

## EXPLANATION OF THE PLATES.

### PLATE XXV.

Fossil *Orthocera* from Thessalon Island, Lake Huron : page 198.

The three figures in this plate (drawn of the natural size) belong to the same species, and exhibit a remarkable structure in the siphuncle, which is large in proportion to the size of the shell, and is dilated between each of the septa. It contains within it a tube running throughout its whole length, diminishing towards the lower end of the shell, and having radii in verticillations connected with the sides between each enlarged portion of the siphuncle.

*Fig. 1.* shows the external form of the lower part of the shell ; and in the upper portion, the siphuncle laid open, and the verticillated radii distinctly separate from each other.

*Fig. 2.* represents the siphuncle laid open, but the radii have not been preserved in this specimen. The interior tube diminishes irregularly towards the smaller end, and seems to indicate that this part was formed of a substance which could be dilated or contracted. This figure is drawn in an inverted position.

*Fig. 3.* represents the form and size of the shell and siphuncle, with its internal tube. The radii are wanting in this specimen.

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### PLATE XXVI.

*Orthocera* from Lake Huron : page 196.

The figures in this plate exhibit varieties in the external form of the shells, and of the form and proportionate size of the siphuncle. There is also great difference in the size of the chambers as shown by the different distances between the septa. These differences are sometimes considerable in the same specimen, as in *figs. 3 & 8.*

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### PLATE XXVII.

Four views of the natural size, of a new species of Trilobite, named by Mr. Stokes, *Asaphus platycephalus*, from St. Joseph's Island, Lake Huron : p. 199. 208.

*Fig. 1. a.* Upper view of the anterior part, showing the position of the eyes, and the lines of the sutures ; which, as in all the species of this tribe, divide the shelly crust at the eyes, and pass in a curved line near to the anterior margin ; at the centre of this margin another suture joins the curved one, and passes round to the under side.

*Fig. 1. b.* Under view of the same. From the centre of the anterior margin, the straight suture above mentioned passes along the middle of this under side, till it meets another suture, where a plate, of the peculiar form represented in the figure, is attached. This plate of peculiar form has been detached at its suture

## EXPLANATION OF THE PLATES.

by compression. Its upper margin is rounded at each side, and its lower part has a deep tumulated indentation, which was evidently the entrance into the stomach. This is the part mentioned in page 208.

*Fig. 1. c.* Side view of the same, showing the remarkably flat form of the specimen, from which peculiarity the specific name has been taken. The shelly crust of the under side joins the upper at the sides. This is usually the case with trilobites in this anterior portion of the animal.

*Fig. 2.* Posterior part of the same species.

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## PLATE XXVIII.

Fossil corals of the genus *Huronia*, from Drummond Island, Lake Huron.

These corals are described in page 202.

- Fig. 1.* *Huronia Bigsbei*.  
2. ——— vertebralis.  
3. ——— turbinata.  
4. ——— obliqua.  
5. ——— spheroidalis.  
6. Section of *H. vertebralis*.

The generic character of these corals is thus described by Mr. Stokes, who has given them the above names :

Polyparium stony, forming a straight jointed column of single cells placed one over the other ; each joint having been in succession the habitation of the living individual. The remarkable peculiarity which establishes these corals as a particular genus is, that as a new generation arises, it forms its cell precisely over the preceding one, covering its upper surface] entirely, and lengthening the column of the coral by a new joint in a continuous line with those previously formed.

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## PLATE XXIX.

Fossil corals from Drummond Island, Lake Huron.

*Figs. 1, 2. a. 2. b.* represent a species of *Caryophyllia*, remarkable for the tubes proceeding from it, as described in page 203.

*Fig. 3.* Very small species of *Turbinolia*.

*Fig. 4.* A species remarkable for the arrangement of the plates in the centre.

*Fig. 5.* Another species of *Turbinolia*.

*Fig. 6.* A species of *Caryophyllia*.

## EXPLANATION OF THE PLATES.

### PLATE XXX.

*Figs. 1 & 2.* Two species of *Orthocera*, mentioned in page 204.

The other figures in this plate represent the columns of circular discs mentioned in page 204; but it has not yet been ascertained to what class of fossils they belong.

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### PLATE XXXI.

Map of Lake Huron.

For the authorities from which it is compiled, see p. 177 of this volume.

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### PLATE XXXII.

