is an interstratification and alternation of the one with the other : p. 176.

*Fig. 2.* Section of a cleft containing osseous breccia at the Castle Hill of Nice : p. 173.

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### PLATES XXV. XXVI.

Illustrate Captain Franklin's paper on the Geology of a Portion of Bundelcund, Boghelcund, and the districts of Saugor and Jubulpore.

#### PLATE XXV.

Geological Map of the Country : p. 191.

#### PLATE XXVI.

Section from Mirzapore to Jubulpore.

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### PLATE XXVII.

Illustrates Professor Buckland's paper on the Pterodactyle.

*Fig. 1.* Pterodactylus macronyx : p. 220—222.

*Fig. 2.* Extremities restored : p. 220.

*Fig. 3.* Jaw from the lias at Lyme Regis, supposed to be of a Pterodactyle : p. 220.

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### PLATES XXVIII. XXIX. XXX. XXXI.

Illustrate Professor Buckland's paper on Coprolites.

#### PLATE XXVIII.

*Figs. 1. to 9. inclusive.* Specimens of Sauro-coprus exhibiting the external spiral structure of these bodies : the number of folds varies in different specimens—compare them with the recent injected intestines, Plate XXXI. *figs. 19. 20. 21. 22.*

*Figs. 10. 11.* Longitudinal sections of Sauro-copri, exhibiting the cone-like structure of their interior similar to that of *fig. 8.* Plate XXXI., but the latter is in an inverted position.

*Fig. 12.* Transverse section of a Sauro-coprus, showing the spiral folding of the lamina of digested bone of which it is composed ; and also showing the transverse sections of fish-scales included in it.

*Figs. 1. 2. 4. 9.* show the transverse fracture at the upper end of the folded laminae of digested bone.

*Figs. 6. & 7.* show minute superficial impressions derived from the vessels of the intestines in which they were formed.

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- Figs. 8. & 9.* have large rugose impressions derived also from pressure of the intestines. Small fish-scales are seen on the surface of *figs. 6. & 9.*
- Fig. 4.* is black, and is the specimen which Dr. Prout's analysis shows to be coloured probably by *Sepia*.
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### PLATE XXIX.

- Fig. 1.* Large Coprolite, showing the transverse section at the upper end of its folded lamina, and containing fish-scales.
- Fig. 2.* Portion of a large Coprolite in the collection of Captain Waring, containing an undigested vertebra of *Ichthyosaurus* and fragments of other large bones.
- Fig. 3.* Opposite side of *fig. 2.* exhibiting the same vertebra, and two smaller ones.
- Fig. 4.* Part of the largest Coprolite yet discovered at Lyme, exhibiting vertebræ of *Ichthyosaurus* at its fractured surface.
- Fig. 5.* Portion broken from *fig. 4.* showing the same vertebræ, and the coracoid bone of an *Ichthyosaurus* imbedded in it: this bone has been transferred in the drawing to A, from its real place at B, on the other side of the specimen.
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### PLATE XXX.

- Figs. 1. to 12. inclusive,* are Coprolites from the lias at Lyme Regis.
- Fig. 1.* Sauro-coprus, containing rings, resembling the horny rings in the cups of the suckers of *Sepiæ*; it also shows the edge of the folded lamina.
- Fig. 2.* Sauro-coprus full of fish-scales, and at the point A containing a congeries of small rings resembling those at the extremity of the arm of a small *Sepia*.
- Fig. 3.* Magnified appearance of the rings at A. *fig. 2.*
- Fig. 4.* Coprolite full of fish-scales, and exhibiting no traces of folded structure.
- Fig. 5.* Amorphous Coprolite, thin and flattened; it appears to have been evacuated in a semi-fluid state before it was moulded to the usual shape in the intestines.
- Figs. 6. to 12. inclusive.* Small Coprolites from the lias at Lyme Regis, resembling many of those in the lias on the Severn; they are without spiral structure.
- Figs. 7. 10. 11. & 12.* have small fish-scales in them.
- Figs. 13. to 29. inclusive.* Coprolites from the bone bed in the lowest lias at Westbury-on-Severn, Aust Passage, and Blue Anchor near Watchet; they are mostly black, smooth, and glossy; and many of them have small round points (like those on urinary calculi) irregularly projecting from their surface, but they contain no uric acid; it is unknown from what animals they are derived; few of the forms here represented occur among the Coprolites at Lyme Regis.
- Figs. 17. & 18.* exhibit on their surface a convoluted structure.
- Fig. 19.* contains small scales and fragments of small bones: scales and bones are rare in the Coprolites from the Severn district.

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- Figs. 26. 27.* have the shape of tamarind stones, and a kind of case or epidermis, as if formed by secretion, round their margin.
- Fig. 28.* in shape resembles a kidney bean.
- Fig. 29.* seems to be a fragment of a broken sphere, and in shape resembles *fig. 30.*
- Fig. 30.* is a concretion of phosphate of lime from a human gall-bladder.
- Figs. 31. to 41. inclusive,* are small Coprolites of various shapes from the bone bed near the bottom of the carboniferous limestone at Clifton near Bristol.

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## PLATE XXXI.

- Figs. 1. to 7. inclusive.* Specimens of *Iulo-eido-coprus* from the chalk and chalk-marl of Sussex; the wavy lines and corrugations on their surface are apparently derived from the intestines in which they were formed. See the surface of the recent intestines, *figs. 20. & 21.*
- Figs. 9. 10. 11.* *Iulo-eido-copri*, from Maestricht, in the collection of Col. Houlton of Farley Castle.
- Figs. 2. & 11.* at their larger extremity show the edge of the thin winding plate, the coils of which around itself make up the body of the Coprolite.
- Fig. 6.* exhibits scales of fishes imbedded in the substance, and parallel to the surface of the lamina of digested bone. See a similar parallelism in the scales and lamina of *fig. 12. Plate XXVIII.*
- Fig. 8.* Longitudinal section of *fig. 7.* showing the conical arrangement of the interior, like that at *Plate XXVIII. figs. 10. 11.* but inverted.
- Fig. 11<sup>a</sup>.* Coprolite figured as an unknown fruit in Burtins' *Oryctogr. de Bruxelles*, Pl. V. G.
- Fig. 12.* *Amia-coprus* from the chalk near Lewes, found by Mr. Mantell within the skeleton of an *Amia*: p. 234.
- Fig. 13.* Coprolite from the chalk at Lewes; not yet ascertained from what animal.
- Fig. 14.* Coprolite purchased by Dr. Buckland in a collection of fossils from the Isle of Sheppey.
- Fig. 15.* Coprolite from the freshwater coal shale at Fuveau near Aix, in the collection of Mr. Murchison.
- Fig. 16.* Coprolite from the freshwater marl containing insects above the gypsum at Aix, in the collection of Mr. Murchison.
- Fig. 17.* Coprolite from the green sand of Wiltshire.
- Fig. 18.* Coprolite, from the sandstone of Tilgate Forest, in the collection of Mr. Mantell. See fish-scale on its surface.
- Figs. 19. 20. 21.* Intestines of Dog-Fish injected with Roman cement, showing spiral coils; and in *figs. 20. 21.* exhibiting vascular structure, as on the surface of *figs. 1. 4. 5. 9. 11.*
- Fig. 22.* Intestine of a Skate injected with Roman cement; the external coil marking the spiral fold of its interior.