*Fig. 1.* represents a section passing from north-north-west to south-south-east, through Blaze Castle, the Bristol coal basin, and Downhead upon Mendip. In figures 1 A. 1 B. and 1 C., the line of section is partially changed.

*Fig. 2.* represents a section passing from north to south through Tortworth, the Bristol coal basin, and Lyal hill near Wells. In figures 2 A. and 2 B. the line of section is partially changed.

*Fig. 3.* represents a section passing nearly from north to south through Portishead, the Nailsea coal field, and Cheddar. In figures 3 A. 3 B. 3 C., the line of section is partially changed.

*Fig. 4.* represents a section passing from west to east through Henbury, the Bristol coal basin, and Wyck rocks near Bath.

*Fig. 5.* represents a section passing from north-west to south-east through Little Doward Hill, the coal basin of the Forest of Dean, and Blakeney Hill.

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### PLATE XXXIII.

*Fig. 1.* is a plan of the Clifton defile, from Rownham ferry to Hungroad.

*Fig. 2.* is a section of the strata on the north-eastern bank of the same defile, from Clifton to Sea-mills.

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### PLATE XXXIV.

*Fig. 1.* is an enlarged section of the southernmost part of the defile of Clifton, exhibiting the great fault which traverses it to the north of St. Vincent's rocks.

*Fig. 2.* represents a section passing north and south from Brecon to the Bristol Channel across the coal basin of South Wales.

*Fig. 3.* represents an enlarged section of the southernmost part of *fig. 2.*

## EXPLANATION OF THE PLATES.

### PLATE XXXV.

*Fig. 1.* represents the junction of the dolomitic conglomerate and old red sandstone on the left bank of the Avon opposite Sea-mills.

*Fig. 2.* represents the junction of the inferior oolite and mountain limestone, between Mells and Frome.

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### PLATE XXXVI.

*Figs. 1 & 2.* are sections of the pits marked A. B. and C., in the ground plan of Goodeave's colliery near Frome, drawn in the figure at the top of the plate.

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### PLATE XXXVII.

*Fig. 1.* represents a section of Aust cliff on the Severn, drawn along the line of the drift of the strata.

*Figs. 2 & 3.* are enlarged representations of the faults marked 1 and 2 in fig. 1.

*Fig. 4.* is a section of Aust cliff, drawn along the line of the dip of the strata.

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### PLATE XXXVIII.

Is a geological Map of the coal basins of Bristol and the Forest of Dean, and of the country bordering upon them.

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### PLATE XXXIX.

Map, Sketch, and Sections, in illustration of Mr. Weaver's paper on part of Gloucestershire and Somersetshire : pp. 318—368.

*Fig. 1.* Geological Map of the environs of Tortworth.

*Fig. 2.* A sketch of the north-western part of Cullimore's trap quarry : p. 334.

1. Stratified beds of sandstone, clay, marl, and limestone. 2. A mass of trap three feet thick. 3. A layer of sandstone, slate-clay, and other substances. 4. Trap four feet thick. 5. A layer analogous to No. 3. 6. Continuous trap.

Section 1.—On the line A B of the map.

Section 2.—On the line C D of the map.

Section 3.—On the line E F of the map.

Section 4.—From the Forest of Dean to the east of Huntley in Gloucestershire : p. 354.

## EXPLANATION OF THE PLATES.

Section 5.—From the river Parret, in Somersetshire, to the Avon near Bristol : p. 357.

A few objects which do not stand immediately in the line of this section, are projected upon it.

The small section beneath, represents, on the same scales, the position of the conglomerate &c. in the vicinity of Shipham, on a line parallel to that of section No. 5, and to the north-west of it : see p. 363.

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### PLATE XL.

- No. 1.* Inside view of the anterior portion of the lower jaw of the Megalosaurus on the right side. This drawing is of the actual size of the specimen.
- No. 2.* Transverse section of *No. 1*, showing the manner in which the tooth is lodged in the lower jaw.
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### PLATE XLI.

- Fig. 1.* is the same as Pl. XL., fig. 1., reduced to half the actual size.
- Fig. 2.* Outside view of *No. 1*.
- Fig. 3.* The same as *No. 2*, Pl. XL., reduced to half the actual size.
- Fig. 4.* A tooth, showing by the dotted lines the height to which the internal cavity rises.
- Fig. 5.* Upper portion of a nearly full grown tooth of the natural size ; its lower edges are very thin, and the root is not yet formed.
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### PLATE XLII.

- Fig. 1.* Five ankylosed vertebræ, including the sacral portion of the column.
- Fig. 2.* Single lumbar vertebra.
- Fig. 3.* Single caudal vertebra.
- Fig. 4.* View of the articulating surface of *No. 2*, much reduced in size. It has been a little distorted by pressure.
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### PLATE XLIII.

- Fig. 1.* Upper portion of a rib, showing it to have had a double head of articulation. Its transverse section is given at the two fractured parts *a* & *b*.
- Fig. 2.* Small false rib, showing the same double head of articulation as in fig. 1.
- Fig. 3.* Exterior view of the Os ilium.

## EXPLANATION OF THE PLATES.

*Fig. 4.* Os pubis of a very small individual. By the side of *fig. 4.* at *a*, is represented the transverse section of its flat extremity.

*Fig. 5.* Fragment of a bone, probably the ischium, extremely solid throughout.

*Fig. 6.* Fragment of a flat bone nearly two inches thick, probably part of a scapula.

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### PLATE XLIV.

*Figs. 1 & 2.* Two opposite views of the largest femur of *Megalosaurus* in the Oxford Museum.

*Figs. 3 & 4.* Two views of probably a clavicle of ditto.

*Fig. 5.* Portion of a long and slender bone, apparently a fibula.

*Fig. 6.* Posterior portion of a large bone, either of the Metacarpus or Metatarsus.

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### PLATE XLV.

Represents different portions of *Clathraria anomala* reduced.

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### PLATE XLVI.

Represents *Endogenites erosa* reduced, *Carpolithus* ( ) *Mantellii*, *Hymenopteris psilotoides*, and *Pecopteris reticulata*, of their natural size.

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### PLATE XLVII.

*Fig. 1. a and b.* *C. Mantellii* magnified to show the markings on its surface.

*Fig. 2.* *Hymenopteris psilotoides* magnified to show the decurrent membrane connecting the pinnæ.

*Fig. 3.* *Pecopteris reticulata*, a portion magnified to show the veins.

*Fig. 4. a.* A portion of the outer covering of *Clathraria anomala*, natural size.

*Fig. 4. b.* Inner portion of the same with a cicatrix.

*Fig. 4. c.* A termination of the same, and showing the imbrications of its surface.

*Fig. 4. d.* A portion of the same, showing the cellular body intervening between the external and internal body.

*Fig. 5. a.* A portion of the exterior of *Endogenites erosa* magnified.

*Fig. 5. b.* Transverse section of the same magnified.

## EXPLANATION OF THE PLATES.

### PLATE XLVII.

Represents the crag resting upon chalk, as it actually appears in Bramerton Cliff near Norwich.

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### PLATE XLVIII.

This plate contains a representation of a nearly perfect skeleton of the *Plesiosaurus dolichodeirus*, described page 381 of this volume. The drawing has been executed with extreme care by Mr. Webster. The several parts are described in the accompanying memoir.

The bones are entirely imbedded in a matrix of lias shale, which, though intersected in several places by lines of fracture, has evidently, from the mutual adaptation of the parts, formed one entire mass. Above 20 of the cervical vertebrae connected with the head, lie together unbroken.

We have omitted to state in the memoir, that a second unbroken specimen of the entire vertebral column, from the head to the tail, was found at the same time and place with the one here represented; and has been presented by Professor Buckland to the Museum at Oxford.

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### PLATE XLIX.

Restoration of the *Plesiosaurus dolichodeirus* and *Ichthyosaurus communis*.

*Fig. 1.* Skeleton of the *Plesiosaurus dolichodeirus* restored, on the authority of the specimen in the preceding plate; the humero-sternal portion being supplied from a specimen in the Oxford collection.

*Fig. 2.* The humero-sternal portion as above: see the description in the memoir.

*Fig. 3.* Sterno-costal arcs.

*Fig. 4.* The pelvis.

*Fig. 5.* The humero-sternal portion of the *Ichthyosaurus communis*, from two nearly perfect specimens in the Oxford collection, collated with a third belonging to H. T. De la Beche, Esq., all agreeing exactly together.

*Fig. 6.* Skeleton of the *Ichthyosaurus communis*, restored from a very perfect specimen in the collection of the Bristol Institution.